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FOR

Fort Monmouth

US Army Corps
of Engineers

U.S. ARMY ENGINEER DISTRICT, NORFOLK
CORPS OF ENGINEERS
NORFOLK, VIRGINIA

FINAL REPORT

Book 1 of 2

Prepared by

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LIMITED ENERGY STUDY EEAP PROGRAM

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

This report is a Limited Energy Study (Building 2700) for the Public Works Department at Fort Monmouth, Eatontown, New Jersey participating in the Energy Engineering Analysis Program (EEAP). This program supported by the U. S. Army Engineer District, Norfolk, is used to assist military installations in identifying energy usage and cost saving projects at their facilities and possibly provide funding for projects. Entech Engineering, Inc. was selected to perform this study.

1.2 Objectives

The objective of this contract is to address Building 2700's (Myer Center) Central Steam Boiler Plant and the HVAC systems in the building. The work associated with the boiler plant also entails limited study of Building's 2704, 2705, 2706, and 2715. Refer to the detailed statement of work and subsequent correspondence in Appendix 8.13, Book 2 of 2.

1.3 Report Organization

The report consists of two books, Book 1 contains the results of the site surveys, analysis, and project development. The following sections are contained within Book 1.

A. Section 2 - Methodology, describes in detail software and techniques used in the analysis.

B. Section 3 - Facility Description, contains tables summarizing building characteristics and components.

C. Section 4 - Building Histories, quantifies existing and historical energy costs for fuel oil, natural gas, and electricity.

D. Section 5 - Energy Calculations, contains calculation results of energy cost by building, systems, and components.

E. Section 6 - Energy Conservation Opportunities, presents analysis of energy saving projects.

F. Section 7 - Summary of ECO results.

Book 2 contains the Statement of Work and report backup data.

1.4 Facilities Description

Building 2700 is a large structure that encompasses approximately 700,000 gross square feet of floor area on four (4) floor levels, a partial basement floor level and a partial mezzanine level on the first floor. Activities within the building include research and development for electronics.

Building 2700 is supported by two boiler plants. The original central steam plant located in the basement also supports the buildings listed previously. Building 2706 located next to Building 2700 houses a new hot water boiler plant that supports a portion of the heating loads in Building 2700. An inventory of the buildings involved is shown in Table 1.4.1.

Building Inventory
Table 1.4.1

Building	Type	Floor (sf)
2700	Research & Development	700,000
2704	Research & Development	7,100
2705	Night Vision Lab	47,592
2706	Utility	5,000
2715	Storage	3,000

1.5 Energy Usage

The average energy usage in Building 2700 for 1994/1995 is shown in Table 1.5.1. The fuel costs for No. 6 Fuel Oil for 1994/1995 were $334,250. The estimated comparable natural gas costs for this period would have been $478,000. The electric costs for Building 2700 are estimated to be $1,444,000.

1994/1995 Average Energy Summary for Building 2700
Table 1.5.1

Energy	Energy Unit Total	mmBtu/ unit	Cost Total
No. 6 Fuel Oil ($0.69/gal)	484,420	67,670	$334,250
Natural Gas ($7.50/mcf) (see note)	63,720	65,695	$478,000
Electric Demand ($8.67/kW avg.)	38,389	131	$332,850
Electric Usage ($0.0682/kWh avg.)	16,290,145	55,600	$1,111,150

Note: Excluding the comparable costs for natural gas the total yearly energy costs for Building 2700 are estimated to be near $1,780,000.

1.6 Summary of ECO Results

The summary of results for the ECOs evaluated in this report are shown in Table 1.6.1

ECO #	ECO Description	Implementation C		
		Construction Cost	SIOH Cost	Desi Cos
1	Steam Decentralization, Base Case	$1,199,000	$67,000	$73,(
1A	New Steam Boilers in Building 2700			
1B	New Hot Water Boilers for Cleanroom	$1,229,000	$69,000	$74,(
1C	Operate Cleanrooms with MCA Hot Water			
1D	Electric Domestic Hot Water Generator			
1E	Decentralize Domestic Hot Water	$1,238,000	$69,000	$75,(
2	Building 2700 MCA System ±5°F Temp. Setback Control	$46,200	$2,500	$2,8
3	Reduce Building Infiltration	$86,000	$4,700	$5,3
4	Replace Existing Central Chillers	$258,900	$14,000	$16,(
5	Convert Specific Air Cooled Chillers to Water Cooled	$249,500	$14,000	$15,(
6	Free Cooling	$80,400	$4,000	$5,(
7	2-Speed Fan Operation	$26,600	$1,500	$1,6
8	Replace DHW Recirculation Pumps			
9	Automated MCA HW Temperature Reset	$12,500	$700	$8
10	Full Chilled Water Storage	$800,000	$44,000	$48,0
11	Partial Chilled Water Storage	$490,000	$27,000	$29,0
12	Variable Flow Primary-Secondary Chilled Water Dist.	$158,700	$8,700	$9,5

ECO Summary for Fort Monmouth
Table 1.6.1

	Implementation Costs				Annual Savings			
	Construction Cost	SIOH Cost	Design Cost	Total Cost	Gas mmBtu	Gas Cost	Electric mmBtu	Electric Cost
	$1,199,000	$67,000	$73,000	$1,339,000	36,685	$267,000	(67)	($1,08
				$0				
	$1,229,000	$69,000	$74,000	$1,372,000	37,525	$273,000	(119)	($2,98
ater				$0				
r				$0				
	$1,238,000	$69,000	$75,000	$1,382,000	39,235	$285,510	(984)	($19,661
ıp. Setback	$46,200	$2,500	$2,800	$51,500	623	$4,500	1,887	$34,20
	$86,000	$4,700	$5,300	$96,000	1,329	$9,700	(2)	$
	$258,900	$14,000	$16,000	$288,900			1,018	$25,06
› Water Cooled	$249,500	$14,000	$15,000	$278,500			274	$7,36
	$80,400	$4,000	$5,000	$89,400			183	$4,40
	$26,600	$1,500	$1,600	$29,700			141	$2,60
				$0				
et	$12,500	$700	$800	$14,000	351	$2,500		
	$800,000	$44,000	$48,000	$892,000			420	$36,20
	$490,000	$27,000	$29,000	$546,000			111	$14,90
ed Water Dist.	$158,700	$8,700	$9,500	$176,900			474	$9,20

Fort Monmouth
6.1

	Annual Savings						LCCID Payback	LCCID SIR
ost	Gas mmBtu	Gas Cost	Electric mmBtu	Electric Cost	$/mmBtu	Recurring Maintenance		
,000	36,685	$267,000	(67)	($1,089)	$16.25	$190,000	2.9	5.32
$0								
,000	37,525	$273,000	(119)	($2,989)	$25.12	$190,000	3.0	5.25
$0								
$0								
.000	39,235	$285,510	(984)	($19,661)	$19.98	$170,000	3.2	5.00
,500	623	$4,500	1,887	$34,200	$18.12		1.3	10.7
.000	1,329	$9,700	(2)	$0	$0.00		9.9	1.7
,900			1,018	$25,066	$24.62		11.5	1.2
.500			274	$7,367	$26.89		37.8	0.4
,400			183	$4,408	$24.09		20.3	0.7
.700			141	$2,600	$18.44		11.4	1.2
$0								
.000	351	$2,500					5.5	3.1
.000			420	$36,200	$86.19		24.6	0.6
.000			111	$14,900	$134.23		36.7	0.4
.900			474	$9,200	$19.41		19.2	0.7

1.7 Conclusion

The primary focus for this analysis was to determine the practicality of continued use of the central steam boiler plant in Building 2700. The findings reflect that with the new hot water boiler installation in Building 2706 supporting a large portion of Building 2700, the old centralized system is entirely too large and outdated to continue based on energy costs and maintenance and operation costs.

However, identifying cost effective Energy Conservation Opportunities associated with Building 2700's HVAC systems was limited. Two primary reasons were the part-time use of the central chiller system with the MCA 2-pipe heating and cooling system, and the large number of miscellaneous systems that support the remainder of this 700,000 square foot building.

In summary, only four (4) ECOs have been recommended for implementation out of the list identified in Table 1.6.1.

The ECOs were then categorized into one of the five types of projects. The five include:

1. Recommended ECIP
2. Recommended Non-ECIP O&M Projects
3. Recommended Non-ECIP LC/NC Projects
4. Recommended Non-ECIP General Projects
5. Non-feasible (listed as group in Section 7 only).

The criteria used to place the ECOs into these categories is detailed in Section 7. Of those, only one is considered to be eligible for ECIP designation.

That project ECO-1 (Base Case), decentralizes the central steam boiler plant by placing loads on the new hot water heating system, placing new boilers in areas/buildings that can not be supported by the hot water system, and provides new equipment for Building 2700's domestic hot water system, and where applicable in the cafeteria.

Recommend ECIP Projects
Table 1.7.1

ECO #	Description	Total Cost	Annual Energy Savings	Annual Maint. Savings	LCCID Payback	LCCID SIR	Energy Savings (mmBtu)
1	Steam Decentralization	$1,339,000	$265,911	$190,000	2.9	5.32	623 (Gas) 1,887 (Elec.)

Total Savings #455,911 2,510

The remaining three (3) recommended ECOs are Non-ECIP LC/NC (Low Cost/ No Cost) projects. All three have potential for savings, and improved control for the system/building operations. The three are listed below:

Recommend Non-ECIP LC/NC Projects
Table 1.7.2

ECO #	Description	Total Cost	Annual Energy Savings	Annual Maint. Savings	LCCID Payback	LCCID SIR	Energy Savings (mmBtu)
2	Bldg 2700 MCA System ±5° Temp. Setback Control	$51,500	$38,700	$0	1.3	10.70	36,685 (Gas) (67) (Elec.)
9	Automated MCA HW Temp. Reset	$14,000	$2,500	$0	5.5	3.10	351 (Gas)
3	Reduce Building Infiltration	$96,000	$9,700	$0	9.9	1.7	1,329 (Gas) (2) (Elec.)

Total #50,900 38,296

Note: Refer to Section 2.6.6 for an explanation about the LCCID program.

455,911
50,900
#506,811

2,510
38,296
40,806 MMBTU

The following is a suggested implementation approach for the recommended ECOs.

A. ECIP Project:

Budget $1.4 million for the steam centralization project (ECO-1). Budget additional funding as required to accommodate a specified amount of demolition of boiler plant equipment, piping, etc. Planning and scope development for the demolition work not required for project implementation has yet to be determined. The alternate selection of ECO-1 (Option B) would be made if hot water boilers are desired in lieu of steam for controlling Building 2700's cleanrooms.

B. Non-ECIP LC/NC Projects

Implement the Non-ECIP LC/NC Projects where possible. Details surrounding the implementation of ECO-3 (Infiltration Reduction) will require additional effort towards identifying a project scope and plan. That level of effort is beyond the limited energy study parameters. A detailed review of all the exhaust systems and their users would have to be completed before the implementation scope cost estimates and projected savings can be established for ECO-3. What we have presented here are the ECO figures to be considered prior to pursuing the project further as an energy saving opportunity.

On a final note, the decentralization of the central plant in Building 2700 not only will have significant savings, it should also improve the comfort and operations of the involved buildings and systems.

2.0 METHODOLOGY

2.1 General

The intention of this energy report is to assess the Myer Center's (Building 2700) current energy consumption and provide recommendations to improve energy efficiency. Entech has developed a thorough format which is adhered to during the development of an energy report. This format has permitted Entech to construct comprehensive reports in a smooth and timely process. Entech has employed the format in the preparation of over five-hundred (500) energy studies for commercial, industrial, and institutional clients.

The following is a listing of the components in Entech's methodology for completing energy studies:

1. Kickoff Meeting
2. Data Collection/Initial Review
3. Site Inspection
4. Model Existing Energy Characteristics
5. Energy Conservation Opportunities
6. Draft Report generation
7. Client Review
8. Final Report Generation

2.2 Kickoff Meeting

In order to initiate the process, Entech scheduled a kickoff meeting at Building 2700 on July 21, 1995. Entech was represented by Jeff Euclide and Matt Lloyd. Mr. James Kendall, Norfolk District Corp. of Engineers, and Mr. Kevin Dooney and Mr. William Van Sant, Ft. Monmouth represented the government.

The purpose of the meeting was to introduce both parties and explain the process Entech would follow during the study. In addition, the government's expectations were noted and incorporated into the project.

2.3 Data Collection/Initial Review

Prior to the first site inspection, Entech requested electric, oil and gas billing data for Building 2700. Entech reviewed data available to aid in determining the applicable incremental rate and where possible operating profiles for the building systems. In addition, Entech visited the site, reviewed existing drawing files, and copied certain building construction drawings for use in compiling data for this report.

2.4 Site Inspection

Entech performed site inspections of Building 2700 during the months of August through November 1995. During these visits, Entech observed and investigated the central utilities, and Building 2700 space usage and associated HVAC systems. In addition to the information gathered for Building 2700, Entech visited other buildings connected to the central boiler plant located in Building 2700.

Central Utilities: Entech visited the central boiler plant (Building 2700) and the central chilled water/heating water plant (Building 2706), recorded equipment information, and interviewed plant personnel relative to plant operations. Boiler logs were obtained to help establish a two year steam production history for the plant. Chiller logs were not available.

Building 2700 Space Usage: Each area was evaluated to determine the type of operating use such as office space, storage, electronics labs, miscellaneous labs, cleanrooms, etc. Sound and reasonable assumptions were made from these evaluations about the lighting consumption, non-HVAC (miscellaneous) equipment consumption, and ventilation and/or infiltration rates where applicable or evident from design drawings.

Areas were categorized into general types and recorded by floor to determine the total square footage of each type on each floor. This information will then be used to generate heating and cooling load models for Building 2700.

HVAC Systems: During the building survey of each floor, Entech investigated the associated heating, air conditioning and ventilation systems. Some areas were not accessible due to security clearance regulations. For the most part though, equipment sizes, horsepowers, etc., and corresponding heating and cooling load data were developed by evaluating both the air moving devices and the external support equipment; by reviewing building drawings and equipment lists; and by external inspection of areas through windows, doorways, etc. where not accessible.

Miscellaneous Buildings: Buildings 2704, 2705 and 2715 were visited to determine the connected steam requirements for each. Design drawings were acquired to aid in determining the individual building's portion of the central plant steam load.

Entech interviewed building personnel to obtain an accurate overview of building function and operation. A preliminary list of potential Energy Conservation Opportunities (ECOs) was developed during early site inspections. Upon completion of final inspections and after acquiring a better understanding of Building 2700 systems a list of ECO's was generated for evaluation.

2.5 Model Existing Energy Consumption

2.5.1 General

Once the site investigation phase is complete, Entech models the existing operation of energy users within the building. Entech uses in-house computer programs, purchased computer programs, and literature to assist in calculating current energy costs for HVAC equipment, miscellaneous equipment and lighting systems. The main computer models used to estimate energy use are as follows:

1. Steam Use Model
2. Heat Gain Model (Degree Day Method)
3. Heat Gain/Loss Model (EZDOE Method)
4. Electric Model

The standard abbreviations used in this report include the following:

Standard Abbreviations

Key	Description	Key	Description
Ave	Average	lbm	Pound Mass
Btu	British Thermal Unit	lbs	Pounds
Btuh	British Thermal Unit per Hour	lb/hr	Pounds per Hours
cfm	cubic feet per minute	mlbs	Thousand Pounds
°F	Degrees Fahrenheit	mcf	Thousand Cubic Feet
ft	Feet	min	Minute
gal	Gallon	mmBtu	Million British Thermal Unit (MBH)
hr	Hour	mo	Month
in	Inches	psig	Pounds per Square Inch Gauge
kW	Kilowatt	sf	Square Foot
kWh	Kilowatt Hour	yr	Year

2.5.2 Steam Use Model

Entech developed a model that examines how all of the steam produced at the boiler plant in Building 2700 is used. The steam produced is used for building heating, reheat, domestic hot water, and cafeteria use. The boiler plant uses a portion of the steam to preheat boiler feedwater. The remainder or residual of the energy consumed to produce steam is lost in the distribution system through leaks, the overheating of spaces, and as heat loss from the piping. Each of the steam uses will be examined in the energy model section of this report. Please refer to the energy models in Section 5 for more detail about the following steam uses.

Steam Uses

1. Space Heating
2. Reheat
3. Domestic Hot Water
4. Cafeteria Steam Use
5. Boiler Plant Steam Use
6. System/Distribution Losses

2.5.3 Heat Loss Model (Degree Day Method)

A building heat loss model, based upon the ASHRAE Degree Day Method, was developed for Building 2700. This computer model is one of the tools utilized by Entech to determine the heating usage and costs of a particular building. The model estimates the design heat loss in Btu/hr and also approximates energy usage and costs associated with space heating. In a building with high internal loads, like Building 2700, the estimated Heat Loss Model usage and cost figures will generally be higher (10-50%) than what is actually experienced. Whereas the design day demand predicted by this model is close (±10-20%) to the actual experienced.

A sample heat loss model is shown in Table 2.5.3.1 at the end of this sub section. The sample model is not particular to any building or area, rather it is only to be used as an example for methodology explanation. The building is divided into various heating zones that possess distinct characteristics. Wherever possible, the space or zone reflects the actual zoning of the heating system. The various areas are combined to give a total building model of space heating.

The model is divided into three sections as follows:

Exterior Data: The heat loss attributed to transmission losses through walls, windows, doors, and roofs. A U-value is calculated for each building element and is shown at the bottom of the page.

Ventilation/Infiltration: For the heat loss attributed to the ventilation system, wherever possible, building design data was used to calculate the amount of outside air (cfm) being brought in for ventilation. Infiltration was based on air change estimates based on the following building construction:

Tight	0.3	Air change/hr
Average	0.6	Air change/hr
Leaky	1.0	Air change/hr

In some cases where ventilation and infiltration are both contributing to a building or space load, the infiltration value will be adjusted to represent a reasonable amount of air passing through the building. The value used is shown at the bottom of Table 2.5.3.1.

Below Grade: The heat loss through the floor and any underground walls. The average ground temperature is assumed to be 50°F.

Each zone has three lines of information. The first line is the input data used such as wall areas, window area, etc. The second line is the calculated design heat loss (in Btu/hr) based upon the input data. This number represents the amount of heat loss during the design condition of 10°F outside temperature.

For example, in Table 2.5.3.1, the window area in zone 1 is 360 sf. The associated heat loss through the window is therefore, 12,276 Btu/hr and is calculated as follows.

$$Heat\ Loss = 360\ sf \times 0.55\ \frac{Btu}{sf \cdot °F \cdot hr} \times (72°F - 10°F)$$

The third line is the estimated energy cost for the year based on the heating degree day formula. This procedure is based on Chapter 28 of the 1993 ASHRAE Fundamentals Handbook. In our example, using the zone 1 windows, the annual energy cost associated with transmission losses through the windows is $97 per year using No. 2 fuel oil.

$$Cost = \frac{\left(HeatLoss \times hdd \times 24\frac{hr}{day} \right)}{\left((outtemp - intemp) \times 1{,}000{,}000\ \frac{Btu}{mmBtu} \right)} \times \frac{\$}{mmBtu} \times C_D$$

$$Cost = \frac{\left(12{,}276\ \frac{Btu}{hr} \times 5{,}034 hdd \times 24\frac{hr}{day} \right)}{\left((72°F - 10°F) \times 1{,}000{,}000\frac{Btu}{mmBtu} \right)} \times \frac{\$6.55}{mmBtu} \times 0.62$$

C_D is an empirical correction factor for heating effect versus 72°F degree days found in the ASHRAE Fundamental Handbook.

Sample Heat Loss Model (Degree Days)
Table 2.5.3.1
Ft. Monmouth, Myer Center - Bldg. 2700

		EXTERIOR DATA							VENTILATION, INFILTRATION INTERIOR DATA					BELOW GRADE			TOTAL
SPACE NAME		WALL HEIGHT FT	WALL LENGTH FT	WINDOW AREA SQ FT	DOOR AREA SQ FT	WALL AREA SQ FT	WALL U FAC	ROOF AREA SQ FT	CEILING HEIGHT FT	FLOOR AREA SQ FT	SPACE VOLUME CU FT	INF AIR CHANGE CFM	VENT AIR CFM	WALL HT FT	WALL LENGTH FT	FLOOR AREA SQ FT	HEAT LOSS BTU/HR
Building	BTU/HR	10.0	300	360 12,276	50 3,100	2,590 14,452	0.09	15,000 102,300	8.0	69,430	555,440	5,554 371,923	3,000 200,880	0	0 0	0 0	 704,931
	COST-$			$97	$25	$114		$809				$2,941	$1,589		$0	$0	$5,575
		0.0	0	0	0	0	0.00	0	0.0	0	0	0	0	0	0	0	
	BTU/HR			0	0	0		0				0	0		0	0	0
	COST-$			$0	$0	$0		$0				$0	$0		$0	$0	$0
		0.0	0	0	0	0	0.00	0	0.0	0	0	0	0	0	0	0	
	BTU/HR			0	0	0		0				0	0		0	0	0
	COST-$			$0	$0	$0		$0				$0	$0		$0	$0	$0
		0.0	0	0	0	0	0.00	0	0.0	0	0	0	0	0	0	0	
	BTU/HR			0	0	0		0				0	0		0	0	0
	COST-$			$0	$0	$0		$0				$0	$0		$0	$0	$0
		0.0	0	0	0	0	0.00	0	0.0	0	0	0	0	0	0	0	
	BTU/HR			0	0	0		0				0	0		0	0	0
	COST-$			$0	$0	$0		$0				$0	$0		$0	$0	$0
		0.0	0	0	0	0	0.00	0	0.0	0	0	0	0	0	0	0	
	BTU/HR			0	0	0		0				0	0		0	0	0
	COST-$			$0	$0	$0		$0				$0	$0		$0	$0	$0
		0.0	0	0	0	0	0.00	0	0.0	0	0	0	0	0	0	0	
	BTU/HR			0	0	0		0				0	0		0	0	0
	COST-$			$0	$0	$0		$0				$0	$0		$0	$0	$0
		0.0	0	0	0	0	0.00	0	0.0	0	0	0	0	0	0	0	
	BTU/HR			0	0	0		0				0	0		0	0	0
	COST-$			$0	$0	$0		$0				$0	$0		$0	$0	$0
TOTALS			300	360	50	2,590		15,000		69,430	555,400	5,554	3,000		0	0	
	BTU/HR			12,276	3,100	14,452		102,300				371,923	200,880		0	0	704,931
	COST-$			$97	$25	$114		$809				$2,941	$1,589		$0	$0	$5,575

OUTSIDE TEMPERATURE(°F)	10
INSIDE TEMPERATURE (°F)	72
DELT TEMPERATURE (°F)	62
HEATING DEGREE DAYS/YR.	5,034
FUEL COST, $/UNIT	$0.69
HT VALUE, MMBTU/UNIT	0.1387
SYSTEM EFFICIENCY (.XX)	76.0%
$/MMBTU (WITH EFF.)	$6.55

DOOR U FACTOR (BTU/SQFT*F*H)	1
WINDOW U FACTOR (BTU/SQFT*F*H)	0.55
ROOF U FACTOR (BTU/SQFT*F*H)	0.11
GRND FLOOR FACTOR (BTU/SQFT*H)	0.4
GRND WALL FACTOR (BTU/SQFT*H)	0.4
ANNUAL COST FACTOR ($/YR/BTU/HR)	0.007909
C (D)	0.62

WIND VELOCITY (MPH)	15
INFILTRATION AIR CHANGES/HR	0.6
INFILTRATION AIR CHANGE FACTOR	0.010000
WINTER GRND WATER TEMP (°F)	50
GROUND TEMP DELTA TEMP (°F)	22
GROUND WALL FACTOR	0.3
BELOW GRADE DEL TEMP (AD USTED)	6.6
GROUND FLOOR FACTOR	1.995

HEAT LOSS, MMBTU/YR	1,121
HEAT LOSS,BTU/DEG DA	222,610
UNITS FUEL/DEG DAY	1.61
UNITS FUEL/YR	8,080
COST, $/SF/YR	$0.08
COST, $/CF/YR	$0.0100
BTU/HR/SF:	10

2.5.4 Heat Loss/Gain Model (EZDOE Method)

General: Entech utilizes an hourly energy use simulation program known as EZDOE. This program is a PC version of the Department of Energy's simulation program known as DOE-2.1D. The program has the capability of calculating hour-by-hour energy use of all aspects of a building. This program will be used to substantiate estimates of connected capacities of HVAC equipment determined during the site investigation. The results will also be used to guide the diversity of the electrical model. Year round cooling and heating loads will be estimated based on the building's usage. Where appropriate, EZDOE will be used to analyze ECOs for determining savings. This section will provide a short overview of the program and its capabilities.

Energy Calculations: EZDOE calculates the annual energy consumption of HVAC systems based on U.S. Department of Energy standards. The program contains four (4) main simulation sections utilized are as follows:

1	Loads
2	Systems
3	Plants
4	Economics

Loads: This portion of the program allows the user to construct a database on the building or zone. In the case of Building 2700, the loads will be broken up by zones on each of the floors served by specific system and plant types. Some of the areas of input are listed on the following page:

1	Exterior and Interior Wall Constructions
2	Roof Constructions
3	Window Details, Exterior Door Details
4	Schedules, Daily, Weekly, and Monthly
5	Lighting Load
6	People Occupancy Rates
7	Space/Area Definition
8	Miscellaneous Loads Such as DHW Usage
9	General Equipment Load
10	City/Weather References

Systems: This section simulates air distribution systems which can be utilized within a building. Twenty-two different air systems are supported. In general, spaces defined under loads can be attached to systems. The following table lists some features which can be assessed:

1	Variable Air Volume
2	Preheating
3	Night Setback
4	Economizer
5	Reheating, Humidification
6	Baseboard Heating
7	System Scheduling

Plants: This section simulates the building's physical plants (boilers, chillers, water heaters, etc.) and various options. The program has the

capability of sizing equipment based on loads or sizes that can be manually entered into the program. A wide variety of equipment can be simulated. The following table lists additional features which can be utilized.

1	Thermal Storage
2	Peak Shaving
3	Demand Limiting
4	Load Management

Economics: This portion provides a means to simulate utility tariffs and costs. Fuel consumption during specific time periods can also be generated. The following is a list of features which can be utilized:

1	Demand Costs
2	On-Off Peak Usage Costs
3	Demand Ratchets
4	Seasonal Rates

Note: The economics section of the EZDOE modeling will not be used with this report in lieu of the Steam Model and the Electric Model.

2.5.5 Electric Model

Entech's electric model is a computer spreadsheet used to identify electric loads within the building and to identify the individual contribution to electrical demand, usage, and cost.

Loads have been identified from site investigations and drawings. Building space lighting loads will be identified in the EZDOE Model. It is important to realize that the electric model is an approximation of the electricity used by each load. It shows general relationships and gives a reasonable allocation of electrical demand, usage, and cost.

Demand (kW) contributions and estimated kWh usages are then included in subsequent calculations of the Energy Conservation Opportunities of Section 6.0.

A sample electric model is shown in Table 2.5.5.1. A description of each column heading follows:

Connected Load: The total connected electric load is expressed in kW.

Winter Demand: The average kW contributing to the billing demand each month. Winter months include December, January, February, and March.

Intermediate Demand: The average contribution to billing demand in the intermediate months of April, May, October, and November.

Summer Demand: The average contribution to billing demand in the summer months of June, July, August, and September.

Winter Usage: The estimated full load equivalent off-peak and on-peak hours that the load operates in a day within the following schedules during the months of December through March. The following table lists the utility billing periods.

Billing Period	Time of Day	days/mo
Off-Peak	8:00 p.m. to 8:00 am 24hrs Saturday/Sunday	30
On-Peak	8:00 a.m.to 8:00 p.m.	20

The kWh/mo in the next column is then calculated by multiplying (Connect Load) x (Hrs/Day) x (# of days).

Intermediate Usage: Same as winter usage except months are April, May, October, and November.

Summer Usage: Same as winter usage except months are June through September.

Non-Summer and Summer Totals Per Year: The kW/month for each season is multiplied by the appropriate number of mo/season to calculate annual kW for non-summer and summer. The kWh/year is calculated in the same manner as kW. The non-summer and summer costs are calculated by multiplying kW and kWh by the applicable incremental costs.

No.	Description	Total Connected Load (kW)	Winter Demand kW/Month	Inter Demand kW/Month	Summer Demand kW/Month	Winter Billing Months: Off-Peak hrs/day	Off-Peak kWh/Mo	On-Peak hrs/day	On-Peak kWh/Mo	Intermed Off-Peak hrs/day	Off-Peak kWh/
1											
2											
3	*AIR HANDLER =1*	2.2	1.9	1.9	1.9	10.0	660	6.0	264	10.0	
4											
5											
6											
7											
8											
9											
10											
11											
12											
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28											
29											
30											
31											
32											
33											
34											
	TOTALS	0	0	0	0	0		0			

Historical Billing Demand Averages

Dec	0	Apr	0	Jun	0
Jan	0	May	0	Jul	0
Feb	0	Oct	0	Aug	0
Mar	0	Nov		Sep	0
Avg	0		0		0

Historical Billing On-P

Dec	0	Apr	
Jan	0	May	
Feb	0	Oct	
Mar	0	Nov	
Avg	0		

Winter Months: October, November, December, January, February, March, April, May
Summer Months: June, July, August, September

	Winter	Summer
Incremental Demand Cost, $/kW	$6.60	$17.09
Off-Peak Incremental Usage Cost, $/kWh	$0.037	$0.034
Intermediate Incremental Usage Cost, $/kWh	$0.046	$0.047
On-Peak Incremental Usage Cost, $/kWh	$0.053	$0.062

C:\X123W\4130.05\ELECMOD\SMPEMOD.WK4

Incremental Costs:	Winter	umme
Incremental Demand Cost ($/kW):	$8.310000	******
On-Peak Incremental Usage Cost ($/kWh):	$0.070180	******
Off-Peak Incremental Usage Cost ($/kWh):	$0.060280	******

Sample Electric Model
Table 2.5.5.1

Summer Demand kW/Month	Winter Billing Months: Off-Peak hrs/day	Winter Billing Months: Off-Peak kWh/Mo	Winter Billing Months: On-Peak hrs/day	Winter Billing Months: On-Peak kWh/Mo	Intermediate Billing Months: Off-Peak hrs/day	Intermediate Billing Months: Off-Peak kWh/Mo	Intermediate Billing Months: On-Peak hrs/day	Intermediate Billing Months: On-Peak kWh/Mo	Summer Billing Months: Off-Peak hrs/day	Summer Billing Months: Off-Peak kWh/Mo	Summer Billing Months: On-Peak hrs/day	Summer Billing Months: On-Peak kWh/Mo	Non-Summer Demand kW/Yr.	Non-Summer Off-Peak KWH/Yr.	Non-Summer On-Peak KWH
9 1.9	10.0	660	6.0	264	10.0	660	6.0	264	10.0	660	6.0	264	15	5,280	
0	0		0		0		0		0		0		0	0	

Averages

Jun	0
Jul	0
Aug	0
Sep	0
	0

Historical Billing On-Peak Averages

Dec	0	Apr	0	Jun	0
Jan	0	May	0	Jul	0
Feb	0	Oct	0	Aug	0
Mar	0	Nov		Sep	0
Avg	0		0		0

Historical Billing Off-PeakAverages

Dec	0	Apr	0	J
Jan	0	May	0	J
Feb	0	Oct	0	A
Mar	0	Nov		S
Avg	0		0	

April, May

(2)

ctric Model
2.5.5.1

ths	Summer Billing Months												
eak	Off-Peak		On-Peak		Non-Summer				Summer				
Wh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	Demand kW/Yr.	Off-Peak KWH/Yr.	On-Peak KWH/Yr.	Cost $	Demand kW/Yr.	Off-Peak KWH/Yr.	On-Peak KWH/Yr.	Cost $	No.
													1
													2
264	10.0	660	6.0	264	15	5,280	2,112	$406	7	2,640	1,056	$283	3
													4
													5
													6
													7
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													31
													32
													33
													34
0		0		0	0	0	0	$0	0	0	0	$0	

0
0
0
0
0

Historical Billing Off-PeakAverages

Dec	0	Apr	0	Jun	0
Jan	0	May	0	Jul	0
Feb	0	Oct	0	Aug	0
Mar	0	Nov		Sep	0
Avg	0		0		0

2.5.6 mmBtu/Unit

The following energy values have been used in the energy calculations in this report.

Table 2.5.6.1 mmBtu/Unit

Fuel Type	Btu/Unit	mmBtu/Unit	Comment
Natural Gas (mcf)	1,031,000	1.031	10.54 Therms
#2 Heating Oil (gal)	138,700	0.1387	
85 psig Steam (lbs)	1,000	0.001	Heating Energy
Electricity (kWh)	3,413	0.003413	

2.6 Energy Conservation Opportunities (ECOs)

After the energy models have been finalized, Entech proceeds to analyze the ECOs which were developed during the site inspection. An ECO describes an idea for decreasing energy usage or costs, and the format consists of the following sections:

1	Existing Condition Description
2	Proposed Condition Description
3	Capital Cost Estimates
4	Annual Energy Savings
5	Recurring Annual Savings
6	Discussion

2.6.1 Existing Condition

A general description of the existing condition will be provided as well as current annual energy usage and cost.

2.6.2 Proposed Condition Description

The project, which is to be implemented, will be described in adequate detail. The expected energy usage and cost for the proposed project will be formulated and shown.

2.6.3 Capital Cost Estimates

The capital cost estimates prepared for this study are considered to be "conceptual" in nature. They are conceptual because they are based upon engineering design that is less than one percent of a complete detailed design effort for such a project.

The cost estimates are broken down into material, labor, and engineering components. Calculations or a spreadsheet are usually provided with each ECO.

The final results of a project can vary significantly from the "Conceptual" cost estimate. The American Association of Cost Engineers (AACE) generally states that an accuracy range of plus or minus 20% from the total estimated cost is possible. Variations beyond this range are possible for the stated scope, but not likely.

Since it is not possible for the consultants to know the most likely variations that can occur in the future, nor can they control certain technologies, contractors, or general economic conditions. The costs estimated herein should not be construed as fixed or precise. Rather, they

are estimates which will require a great deal of effort to manage until the final costs are realized.

2.6.4 Cost Savings

This division of the ECO compares the existing and proposed energy costs and notes increases or decreases in energy consumption.

2.6.5 Discussion

Entech notes the expected simple payback period for the ECO. Any additional benefits or concerns are noted in this section.

2.6.6 Life Cycle Cost Analysis Summary

The life cycle costs were forecasted with the Blast: LCCID version FY 1995, Level 92 Program. LCCID, which is short for Life Cycle Cost In Design, is an economic analysis computer program tailored to the needs of the Department of Defense (DoD). It is intended to be used as a tool in evaluation and ranking design alternatives for new and existing buildings. LCCID has built-in calculation procedures recognized as a standard for the DoD. The following is the specific criteria and other guidance embodied in LCCID according to the LCCID users manual.

The specific criteria and other guidance embodied in LCCID are:

1. Office of Management and Budget (OMBP Circular A-94, March 27, 1972. OMB Circular A-94 has a new version (October 29, 1992) but a final decision on incorporating the new circular into tri-service criteria has not been determined.

2. Code of Federal Regulations, 10 CFR 436A, January 25, 1990. Annual fuel escalation rates are published by NIST (National Institute of Standards and Technology) under sanction by DoE.

3. Memorandum of Agreement on Criteria/Standards for Economic Analysis/Life Cycle Costing for MILCON Design, 18 March 1991. This memorandum obviated the need for separate criteria in the three services (Army, Air Force, and Navy) of the Department of Defense.

4. DoD Energy Conservation Investment Program (ECIP) Guidance. This guidance uses the memorandum from Item 3, as its basis, but also has some qualifying factors for energy conservation projects and specifies its own format.

The LCCID Program is structured as shown on Table 2.6.6.1, ECIP Study LCCID Ready Reference, which can be found at the end of this section. This table was obtained from the LCCID program users manual.

The following criteria was selected/entered into the LCCID program to obtain the Life Cycle Cost Analysis Summaries prepared as part of each ECO:

1. Common criteria selected for all life cycle cost analysis summaries:

   — Military Construction Army
   — User Entry of Consumption Values
   — ECIP Project
   — Energy Escalation Rates for FY94 (only option available)
   — English Units

2. Common criteria entered into all life cycle cost analysis summaries:

- ECIP Economic Life: Twenty years
- Location: New Jersey
- Electric Usage Cost: $21.23 per mmBtu

$$\left(\frac{\$0.07246 \ / \ kWh}{.003413 \ / \ \frac{mmBtu}{kWh}} \right)$$

- Project Number: #4130.05
- Fiscal Year: 1995
- Project Title: EEAP
- Installation Name: Ft. Monmouth
- Study Preparer: JED
- Salvage Value: $0

3. Criteria entered into life cycle cost analysis summaries from the ECO:

- Discrete Portion Title: ECO #
- Construction Cost: Dollars
- Design Cost: Dollars (Program default of 6% of construction cost rounded off.)
- Supervision, Inspection, and Overhead (SIOH): Dollars (Program default of 5.5% of construction cost rounded off.)
- Energy Savings: mmBtu (Electrical, oil, gas, etc.)
- Demand Savings: Annual Dollars (Electrical only)
- Annual Recurring Savings: Maintenance Savings

A sample Life Cycle Cost Analysis Summary Report is shown in Table 2.6.6.2 located at the end of this section. In this example, all the common criteria noted in 2, Items A and B, was selected or entered into this summary report.

In Part 1 of the summary report, a Construction Cost of $100,000 and a Design Cost of $6,000 was assumed (rounded in some cases). The SIOH was rounded off to $6,000 by the user versus $5,500 or 5.5%.

In Part 2 of the summary report, an electric energy saving of 5,000 mmBtu/yr at a cost rate of $10/mmBtu was assumed.

In Part 3 of the summary report, a maintenance savings of $0/yr was assigned. In the actual summary report, the above-assumed numbers would originate from an ECO. In the example, the program calculated a simple payback of 2.24 years and a savings to investment ratio of 6.69.

TABLE 2.6.6.1

ECIP STUDY - LCCID READY REFERENCE

HELP or ? - To obtain how the question pertains to LCC and to display hints on allowable answers.
LIST or ? - To DISPLAY a LIST of allowable inputs.
TEACH - To begin seeing all the help messages before entering your response.
SAVE - To save the Study File from any prompt.
ABORT or QUIT - To TERMINATE the program without saving any information since the last SAVE or Auto-save.

MAIN MENU CHOICES
S = Select Study Parameters
A = Define / Change Discrete Portions
C = Calculate & Report Life Cycle Costs
N = Select Next Study
D = Change Directory of Study/Report Files
<cr> = exit PROGRAM

S

SELECT STUDY PARAMETER Choices
C = Select Criteria for Present Worth Calculations
D = Select Key Study Dates
M = Select Dollar Input Multiplier
E = Select Energy Related Study Inputs
T = Select Study Identification Block
<cr> = exit SELECT STUDY PARAMETERS

D

SELECT KEY STUDY DATES Choices
L = Economic Life of Building
<cr> = exit SELECT KEY STUDY DATES

E

SELECT ENERGY RELATED STUDY INPUT Choices
S = Select Location (Region for E-Values)
U = Select Energy Input Units
P = Select Energy Prices
<cr> = exit SELECT ENERGY RELATED STUDY INPUT

P

SELECT ENERGY PRICES Choices
0 = Initialize All Energy Type Prices
1 = Select Prices of ELECT
2 = Select Prices of DIST
3 = Select Prices of RESID
4 = Select Prices of NAT G
5 = Select Prices of COAL
6 = Select Prices of LPG
7 = Select Prices of SOLAR
8 = Select Prices of GEOTH
9 = Select Prices of BIOMA
10 = Select Prices of REFUS
11 = Select Prices of WIND
12 = Select Prices of OTHER
<cr> exit SELECT ENERGY PRICES

T

SELECT STUDY IDENTIFICATION BLOCK Choices
I = Re-enter All Study Identification Block Data
T = Specify Project Title
L = Specify Installation Name
P = Specify Project Number
F = Specify Fiscal Year
A = Specify Name of Analyst
<cr> = exit SELECT STUDY IDENTIFICATION BLOCK

C

CALCULATE & REPORT LIFE CYCLE COSTS Choices
I = Generate ECIP Summary Reports
<cr> = exit CALCULATE & REPORT LIFE CYCLE COSTS

A

DEFINE / CHANGE DISCRETE PORTIONS Choices
L = List Discrete Portion Titles
S = Define / Change Discrete Portion Values
D = Delete Discrete Portions
R = Resequence Discrete Portion Identifiers
O = Put Discrete Portion Identifiers in Ascending Order
<cr> = exit DEFINE / CHANGE DISCRETE PORTIONS

S

SELECT ENERGY PRICES Choices
0 = Initialize All Energy Type Prices
1 = Select Prices of ELECT
2 = Select Prices of DIST
3 = Select Prices of RESID
4 = Select Prices of NAT G
5 = Select Prices of COAL
6 = Select Prices of LPG
7 = Select Prices of SOLAR
8 = Select Prices of GEOTH
9 = Select Prices of BIOMA
10 = Select Prices of REFUS
11 = Select Prices of WIND
12 = Select Prices of OTHER
<cr> exit SELECT ENERGY PRICES

E

DEFINE / CHANGE Discrete Portion Values
V = Specify Construction, SIOH, and Design Costs
E = Specify Energy Usage Savings
S = Specify Salvage Value of Existing Equipment
U = Specify Public Utility Rebate
M = Specify Annually Recurring Savings/Costs
R = Specify Non Recurring Savings/Costs
L = List this Discrete Portion's Identifier and Title
D = Delete this Discrete Portion
<cr> = exit DEFINE / CHANGE Discrete Portion Values

V

INVESTMENT COSTS Choices
I = Initialize All Investment Costs for this Discrete Portion
C = Specify Construction Cost and Related Information
D = Specify Design Cost and Related Information
O = Specify SIOH Cost and Related Information
<cr> = exit INVESTMENT COSTS

M

SPECIFY ANNUAL VALUES Choices
L = List Annual Values by Title
S = Define / Change Annual Values
D = Delete an Annual Value
<cr> = exit SPECIFY ANNUAL VALUES

R

SPECIFY ONE TIME VALUES Choices
L = List One time Values by Title
S = Define / Change One time Values
D = Delete an One time Value
<cr> = exit SPECIFY ONE TIME VALUES

Table 2.6.6.2

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: MONMOUTH
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID FY95 (92)
INSTALLATION & LOCATION: FT. MONMOUTH-NREGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE: 4130.06 FT. MONMOUTH
FISCAL YEAR 96 DISCRETE PORTION NAME: EXAMPLE
ANALYSIS DATE: 02-23-96 ECONOMIC LIFE 20 YEARS PREPARED BY: SCOTT BARNDT

1. INVESTMENT

A. CONSTRUCTION COST	$ 100000.	
B. SIOH	$ 6000.	
C. DESIGN COST	$ 6000.	
D. TOTAL COST (1A+1B+1C)	$ 112000.	
E. SALVAGE VALUE OF EXISTING EQUIPMENT	$ 0.	
F. PUBLIC UTILITY COMPANY REBATE	$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)		$ 112000.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1994

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ 10.00	5000.	$ 50000.	14.99	$ 749500.
B. DIST	$ .00	0.	$ 0.	18.50	$ 0.
C. RESID	$ .00	0.	$ 0.	20.90	$ 0.
D. NAT G	$ .00	0.	$ 0.	18.27	$ 0.
E. COAL	$ .00	0.	$ 0.	15.68	$ 0.
F. PPG	$ .00	0.	$ 0.	17.35	$ 0.
M. DEMAND SAVINGS			$ 0.	14.88	$ 0.
N. TOTAL		5000.	$ 50000.		$ 749500.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-)		$ 0.
(1) DISCOUNT FACTOR (TABLE A)	14.88	
(2) DISCOUNTED SAVING/COST (3A X 3A1)		$ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-) (4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-) (3A2+3Bd4)	$ 0.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))	$ 50000.
5. SIMPLE PAYBACK PERIOD (1G/4)	2.24 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)	$ 749500.
7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)=	6.69
(IF < 1 PROJECT DOES NOT QUALIFY)	
8. ADJUSTED INTERNAL RATE OF RETURN (AIRR):	13.27 %

2.7 Draft Report/Client Review/Final Report

After the previous sections have been substantially completed, Entech proceeds to compile the information into the report format. Entech schedules a meeting with the client to present its findings. A copy of the report is supplied to the client for a more detailed review. The client's review process typically lasts 2-3 weeks.

Entech will then proceed to incorporate the clients review comments and produce a final report.

3.0 FACILITY DESCRIPTION

3.1 General

The Myer Center, Building 2700, is located on the grounds of Fort Monmouth, Eatontown, New Jersey. Building construction was completed in 1955 and encompasses approximately 700,000 gross square foot of floor area on four (4) floor levels, plus a partial basement floor level. Building 2700 was renovated in 1982 under the Major Construction Activities Program (MCA). Renovation costs were in the range of $26,000,000 which encompassed a new building facade, including the addition of building insulation, and a reduction of the exterior glass area. Numerous building HVAC system modifications were incorporated under this renovation program. Building 2700 is utilized for numerous activities and maintains the areas as shown in the table below:

Table 3.1.1., Building Use

1	Electronics Labs
2	Cleanroom Facilities
3	Computer Rooms
4	Conference Rooms
5	Meeting Rooms
6	Offices
7	Cafeteria
8	Library
9	Auditorium
10	Recreation Facilities

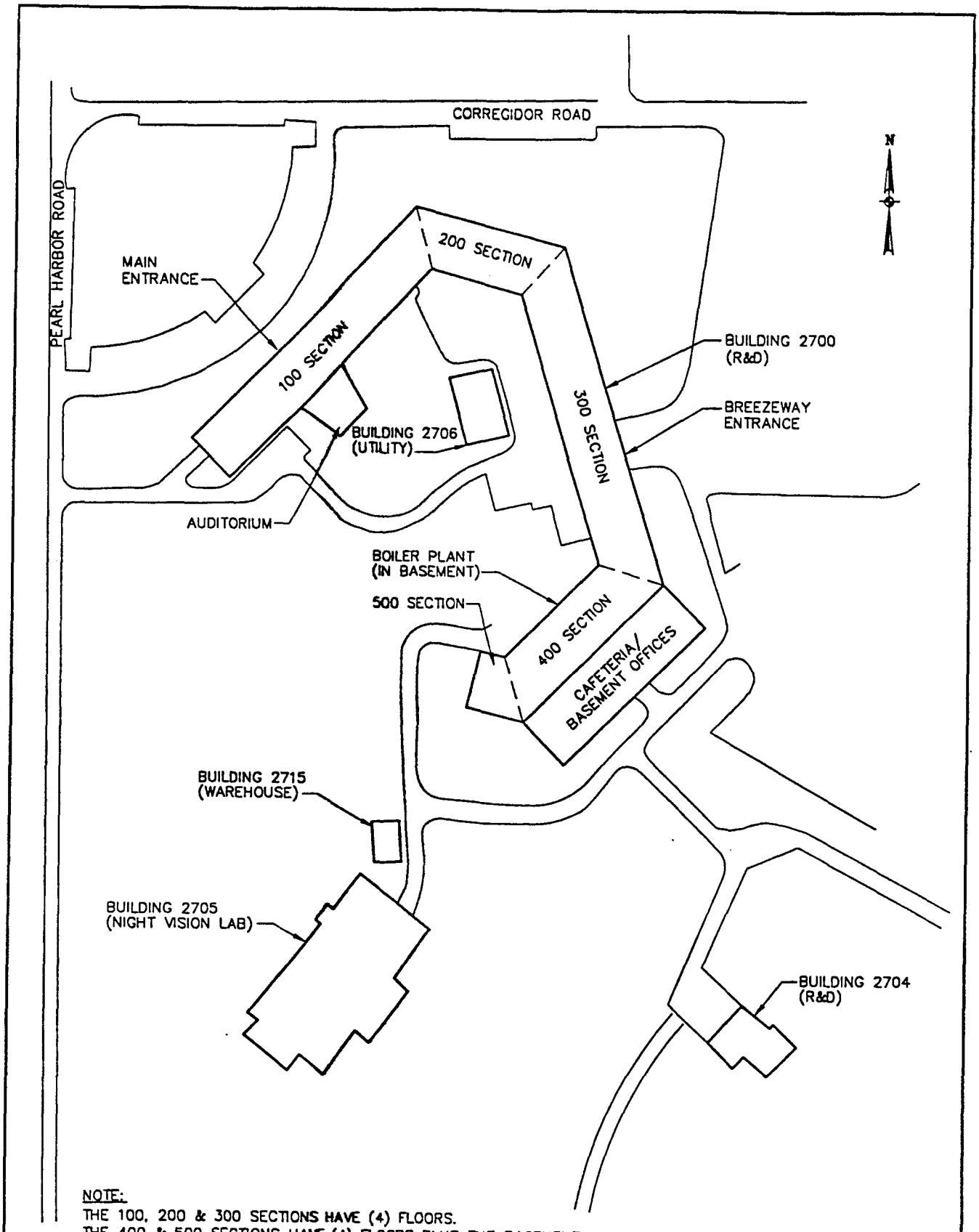
The following information is supplied for some of the main areas of activity in the building.

Library: The library is located on the west side of the 400 block on the first floor level. It is typically open five days a week 0900 to 1700 hours.

Cafeteria: The cafeteria is open for breakfast and lunch five days a week from 0630 to 1330 hours. According to the cafeteria management, approximately 600 meals are prepared daily. The cafeteria is located on the east side of the 400 block on the basement level.

Auditorium: The auditorium is located on the west side of the 100 block on the first floor. The seating capacity is 500 persons and is generally used on a daily basis.

Refer to Figure 3.1.1 on the next page for an overall view of Building 2700 on the Fort Monmouth site. Note the other Buildings 2704, 2705, 2706 and 2715 which are presently connected to the central boiler plant in Building 2700.



NOTE:
THE 100, 200 & 300 SECTIONS HAVE (4) FLOORS.
THE 400 & 500 SECTIONS HAVE (4) FLOORS PLUS THE BASEMENT.

U.S. ARMY ENGINEER DISTRICT, MOBILE/NORFOLK

FORT MONMOUTH NEW JERSEY

LIMITED ENERGY STUDY, EEAP PROGRAM
MYER CENTER, BLDG. 2700 – SITE PLAN

ENTECH Engineering Inc.
4 SOUTH FOURTH STREET P.O. BOX 32 READING, PA 19603 (610) 373-6667
1851 WEST END AVE P.O. BOX 389 POTTSVILLE, PA 17901 (717) 628-5655

DATE	DRAWN BY	CHECKED BY	PROJ. MGR.	APPROVED	
12/28/95	RJI	JED	ELC		
SCALE	PROJECT NO.		DRAWING NO.		REVISION
1" = 200'	4130.05		FIG. 3.1.1		0

3.2 Building Occupancy

Building 2700 is normally staffed five (5) days a week during the hours of 0700 and 1900, though the facility is available to staff members seven (7) days a week, 24 hours per day. The normal building staff is currently comprised of 1,400 persons, future growth is anticipated to be in the range of 1,800 persons. Approximately 100 staff, security, and maintenance personnel are in the building during the hours of 1900 to 0700. During the weekends approximately 100 personnel are expected in the building on average.

3.3 Building Structure

Exterior Walls: The original building exterior wall construction is generally two (2) layers of concrete masonry units (CMU) without any form of insulation. During the 1982 MCA project, an insulated panel facade was added to the existing building exterior walls. Present wall thickness ranges between 14 and 20 inches with an average overall thermal wall resistance of 12.21 as shown on the table below:

Table 3.3.1, Wall Resistance

Material/Thickness	Resistance Value
Outdoor Air Film	0.17
2" Thick Insulated Building Panel	8.00
2" to 8" air space	0.97
4" CMU	0.71
2" Airspace	0.97
4" CMU	0.71
Indoor Air Film	0.68
Total Resistance (R)	12.21
Thermal Transmission (U)	0.08

Roof: In general, the roof construction consists of membrane roofing material over rigid insulation board, placed on top of the existing building roof system. The total roof resistance is calculated to be 9.54 as shown on the following table:

Table 3.3.2, Roof Resistance

Material/Thickness	Resistance Value
Outdoor Air Film	0.17
2" Rigid Insulation	8.00
Building Roof Decking	0.76
Indoor Air Film	0.61
Total Resistance	9.54
Thermal Transmission	0.11

Glass: Window area utilizes tinted insulating glass. The thermal transmission U value is 0.55 and the shading coefficient is 0.51.

3.4 Mechanical Systems (Building 2700)

Steam: The Building 2700 heating plant consists of three (3) watertube type boilers manufactured by the Keeler Company in 1952. The boilers are located within a mechanical equipment room in the basement level. Each boiler is rated at 427 horsepower and produces steam at 85 psig. One (1) boiler, labeled Boiler #1, is damaged and slated for demolition in the near future, the two (2) remaining boilers are in satisfactory operating condition. Boiler #3 has recently been converted to dual fuel capability, being able to fire on natural gas or No. 2 fuel oil. The natural gas capability came on line in late 1995. Under present contract conditions between the government and the gas utility company, the

natural gas supply to Building 2700 has been established as a non-interruptible type supply source for the next seven (7) years. Boiler #3 will be the primary source of steam, utilizing natural gas as the fuel source. Boiler #2 is capable of firing No. 2 fuel oil only and will be utilized as backup. The original 10 to 20 feet diameter (at roof height) breeching stack constructed of brick and estimated to be near 150 feet high (from ground level) remains active.

Table 3.4.1, Boiler Schedule

Boiler	Fuel	HP	Steam lbs/hr	Comment
B-1	No. 2 Fuel oil	427	14,300	Damaged, to be demolished
B-2	No. 2 Fuel oil	427	14,300	Back-up Boiler
B-3	No. 2 Fuel oil/Nat. Gas	427	14,300	Primary Boiler

Fuel oil is presently stored in a single 25,000 gallon underground fuel oil storage tank. Four (4) other 25,000 gallon underground storage tanks exist, though are no longer utilized to store fuel oil.

Steam produced by this heating plant is utilized in Buildings 2700 (R&D), 2704 (R&D), 2705 (Night Vision Lab), 2706 (Utility), and 2715 (Warehouse). Primary steam use is for building heating systems, with a small quantity utilized for Cafeteria/Kitchen equipment. Steam is also used as the source of heat for the Building 2700 domestic hot water system, which is currently not operable. Reheat using steam is required with some HVAC equipment where de-humidification controls are used.

Steam is generated at 85 psig and reduced downstream of the main headers to meet the individual system requirements, which are generally 15 psig or less. Condensate is returned to the heating plant by both a gravity return system and individual condensate pump and receiver sets located within the buildings and spaces served.

Condensate is returned to a common surge tank located in the basement Mechanical Equipment Room within Building 2700. Within the surge tank, returned condensate is mixed with treated make-up water and pumped to a deaerator. Make-up water is treated by zeolite type water softening equipment located next to the surge tank. Within the deaerator the mixture of make-up water and condensate return are combined with steam to become heated feedwater. During this mixing cycle, corrosive gasses are removed by the deaerator. The deaerator is a spray type that was manufactured by Stickle in 1955. Feedwater is pumped by one or two of the four (4) pumps connecting the deaerator with the boilers. The four (4) primary condensate transfer pumps are located on the first floor and return condensate from the main risers for the building. Approximately six (6) other small condensate pumps are installed in the plant.

The existing boilers have both continuous and intermittent blowdown systems. A blowdown tank is located outdoors below grade. The tank is vented to atmosphere and drained to the storm water drainage system.

Note: Two (2) dedicated hot water boilers are presently being installed in Building 2706 for supporting the two-pipe (MCA) system in Building 2700.

The associated steam load, for the two-pipe system, will have to be separated in the existing and proposed steam loads to properly analyze the impact on applicable ECOs. Based on preliminary design drawings presented in August of 1995, the following Table 3.4.2, represents the selection for the boilers being installed in Building 2706.

Table 3.4.2, Boiler Schedule (Future Additions)

Boiler	Fuel	MBH	GPM	Comment
B-5	No. 2 Fuel Oil/Nat. Gas	8,369	837	Installation in Progress
B-6	No. 2 Fuel Oil/Nat. Gas	8,369	837	Installation in Progress

Heating, Ventilation and Air Conditioning: The original 1955 building heating systems for Building 2700 were directly supplied by a building central steam distribution system. Building air conditioning units and ventilation units utilized steam for outdoor air preheat and in some instances supply air reheat requirements. Building heating was accomplished using individual perimeter steam convectors installed on each floor level, miscellaneous spaces such as storage, stairs, etc., were heated by steam unit heaters and convectors. The original building air conditioning systems had individual water cooled chillers installed within equipment rooms within close proximity of their associated air handling unit. The associated condenser water cooling towers were located on the building roof.

As stated in Section 2, Entech performed a limited audit of Building 2700 to determine utilization and the associated HVAC equipment installed. Field notes, existing design and facility drawings, and a maintenance equipment list were used as a basis for our findings. The maintenance equipment list is

included in Appendix 8.1. The results of this audit are summarized in Section 3.4.1 and below in some detail as it pertains to each sub-section in Section 3.4. In general, over a million cubic feet of air per minute (cfm) of connected air flow is installed in Building 2700. Of that total, about 6.5% or 65,000 (cfm) is considered outside air. The connected heating and cooling loads for Building 2700 are estimated to be near 10,000 MBH and the 1,800 tons, respectively.

The results of the Building 2700 HVAC equipment audit show that the majority of the twenty-five (25) original steam unit space heaters remain installed. Approximately twenty-one (21) unit heaters (UH) were identified on the basement and first floor levels. Of these about 4 or 5 are presently not operating, but for modeling and analysis purposes they will be assumed to be operating and functional. Of the forty-five (45) original steam fed, supply ventilation (SV) units, approximately ten (10) to fifteen (15) are still installed but are not operating. They are not included in the summary schedules and subsequently not considered in any of the models or analyses. Other than some of the exhaust fans and (1) cooling tower, apparent "dead" or unused equipment are not identified in this report.

Included in the 1982 MCA project was the construction of a new central steam to hot water heating system and a new central chilled water system, located in Building 2706. This system will be referred to throughout the report as either the MCA two-pipe system or as MCA water (MCA-HW and/or MCA-CHW).

Note: With the elimination of the SV units in conjunction with the questionable design concept used in 1982, many areas have been left without adequate

outside air to meet ASHRAE 62-1989. This is especially true for the perimeter areas on the second, third, and fourth floors.

MCA Hot Water Plant: Steam produced by the Building 2700 Boiler Plant is utilized in Building 2706 as the heat source for the central MCA hot water (HW) heating system. Two (2) steam to water heat exchangers, located in Building 2706, produce hot water which in turn is pumped to Building 2700. The heat exchangers are a shell and tube type, manufactured by Old Dominion, The Adamson Company. There are three (3) heating water distribution pumps available to circulate hot water (MCA-HW) from the heat exchangers to Building 2700. As stated previously, installation is in progress for the replacement of the heat exchangers with new hot water boilers. Construction is expected to be completed by the fall of 1996. This system usually operates from October 15 to May 15.

MCA Chilled Water Plant: The central chilled water (MCA-CHW) is produced by two (2) Trane Co. centrifugal water cooled chillers, rated at 690 tons cooling capacity each. Chilled water is circulated by three (3) pumps. Heat rejection for the chillers is accomplished by an induced draft, crossflow style cooling tower, manufactured by Baltimore Aircoil Co., Inc. The cooling tower is a four (4) cell unit located behind Building 2706. This tower has a nominal rating of 1,380 tons. There are three (3) condenser water pumps available for circulating water between the chillers and the cooling tower. This system usually operates from May 15 to October 15.

MCA 2-Pipe System: Alterations to the Building 2700 heating and air conditioning systems made with the 1982 MCA project included the installation of a two-pipe heating/cooling water distribution system. Two (2) independent heating water and chilled water distribution headers are located in Building 2706. Using control valves and hand operated valves, either heating water or chilled water can be distributed to Building 2700 heating/cooling equipment through two (2), two-pipe supply and return piping distribution systems. Control for each loop is by the use of pressure controllers. Bypass valves are located in Building 2706 insuring adequate flow through the chillers and the heat exchangers (new boilers). Two (2) pipe systems are generally sized for chilled water flows and subsequently the system pressures are reduced for the heating season because those flows (gpm) are lower (50%±) by design. One of the two-pipe systems serves equipment located within the north sections of Building 2700, and the other serves the south sections. Original building perimeter steam convectors were replaced with two-pipe heating/cooling fan coil units. Approximately 840 fan coil (FC) units generally satisfy heating and cooling requirements for the perimeter offices located on all floor levels. A few additional FC units are located in other areas. Approximately 2,100 ft of building perimeter is serviced by zoned sections of finned-tube radiation only utilizing the MCA-HW system during the heating season. Thirteen (13) convectors (C), four (4) cabinet unit heaters (CUH) and seven (7) unit heaters (UH), were identified doing the same.

Since 1982, new two-pipe heating/cooling air handling units were added to supplement office air conditioning demands and provide outdoor air ventilation, and in some cases the two-pipe heating/cooling distribution system also

satisfies the heating and air-conditioning equipment requirements for several interior renovated spaces such as electronics labs, computer labs, office space, etc. Renovations since 1982 in other parts of the building have utilized the two-pipe system adding to the original connected capacity. Forty-three (43) air handling units (AHU) were identified using this system. To date, the connected loads and flow for the two-pipe system are 700 tons of cooling requiring about 1,800 gpm of MCA-CHW and over 6,000 MBH of heating requiring about 700 gpm of MCA-HW. With these totals in mind, both systems are capable of handling more load based on the available cooling capacity and the adequacy of the sizing of the new dedicated hot water boilers.

Miscellaneous Cooling System: Numerous renovations over the years have incorporated air and water cooled DX and chilled water cooling equipment to satisfy individual space cooling needs. Of the original twenty-seven (27) air conditioning (AC) units installed only six (6) remain in operation today. Three (3) DX water cooled and three (3) chilled water - water cooled systems constitute the six (6) original units. Specialty areas, such as cleanrooms, have independent dedicated HVAC systems with equipment located on the building roof. Several water chillers have been installed throughout the building to satisfy space and process equipment cooling needs. A mix of air and water cooled condensers exist with these installations. Condenser water for the applicable chilled water and DX cooling equipment is supplied by four (4) towers on the roof. The original installation in 1955 included five (5) towers, however, in recent years Tower #5 was taken off line. Within the last ten (10) years, Towers #1 and #2 were replaced with new fiberglass units. There are

plans to replace Towers #3 and #4 in the near future with the same type and size as specified for Towers #1 and #2.

Three (3) cleanrooms located within the fourth floor level are served by HVAC units located on the building roof. An independent roof mounted air cooled water chiller satisfies the cooling requirements and building steam from the central distribution system satisfies supply air reheat requirements.

One (1) cleanroom, located on the second floor, is served by a self contained HVAC system also located on the building roof. This unit utilizes air cooled DX cooling equipment and a natural gas fired desiccant dehumidification system.

A small cleanroom, also located on the second floor level, incorporates air handling equipment located within close proximity of the cleanroom. An air-cooled water chiller located on the building roof satisfies this unit's cooling requirement, while building steam from the central distribution system is used at the air handler for supply air reheat requirements. Within Building 2700, there are approximately forty-five (45) miscellaneous air handling/air conditioning unit combinations in operation including the original units and the cleanroom units.

Over the years, the increased use of main frames, workstations and personal computers has led to the use of supplemental cooling in computer rooms, offices, labs, etc.. The primary method of achieving this has been to use specialized air recirculation units capable of removing large sensible cooling

loads from these spaces. These are commonly referred to as "Liebert units". Based on maintenance records and the field auditing process, Entech was able to identify forty-three (43) computer room type recirculation units.

Humidification Control: Areas within the building which require minimum humidity levels be maintained utilize local electronic type humidification equipment. No building steam is used for building space humidification. In some cases the original steam units are installed but as stated they are not in operation, and their function has been replaced by electronic devices, or the units have been deemed unnecessary.

Building 2700 Exhaust: The original 1955 building design incorporated 130 exhaust system fans installed in the building. These exhaust systems were intended to ventilate basic building spaces, such as toilet rooms and equipment rooms, and specialized building spaces such as laboratories. Today there are approximately 80 exhaust fans and scrubbers physically installed in Building 2700 with the majority being located on the roof. Approximately 50 of the original exhaust fans remain in place today. Individual space use within the building is in constant fluctuation, consequently, exhaust requirements change and exhaust fans are added and deleted. Many of the exhaust fans presently installed are not operable, and it is possible that in some instances exhaust fans which remain operable may in fact not be necessary. The connected exhaust flow from Building 2700 is estimated to be about 180,000 cfm. The relationship between connected exhaust to outdoor make-up air is about 3 to 1 or 180,000 cfm to 65,000 cfm. The building pressure in reference to the outdoors is noticeably negative when entering the first floor. Automatic doors

at the entrances have been turned off indicating a high pressure differential. These building conditions suggest that the fans are not capable of exhausting the air quantities originally specified. Discussions about this relationship will occur later in Section 5.4.3 on pages 5-33 through 5-35.

3.4.1 Equipment Schedules for Building 2700 HVAC Systems

The following schedules have been provided to summarize the HVAC equipment utilized by Building 2700. They include a summary Table 3.4.1.1 for heating and cooling equipment for the basement, first and mezzanine floors. Table 3.4.1.2 summarizes the equipment utilized by the second, third and fourth floors. The list was generated by defining the air side equipment on each floor. The tabled information includes the flows with the corresponding fan horsepowers, the heating load and source, the cooling load and source documenting related equipment requirements, and the location of the equipment and it's corresponding area served.

Table 3.4.1.3 documents the two large chillers in Building 2706. Table 3.4.1.4 tabulates the Cooling Tower data for the two buildings, and Table 3.4.1.5 does the same for Primary Pumps utilized for the two buildings which are not included as dedicated system pumps in the large summaries, Tables 3.4.1.1 and 3.4.1.2.

The exhaust fans and scrubbers installed in Building 2700 are documented in Table 3.4.1.6. The last summary Table 3.4.1.7, documents the process cooling and building support equipment not

identified in the others that utilize steam, electricity and in some cases, condenser water. The complete list of equipment schedules is shown below and the tables in the following pages.

Table 3.4.1.1	Building 2700	HVAC Equipment Summary (Basement, First floor and Mezzanine)
Table 3.4.1.2	Building 2700	HVAC Equipment Summary (Second, Third and Fourth floors)
Table 3.4.1.3	Building 2706	Chiller Schedule
Table 3.4.1.4	Building 2700/2706	Cooling Towers
Table 3.4.1.5	Building 2700	Primary Pump Summary
Table 3.4.1.6	Building 2700	Exhaust Summary
Table 3.4.1.7	Building 2700	Misc. Process Cooling & Support System Equipment

HVAC Item	HVAC Airside Equipment - General Information				Est. Airside/Fan Data (Evap. Fan)					Est. Heating Load		Heating Type
	Design/Site Designation	Equip. Type	Field Data/Reference/(Location)	Area Served	Flowrate (cfm)	OA (cfm)	TSP (in w g)	Supp.Fan (hp)	RA/OA (hp)	Heating (MBH)	Re-Heat (MBH)	Steam (lb/hr)
1	-	AHU	McQuay LML(OA418 - JCALS)	Cafeteria	21,300	2,130	3	20		492	0	492
2	-	AC	Carrier 38(Cafeteria - above ceiling)	Cafeteria office	1,600	0	2	1		0	0	
3	-	AC	Carrier 38(Cafeteria - above ceiling)	Cafeteria office	1,600	0	2	1		0	0	
4	-	AHU	unknown(OA400)	OA400 (J-CALS)	21,300	2,130	3	20		492	0	492
5	-	AHU	unknown(Mech. Room (MR)-OA-1)	OA415 offices	3,000	450	2	2		59	0	
6	-	Recirc AC	Liebert(OA-413)	OA413	4,650	0	1	1.5		0	0	
7	-	Recirc AC	Liebert(OA-334)	OA334	8,400	0	1.5	3		0	0	
8	-	Recirc AC	Liebert(OA-336)	OA336	4,650	0	1	1.5		0	0	
9	AHU-B-3	AHU-MCA	Trane C C (OA403)	OA403 offices	1,970	0	1.3	1	0.75	18	0	
10	-	AHU-MCA	unknown(OA418 - JCALS offices)	OA418 (J-CALS)	1,800	0	2	1		10	0	
11	-	AHU-MCA	unknown(OA418 - JCALS offices)	OA418 (J-CALS)	1,800	0	2	1		10	0	
12	-	AHU-MCA	unknown(OA418 - JCALS offices)	OA418 (J-CALS)	1,800	0	2	1		10	0	
13	-	AHU-MCA	unknown(OA418 - JCALS offices)	OA418 (J-CALS)	1,800	0	2	1		10	0	
14	-	AHU-MCA	unknown(OA418 - JCALS offices)	OA418 (J-CALS)	1,800	0	2	1		10	0	
15	-	UH	unknown(OA501-storage)	OA501	320	0	0.5	0.04		20	0	20
16	-	UH	unknown(OA503-storage)	OA503	320	0	0.5	0.04		20	0	20
17	-	UH	unknown(OA321-hallway)	OA321	320	0	0.5	0.04		20	0	20
18	-	UH	unknown(OA326-Substations #2 & 6)	OA326	320	0	0.5	0.04		20	0	20
19	-	UH	unknown(OA328-Substations #2 & 6)	OA328	320	0	0.5	0.04		20	0	20
20	FC-1(9)	FC	unknown(9 on West wall)	OA400 Area - West	1,800	0	0.5	0.15		27	0	
21	C-4	Convector	unknown(Near Elevator #1 - Basement)	Hallway - Elev #1	0	0	0	0		14	0	
22	-	Fin-tube	unknown(625 ft of East/South wall)	JCALS/Cafeteria/Lab	0	0	0	0		469	0	
23	-	AHU	unknown(1B110 Comp. Lab Mezz.)	B110,112/Mezz	889	89	2	1		10	0	
24	-	AHU	Atmostech(1B120 Cleanroom)	1B120 Cleanroom	20,000	0	4	25		0	0	
25	-	AHU	McQuay VSC(1B134 Print Shop)	1B134 Print Shop	21,300	0	3	20		0	0	
26	-	AHU	unknown(1B115)	1B115 office/storage	3600	540	3	3		40	0	40
27	-	AHU	unknown(1B115 - backup unit)	1B115 office/storage	-	-	-	-	-	-	-	-
28	-	AHU	Trane BWV180(1B131 Computer Rm.)	1B131/Mezz	5,720	0	2	3		0	0	
29	-	AHU	Trane BWE120(1B131 Computer Rm.)	1B131/Mezz	2,542	0	3	2		0	0	
30	-	AHU	Trane BTE120(1B131 Computer Rm.)	1B131/Mezz	2,860	0	2	1.5		0	0	
31	-	AHU	Trane BTE120(1B131 Computer Rm.)	1B131/Mezz	2,860	0	2	1.5		0	0	
32	-	AHU	Trane BWE090(1B131 Computer Rm.)	1B131/Mezz	1,900	0	1.5	1		0	0	
33	AC-6	AHU	Carrier(MR - 1B123)	1B123	800	0	1.3	0.3		0	0	
34	-	AHU	Comfort Air(1B138)	1B138 Offices	3,810	571	2	2		42	0	42
35	AC-1(New)	AHU	Dunham Bush(1B142)	1B142	8,700	1,305	2.6	7.5		96	0	96
36	-	AHU	Chrysler 1005(1B141A)	1B141A	1,905	286	2	1		21	0	21
37	-	UH	unknown(Stairway #1)	Stairway #1	250	0	0.4	0.04		15	0	15
38	-	UH	unknown(1B107 - storage)	1B107	640	0	0.5	0.1		40	0	40
39	-	UH	unknown(1B109 - storage)	1B109	640	0	0.5	0.1		40	0	40
40	-	UH	unknown(1B111- storage)	1B111	640	0	0.5	0.1		40	0	40
41	-	UH	unknown (1B109 - storage)	1B107	250	0	0.5	0.04		15	0	15
42	-	UH	unknown (1B110 - shop)	1B110	500	0	0.5	0.1		30	0	30
43	-	UH	unknown(Stairway #3)	Stairway #3	250	0	0.5	0.04		15	0	15
44	C-4	Convector	unknown(Near Elevator #1 - First floor)	Hallway - Elev #1	0	0	0	0		14	0	
45	C-2(2)	Convector	unknown(1B4L ladies room)	1B4L	0	0	0	0		118	0	
46	-	Fin-tube	unknown(420 ft of 1B100 Area))	Various	0	0	0	0		315	0	
47	-	AHU	Carrier 50(1B202 - Photography)	1B202	1,905	286	2	1		21	0	21
48	-	AHU	Trane SAHB(1B205 - EMS Room)	1B205	2,286	343	2	1		25	0	25
49	AHU-2	AHU-MCA	Trane C C.(1B204)	1B204	1,620	0	2.0	1.5	0.5	36	0	
50	-	AHU	Chrysler 1005(1B212)	1B212	1,905	286	2	1		21	0	21
51	-	UH	unknown (1B212 - shop)	1B212	500	0	0.5	0.1		30	0	30
52	-	Fin-tube	unknown(200 ft of 1B200 Area))	Various	0	0	0	0		150	0	
53	-	AHU-MCA	Carrier 39(1B302 - offices)	1B302	1,905	0	2	1		10	0	
54	-	AHU-MCA	Carrier 39(1B302 - offices)	1B302	2,667	0	2	2		15	0	
55	-	AHU-MCA	Carrier 39(1B306 - offices)	1B306	2,667	0	2	2		15	0	
56	-	AHU-MCA	Carrier 39(1B306 - offices)	1B306	2,667	0	2	2		15	0	
57	AHU-3	AHU-MCA	Trane C C.(1B322)	1B318,1B324, Entrance	4,210	0	2	1.5	1.5	26	0	
58	-	AHU-MCA	McQuay(1B332 - offices)	1B332	2,600	0	2	1.5		14	0	
59	-	AHU-MCA	McQuay(1B332 - offices)	1B332	2,600	0	2	1.5		14	0	
60	-	UH	unknown(Stairway #4)	Stairway #4	200	0	0.5	0.03		10	0	10
61	-	UH	unknown(1B307))	1B307	1,000	0	0.5	0.15		66	0	66
62	UH-21	UH	unknown(hallway near 1B322)	hallway	320	0	0.5	0.05		20	0	20
63	-	UH	unknown(1B321 Receiving)	1B321	1,300	0	0.5	0.20		84	0	84
64	-	UH	unknown(1B321 Receiving)	1B321	1,300	0	0.5	0.20		84	0	84
65	-	Recirc AC	unknown(1B322- above ceiling)	1B324	9,000	0	2	5		0	0	
66	UH-23	UH	unknown(Stairway #6)	Stairway #6	200	0	0.5	0.03		10	0	10
67	UH-1to7(New)	(7)UH-MCA	unknown((6) Bldg. 2706 & (1)Nit. Stor. Area)	Bldg. 2706 & Nitrogen Storage Area	4,793	0	0.5	0.43		182	0	
68	C-3	Convector	unknown(1B6L ladies room)	1B6L	0	0	0	0		43	0	
69	C-2	Convector	unknown(1B6G gentlemen room)	1B7G	0	0	0	0		59	0	
70	FC-1(11)	FC	unknown(11 in 1B300 Area)	Various	2,200	0	0.5	0.18		33	0	
71	-	Fin-tube	unknown(320 ft of 1B300 Area)	Various	0	0	0	0		240	0	
72	CUH-1(2)	CUH	unknown(New Entrance Area)	entrance way	400	0	0	0.03		37	0	
73	-	AHU-MCA	Carrier 39(1B401 - offices)	1B401	2,667	0	2	2		15	0	
74	AHU-4	AHU-MCA	Trane C C.(1B405 - Library)	Library	3,100	1,178	2.0	2	0.75	26	0	
75	-	AHU-MCA	Trane(above 1B416 - offices)	1B416 area	7,425	0	3	7.5		41	0	
76	-	AHU-MCA	Trane(above 1B416 - offices)	1B500 area	7,425	0	3	7.5		41	0	
77	-	Recirc AC	Liebert(OA-413)	OA413	4,650	0	1	1.5		0	0	
78	-	Recirc AC	Liebert(OA-413)	OA413	4,650	0	1	1.5		0	0	
79	-	UH	unknown(Stairway #7)	Stairway #7	320	0	0.5	0.05		15	0	15
80	-	UH	unknown(Stairway #11)	Stairway #11	200	0	0.5	0.03		10	0	10
81	C-4	Convector	unknown(Near Elevator #7 - First floor)	Hallway - Elev #7	0	0	0	0		14	0	
82	FC-1(11)	FC	unknown(1B405 - Library))	Library	2,200	0	0.5	0.18		33	0	
83	-	Fin-tube	unknown(360 ft of 1B400 & 500 Areas)	Various	0	0	0	0		270	0	
84	-	AHU	Trane(above 1B109 - Computer Area)	Mezz. Computer Area	7,425	0	2	5		41	0	
85	-	Recirc AC	Liebert(above 1B109 - Computer Area)	Mezz. Computer Area	4,650	0	1	1.5		0	0	
86	CUH-1(2)	CUH	unknown(Main Lobby Entrance Area)	Mezz. entrance way	400	0	0	0.03		37	0	
87	AHU-1	AHU-MCA	unknown(above Main Lobby)	Mezz. Lobby Area	4,150	1,620	1.8	3	1.5	118	0	
88	-	AHU-MCA	unknown(1B120 on floor)	Build. Mgr. office/Mezz	800	0	1.3	0.3		4	0	
89	-	AHU	McQuay LSL(Auditorium M-Area)	Auditorium	7,700	1,540	3	7.5		110	0	110
90	-	AHU	McQuay LSL(Auditorium M-Area)	Auditorium	7,700	1,540	3	7.5		110	0	110
91	AC-1	AHU	unknown(MR - 1aB138/Mezz.)	1aB138 Mezz. Area	8,165	1,650	2	5		132	0	132
92	FC-1(5)	FC	unknown(1aB324/Mezz.)	1aB138 Mezz. Area	1,000	0	0.5	0.10		15	0	
93	-	Fin-tube	unknown(250 ft of 1aB100 Areas)	1aB100 Mezz. Area	0	0	0	0		188	0	
				Basement, First & Mezzanine	283,797	15,943	N/A	198	5	4,852	0	2,225

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FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 HVAC SUMMARY (BASEMENT, FIRST FLOOR & MEZZANINE)

TABLE 3.4.1.1

Area Served	Est. Airside/Fan Data (Evap. Fan)					Est. Heating Load		Heating Type (Est. Flows/KW)			Est. Cooling Load/Compressor				Cooling Type (Est. Cond. Flows/hp)						
	Flowrate (cfm)	OA (cfm)	TSP (in w.g.)	Supp.Fan (hp)	RA/OA (hp)	Heating (MBH)	Re-Heat (MBH)	Steam (lb/hr)	MCA-HW (gpm)	Electric (Kw)	Total (MBH)	Total (Tons)	Comp (hp)	Rating (kW/ton)	CHW Water(gpm)	CHW Water(hp)	Cond Water(gpm)	Cond Water(hp)	CHW Air(hp)	DX-Cond. Water(gpm)	D W
teria	21,300	2,130	3	20		492	0	492			360	30	40	0.99							
teria office	1,800	0	2	1		0	0				36	3	5	1.24							
teria office	1,600	0	2	1		0	0				36	3	5	1.24							
00 (J-CALS)	21,300	2,130	3	20		492	0	492			360	30	40	0.99							
15 offices	3,000	450	2	2		59	0		6		60	5	7.5	1.12						—	
13	4,650	0	1	1.5		0	0				84	7	10	1.07						Drycooler	
34	8,400	0	1.5	3		0	0				156	13	20	1.15						Drycooler	
36	4,650	0	1	1.5		0	0				84	7	7.5	0.80						Drycooler	
03 offices	1,970	0	1.3	1	0.75	18	0		2		18	1.5	2	0.78							
18 (J-CALS)	1,800	0	2	1		10	0		1		36	3	3	0.78							
18 (J-CALS)	1,800	0	2	1		10	0		1		36	3	3	0.78							
18 (J-CALS)	1,800	0	2	1		10	0		1		36	3	3	0.78							
18 (J-CALS)	1,800	0	2	1		10	0		1		36	3	3	0.78							
18 (J-CALS)	1,800	0	2	1		10	0		1		36	3	3	0.78							
01	320	0	0.5	0.04		20	0	20			0										
03	320	0	0.5	0.04		20	0	20			0										
21	320	0	0.5	0.04		20	0	20			0										
26	320	0	0.5	0.04		20	0	20			0										
28	320	0	0.5	0.04		20	0	20			0										
30 Area - West	1,800	0	0.5	0.15		27	0		3		45	3.8	4	0.78							
way - Elev #1	0	0	0	0		14	0		2		0										
S/Cafeteria/Lab	0	0	0	0		40	0		4		0										
112/Mezz	88v	89	2	1		10	0				24	2	3	1.12							
0 Cleanroom	20,000	0	4	25		0	0				179	15	20	1.00						45	
14 Print Shop	21,300	0	3	20		0	0				360	30	40	0.99						90	
15 office/storage	3600	540	3	3		40	0	40			65	5	7.5	1.12							
15 office/storage	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
1/Mezz	5,720	0	2	3		0	0				129	10.0	14	1.04							
1/Mezz	2,542	0	3	2		0	0				57	5.0	7.5	1.12							
1/Mezz	2,860	0	2	1.5		0	0				45	3.5	5	1.04							
1/Mezz	2,860	0	2	1.5		0	0				45	3.5	5	1.04							
1/Mezz	1,900	0	1.5	1		0	0				30	2.0	3	1.04							
3	800	0	1.3	0.3		0	0				42	3.5	5	1.04						11	
8 Offices	3,810	571	2	2		42	0	42			120	10	15	1.12							
2	8,700	1,305	2.6	7.5		96	0	96			180	15	20	0.99						45	
1A	1,905	286	2	1		21	0	21			60	5	7.5	1.12						15	
way #1	250	0	0.1	0.04		15	0	15			0										
	640	0	0.1	0.1		40	0	40			0										
9	640	0	0.1	0.1		40	0	40			0										
1	640	0	0.1	0.1		40	0	40			0										
7	250	0	0.5	0.04		15	0	15			0										
0	500	0	0.5	0.1		30	0	30			0										
way #3	250	0	0.5	0.04		15	0	15			0										
ay - Elev #1	0	0	0	0		14	0		2		0										
	0	0	0	0		11.8	0		2		0										
us	0	0	0	0		315	0		32		0										
2	1,905	286	2	1		21	0	21			60	5	7.5	1.12						0	
5	2,286	343	2	1		25	0	25			72	6	7.5	0.93						0	
4	1,820	0	2.0	1.5	0.5	36	0		3.7		63	5.3	5	0.78							
2	1,905	286	2	1		21	0	21			60	5	7.5	1.12						15	
2	500	0	0.5	0.1		30	0	30			0										
us	0	0	0	0		150	0		15		0										
2	1,905	0	2	1		10	0		1		60	5	5	0.78							
2	2,667	0	2	2		15	0		1		60	5	5	0.78							
5	2,667	0	2	2		15	0		1		60	5	5	0.78							
	2,667	0	2	2		15	0		1		60	5	5	0.78							
8,1B324, Entrance	4,210	0	2	1.5	1.5	26	0		2.5		114	9.5	10	0.78							
2	2,600	0	2	1.5		14	0		1		60	5	5	0.78							
2	2,600	0	2	1.5		14	0		1		60	5	5	0.78							
way #4	200	0	0.5	0.03		10	0	10			0										
7	1,000	0	0.5	0.15		66	0	66			0										
ay	320	0	0.5	0.05		20	0	20			0										
1	1,300	0	0.5	0.20		84	0	84			0										
1	1,300	0	0.5	0.20		84	0	84			0										
4	9,000	0	2	5		0	0				180	15	16	0.78						45	To
way #6	200	0	0.5	0.03		10	0	10			0										
2706 & Nitrogen Storage Area	4,793	0	0.5	0.43		182	0		18		0										
	0	0	0	0		4.3	0		1		0										
	0	0	0	0		5.9	0		1		0										
s	2,200	0	0.5	0.18		33	0		3		55	4.6	5	0.78							
s	0	0	0	0		240	0		24		0										
ce way	400	0	0	0.03		37	0		4		0										
	2,667	0	2	2		15	0		1		60	5	5	0.78							
y	3,100	1,178	2.0	2	0.75	26	0		2.5		114	9.5	10	0.78							
area	7,425	0	3	7.5		41	0		4		168	14	15	0.78							
area	7,425	0	3	7.5		41	0		4		168	14	15	0.78							
3	4,850	0	1	1.5		0	0				60	5	7.5	1.12						Drycooler	
3	4,850	0	1	1.5		0	0				60	5	7.5	1.12						Drycooler	
way #7	320	0	0.5	0.05		15	0	15			0										
way #11	200	0	0.5	0.03		10	0	10			0										
ay - Elev #7	0	0	0	0		14	0		2		0										
y	2,200	0	0.5	0.18		33	0		3		55	4.6	5	0.78							
s	0	0	0	0		270	0		27		0										
Computer Area	7,425	0	2	5		41	0			Yes(0)	60	5	7.5	1.12							
Computer Area	4,850	0	1	1.5		0	0			Yes(0)	60	5	7.5	1.12						Drycooler	
entrance way	400	0	0	0.03		37	0		4		0										
Lobby Area	4,150	1,620	1.8	3	1.5	118	0		11		157	13.1	14	0.78							
Mgr. office/Mezz	800	0	1.3	0.3		4	0		0.4		48	4	4	0.78							
rium	7,700	1,540	3	7.5		110	0	110			180	15	20	0.99	45	16			3		
rium	7,700	1,540	3	7.5		110	0	110			180	15	20	0.99	45	16			3		
8 Mezz. Area	8,165	1,650	2	5		132	0	132			180	15	20	0.99						45	T
8 Mezz. Area	1,000	0	0.5	0.10		15	0		2		25	2.1	2	0.78							
0 Mezz. Area	0	0	0	0		11	0		1		0										
ent. First & Mezzanine	283,797	15,943	N/A	198	5	4,852	0	2,225	260	3	5,294	439	557	0.95	90	3	0	0	6	310	

(2)

Cooling Type (Est. Cond Flows/hp)									Cooling Equipment Field	System Total		
CHW Water(gpm)	CHW Water(hp)	Cond Water(gpm)	Cond Water(hp)	CHW Air(hp)	DX-Cond Water(gpm)	DX-Cond Water(hp)	DX Air(hp)	MCA-CHW Water(gpm)	Data/Reference/(Location)	Total (hp)	Total (kw)	HVAC Item
							6		McQuay ALP(Outside on grade)	66.1	49.3	1
							1		Carrier 38(Location unknown)	6.8	5.1	2
							1		Carrier 38(Location unknown)	6.8	5.1	3
							6		unknown (Outside on grade)	66.1	49.3	4
					—		1		unknown(Outside on grade)	10.6	7.9	5
					Drycooler	1.5	1.5		Liebert(Outside on grade)	14.5	10.8	6
					Drycooler	2.0	2.3		Liebert(Outside on grade)	27.3	20.3	7
					Drycooler	1.5	1.5		Liebert(Outside on grade)	12.0	9.0	8
								12	Plant Chilled Water @ 55 degrees F	3.1	2.3	9
								7	Plant Chilled Water @ 55 degrees F	4.2	3.1	10
								7	Plant Chilled Water @ 55 degrees F	4.2	3.1	11
								7	Plant Chilled Water @ 55 degrees F	4.2	3.1	12
								7	Plant Chilled Water @ 55 degrees F	4.2	3.1	13
								7	Plant Chilled Water @ 55 degrees F	4.2	3.1	14
									N/A	0.0	0.03	15
									N/A	0.0	0.03	16
									N/A	0.0	0.03	17
									N/A	0.0	0.03	18
									N/A	0.0	0.03	19
								10	N/A	4.1	3.04	20
									N/A	0.0	0.00	21
									N/A	0.0	0.00	22
							0.5		unknown (Outside on grade)	8.0	6.0	23
					45	Tower 1	Tower 1		Compressor in 1B120 & tower on roof	44.7	33.3	24
					90	Tower 2	Tower 2		Packaged unit w/tower on roof	59.7	44.5	25
							1		unknown (Outside on grade)	12.0	9.0	26
-	-	-	-	-	-	-	-	-	unknown (Outside on grade)	0.0	-	27
							2		Trane BWA 180(Outside on grade)	19.1	14.3	28
							1		Trane BWE 120(Outside on grade)	10.7	8.0	29
							1		Trane BWA 120(Outside on grade)	7.1	5.3	30
							1		Trane BWA 120(Outside on grade)	7.1	5.3	31
							0.75		Trane BTA 090(Outside on grade)	4.5	3.4	32
					11	Tower 2	Tower 2		Compressor in 1B123 & tower on roof	5.2	3.9	33
							2		Comfort Air(Outside on grade)	19.3	14.4	34
					45	Tower 2	Tower 2		Compressor in 1B142 & tower on roof	27.5	20.5	35
					15	Tower 3	Tower 3		Compressor in 1B141A & tower on roof	8.6	6.4	36
									N/A	0.0	0.03	37
									N/A	0.1	0.07	38
									N/A	0.1	0.07	39
									N/A	0.1	0.07	40
									N/A	0.0	0.03	41
									N/A	0.1	0.07	42
									N/A	0.0	0.03	43
									N/A	0.0	0.00	44
									N/A	0.0	0.00	45
									N/A	0.0	0.00	46
					0	0	1		unknown(Location unknown)	9.8	7.3	47
					0	0	1		Trane(Outside on grade)	10.0	7.5	48
								13	Plant Chilled Water @ 55 degrees F	7.5	5.6	49
					15	Tower 3	Tower 3		Compressor in 1B212 & tower on roof	8.6	6.4	50
									N/A	0.1	0.07	51
									N/A	0.0	0.00	52
								12	Plant Chilled Water @ 55 degrees F	6.3	4.7	53
								12	Plant Chilled Water @ 55 degrees F	6.8	5.1	54
								12	Plant Chilled Water @ 55 degrees F	6.8	5.1	55
								12	Plant Chilled Water @ 55 degrees F	6.8	5.1	56
								23	Plant Chilled Water @ 55 degrees F	12.9	9.6	57
								12	Plant Chilled Water @ 55 degrees F	6.7	5.0	58
								12	Plant Chilled Water @ 55 degrees F	6.7	5.0	59
									N/A	0.0	0.02	60
									N/A	0.2	0.11	61
									N/A	0.1	0.04	62
									N/A	0.2	0.15	63
									N/A	0.2	0.15	64
					45	Tower 3(?)	Tower 3		Compressor in 1B322 & tower on roof	20.7	15.4	65
									N/A	0.0	0.02	66
									N/A	0.4	0.32	67
									N/A	0.0	0.00	68
									N/A	0.0	0.00	69
								12	N/A	5.0	3.71	70
									N/A	0.0	0.00	71
									N/A	0.0	0.02	72
								12	Plant Chilled Water @ 55 degrees F	6.8	5.1	73
								23	Plant Chilled Water @ 55 degrees F	12.7	9.5	74
								34	Plant Chilled Water @ 55 degrees F	22.1	16.5	75
								34	Plant Chilled Water @ 55 degrees F	22.1	16.5	76
					Drycooler	1.5	1.5		Liebert(Outside on grade)	12.0	9.0	77
					Drycooler	1.5	1.5		Liebert(Outside on grade)	12.0	9.0	78
									N/A	0.1	0.04	79
									N/A	0.0	0.02	80
									N/A	0.0	0.00	81
								12	N/A	5.0	3.71	82
									N/A	0.0	0.00	83
							1		Trane(Outside on grade)	13.3	9.9	84
					Drycooler	1.5	1.5		Liebert(Outside on grade)	12.0	9.0	85
									N/A	0.0	0.02	86
								31	Plant Chilled Water @ 55 degrees F	18.2	13.6	87
								10	Plant Chilled Water @ 55 degrees F	4.5	3.4	88
45	1.6			3			3		McQuay AHR(Common - out on grade)	35.3	26.4	89
45	1.6			3			3		McQuay AHR(Common - out on grade)	35.3	26.4	90
					45	Tower 2	Tower 2		Compressor in 1B123 & tower on roof	25.0	18.7	91
								6	Plant Chilled Water @ 55 degrees F	2.3	1.70	92
									N/A	0.0	0.00	93
90	3	0	0	6	310	30	45	338		827	617	1.41

(3)

HVAC Item	HVAC Airside Equipment - General Information				Est. Airside Data (Evap. Fan)					Est. Heating Load		Heating Type
	Design/Site Designation	Equip Type	Field Data/Reference/(Location)	Area Served	Flowrate (cfm)	OA (cfm)	TSP (in w.g.)	Supp. Fan (hp)	RA/OA (hp)	Heating (MBH)	Re-Heat (MBH)	Steam - MC (lb/hr) (g
94	AC-2	AHU	unknown(MR - 21 South 2C/D100 Area)	2D110 offices	11,800	800	1	5		126		126
95	-	Recirc. AC	Datac(2D106/Computer room)	2D106	2,800	0	1	1.5		0		
96	AHU-2-1	AHU-MCA	Trane C.C (MR - 21-A South 2C/D100 Area	2C/D100 offices/corridors	8,230	1,235	3.0	10.0	3	36		
97	AC-3	AHU	unknown(MR - 22 North 2C/D100 Area)	2D130 electronics lab	10,200	2,100	2	5		209		209
98	AHU-2-2	AHU-MCA	Trane C.C (MR - 22-A North 2C/D100 Area	2C/D100 offices/corridors	8,140	1,221	2.5	7.5	3	73		
99	-	AHU	Cargoaire(located on roof)	2D140 Dryroom	6,252	625	5	10		66		
100	-	AHU	unknown(MR-22 North 2C/D100 Area)	2D204 lab area	10,667	0	3	10		0		
101	FC-1(78)	FC	unknown(78 in 2C/D100 area)	2C/D100 perimeter areas	15,600	0	0.5	1.3		234		
102	C-4	Convector	unknown(Near Elevator #1 - Second floor)	Hallway - Elev #1	0	0	0	0		14		
103	-	AHU-MCA	Carrier 39LV(MR-23 East 2C/D200 Area)	2D210 lab area	8,000	0	3	7.5		0		
104	AHU-2-3	AHU-MCA	Trane C.C (MR-23 East 2C/D200 Area)	2C/D200/300 offices/corridors	13,680	2,045	2.5	15	5	124		
105	FC-1(35)	FC	unknown(35 in 2C/D200 area)	2C/D200 perimeter areas	7,000	0	0.5	0.6		105		
106	AC-14	AHU	unknown(MR - 23 East 2C/D200 Area)	2D306 lab area	16,520	2,250	2	7.5		393		393
107	-	AHU	unknown(2D310 Cleanroom)	2D310 Cleanroom	2,600	1,900	6	5		0	51	51
108	-	AHU	Trane SWUB(2C325)	2C325	4,000	0	2.5	3		0		
109	-	AHU	Chrysler(2D330)	2D330 area	13,000	0	2.5	10		0		
110	-	Recirc. AC	Liebert(2D335/Computer room)	2D335	2,800	0	1	1.5		0		
111	-	AC	Hideaway Pkg. Unit(2D337)	2D337	1,067	0	1.5	0.5		0		
112	AHU-2-4	AHU-MCA	Trane C.C (MR-24 East 2C/D300 Area)	2C/D300 offices/corridors	7,940	1,180	2.8	7.5	3	72		
113	FC-1(83)	FC	unknown(83 in 2C/D300 area)	2C/D300 perimeter areas	16,600	0	0.5	1.4		249		
114	AHU-2-4A	AHU-MCA	Trane C.C (MR-24 East 2C/D300 Area)	2C/D400 offices/corridors	5,025	760	2.0	5	1.5	45		
115	-	Recirc. AC	Datac(2C405/Computer room)	2C405	2,800	0	1	1		0		
116	-	Recirc. AC	Datac(2C407/Computer room)	2C407	2,800	0	1	1		0		
117	FC-1(41)	FC	unknown(41 in 2C/D400 area)	2C/D400 perimeter areas	8,200	0	0.5	0.7		123		
118	AHU-2-5	AHU-MCA	Trane C.C (MR-25 South 2C/D400 Area)	2C/D400 offices/corridors	4,390	660	2.3	5	1.5	39		
119	AHU-2-5A	AHU-MCA	Trane C.C (MR-25 South 2C/D400 Area)	2C/D400/500 offices/corridors	2,750	410	2.0	2	1.5	25		
120	FC-1(19)	FC	unknown(19 in 2C/D500 area)	2C/D500 perimeter areas	3,800	0	0.5	0.3		57		
121	C-5	Convector	unknown(Near Elevator #7 - Second floor)	Hallway - Elev #7	0	0	0	0		12		
122	AHU-3-1	AHU-MCA	Trane C.C (MR-31 South 3C/D100 Area)	3C/D100 offices/corridors	6,855	1,030	2.5	7.5	2	62		
123	AHU-3-1A	AHU-MCA	Trane C.C (MR-31 South 3C/D100 Area)	3C/D100 offices/corridors	4,140	555	2.5	5	1.5	38		
124	-	AHU	Copeland WZW(3D114)	3D114 area	8,000	0	2	5		0		
125	AHU-3-2	AHU-MCA	Trane C.C (MR-32 North 3C/D100 Area)	3C/D100 offices/corridors	6,420	965	2.5	7.5	2.5	58		
126	AHU-3-2A	AHU-MCA	Trane C.C (MR-32 North 3C/D100 Area)	3C/D100/200 offices/corridors	4,410	660	2.3	7.5	1.5	40		
127	-	Recirc. AC	Trane RAVC(3C141/Computer room)	3C141	3,360	0	1	1		0		
128	-	Recirc. AC	Liebert(3C143/Computer room)	3C143	4,650	0	1	1.5		0		
129	FC-1(95)	FC	unknown(95 in 3C/D100 area)	3C/D100 perimeter areas	19,000	0	0.5	1.6		285		
130	C-5	Convector	unknown(Near Elevator #1 - Third floor)	Hallway - Elev #1	0	0	0	0		12		
131	-	(2)AHU FC's(?)	York(MR - 33 East 3C/D200 Area)	3D306-3C321 lab area	32,000	3,200	3	30		458		458
132	-		unknown(Rooms 3D314 - 3C321)	3D314 - 3C321 lab area	8,000	0	1	2		0		
133	AHU-3-3	AHU-MCA	Trane C.C (MR-33 East 3C/D200/300 Area)	3C/D200/300 offices/corridors	12,820	1,923	2.5	15	5	116		
134	FC-1(35)	FC	unknown(35 in 3C/D200 area)	3C/D200 perimeter areas	7,000	0	0.5	0.6		105		
135	-	AHU	Climatrol(MR-34 South 3C/D300 Area)	3D330 Cleanroom	25,000	5,000	3	20		358		358
136	AHU-3-4	AHU-MCA	Trane C.C (MR-34 South 3C/D300/400 Area)	3C/D300/400 offices/corridors	6,600	990	2.5	7.5	2.5	59		
137	FC-1(83)	FC	unknown(83 in 3C/D300 area)	3C/D300 perimeter areas	16,600	0	0.5	1.4		249		
138	-	Recirc. AC	Liebert(3D402/Computer room)	3D402	4,650	0	1	1.5		0		
139	-	Recirc. AC	Liebert(3D402/Computer room)	3D402	4,650	0	1	1.5		0		
140	-	Recirc. AC	Liebert(3D404/Computer room)	3D404	8,400	0	1.5	3		0		
141	-	Recirc. AC	Liebert(3D406/Computer room)	3D406	4,650	0	1	1.5		0		
142	-	Recirc. AC	Liebert(3D406/Computer room)	3D406	4,650	0	1	1.5		0		
143	-	Recirc. AC	Liebert(3D409/Computer room)	3D409	5,650	0	1.5	2		0		
144	-	Recirc. AC	Liebert(3D410/Computer room)	3D410	8,400	0	1.5	3		0		
145	-	Recirc. AC	Liebert(3D412/Computer room)	3D412	10,200	0	1.5	5		0		
146	-	Recirc. AC	Liebert(3D412/Computer room)	3D412	10,200	0	1.5	5		0		
147	FC-1(40)	FC	unknown(40 in 3C/D400 area)	3C/D400 perimeter areas	8,000	0	0.5	0.7		120		
148	AHU-3-5	AHU-MCA	Trane C.C (MR-35 South 3C/D400 Area)	3C/D400 offices/corridors	6,960	1,045	2.3	7.5	3	63		
149	AHU-3-5A	AHU-MCA	Trane C.C (MR-35 South 3C/D400 Area)	3C/D400/500 offices/corridors	1,785	270	2.3	2.0	0.75	16		
150	FC-1(19)	FC	unknown(19 in 3C/D500 area)	3C/D500 perimeter areas	3,800	0	0.5	0.3		57		
151	C-5	Convector	unknown(Near Elevator #7 - Third floor)	Hallway - Elev #7	0	0	0	0		12		
152	AC-7	AHU	unknown(MR - 41 South 4C/D100 Area)	4D110 lab/offices	18,300	2,000	3	10		264		264
153	AC-1(New)	AHU	Governair RSA06(located on roof)	4D130 Cleanroom (Class 100)	25,000	5,000	5	40		0	563	563
154	AC-2(New)	AHU	Governair RSA03(located on roof)	4D130/140 Cleanrooms(Class 100)	15,000	3,000	5	30		0	317	317
155	AC-3(New)	AHU	Governair RSA02(located on roof)	4D130 Cleanroom (Class 10)	10,000	2,000	5	15		0	229	229
156	-	AHU	Carrier ?(in/above 4D140 Cleanroom)	4D140 Cleanroom	10,700	0	3	10		0		
157	AHU-R-1	AHU-MCA	Trane C.C (On roof above 4C/D100 Area)	4C/D100 offices/corridors	7,270	1,310	2.5	7.5	3	79		
158	AHU-R-2	AHU-MCA	Trane C.C (On roof above 4C/D100 Area)	4C/D100 offices/corridors	5,305	955	2.3	7.5	2	58		
159	FC-1(83)	FC	unknown(83 in 4C/D100 area)	4C/D100 perimeter areas	16,600	0	0.5	1.4		249		
160	C-5	Convector	unknown(Near Elevator #1 - Fourth floor)	Hallway - Elev #1	0	0	0	0		12		
161	-	Recirc. AC	Data Air(4C205/Computer room)	4C205 Area	5,650	0	1.5	2		0		
162	-	Recirc. AC	Data Air(4C209/Computer room)	4C209 Area	5,650	0	1.5	2		0		
163	-	Recirc. AC	Data Air(4C211/Computer room)	4C211 Area	5,650	0	1.5	2		0		
164	-	Recirc. AC	Data Air(4C213/Computer room)	4C213 Area	5,650	0	1.5	2		0		
165	-	Recirc. AC	Edpac(4D204/Computer room)	4D204 Area	5,650	0	1.5	2		0		
166	-	Recirc. AC	Edpac(4D204/Computer room)	4D204 Area	5,650	0	1.5	2		0		
167	-	Recirc. AC	Data Air(4D208/Computer room)	4D208 Area	9,300	0	1.5	5		0		
168	-	Recirc. AC	Data Air(4D210/Computer room)	4D210 Area	2,800	0	1	1		0		
169	-	Recirc. AC	Data Air(4D214/Computer room)	4D214 Area	2,800	0	1	1		0		
170	AHU-R-3	AHU-MCA	Trane C.C (On roof above 4C/D300 Area)	4C/D100/200/300 offices/corridors	8,035	1,455	3.3	10	3	87		
171	FC-1(40)	FC	unknown(40 in 4C/D200 area)	4C/D200 perimeter areas	8,000	0	0.5	0.7		120		
172	-	Recirc. AC	Liebert(4D308/Computer room)	4D308	5,650	0	1.5	2		0		
173	-	Recirc. AC	Edpac(4D317/Computer room)	4C317	8,400	0	1.5	3		0		
174	-	Recirc. AC	Liebert(4D324/Computer room)	4D324	8,400	0	1.5	3		0		
175	-	Recirc. AC	Liebert(4D326/Computer room)	4D326	4,650	0	1	1.5		0		
176	-	Recirc. AC	Liebert(4D328/Computer room)	4D328	4,650	0	1	1.5		0		
177	-	Recirc. AC	Liebert(4D328/Computer room)	4D328	4,650	0	1	1.5		0		
178	AHU-R-4	AHU-MCA	Trane C.C (On roof above 4C/D300 Area)	4C/D300 offices/corridors	5,135	925	2.3	5	1.5	56		
179	FC-1(88)	FC	unknown(88 in 4C/D300 area)	4C/D300 perimeter areas	17,600	0	0.5	1.5		264		
180	-	Recirc. AC	Datac(4C405/Computer room)	4C405	8,400	0	1.5	3		0		
181	-	Recirc. AC	Liebert(4C405/Computer room)	4C405	8,400	0	1.5	3		0		
182	-	Recirc. AC	Liebert(4C405/Computer room)	4C405	8,400	0	1.5	3		0		
183	-	Recirc. AC	Liebert(4C405/Computer room)	4C405	4,650	0	1	1.5		0		
184	-	Recirc. AC	Liebert(4C417/Computer room)	4C417	8,400	0	1.5	3		0		
185	-	Recirc. AC	Liebert(4C417/Computer room)	4C417	8,400	0	1.5	3		0		
186	-	Recirc. AC	Liebert(4C417/Computer room)	4C417	2,800	0	1	1		0		
187	AHU-R-5	AHU-MCA	Trane C.C (On roof above 4C/D300 Area)	4C/D300/400 offices/corridors	4,915	880	2.3	5	2	55		
188	FC-1(44)	FC	unknown(44 in 4C/D400 area)	4C/D400 perimeter areas	8,800	0	0.5	0.7		132		
189	AHU-R-6	AHU-MCA	Trane C.C (On roof above 4C/D500 Area)	4C/D400/500 offices/corridors	7,785	1,410	3.0	10	3	84		
190	FC-1(20)	FC	unknown(20 in 4C/D500 area)	4C/D500 perimeter areas	4,000	0	0.5	0.3		60		
191	C-5	Convector	unknown(Near Elevator #7 - Fourth floor)	Hallway - Elev #7	0	0	0	0		12		
				Second, Third & Fourth Totals	748,606	49,761	N/A	476	52	5,647	1,160	2,970
				Building Totals	1,032,402	65,704	N/A	674	57	10,500	1,160	5,19

(1)

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 HVAC SUMMARY (SECOND, THIRD & FOURTH FLOORS)

TABLE 3.4.1.2

Est. Airside Data (Evap. Fan)					Est. Heating Load		Heating Type (Est. Flows/Kw)			Est. Cooling Load/Compressor				Cooling Type (Est. Cond. Flows/hp)								
Flowrate (cfm)	OA (cfm)	TSP (in w.g.)	Supp. Fan (hp)	RA/OA (hp)	Heating (MBH)	Re-Heat (MBH)	Steam (lb/hr)	MCA-HW (gpm)	Electric (Kw)	Total (MBH)	Total (Tons)	Comp (hp)	Rating (kW/ton)	CHW Water(gpm)	CHW Water(hp)	Cond Water(gpm)	Cond Water(hp)	CHW Air(hp)	DX-Cond Water(gpm)	DX-Cond Water(hp)	DX Air(hp)	M Wa
11,800	800	1	5		126		126			189	15	20	0.99							45	Tower 1	Tower 1	
2,800	0	1	1.5		0					60	5	7.5	1.12							15	Tower 1	Tower 1	
8,230	1,235	3.0	10.0	3	36			7.4		63	5.3	5	0.78										
10,200	2,100	2	5		209		209			363	30	30	1.12	73	3	91	Tower 2	Tower 2					
8,140	1,221	2.5	7.5	3	73			7.4		225	18.8	20	0.78										
6,252	625	5	10		68				20	180	15	20	0.99							—		3	
10,667	0	3	10		0					240	20	30	1.12							60	Tower 2	Tower 2	
15,600	0	0.5	1.3		234			23		390	32.5	34	0.78										
0	0	0	0		14			2		0													
8,000	0	3	7.5		0					180	15	20	0.99							45	Tower 3	Tower 3	
13,680	2,045	2.5	15	5	124			12.4		378	31.5	33	0.78										
7,000	0	0.5	0.6		105			11		175	14.6	15	0.78										
16,520	2,250	2	7.5		393		393			360	30	40	0.99	72	3	90	Tower 3	Tower 3					
2,600	1,900	6	5		0	51	51			234	15	20	0.99	59	2			3					
4,000	0	2.5	3		0					90	7.5	10	0.99							23	Tower 3	Tower 3	
13,000	0	2.5	10		0				Yes(0)	180	15	20	0.99										3
2,800	0	1	1.5		0					60	5	7.5	1.12							15	Tower 4	Tower 4	
1,067	0	1.5	0.5		0					24	2	3	1.12							6	Tower 4	Tower 4	
7,940	1,180	2.8	7.5	3	72			7.2		219	18.3	19	0.78										
16,600	0	0.5	1.4		249			25		415	34.6	36	0.78										
5,025	760	2.0	5	1.5	45			4.6		139	11.6	12	0.78										
2,800	0	1	1		0					60	5	7.5	1.12							15	Tower 4	Tower 4	
2,800	0	1	1		0					60	5	7.5	1.12							15	Tower 4	Tower 4	
8,200	0	0.5	0.7		123			12		205	17.1	18	0.78										
4,390	660	2.3	5	1.5	39			4		362	30.2	32	0.78							60	Tower 4	Tower 4	
2,750	410	2.0	2	1.5	25			2.5		76	6.3	7	0.78										
3,800	0	0.5	0.3		57			6		95	7.9	8	0.78										
0	0	0	0		12			2		0													
6,855	1,030	2.5	7.5	2	62			6.2		189	15.8	16	0.78										
4,140	555	2.5	5	1.5	38			3.8		114	9.5	10	0.78										
8,000	0	2	5		0					120	10	15	1.12							30	Tower 1	Tower 1	
6,420	965	2.5	7.5	2.5	58			5.8		177	14.8	15	0.78										
4,410	660	2.3	7.5	1.5	40			4		122	10.2	11	0.78										
3,360	0	1	1		0					72	6	10	1.24									15	
4,650	0	1	1.5		0					84	7	10	1.07							21	Tower 1	Tower 1	
19,000	0	0.5	1.6		285			29		475	39.6	41	0.78										
0	0	0	0		12			2		0													
32,000	3,200	3	30		458		458			480	40	50	0.93									8	
8,000	0	1	2		0					120	10	15	1.12	30	1			2					
12,820	1,925	2.5	15	5	116			11.6		334	27.8	29	0.78										
7,000	0	0.5	0.6		105			11		175	14.6	15	0.78										
25,000	5,000	3	20		358		358			600	50	60	0.90	150	6			10					
6,600	990	2.5	7.5	2.5	59			6.0		182	15.2	16	0.78										
16,600	0	0.5	1.4		249			25		415	34.6	36	0.78										
4,650	0	1	1.5		0					84	7	10	1.07						Drycooler	1.5	1.5		
4,650	0	1	1.5		0					84	7	10	1.07						Drycooler	1.5	1.5		
8,400	0	1.5	3		0					120	10	15	1.12						Drycooler	2.0	2.3		
4,650	0	1	1.5		0					84	7	10	1.07						Drycooler	1.5	1.5		
4,650	0	1	1.5		0					84	7	10	1.07						Drycooler	1.5	1.5		
5,650	0	1.5	2		0					108	9	15	1.24						Drycooler	1.5	1.5		
8,400	0	1.5	3		0					120	10	15	1.12						Drycooler	2.0	2.3		
10,200	0	1.5	5		0					180	15	20	0.99						Drycooler	3.0	3.0		
10,200	0	1.5	5		0					180	15	20	0.99						Drycooler	3.0	3.0		
8,000	0	0.5	0.7		120			12		200	16.7	17	0.78										
6,960	1,045	2.3	7.5	3	63			6.3		192	16.0	17	0.78										
1,785	270	2.5	2.0	0.75	16			1.6		49	4.1	4	0.78										
3,800	0	0.5	0.3		57			6		95	7.9	8	0.78										
0	0	0	0		12			2		0													
16,300	2,000	3	10		264		264			504	30	40	0.99	101	4	127	Tower 1	Tower 1					
25,000	6,000	5	40		0	563	563			373	62	75	0.93	93	4			10					
15,000	3,000	5	30		0	317	317			224	37	47	0.93	56	2			5					
10,000	2,000	5	15		0	229	229			149	25	31	0.93	37	1			3					
10,700	0	3	10		0					180	15	20	0.99	45	2			3					
7,270	1,310	2.5	7.5	3	79			7.9		211	17.6	18	0.78										
5,305	955	2.3	7.5	2	58			5.8		154	12.8	13	0.78										
16,600	0	0.5	1.4		249			25		415	34.6	36	0.78										
0	0	0	0		12			2		0													
5,650	0	1.5	2		0					108	9	15	1.24						(2)Drycoolers	9	6		
5,650	0	1.5	2		0					108	9	15	1.24						-	-	-		
5,650	0	1.5	2		0					108	9	15	1.24						-	-	-		
5,650	0	1.5	2		0					108	9	15	1.24						-	-	-		
5,650	0	1.5	2		0					108	9	15	1.24						-	-	-		
5,650	0	1.5	2		0					108	9	15	1.24						-	-	-		
9,300	0	1.5	5		0					180	15	20	0.99						-	-	-		
2,800	0	1	1		0					60	5	7.5	1.12						-	-	-		
2,800	0	1	1		0					60	5	7.5	1.12						-	-	-		
8,035	1,455	3.3	10	3	87			8.8		233	19.4	20	0.78										
8,000	0	0.5	0.7		120			12		200	16.7	17	0.78										
5,650	0	1.5	2		0					108	9	15	1.24							27	Tower 3	Tower 3	
8,400	0	1.5	3		0					120	10	15	1.12							30	Tower 3	Tower 3	
8,400	0	1.5	3		0					120	10	15	1.12						Drycooler	2.0	2.3		
4,650	0	1	1.5		0					84	7	10	1.07						Drycooler	1.5	1.5		
4,650	0	1	1.5		0					84	7	10	1.07						Drycooler	1.5	1.5		
4,650	0	1	1.5		0					84	7	10	1.07						Drycooler	1.5	1.5		
5,135	925	2.3	5	1.5	56			5.6		149	12.4	13	0.78										
17,600	0	0.5	1.5		264			26		440	36.7	38	0.78										
8,400	0	1.5	3		0					120	10	15	1.12						Drycooler	2.0	2.3		
8,400	0	1.5	3		0					120	10	15	1.12						Drycooler	2.0	2.3		
8,400	0	1.5	3		0					120	10	15	1.12						Drycooler	2.0	2.3		
4,650	0	1	1.5		0					84	7	10	1.07						Drycooler	1.5	1.5		
8,400	0	1.5	3		0					120	10	15	1.12						Drycooler	2.0	2.3		
8,400	0	1.5	3		0					120	10	15	1.12						Drycooler	2.0	2.3		
2,800	0	1	1		0					60	5	7.5	1.12						Drycooler	1.5	1.5		
4,915	880	2.3	5	2	55			5.4		143	11.9	12	0.78										
8,800	0	0.5	0.7		132			13		220	18.3	19	0.78										
7,785	1,410	3.0	10	3	84			8.5		226	18.8	20	0.78										
4,000	0	0.5	0.3		60			6		100	8.3	9	0.78										
0	0	0	0		12			2		0													
748,606	49,761	N/A	476	52	5,647	1,160	2,870	384	20	16,467	1,406	1,726	0.92	716	28	307	0	36	407	40	60		
1,032,402	65,704	N/A	674	57	10,500	1,160	5,196	644	23	21,761	1,847	2,285	0.92	806	31	307	0	42	717	56	105		

(2)

RS)

Cooling Type (Est. Cond. Flows/hp)									Cooling Equipment	System Totals		
CHW Water(gpm)	CHW Water(hp)	Cond Water(gpm)	Cond Water(hp)	CHW Air(hp)	DX-Cond Water(gpm)	DX-Cond Water(hp)	DX Air(hp)	MCA-CHW Water(gpm)	Field Data/Reference/(Location)	Total (hp)	Total (kw)	HVAC Item
					45	Tower 1	Tower 1		Compressor in MR-21 & tower on roof	25.0	18.7	94
					15	Tower 1	Tower 1		Liebert Unit in 2D106 & tower on roof	9.0	6.7	95
								46	Plant Chilled Water @ 55 degrees F	18.5	13.8	96
73	3	91	Tower 2	Tower 2					Compressor in MR-21 & tower on roof	37.8	28.2	97
								45	Plant Chilled Water @ 55 degrees F	30.1	22.5	98
					—		3		Cargo Packaged AHU/AC cond. on roof	59.7	44.5	99
					60	Tower 2	Tower 2		Packaged Unit in MR-22 & tower on roof	39.9	29.7	100
								86	Plant Chilled Water @ 55 degrees F	35.3	26.3	101
									N/A	0.0	0.00	102
					45	Tower 3	Tower 3		Compressor in MR-23 & condenser on roof	27.5	20.5	103
								74	Plant Chilled Water @ 55 degrees F	52.9	39.5	104
								39	Plant Chilled Water @ 55 degrees F	15.8	11.8	105
72	3	90	Tower 3	Tower 3					Compressor in MR-23 & tower on roof	50.3	37.5	106
59	2			3					Pack. Carrier Air Cooled Chiller on roof	30.1	22.4	107
					23	Tower 3	Tower 3		Packaged Unit in 2C325 & tower on roof	13.1	9.8	108
							3		Compressor in 2D330 & cond. on roof	33.2	24.8	109
					15	Tower 4	Tower 4		Liebert Unit in 2D332 & tower on roof	9.0	6.7	110
					6	Tower 4	Tower 4		Packaged Unit in 2D337 & tower on roof	3.5	2.6	111
								44	Plant Chilled Water @ 55 degrees F	29.6	22.1	112
								91	Plant Chilled Water @ 55 degrees F	37.5	28.0	113
								26	Plant Chilled Water @ 55 degrees F	18.6	13.9	114
					15	Tower 4	Tower 4		Datac Unit in 2C405 & tower on roof	8.5	6.3	115
					15	Tower 4	Tower 4		Datac Unit in 2C407 & tower on roof	8.5	6.3	116
								45	Plant Chilled Water @ 55 degrees F	18.5	13.8	117
					60	Tower 4	Tower 4	24	PCW @ 55F-Comp. in MR25/tower on roof	38.0	28.4	118
								45	Plant Chilled Water @ 55 degrees F	10.1	7.6	119
								21	Plant Chilled Water @ 55 degrees F	8.6	6.4	120
									N/A	0.00	0.00	121
								38	Plant Chilled Water @ 55 degrees F	26.0	19.4	122
								23	Plant Chilled Water @ 55 degrees F	16.4	12.3	123
					30	Tower 1	Tower 1		Compressor in 3D114 & tower on roof	19.9	14.9	124
								36	Plant Chilled Water @ 55 degrees F	25.4	19.0	125
								24	Plant Chilled Water @ 55 degrees F	19.6	14.6	126
							15		Trane Unit in 3C141 & condenser on roof	12.5	9.3	127
					21	Tower 1	Tower 1		Liebert Unit in 2C407 & tower on roof	11.5	8.6	128
								105	Plant Chilled Water @ 55 degrees F	43.0	32.1	129
									N/A	0.0	0.00	130
							8		York Comp. in MR-33 & condenser on roof	87.1	65.0	131
									Trane Chiller in MR23 & condenser on roof	20.9	15.6	132
30	1			2				71	Plant Chilled Water @ 55 degrees F	49.1	36.6	133
								39	Plant Chilled Water @ 55 degrees F	15.8	11.8	134
150	6			10					Climatrol Chiller in MR34 & cond. on roof	95.8	71.5	135
								37	Plant Chilled Water @ 55 degrees F	25.9	19.3	136
								91	Plant Chilled Water @ 55 degrees F	37.5	28.0	137
					Drycooler		15	15	Liebert(located on roof)	14.5	10.8	138
					Drycooler		15	15	Liebert(located on roof)	14.5	10.8	139
					Drycooler		20	23	Liebert(located on roof)	22.3	16.6	140
					Drycooler		15	15	Liebert(located on roof)	14.5	10.8	141
					Drycooler		15	15	Liebert(located on roof)	14.5	10.8	142
					Drycooler		15	15	Liebert(located on roof)	20.0	14.9	143
					Drycooler		20	23	Liebert(located on roof)	22.3	16.6	144
					Drycooler		30	30	Liebert(located on roof)	31.0	23.1	145
					Drycooler		30	30	Liebert(located on roof)	31.0	23.1	146
								44	Plant Chilled Water @ 55 degrees F	18.1	13.5	147
								38	Plant Chilled Water @ 55 degrees F	27.2	20.3	148
								10	Plant Chilled Water @ 55 degrees F	7.0	5.2	149
								21	Plant Chilled Water @ 55 degrees F	8.6	6.4	150
									N/A	0.00	0.00	151
101	4	127	Tower 1	Tower 1					Compressor in MR-41 & tower on roof	53.9	40.2	152
83	4			10					Common Bohn Chiller on roof	131.2	97.8	153
56	2			5					Common Bohn Chiller on roof	83.7	62.4	154
37	1			3					Common Bohn Chiller on roof	50.1	37.4	155
45	2			3					Carrier Chiller on roof	35.3	26.3	156
								42	Plant Chilled Water @ 55 degrees F	28.9	21.5	157
								31	Plant Chilled Water @ 55 degrees F	22.9	17.1	158
								91	Plant Chilled Water @ 55 degrees F	37.5	28.0	159
									N/A	0.0	0.00	160
					(2)Drycoolers		8	6	(2) Common Bohn units(located on roof)	32.0	23.9	161
					-		-	-	(2) Common Bohn units(located on roof)	17.0	12.7	162
					-		-	-	(2) Common Bohn units(located on roof)	17.0	12.7	163
					-		-	-	(2) Common Bohn units(located on roof)	17.0	12.7	164
					-		-	-	(2) Common Bohn units(located on roof)	17.0	12.7	165
					-		-	-	(2) Common Bohn units(located on roof)	17.0	12.7	166
					-		-	-	(2) Common Bohn units(located on roof)	25.0	18.7	167
					-		-	-	(2) Common Bohn units(located on roof)	8.5	6.3	168
					-		-	-	(2) Common Bohn units(located on roof)	8.5	6.3	169
								47	Plant Chilled Water @ 55 degrees F	33.3	24.8	170
								44	Plant Chilled Water @ 55 degrees F	18.1	13.5	171
					27	Tower 3	Tower 3		Liebert Unit in 4D308 & tower on roof	17.0	12.7	172
					30	Tower 3	Tower 3		Edpac Unit in 4C317 & tower on roof	18.0	13.4	173
					Drycooler		20	23	Liebert(located on roof)	22.3	16.6	174
					Drycooler		15	15	Liebert(located on roof)	14.5	10.8	175
					Drycooler		15	15	Liebert(located on roof)	14.5	10.8	176
					Drycooler		15	15	Liebert(located on roof)	14.5	10.8	177
								30	Plant Chilled Water @ 55 degrees F	19.5	14.5	178
								97	Plant Chilled Water @ 55 degrees F	39.8	29.7	179
					Drycooler		20	23	Liebert(located on roof)	22.3	16.6	180
					Drycooler		20	23	Liebert(located on roof)	22.3	16.6	181
					Drycooler		20	23	Liebert(located on roof)	22.3	16.6	182
					Drycooler		15	15	Liebert(located on roof)	14.5	10.8	183
					Drycooler		20	23	Liebert(located on roof)	22.3	16.6	184
					Drycooler		20	23	Liebert(located on roof)	22.3	16.6	185
					Drycooler		15	15	Liebert(located on roof)	11.5	8.6	186
								29	Plant Chilled Water @ 55 degrees F	19.5	14.5	187
								48	Plant Chilled Water @ 55 degrees F	19.9	14.8	188
								44	Plant Chilled Water @ 55 degrees F	32.7	24.4	189
								22	Plant Chilled Water @ 55 degrees F	9.0	6.7	190
									N/A	0.0	0.0	191
716	28	307	0	36	407	46	60	1,689		2,453	1,830	1.30
805	31	307	0	42	717	56	105	2,028		3,280	2,447	1.33

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Table 3.4.1.3, Building 2706 Chiller Schedule

Tag #	Mfg.	Rating (tons)	CHW (gpm)	CHW Supply	CHW Return	Cond. (gpm)	Comp. (HP)	Comp. (kW)	Comment
CH-1	Trane	690	1,656	55°F	65°F	2,043	721	538	Rated at .78 kW/ton
CH-2	Trane	690	1,656	55°F	65°F	2,043	721	538	Rated at .78 kW/ton

Table, 3.4.1.4, Buildings 2700/2706 Cooling Towers

Tag #	Mfg.	Equipment Served	Rating (tons)	Cond. (gpm)	Fan (hp)	Comp. (kW)	Comment
CT-1 (2706)	B.A.C.	MCA Chillers	1,380	4,086	4@20	4@14.9	(4) cell, (1) single speed fans
CT-1	Thermal Care	Misc. chillers & DX equip.	200	600	7.5	5.6	fiberglass tower, (1) single speed fan
CT-2	Thermal Care	Misc. chillers & DX equip.	200	600	7.5	.5.6	fiberglass tower, (1) single speed fan
CT-3	B.A.C.	Misc. chillers & DX equip.	210	630	10	7.5	to be replaced w/ Thermal Care unit
CT-4	B.A.C.	Misc. chillers & DX equip.	210	630	10	7.5	to be replaced w/ Thermal Care unit
CT-5	B.A.C.	Misc. chillers & DX equip.	---	---	--	---	to be removed

Table, 3.4.1.5, Building 2700 & 2706 Primary Pump Schedule

Tag #	Mfg.	Building Service	Flow (gpm)	Head (ft)	Motor (hp)	Motor (kW)	Comment
CHWP-1	Allis-Chalmers	MCA Chilled Water	1,656	172	100	74.6	Building 2706
CHWP-2	Allis-Chalmers	MCA Chilled Water	1,656	172	100	74.6	Building 2706
CHWP-3	Allis-Chalmers	MCA Chilled Water	1,656	172	100	74.6	Building 2706
HWP-1	Allis-Chalmers	MCA Hot Water	455	90	15	11.2	Building 2706
HWP-2	Allis-Chalmers	MCA Hot Water	455	90	15	11.2	Building 2706
HWP-3	Allis-Chalmers	MCA Hot Water	455	90	15	11.2	Building 2706
CWP-1	Allis-Chalmers	Bldg 2706 Tower	2,043	35	25	18.7	Bldg 2706 Cooling Tower pump
CWP-2	Allis-Chalmers	Bldg 2706 Tower	2,043	35	25	18.7	Bldg 2706 Cooling Tower pump
CWP-3	Allis-Chalmers	Bldg 2706 Tower	2,043	35	25	18.7	Bldg 2706 Cooling Tower pump
CT1P-1	PACO	Misc. Chiller & DX equip.	325	110	20	14.9	Bldg 2700 Cooling Tower pump
CT1P-2	PACO	Misc. Chiller & DX equip.	325	110	20	14.9	Bldg 2700 Cooling Tower pump
CT2P-1	PACO	Misc. Chiller & DX equip.	325	110	20	14.9	Bldg 2700 Cooling Tower pump
CT2P-2	PACO	Misc. Chiller & DX equip.	325	110	20	14.9	Bldg 2700 Cooling Tower pump
CT3P-1	PACO	Misc. Chiller & DX equip.	325	110	20	14.9	Bldg 2700 Cooling Tower pump
CT3P-2	PACO	Misc. Chiller & DX equip.	325	110	20	14.9	Bldg 2700 Cooling Tower pump
CT4P-1	PACO	Misc. Chiller & DX equip.	325	110	20	14.9	Bldg 2700 Cooling Tower pump
CT4P-2	PACO	Misc. Chiller & DX equip.	325	110	20	14.9	Bldg 2700 Cooling Tower pump
FWP-1	Aurora	Boiler Feedwater	100	457	25	18.7	Boiler Plant
FWP-2	Aurora	Boiler Feedwater	100	457	25	18.7	Boiler Plant
FWP-3	Worthington	Boiler Feedwater	100	457	25	18.7	Boiler Plant
FWP-4	Ingersoll-Rand	Boiler Feedwater	100	457	25	18.7	Boiler Plant
CP-1	Aurora	Condensate	100	100	5	3.7	Bldg 2700 Main Riser

Tag #	Mfg.	Building Service	Flow (gpm)	Head (ft)	Motor (hp)	Motor (kW)	Comment
CP-2	Aurora	Condensate	100	100	5	3.7	Bldg 2700 Main Riser
CP-7	Aurora	Condensate	100	100	5	3.7	Bldg 2700 Main Riser
CP-8	Aurora	Condensate	100	100	5	3.7	Bldg 2700 Main Riser
CP-1 (New)		Condensate	60	93	6	4.4	Bldg 2706
Misc. Pumps Total		Various	---	---	20	14.9	Condensate, domestic hot water, chemical feed, etc.

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 EXHAUST FAN SUMMARY

TABLE 3.4.1.6

Item	Roof Dwg. Designation	Fan Type	Field Data/Reference	Size	Flowrate (CFM)	Static P (in w.g.)	Energy (HP)	Area Served in CFM: Basement	1st Floor	2nd Floor	3rd Floor	4th Floor	Area Served	Connected Load (KW)
1	A1	Scrubber	AAF Colag	18" Dia.	3,534	4	4.0					3,534	Room 4D110	3 02
2	A2	Exhaust	Trane CF13A		1,500	0.4	0.5					1,500	Room 4D110	0 37
3	A3	Exhaust	Dayton	24"Dia	6,000	0.6	2.0			2,000	2,000	2,000	MR 21, 31, & 41	1 49
4	A5	Scrubber	AAF	Size 84	7,945	8	20.0					7,945	Room 4D120	14 92
5	A6	Scrubber	Duall (Met-Pro) Model NH40		5,600	5 1	7.5					5,600	Room 4D120	5 59
6	A8	Exhaust	EV-1		7,860	0 5	2.0			2,620	2,620	2,620	East End Toilets	1 49
7	A11	Exhaust	Car-Mon Model CMB-35		7,945	2	5.0					7,945	4D130 - Toxic Gas	3 73
8	A12	Exhaust	EV-2		4,368	0.5	1.0					4,368	Substation 4	0 75
9	A13	Exhaust	EV-7 (2-speed at 18,000 & 9,000 CFM)		18,000	0.75	3.0		18,000				1st Floor Audio/Visual	2 24
10	A14	Scrubber	Duall (Met-Pro) Model NH36.5		4,200	6	10.0					4,200	Room 4D130	7 46
11	A15	Scrubber	American Standard Type S	Size 122	3,973	4	5.0					3,973	Room 4D108	3 73
12	A17	Exhaust	EV-39	10"x12"	250	6	0.5			250			Room 2D134	0 37
13	A18	Scrubber	Duall (Met-Pro) Model NH36.5		4,200	6	10.0			4,200			Room 2D134	7 46
14	A19	Exhaust	None	12"X15"	1,700	0 4	0.5			1,700			Room 2D129	0 37
15	A20	Exhaust	None	3"X5"	200	1	0 1					200	Room 4D130	0 06
16	A21	Exhaust	None	3"X5"	200	1	0.1					200	Room 4D130	0.06
17	A29	Scrubber	Duall (Met-Pro) Model SI10		1,500	4	2.0					1,500	Room 4D130	1 47
18	A31	Scrubber	Duall (Met-Pro) Model NH36.5		4,200	6	10.0			4,200			Room 2D202	7.46
19	A32	Exhaust	None		500	1	0 2			500			Room 2D202	0 15
20	A33	Exhaust	EV-54 (Guess)		6,000	0.6	2.0			2,000	2,000	2,000	MR 22, 32, & 42	1 49
21	A34	Exhaust	None	3"Dia	150	1	0.1						Room 4D130	0 04
22	B1	Exhaust	None (Not In Service or NIS)	10"x12"	1,500	0.4	0.5						Unknown	0 37
23	B1A	Exhaust	None (NIS)	3"Dia	150	1	0.06						Unknown	0 04
24	B4	Exhaust	Trane CF13	9"x12"	1,200	1	0.5				1200		3rd Floor (Guess)	0 37
25	B5	Exhaust	Trane U10K5	8"x12"	1,000	1	0.5					1000	Room 4C204	0 37
26	B6	Exhaust	EV-66A		2,000	3.5	3					2000	4th Floor	2 24
27	B7	Exhaust	EV-32		500	1.4	0.33					500	4th Floor	0 25
28	B9	Exhaust	EV-4		5,000	0.5	1			5000			2nd Floor	0 75
29	B9A	Exhaust	EV-31		500	1.4	0.33					500	4th Floor	0 25
30	B10	Exhaust	EV-66		2,000	3.5	3			2000			2nd Floor	2 24
31	B11	Exhaust	EV-67		1,000	1.5	0.5			1000			2nd Floor	0 37
32	B12	Exhaust	EV-26		2,000	2	2			2000			2nd Floor	1 49
33	B13	Exhaust	EV-67A (NIS)		1,000	1.5	0.5			NIS			2nd Floor	0 37
34	B14	Exhaust	EV-99 (NIS)							NIS			2nd Floor	0 00
35	B15	Exhaust	EV-20		500	1.4	0.33				500		3rd Floor	0 25
36	B17	Exhaust	Trane CUBA-163 (NIS)		3,178	2	2						Unknown	1 49
37	B18	Exhaust	Trane CUBA-163 (NIS)		3,178	2	2						Unknown	1.49
38	B19	Exhaust	Trane CUBA-163 (NIS)		3,178	2	2						Unknown	1.49
39	B20	Exhaust	EV-23 (NIS)		500	1.4	0.33			NIS			2nd Floor	0 25
40	B21	Exhaust	EV-25		1,500	7.5	3			1500			2nd Floor	2 24
41	B22	Exhaust	EV-22 (NIS)		3,000	2.75	2			NIS			2nd Floor	1 49
42	B23	Exhaust	EV-103		1,000	0.75	0.5			1000			2nd Floor	0 37
43	B24	Exhaust	EV-102		500	0.75	0.25			500			2nd Floor	0 19
44	B25	Exhaust	EV-84 (NIS)		1,000	1.2	0.5					NIS	4th Floor	0 37
45	B26	Exhaust	EV-100 (NIS)										Unknown	0 00

36	B17	Exhaust	Trane CUBA-163 (NIS)		3,178	2	2							Unknown	1 49
37	B18	Exhaust	Trane CUBA-163 (NIS)		3,178	2	2							Unknown	1 49
38	B19	Exhaust	Trane CUBA-163 (NIS)		3,178	2	2							Unknown	1 49
39	B20	Exhaust	EV-23 (NIS)		500	1.4	0.33				NIS			2nd Floor	0 25
40	B21	Exhaust	EV-25		1,500	7.5	3					1500		2nd Floor	2 24
41	B22	Exhaust	EV-22 (NIS)		3,000	2.75	2				NIS			2nd Floor	1 49
42	B23	Exhaust	EV-103		1,000	0.75	0.5					1000		2nd Floor	0 37
43	B24	Exhaust	EV-102		500	0.75	0.25					500		2nd Floor	0 19
44	B25	Exhaust	EV-84 (NIS)		1,000	1.2	0.5						NIS	4th Floor	0 37
45	B26	Exhaust	EV-100 (NIS)											Unknown	0 00
46	B28	Exhaust	Dead Unit											Unknown	0 00
47	B33	Exhaust	EV-25A	6" Dia	300	1	0.5					300		2nd Floor	0 37
48	C2	Exhaust	EV-127		4,500	0.25	0.5					1500	1500	1500 MR 23, 33, & 43	0 37
49	C4	Exhaust	EV-86 (NIS)		1,000	1.2	0.5		NIS					1st Floor	0 37
50	C11	Exhaust	EV-110		250	0.75	0.1					250		2nd Floor	0 07
51	C12	Exhaust	EV-108		1,000	1.3	0.75					1000		2nd Floor	0 56
52	C13	Scrubber	Duall (Met-Pro)		3,000	4	5					3,000		Room 2D202	3 52
53	C15	Exhaust	EV-89 (NIS)		1,000	6.5	2		NIS					1st Floor	1 49
54	C16	Exhaust	EV-96		1,000	1.5	0.5			1000				1st Floor	0 37
55	C17	Exhaust	EV-88		500	6.5	1			500				1st Floor	0 75
56	D6	Exhaust	EV-108A (NIS)		1,000	1.3	0.75				NIS			2nd Floor	0 56
57	D11	Exhaust	None (NIS)	6"X8"	650	1	0.3							Unknown	0 19
58	D12	Exhaust	None (NIS)	6"X6"	500	1	0.2						NIS	3rd Floor	0 15
59	D21	Exhaust	EV-125		6,600	0.4	0.75							6600 4D336	0 56
60	E1	Exhaust	RF-1 (American)	BIB 122L	1,500	1	0.5						1,500	3rd Floor (Guess)	0 37
61	E5	Exhaust	None (NIS or Dead Unit ?)											Unknown	0 00
62	E10	Exhaust	New York Blower (NIS or Dead ?)	Size 490										Unknown	0 00
63	E12	Exhaust	Dead Unit											Unknown	0 00
64	E18	Exhaust	EV-73		1,500	1.1	0 75	1500						Basement	0 56
65	E22	Exhaust	EV-73 (NIS)		1,300	0.3	0.33		NIS					1st Floor	0 25
66	E23	Exhaust	RF-2	6"x10"	800	1	0.25						800	3rd Floor (Guess)	0 19
67	E25	Exhaust	RF-3	12"x15"	2,500	1	0.75							2,500 4th Floor (Guess)	0 56
68	E32	Exhaust	None (NIS)	12"x18"	3,000	1	1						3,000	3rd Floor (Guess)	0 75
69	E35	Exhaust	RF-4 (NIS)		3,000	1	1							NIS 4D336	0 75
70	E36	Exhaust	Dead Unit											Unknown	0 00
71	E37	Exhaust	EV-101		1,000	0.6	0 5			1000				1st Floor (Guess)	0 37
72	E39	Exhaust	None	15"X20"	4,000	1.3	2						4,000	3rd Floor (Guess)	1 53
73	E40	Exhaust	None (NIS)	6"X8"	650	1	0.3						NIS	3rd Floor (Guess)	0 19
74	-	Exhaust	EV-57 (Located in MR-12)		825	-	0.05			825				MR-12	0 04
75	-	Exhaust	EV-58 (Located in MR-12)		825	-	0.05			825				MR-12	0.04
76	-	Exhaust	EV-68 (Located in Substation #3)		5,300	-	0.25			5,300				Substation #3	0 19
77	-	Exhaust	EV-79 (Located in Kitchen)		27,200	0.75	7.5	27,200						Kitchen exhaust system	5.60
78	-	Exhaust	EV-82 (Located in Substation #7)		6,000	0.4	1	6,000						Substation #7	0.75
79	E40	Exhaust	EV-98 (Located in Substation #2 & 6)		6,000	0.4	1	6,000						Substation #2 & 6	0.75
	Totals				211,909		140	40,700	27,450	36,520	19,120	62,185		Running CFM Total = 185,975	105

(23)

Table 3.4.1.7, Building 2700 Miscellaneous Process Cooling & Support System Equipment

Tag #	Mfg.	Service	Rating (tons)	Motor (hp)	Motor (kW)	Comments
		Cafeteria Coolers (4)	4.0	5.0	3.7	Estimated
		Cafeteria Refrigerator	1.5	2.0	1.5	Estimated
		Cafeteria Refrigerator	0.5	1.0	0.75	Estimated
		Cafeteria Freezer	1.0	1.5	1.2	Estimated
	Edwards	Process Chiller	11.0	15.0	11.2	Located on roof (100 sec)

3.5 Miscellaneous Buildings

Steam produced by the Building 2700 boiler plant is also utilized within Buildings 2704, 2705, and 2715.

Building 2704 is a 7,100 square foot research and development facility built in 1963. The original building HVAC systems included multiple HVAC units serving test rooms, laboratories and support areas. The facility was renovated in 1974. Renovations included interior partition alterations, addition of a mechanical equipment room and alterations to the HVAC system.

Building cooling requirements incorporated single packaged, water cooled DX type cooling equipment with cooling towers located outdoors on the roof. Building heating requirements utilize steam as the primary heat source. Steam produced in Building 2700 is conveyed to Building 2704 via an underground pipe conduit system. Condensate return pumps in Building 2704 pump condensate back to Building 2700 thru the same underground conduit system. Steam pressure entering the building is approximately 80 psig, and is reduced through a pressure reducing station to meet individual building equipment requirements. Steam is utilized for building heat and outdoor air preheat requirements. Both space unit heaters and a steam coil in one air handler are utilized. Original building design included a steam to water heat exchanger providing hot water to finned tube radiation for perimeter space heating. Subsequent renovations included the relocation of the heat exchangers, the condensate receiver, and the electric water heater, which is used for domestic hot water. A valved cross-connection between the heating water and the electric water heater exists for unknown reasons. All original air handlers and a

few of the unit heaters were removed and replaced with one large unit capable of heating and cooling.

Advancing technology has necessitated changes in the test room HVAC equipment. Today's test chambers have independent integral systems which utilize few basic building utilities.

Building 2705 is a 47,592 square foot research and development facility built in 1972. No major renovation projects have occurred in this building. The original HVAC equipment and design concepts remain functional as constructed in 1972.

The building HVAC systems are constant temperature, constant volume supply air, with duct mounted terminal hot water reheat coils providing specific zone temperature control. Three (3) main HVAC units, located in the mechanical equipment room, supply air to the building. Associated return air fans either discharge air directly to the outdoors or to a common return air plenum prior to reintroduction into the HVAC units. Steam unit heaters are used to preheat outdoor air within the common return air/outdoor air plenum. Building cooling requirements are satisfied by two (2) air cooled water chillers located outdoors. Chilled water is pumped to the HVAC units and the chillers by pumps located within the mechanical equipment room.

As is the situation in Building 2704, steam produced in Building 2700 is utilized as the heat source for Building 2705 and to satisfy building outdoor air preheat requirements. Steam supply pressure is reduced within Building 2705

and utilized for outdoor air preheat coils and as the primary heat source for the building heating system steam to water heat exchanger. Hot water produced within this heat exchanger is pumped throughout the building to terminal reheat coils, miscellaneous space heating equipment, and to Building 2715 where hot water is the building heat source. Condensate pumps located within the mechanical equipment room pump condensate back to Building 2700 via the underground pipe conduit system. Domestic potable hot water needs are satisfied by electric water heaters. Presently this building is being evaluated as a possible candidate for a new geo-thermal heat pump system. Entech will not evaluate this option as part of this study.

Building 2715, built in 1988, is a 3,000 square foot warehouse facility associated with Building 2705. Hot water produced by the steam to water heat exchanger located within Building 2705 is pumped to this building thru underground piping conduits. Hot water unit heaters satisfy the open warehouse heating requirements while a duct mounted heating coil heats an office area. Air conditioning needs for the office area are satisfied by a split system DX cooling unit. An electric water heater is used for domestic hot water.

3.6 Domestic Hot Water (Building 2700)

Building 2700's domestic hot water is supplied from three (3) storage water heaters manufactured by Patterson-Kelley, Co. and located in the mechanical equipment room in the basement level next to the existing boilers. Steam is utilized as the heat source for the steam to water heat exchangers located within each storage tank. Each storage tank has a nominal storage capacity of 1,000

gallons, for a total nominal storage capacity of 3,000 gallons. Each water heater is capable of a nominal recovery rate of approximately 1,000 gallons per hour at a 100°F temperature rise. Domestic hot water circulation pumps maintain flow of hot water within the piping system. The number of circulation pumps was not verified by Entech. The pumps will be assumed to be maintained and operating. The horsepower requirements for these pumps were lumped together with other miscellaneous pumping estimated to be in Building 2700.

Domestic hot water for the building is used for restrooms and general cleaning needs. The original building system also served locker rooms and the Cafeteria/Kitchen. The Cafeteria/Kitchen facility utilizes independent water heating equipment to satisfy water heating requirements.

Note: Presently the building domestic hot water system is inoperable. Building personnel stated that the circulation pumps had recently failed and have not been replaced, and all three (3) storage water heaters are out of service with failed heat exchangers.

3.7 Controls (Building 2700)

Many of Building 2700 control systems were renovated during the 1982 MCA project. In general, building control systems are by the Barber Coleman Control Co., specialty areas such as cleanrooms have independent dedicated control systems. General building controls are local in nature with individual control panels located in close proximity with their respective HVAC equipment. Local control for MCA air handlers includes seven (7) day time clocks and space mounted temperature sensors. Less than half of the systems

are utilizing the clocks. The majority of the air handlers excluding the MCA units and the cleanroom units are assumed to be operating without timing devices being set and/or installed.

Building 2700 has a central Energy Management Control System (EMCS) used for limited monitoring only. The system is obsolete and for the most part unused or inoperable. Consideration for incorporating the majority of the HVAC systems in the building into an EMCS is beyond the scope of this study.

3.8 Food Preparation (Building 2700)

Meals: According to Cafeteria/Kitchen personnel, approximately 600 meals are prepared daily. The facility prepares breakfast and lunch five days a week. The cafeteria is open from 0630 hours to 1330 hours.

Equipment: The facility employs a mix of electric, gas and steam cooking appliances. Most of the larger appliances are gas-fired while the smaller convenience equipment is electrically operated. The following table lists the major cafeteria/kitchen appliances installed at this facility.

Table 3.8.1, Major Kitchen Appliances

Type	Quantity	Type
Two Compartment Fryer	2	Gas
Two Section Griddle w/Oven	1	Gas
Two Tier Convection Oven	1	Gas
Six Burner Range w/Oven	1	Gas
Two Compartment Steamer	1	Steam
Steam Kettle	1	Steam
Steam Table	1	Steam
Food Warmer	1	Electric
Walk-in Cooler	4	Electric
Walk-in Freezer	1	Electric
Single Door Refrigerator	1	Electric
Three Door Refrigerator	1	Electric
Ice Maker	1	Electric
Dishwasher	1	Electric/Steam

Domestic hot water needs for the cafeteria are satisfied by a gas fired water heater manufactured by the Rheem Manufacturing Co.. The water heater has a 91 gallon storage capacity and a recovery rate of 296 gallons per hour at a 100°F temperature rise. The dishwashing unit utilizes building steam directly injected into the wash water for the wash cycle and a steam booster heater is used for the rinse water to meet code dishwashing water temperature requirements.

3.9 Electrical (Building 2700)

Service: Power is supplied to Fort Monmouth by The Jersey Central Power and Light Company (JCP&L). JCP&L supplies centrally located substations, which are the property of the Government, with 34.5 kV delta underground feeders. Fort Monmouth is served under JCP&L's General Transmission Rate.

Transformers: Fort Monmouth's main substations transform JCP&L's 34.5 kV feeds to a Fort Monmouth underground distribution system at 12.5 kV. Building 2700 is serviced by the Hope Road/Charles Wood Area distribution system. Outside of Building 2700, two (2) 10,000 kVA unit substation transformers reduce the 12.5 kV distribution feed to 4160V. One (1) of these transformers is redundant and is used as a backup building feed in the event of an emergency. Within Building 2700 is a 4160V building distribution system which feeds seven (7) individual substation transformers located throughout the building. These individual transformers in turn provide secondary building distribution at 480V/277V, 3 phase, 60 Hz and 208V/120V, 3 phase, 60 Hz. The 480 volt distribution is provided to satisfy large equipment requirements. The 208 volt distribution is primarily used for building lighting systems, smaller equipment loads, and building receptacles.

Emergency Power: Building 2700 emergency power consists of two (2) 150 kW generators sets, one (1) 480 volt, 3 phase and one (1) 208 volt, 3 phase. The generator sets are located in the vicinity of the building primary switch gear on the basement floor level. The generator sets are fired with diesel fuel, a day tank located in an adjacent space stores fuel for generator use. A power monitor

located within an automatic transfer switch activates the generator set and switches the emergency power source to the building emergency equipment.

Lighting: In general, lighting systems for Building 2700 are predominately fluorescent type. Light fixtures vary in size and style utilizing 40 watt fluorescent lamps as the light source. Estimates in watts/sq ft are made for the various types of areas identified in Section 5.

3.10 Gas Service

Natural gas is supplied by the New Jersey Natural Gas Company of Wall, New Jersey. The service to Building 2700 was recently upgraded to meet the requirements for heating the building. The new service to Building 2700 is a 4" line branched from a new 6" header which was routed from the Hope Road main. In addition to the 4" branch, there are two (2) 2" lines to other buildings off the 6" header.

Other natural gas uses in Building 2700 include kitchen use for cooking, as a heat source for the second floor dry room de-humidification air handler located on the roof, and possibly for minor lab uses. The location of the meter is outside near the intersection of the 300 and 400 areas on the west side of Building 2700.

4.0 BILLING HISTORIES

4.1 General

For the most part, the energy analysis for this report is based upon data acquired for a 12-month period from the Spring 1994 through Spring 1995. Inconsistencies in available data beyond the Spring 1995 limited the history data for electricity and fuel oil deliveries to one (1) year. Gas billing and usage data was not provided except for enough information to determine an incremental rate.

Currently, Building 2700 is not individually metered for electricity. Electricity for Building 2700 is provided by the Hope Road/Charles Wood Area distribution system. This system also supports other buildings that include 2704, 2705, 2525, 2537, 2539, 2543, and 2566. Also connected to this distribution system are large residential areas of housing units and barracks. Utility support equipment for the Hope Road/Charles Wood Area is also connected to this service including street lights. Based on the size and type of the buildings, etc. connected to this service, it appears that Building 2700 will account for 50% or more of the total costs. Refer to Section 5.6.3.1 for more details.

Natural gas is metered at Building 2700 while No. 2 fuel oil is delivered on a monthly basis and consumption is tracked by boiler plant personnel on a daily/monthly basis. Steam production data was available for two (2) years and is documented in this section.

history for the Hope Road/Charles Wood Area which will be used as a guideline for estimating electrical energy costs. The estimated annual energy costs for Building 2700 will be estimated in Section 5 of this report for use in evaluating the ECOs in Section 6.

4.2 Electricity

Jersey Central Power & Light Company (JCP&L) provides power to Hope Road/Charles Wood Area under the GT (General Service Transmission) Rate. This rate is available to customers taking service at the transmission voltage of 34.5 kV. Table 4.2.1 on the following page displays the electric billing history of the Hope Road/Charles Wood Area distribution system for the year of May 1994 through April 1995. A copy of the electric bills are included in Appendix 8.2.

Note: The off-peak demands shown are provided by the electric company for information only with no impact to the costs. The associated off-peak reactive demand charge and variations in the electric rates from month to month affect the overall costs by about 2%. Refer to Section 4.3 for details about the determination of incremental rates for this study.

Table 4.2.1
Hope Rd./Charles Wood Area - Electric Billing History
May 1994- April 1995
JCP&L Rate - General Transmission

Month	*Days*	*On-Peak Demand (kW)*	*Off-Peak Demand (kW)*	*Reactive Demand (kW)*	*On-Peak (kWh)*	*Off-Peak (kWh)*	*Total (kWh)*	*Cost ($)*	*Rate ($/kWh)*	*Usage (kWh/Day)*	*Energy (mmBtu)*
May 1994	29	4,957	4,147	2,992	990,000	1,314,000	2,304,000	$191,679	$0.083	79,448	2,138
June	29	6,977	5,926	3,881	1,368,000	1,845,000	3,213,000	$273,851	$0.085	110,793	10,966
July	33	7,020	5,929	3,960	1,629,000	2,403,000	4,032,000	$326,336	$0.081	122,182	13,761
August	29	6,757	5,598	3,823	1,305,000	1,854,000	3,159,000	$267,918	$0.085	108,931	10,782
September	30	5,623	4,856	3,092	1,233,000	1,656,000	2,889,000	$240,127	$0.083	96,300	9,860
October	29	4,482	4,414	2,279	981,000	1,386,000	2,367,000	$191,153	$0.081	81,621	2,490
November	33	4,865	4,367	2,786	1,116,000	1,566,000	2,682,000	$214,912	$0.080	81,273	9,154
December	29	4,738	4,289	2,685	996,300	1,359,000	2,355,300	$192,896	$0.082	81,217	8,039
January 1995	31	4,726	4,247	2,491	1,008,000	1,521,000	2,529,000	$203,030	$0.080	81,581	8,631
February	30	4,692	4,296	2,480	1,044,000	1,422,000	2,466,000	$199,289	$0.081	82,200	8,416
March	29	4,678	4,280	2,671	1,003,500	1,358,100	2,361,600	$192,565	$0.082	81,434	8,060
April	32	4,701	4,107	2,827	1,031,400	1,485,000	2,516,400	$202,427	$0.080	78,638	8,588
Total	363	64,216	56,456	35,967	13,705,200	19,169,100	32,874,300	$2,696,183	$0.082	90,563	112,200

4.2.1 Incremental Cost

Entech Engineering developed a Lotus spreadsheet computer program to determine the incremental costs for electricity. Using actual billing data, for both summer and winter month, usage and demand are entered into the program, and the bills are calculated. The computer calculations match the utility's bill.

To calculate the incremental cost for billing demand, the electric bill is re-calculated using one less kW of demand. The cost difference between the actual bill and the bill calculated with one less kW is considered to be the incremental cost for demand ($/kW).

The same procedure is performed for usage (kWh). The bill is calculated using one less kWh, with the difference in the two costs being the incremental usage cost ($/kWh). For this facility, the incremental cost for electricity is as follows:

Table 4.2.1.1, Incremental Costs

Incremental	*Winter (Oct-April)*	*Summer (May-Sept)*
Demand, $/kW	$8.31	$9.22
Off-Peak, $/kWh	$0.06244	$0.06256
On-Peak, $/kWh	$0.07234	$0.07246

The incremental costs will be used in calculations of the electric model as described in Section 2.

The use of incremental rates is reasonably accurate for calculating cost savings due to small changes (±25%) in demand and usage totals from existing levels. The use of incremental rates is less accurate in calculating cost savings with larger changes in demand and usage (>25%) and tends to underestimate savings slightly (usually < 2%). However, for the convenience of calculating the feasibility of various options, the use of incremental rates for demand and usage is usually accurate and in some cases slightly conservative (savings not over estimated) and is therefore prudent.

Copies of the calculations of the incremental costs, and monthly electric bills are included in the Attachments 8.3. Included in 8.4 is the rate structure used.

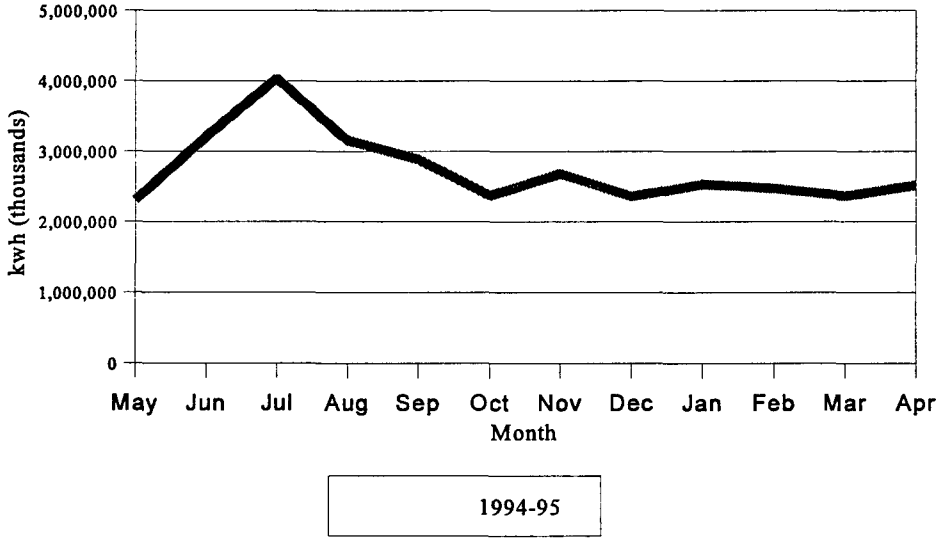
4.2.2 Electric Usage

Electric usage is measured in kilowatt hours (kWh). One kWh is equivalent to the usage of 1,000 watts of electricity for one hour. Figure 4.2.2.1 graphically shows electrical usage profile for the Hope Road/ Charles Wood Area distribution system for the period of May 1994 through April 1995.

The graph indicates that electric usage follows a cooling curve. This is evident from the increases seen during the summer.

Hope Road/Charles Wood Area

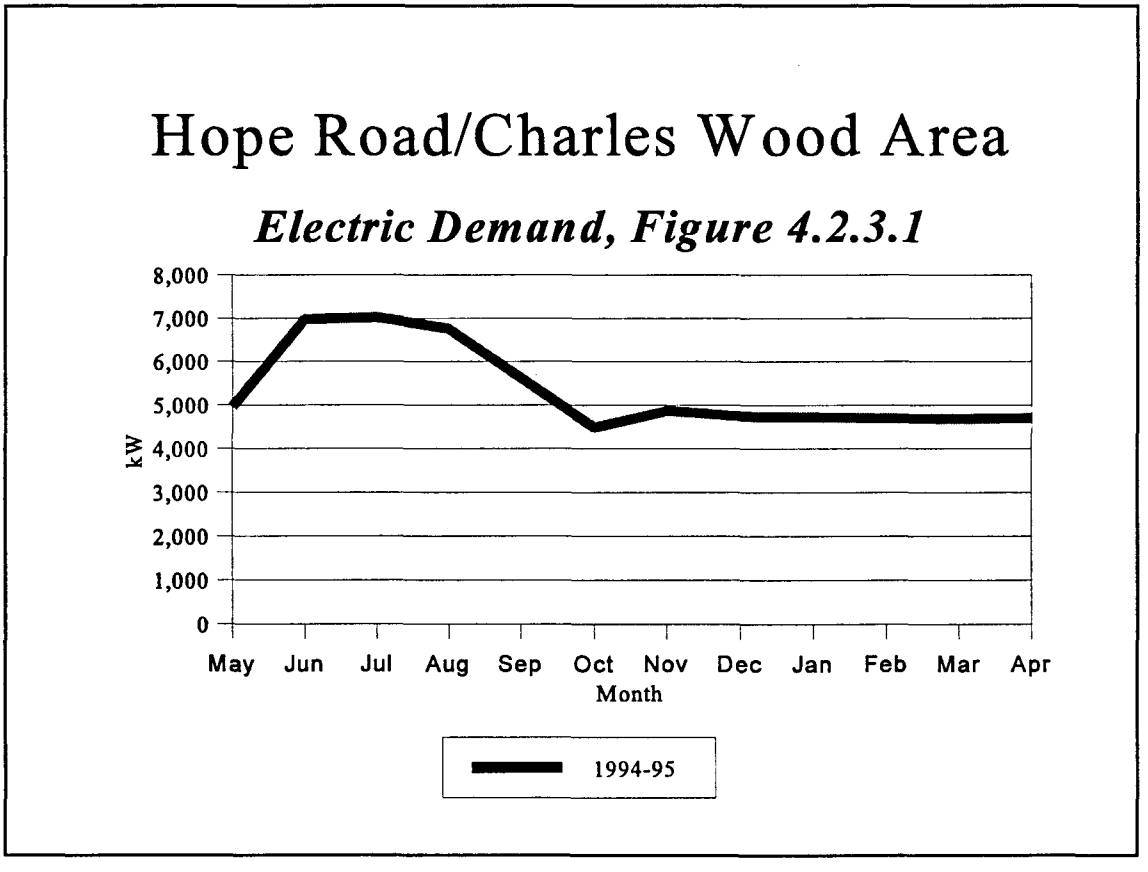
Electric Usage, Figure 4.2.2.1



4.2.3 Monthly Demand

Electrical demand is the highest rate of electrical energy used during a specified time interval (normally 15 minutes). The measurement of electric demand is expressed as kilowatts (1,000 watts). Electrical demand is not necessarily related to the amount of time the electrical components are in operation. The monthly billing demand profile the past year is graphically shown in Figure 4.2.3.1.

The billed demand is fairly consistent during the winter months and increases during the warmer months.



4.3 Fuel Oil

Until October of 1995, No. 2 heating fuel oil has been used to fire Building 2700's boilers which supplies steam to Building's 2700, 2704, 2705, 2706 and 2715. Table 4.3.1 shows the fuel oil billing history as delivered to Building 2700, for the year of April 1994 through March 1995. Data available before and after this period is limited. Bills for the months of June and November 1994, were unavailable. Usage values were estimated for these months by averaging the surrounding two (2) months. The costs were estimated to be $0.74/gal and $0.59/gal, respectively. The average cost for No. 2 fuel oil throughout the year analyzed was $0.69/gal or $4.97/mmBtu.

Table 4.3.1, Building 2700, No. 2 Fuel Oil Billing History
April 1994 - March 1995
Premier O&G Supply Co., Inc., Rahway, New Jersey

Month	Delivered (gal)	Actual $/gal	Actual Cost ($)	Energy mmBtu
April 1994	43,118	$0.78	$33,632	5,980
May	28,964	$0.74	$21,433	4,017
June	32,330	$0.74	$23,924	4,484
July	35,695	$0.74	$26,414	4,951
August	29,251	$0.78	$22,816	4,057
September	29,383	$0.78	$22,919	4,075
October	43,013	$0.78	$33,550	5,965
November	43,684	$0.59	$25,774	6,058
December	44,355	$0.59	$26,169	6,152
January 1995	45,412	$0.59	$26,793	6,298
February	38,037	$0.59	$22,442	5,275
March	37,804	$0.59	$22,304	5,243
Total	451,046	$0.69	$308,171	62,555

Refer to Appendix 8.5 for copies of the fuel oil bills for Building 2700.

The fuel oil delivery totals summarized above are compared to the usage totals taken at the boiler plant. Table 4.3.2 details this comparison and shows that the totals are relatively close for the one (1) year period from April 1994 to March 1995.

The usage totals reflect a total of 8.2% more than the delivered totals. Personnel at Fort Monmouth state that in addition to the delivered totals, excess fuel oil not used for other buildings was periodically dumped into the Building 2700 storage tank. This helps to explain the usage totals being higher than the delivery totals. The table confirms the validity of using the boiler plant logs for fuel use and subsequently for the adjusted steam production numbers. The yearly costs at $0.69 per gallon would have been approximately $334,000 for fuel oil use in the boiler plant for producing steam.

Table 4.3.2, Building 2700 Fuel Oil Comparison
April 1994 - March 1995

Month	Delivered (gal)	Usage (gal)	Difference (gal)	Difference %
April 1994	43,118	41,680	(1,438)	(3.3)
May	28,964	38,110	9,146	31.6
June	32,330	29,540	(2,790)	(8.6)
July	35,695	30,540	(5,155)	(14.4)
August	29,251	33,110	3,859	13.2
September	29,383	32,950	3,567	12.1
October	43,013	35,570	(7,443)	(17.3)
November	43,684	40,590	(3,094)	(7.1)
December	44,355	48,230	3,875	8.7
January 1995	45,412	52,190	6,778	14.9
February	38,037	54,920	16,883	44.4
March	37,804	46,990	9,186	24.3
Total	451,046	484,420	33,374	8.2
Average	37,587	40,368	2,781	8.2

Note: Values in parentheses ( ) indicate negative values.

4.4 Natural Gas

In the past, Building 2700 used natural gas for cooking, domestic hot water, and dehumidification during the course of a year. These consumption totals are expected to rise significantly with space heating associated with Boiler #3 coming on-line with natural gas at the end of 1995. Natural Gas is provided by New Jersey Natural Gas Company under Rate Schedule #2 (Firm Service Other Than Residential). The only natural gas bills supplied to Entech were for the months of August through November of 1995. The results show that the

consumption of natural gas by Building 2700 was very low. Table 4.4.1 displays the most recent available natural gas consumption totals.

The results in Table 4.4.1 reflect an average mcf cost of $8.61. As mentioned, the anticipated gas consumption will rise significantly. Usage totals in the past have been less than 100 mcf/month while future consumption totals are expected to be over 5,000 mcf/month on average. Based on the non-interruptible billing rate structure, Entech has determined the expected cost will be near $7.50/mcf or $7.27/mmBtu. This value will be used for calculating gas costs associated with the higher consumption. Information provided by Fort Monmouth personnel establishes the fact that the site will remain on the non-interruptible service for seven (7) years starting in 1995 as part of an agreement related to the gas company absorbing the cost for installing the new main to Building 2700. Interruptible rates beyond the initial seven (7) years should be significantly lower. The agreement is for the entire site usage totals and it includes a maximum demand limitation of 6.2 million therms and 3 million therms of minimum usage without penalty.

Refer to Appendix 8.6 for the gas bills from the fall of 1995, and Appendix 8.7 for the most recent gas billing rate structure documentation.

Table 4.4.1, Natural Gas Billing History
New Jersey Natural Gas
August-November 1995

Month	*Usage (mcf)*	*Cost ($)*	*$ per mcf*
August *	4.6	$47.09	$10.24
September	83.9	$663.60	$7.91
October *	69.7	$553.11	$7.97
November	22.0	$184.04	$8.37
Totals	180	$1,447.84	$8.03
* Estimated Bills			Avg. $/mcf

4.5 Steam Production

The Boiler Plant in Building 2700 provides steam to Buildings 2700, 2704, 2705, 2706, and 2715. Steam production is calculated from the fuel use totals recorded by the boiler plant operators in their daily logs. Table 4.5.1 reflects the steam production as recorded in the logs for a two year period between July 1993 through July 1995 which includes a one month shutdown. Copies of the boiler logs can be reviewed in Appendix 8.8.

The table shows that the method employed by the plant results in fuel to steam efficiencies in the mid 90 percentile range, and has one month over 100% efficiency. Efficiencies for boilers in the 90% range are unrealistic and therefore an adjustment is required. Entech was told by plant personnel that the accuracy of fuel oil consumption is dependable. Therefore the fuel oil totals were used as a basis to establish the adjusted steam production totals. The fuel totals are used in conjunction with optimistic fuel oil to steam efficiencies for these 40 year old boilers. These efficiencies are evaluated to be in the range of 70% to 80% for low to high demands, respectively. The resulting data, shown in Table 4.5.2 reduced boiler log production totals by an average of 20%.

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 - STEAM PRODUCTION HISTORY
JULY 1993 -JULY 1995
FACILITIES ENGINEERING OPERATING LOG

TABLE 4.5.1

JULY 1993-JUNE 1994

month	Operating days	Steam Production mlbs/month	mlbs/day	lbs/hr	Steam Energy mmBtu/mon.	No. 2 Fuel Oil Usage gal/mon.	gal/day	Fuel Oil Energy mmBtu/month	Fuel Oil eff. (%)
July	28	3,019	108	4,493	3,019	24,040	859	3,334	90.5%
August	31	3,994	129	5,368	3,994	30,450	982	4,223	94.6%
September	30	3,173	106	4,407	3,173	24,130	804	3,347	94.8%
October	31	3,825	123	5,141	3,825	29,170	941	4,046	94.5%
November	29.5	5,232	177	7,390	5,232	39,820	1,350	5,523	94.7%
December	31	7,273	235	9,776	7,273	55,500	1,790	7,698	94.5%
January	31	9,751	315	13,106	9,751	61,140	1,972	8,480	115.0%
February	28	8,355	298	12,433	8,355	63,480	2,267	8,805	94.9%
March	31	7,687	248	10,332	7,687	58,530	1,888	8,118	94.7%
April	30	5,480	183	7,611	5,480	41,680	1,389	5,781	94.8%
May	31	5,005	161	6,727	5,005	38,110	1,229	5,286	94.7%
June	30	3,874	129	5,381	3,874	29,540	985	4,097	94.6%
TOTAL:	361.5	66,668	184	7,684	66,668	495,590	1,371	68,738	97.0%

JULY 1994-JULY 1995

month	Operating days	Steam Production mlbs/month	mlbs/day	lbs/hr	Steam Energy mmBtu/month	No. 2 Fuel Oil Usage gal/mon.	gal/day	Fuel Oil Energy mmBtu/month	Fuel Oil eff. (%)
July	31	4,020	130	5,403	4,020	30,540	985	4,236	94.9%
August	31	4,353	140	5,851	4,353	33,110	1,068	4,592	94.8%
September	30	4,352	145	6,044	4,352	32,950	1,098	4,570	95.2%
October	31	4,669	151	6,276	4,669	35,570	1,147	4,934	94.6%
November	30	5,286	176	7,342	5,286	40,590	1,353	5,630	93.9%
December	31	6,177	199	8,302	6,177	48,230	1,556	6,690	92.3%
January	31	6,854	221	9,212	6,854	52,190	1,684	7,239	94.7%
February	28	7,246	259	10,783	7,246	54,920	1,961	7,617	95.1%
March	31	6,183	199	8,310	6,183	46,990	1,516	6,518	94.9%
April	28	4,654	166	6,926	4,654	36,180	1,292	5,018	92.7%
May	Plant Down	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
June	20	2,160	108	4,500	2,160	16,520	826	2,291	94.3%
July	31	3,189	103	4,286	3,189	23,620	762	3,276	97.3%
TOTAL:	353.0	59,143	168	6,981	59,143	451,410	1,279	62,611	94.5%

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FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 - STEAM PRODUCTION HISTORY
JULY 1993 -JULY 1995
ADJUSTED STEAM PRODUCTION

TABLE 4.5.2

JULY 1993-JUNE 1994

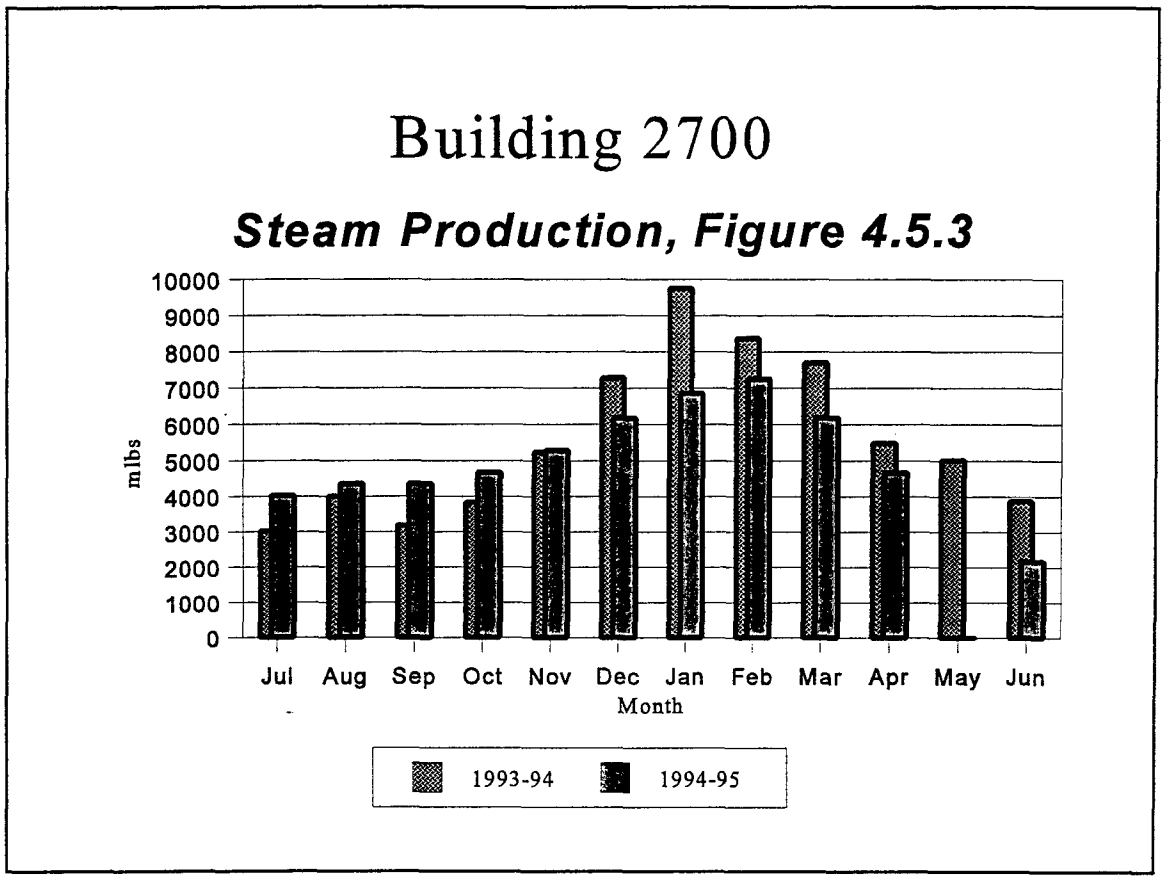
month	Operating days	No. 2 Fuel Oil Log Usage gal/mon.	gal/day	Fuel Oil Energy mmBtu/month	Fuel Oil est. eff. (%)	Adj. Stm. Energy mmBtu/mon.	Adjusted Steam Production mlbs/month	mlbs/day	lbs/hr
July	28	24,040	859	3,334	70.0%	2,334	2,334	83	3,473
August	31	30,450	982	4,223	70.0%	2,956	2,956	95	3,974
September	30	24,130	804	3,347	70.0%	2,343	2,343	78	3,254
October	31	29,170	941	4,046	70.0%	2,832	2,832	91	3,807
November	29.5	39,820	1,350	5,523	75.0%	4,142	4,142	140	5,851
December	31	55,500	1,790	7,698	80.0%	6,158	6,158	199	8,277
January	31	61,140	1,972	8,480	80.0%	6,784	6,784	219	9,118
February	28	63,480	2,267	8,805	80.0%	7,044	7,044	252	10,482
March	31	58,530	1,888	8,118	80.0%	6,494	6,494	209	8,729
April	30	41,680	1,389	5,781	75.0%	4,336	4,336	145	6,022
May	31	38,110	1,229	5,286	75.0%	3,964	3,964	128	5,328
June	30	29,540	985	4,097	70.0%	2,868	2,868	96	3,983
TOTAL:	361.5	495,590	1,371	68,738	76.0%	52,256	52,256	145	6,023

JULY 1994-JULY 1995

month	Operating days	No. 2 Fuel Oil Log Usage gal/mon.	gal/day	Fuel Oil Energy mmBtu/month	Fuel Oil est. eff. (%)	Adj. Stm. Energy mmBtu/month	Adjusted Steam Production mlbs/month	mlbs/day	lbs/hr
July	31	30,540	985	4,236	70.0%	2,965	2,965	96	3,985
August	31	33,110	1,068	4,592	70.0%	3,215	3,215	104	4,321
September	30	32,950	1,098	4,570	70.0%	3,199	3,199	107	4,443
October	31	35,570	1,147	4,934	75.0%	3,700	3,700	119	4,973
November	30	40,590	1,353	5,630	75.0%	4,222	4,222	141	5,864
December	31	48,230	1,556	6,690	80.0%	5,352	5,352	173	7,193
January	31	52,190	1,684	7,239	80.0%	5,791	5,791	187	7,784
February	28	54,920	1,961	7,617	80.0%	6,094	6,094	218	9,068
March	31	46,990	1,516	6,518	80.0%	5,214	5,214	168	7,008
April	28	36,180	1,292	5,018	75.0%	3,764	3,764	134	5,601
May	Plant Down	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
June	20	16,520	826	2,291	70.0%	1,604	1,604	80	3,342
July	31	23,620	762	3,276	70.0%	2,293	2,293	74	3,082
TOTAL:	353.0	451,410	1,279	62,611	75.7%	47,413	47,413	134	5,596

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Figure 4.5.3 reflects the production by month for the comparative years of the adjusted steam production values.



The following Table 4.5.4 is a summary of the two years of data in Table 4.5.2 from an mlbs/day and an lbs/hr standpoint. Average values from these tables will be used in establishing a steam model of the yearly production.

The actual operating efficiencies for these boilers may be as low as 60-65%. The approach used here was to establish steam production from fuel use totals making sure to have enough steam available for analysis. If estimates for efficiencies are too low, then separating the uses could become tedious with only minor (or no) losses to go around. Estimates on the high side allow for energy losses from inefficiencies to be counted in with the steam production

losses. In either case, the wasted fuel is accounted for whether it is included in the generation or distribution of steam.

The addition of a new dual fuel burner assembly to one of these forty year old boilers can only be expected to increase the overall fuel to steam efficiencies of that boiler by 2% (± 1%). The majority of the losses associated with these boilers remains in their inefficient geometry, loose construction, etc., leading to poor heat transfer and high excess air. Since, No. 2 oil is typically 2% better in efficiency than natural gas, the same efficiency values were maintained in going from No. 2 oil use with the older burner to natural gas with new burners. The delineation between boiler losses and system losses is irrelevant in establishing existing costs for oil or gas versus future costs with new equipment.

Table 4.5.4, Building 2700 Steam Consumption Rate

Month	Day	1993-1994		1994-1995		Average		
		mlbs/day	lbs/hr	mlbs/day	lbs/hr	mlbs/day	lbs/hr	mlbs/month
July	31	83	3,473	96	3,985	90	3,729	2,775
August	31	95	3,974	104	4,321	100	4,148	3,085
September	30	78	3,254	107	4,443	93	3,849	2,775
October	31	91	3,807	119	4,973	105	4,390	3,255
November	30	140	5,851	141	5,864	141	5,858	4,215
December	31	199	8,277	173	7,193	186	7,735	5,766
January	31	219	9,118	187	7,784	203	8,451	6,293
February	28	252	10,482	218	9,068	235	9,775	6,580
March	31	209	8,729	168	7,008	189	7,869	5,844
April	30	145	6,022	134	5,601	140	5,812	4,185
May	31	128	5,328	108	4,500	118	4,914	3,658
June	30	96	3,983	80	3,342	88	3,663	2,640
Total	365	1,735	---	1,635	---	1,685	---	51,071
Average	30.4	144.6	6,024.8	136.3	5,673.5	140	5,849	4,256

The values in Table 4.5.4 relate directly to the daily and hourly production totals summarized in Table 4.5.2. Yearly values were then calculated assuming typical monthly day totals or 365 days per year. May 1994-1995 was estimated. July 1994-1995 shown previously to constitute a year of data was omitted for clarity.

The average values shown in Table 4.5.4 will be used as a basis for the Steam Model in Section 5 and for ECOs in Section 6.

4.6 Estimated Steam Costs Using Natural Gas

Since natural gas will be the primary source (99%+) of fuel for making steam in Building 2700, we must now convert past steam production tables from fuel oil based totals to natural gas based totals.

Using the average mlbs/month and assuming that the new gas train on Boiler #3 operates at the corresponding monthly efficiencies identified previously, we can now produce reference usage and cost totals for steam production using natural gas.

Table 4.6.1 documents the estimated natural gas costs based on $7.50/mcf for the average steam production for the last two years. Gas consumption for steam production is approximately 69,210 mcf/year. The estimated cost for using natural gas to produce steam in the existing boiler plant is about $519,000. For the equivalent amount of steam using No. 2 fuel oil at the same efficiencies the cost would have been about $334,000. Therefore, from this evaluation the first year cost increase for the site using gas over oil in the Building 2700 central boiler plant can be expected to be about $175,000.

Table 4.6.1, Building 2700
Estimated Natural Gas Costs for Steam Production

Month	Day	2-yr Steam Flow Average			Steam Energy mmBtu/mo.	Boiler eff.	Natural Gas Energy mmBtu/mo.	Natural Gas mcf/mo.	Cost $/mo.
		mlbs/day	lbs/hr	mlbs/mo.					
July	31	90	3,729	2,775	2,775	.70	3,964	4,087	$30,652
August	31	100	4,148	3,085	3,085	.70	4,407	4,544	$34,077
September	30	93	3,849	2,775	2,775	.70	3,964	4,087	$30,652
October	31	105	4,390	3,255	3,255	.75	4,340	4,475	$33,559
November	30	141	5,858	4,215	4,215	.75	5,620	5,794	$43,457
December	31	186	7,735	5,766	5,766	.80	7,208	7,431	$55,736
January	31	203	8,451	6,293	6,293	.80	7,866	8,110	$60,824
February	28	235	9,775	6,580	6,580	.80	8,225	8,480	$63,600
March	31	189	7,869	5,844	5,844	.80	7,305	7,531	$56,486
April	30	140	5,812	4,185	4,185	.75	5,580	5,753	$43,147
May	31	118	4,914	3,658	3,658	.75	4,877	5,028	$37,711
June	30	88	3,663	2,640	2,640	.70	3,771	3,888	$29,159
Total	365	1,688		51,071	51,071		67,127	69,208	$519,060
Average	30	141	5,849	4,256	4,256	0.76	5,594	5,767	$43,255

5.0 ENERGY MODELS

5.1 General

Measured data regarding steam production and energy consumption and costs (gas, oil and electricity) for Building 2700 and it's boiler plant were presented in Section 4, Billing History, of this study. In this section of the report Entech examines how the steam produced and energy consumed are utilized. Before evaluating ECOs it is essential to understand the energy consumption patterns and how each type of energy user contributes to the overall building energy use and cost. As described in Section 2, Methodology, the analyses include the steam use model which is a summary of the six individual models, the fuel use model and the electric model. The main computer models as described in Section 2.5 are as follows:

1. Steam Use Model
2. Heat Gain Model (Degree Day Method)
3. Heat Gain / Loss Model (EZDOE Method)
4. Electric Model

Throughout this section references will be made to winter, intermediate and summer months. Since the MCA 2-pipe system runs from May 15 to October 15 for cooling and vice-versa for heating, some adjustments will be made where applicable.

Winter	December, January, February, March
Intermediate	October, November, April, May
Summer	June, July, August, September

Note: The underlined months relate to expectations for uses associated with the winter peak month, and the typical intermediate and summer months. Prorating

will be used in the other months when balancing the results of the steam model at the end of Section 5.2

5.2 Steam Use Model

The Steam Use Model investigates space heating, reheat, domestic hot water, cafeteria use, boiler plant steam use, and distribution losses which constitute the steam produced at the boiler plant in Building 2700. For purposes of ECO evaluation, we will present totals that include or omit the MCA related heating loads.

5.2.1 Space Heating

The boiler plant in Building 2700 provides steam for space heating associated with Building's 2700, 2704, 2705, 2706 and 2715. From the equipment summary tables, Table 3.4.1.1 and 3.4.1.2, the estimated connected loads for heating Building 2700 and 2706 are as follows:

Building 2700 and 2706	
1. MCA Hot Water	6,250 MBH (lbs/hr of steam)
2. Misc. Steam Heating	650 MBH (lbs/hr of steam)
3. AHU's w/ Steam Heat and Misc. Cooling	3,500 MBH (lbs/hr of steam)
Total Connected Load (w/MCA)	10,400 MBH (lbs/hr of steam)
Total Connected Load (w/o MCA)	4,150 MBH (lbs/hr of steam)

Based on experience and guidance from EZDOE results presented later in this section, Entech estimates the following average demand requirements for each of these. During the peak heating month of the year, February, the MCA Hot Water average demands are estimated to

be at about 20-33% (day vs night) of the connected load and 7-12% during the intermediate months of November and April. The corresponding percentages for the Miscellaneous Steam units during this period are 17-25%, and 5-10% respectively. The heating system for MCA is turned off from mid-May through mid-October, while the miscellaneous users during this period are considered to be minimal, 4-8%, and limited to cool mornings in areas frequently open to outdoors such as loading docks, stair tower doors on first floor, etc.

With the exception of the cleanroom, minimal heating is expected during the year for areas supported by the air handlers utilizing steam. Areas supported by the majority of these units have high internal heat gains and cooling is expected year-round. During the peak heating month the usage for these air handlers is estimated to be only about 6-12% of the connected load. Intermediate months at 2-4% and 0% for the summer months. The cleanroom units requiring re-heat (steam all year) are not included in this sub-section. Refer to Section 5.2.2 for reheat requirements for the cleanrooms in Building 2700 and for areas in Building 2705.

From the design drawings it was determined that the connected heating loads for Buildings 2704, 2705 and 2715 are as follows:

Building 2704	
1. Roof Top Steam AHU	560 MBH (lbs/hr of steam)
2. (2) Steam Unit Heaters	210 MBH (lbs/hr of steam)
3. HW Fintube	30 MBH (lbs/hr of steam)
Total Connected Load	800 MBH (lbs/hr of steam)

Building 2705 (see note)	
1. (2) Hot Water Unit Heaters	48 MBH (lbs/hr of steam)
2. (3) Steam Unit Heaters	260 MBH (lbs/hr of steam)
3. AC-4	2 MBH (lbs/hr of steam)
4. HV-1 (Staging Area)	110 MBH (lbs/hr of steam)
Total Connected Load	420 MBH (lbs/hr of steam)

Note: Refer to Section 5.2.2 for reheat requirements for Building 2705.

Building 2715	
1. Hot Water Coil	25 MBH (lbs/hr of steam)
2. (5) Unit Heaters	60 MBH (lbs/hr of steam)
3. Fintube Radiation	2 MBH (lbs/hr of steam)
Total Connected Load	87 MBH (lbs/hr of steam)

In all three cases the same diversity factors established for these buildings are 16-24% (day vs night) during the winter peak month for Buildings 2704 and 2705, and about 6-10% for the intermediate months and 0% during the summer, and 12-24%, 6-12% and 0% respectively for Building 2715.

The space heating loads for the winter peak, the intermediate months, and the summer months are shown in Tables 5.2.1.1, 5.2.1.2, and 5.2.1.3. Day is considered from 8:00 am to 4:00 pm and the rest of the time is considered night.

Table 5.2.1.1, Building 2700's Boiler Plant Demands Space Heating Load - Winter Peak Month

Building	Winter Peak (Typical February Day) lbs/hr			Total (mlbs/day)
	12am-8am	8am-4pm	4pm-12am	
Building 2700/2706 MCA Hot Water	2,000	1,200	2,000	41.6
Building 2700 Misc. Steam Heating	160	110	160	3.4
Building 2700 AHUs w/Steam Heating	420	210	420	8.4
Building 2704	190	130	190	4.1
Building 2705	100	70	100	2.1
Building 2715	20	10	20	0.4
Totals w/MCA	2,890	1,730	2,890	60.0
Totals w/o MCA	890	530	890	18.5

Table 5.2.1.2, Building 2700's Boiler Plant Demands Space Heating Load - Intermediate Month

Building	Intermediate Month (Typical Day) lbs/hr			Total (mlbs/ day)
	12am-8am	8am-4pm	4pm-12am	
Building 2700/2706 MCA Hot Water	750	460	750	15.7
Building 2700 Misc. Steam Heating	60	30	60	1.2
Building 2700 AHUs w/Steam Heating	140	70	140	2.8
Building 2704	80	50	80	1.7
Building 2705	40	30	40	0.9
Building 2715	10	5	10	0.2
Totals w/MCA	1,080	645	1,080	22.5
Totals w/o MCA	330	185	330	6.8

Table 5.2.1.3, Building 2700's Boiler Plant Demands
Space Heating Load - Summer Months

Building	Summer Month (Typical Day) lbs/hr			Total (mlbs/day
	12am-8am	8am-4pm	4pm-12am	
Building 2700 Misc. Steam Heating	50	25	50	1.0

5.2.2 Reheat

Reheat is either used with spaces where dehumidification is of prime importance, or with zoned temperature control areas associated with offices, etc. These spaces require year-round local temperature control. Dehumidification generally applies to areas with high mixed air humidity levels in the summer. In the colder periods of winter the reheat coils perform the function of heating the mixed cold air to the desired discharge temperature.

Building 2700 has four cleanrooms, three on the fourth floor and one on the second floor, that utilize high volumes of air flow. Reheat is relatively constant during the year because the heat gain in these spaces is low relative to the air flow quantities (i.e.: small temperature rise in space). From Table 3.4.1.2, the four cleanrooms equate to about 1,160 MBH. Entech will assume that 50% (day) - 90% (night) of the load is required year round. Process equipment and lighting loads from the day time operations are expected to add internal heat gain.

The remaining reheat associated with the steam load for Building 2700's boiler plant is for Building 2705. The design consists of three (3) air handlers utilizing seventeen (17) duct mounted reheat coils for zone control. Various temperature settings are required for these zones because of the unique function of this building. The connected design load for these zones is 1,220 MBH

Entech assumes that during winter peak months the reheat required varies from 40-75%. During the intermediate months these values go down to about 30-50%, and finally for the summer months a range of 20-40%.

The values for reheat are summarized in Tables 5.2.2.1, 5.2.2.2 and 5.2.2.3.

Table 5.2.2.1, Building 2700's Boiler Plant Demands
Reheat Load - Winter Peak Month

Building	Winter Peak Month (Typical Day) lbs/hr			Total (mlbs/day)
	12am-8am	8am-4pm	4pm-12am	
Building 2700 (4) Cleanrooms	920	580	920	19.4
Building 2705 (17) Zones	915	490	915	19.0
Totals	1,835	1,070	1,835	38.4

Table 5.2.2.2, Building 2700's Boiler Plant Demands
Reheat Load - Intermediate Month

Building	Intermediate Month (Typical Day) lbs/hr			Total (mlbs/day)
	12am-8am	8am-4pm	4pm-12am	
Building 2700 (4) Cleanrooms	920	580	920	19.4
Building 2705 (17) Zones	610	305	610	12.2
Totals	1,530	885	1,530	31.6

Table 5.2.2.3, Building 2700's Boiler Plant Demands
Reheat Load - Summer Month

Building	Summer Month (Typical Day) lbs/hr			Total (mlbs)
	12am-8am	8am-4pm	4pm-12am	
Building 2700 (4) Cleanrooms	920	580	920	19.4
Building 2705 (17) Zones	490	245	490	10.0
Totals	1,410	825	1,410	29.4

5.2.3 Domestic Hot Water

In recent years, the domestic hot water system utilized the only operable generator/storage tank for supplying the needs of the building. Three of the original four had tube failures in the past and were never repaired.

In July of 1995 the last generator failed, thus eliminating the availability of hot water in the building. Areas in the building including the cafeteria, cleanrooms and certain labs have had local electric hot water generators installed in recent years and were not affected.

When the hot water was available, the usage was estimated to have been averaging 500 lb/hr (10 gpm at 100°F rise) during the day and 100 lb/hr (2 gpm at 100°F rise) during the night. Heat loss from the distribution system is included in these totals. The estimate for these losses is 20% of the totals. Peak times during the day may have required as much as 1,000 lb/hr (20 gpm at 100°F rise) for 1/2 hour or less. The 500 and 100 lb/hr total mentioned will be used as constants throughout the year. Table 5.2.3.1 reflects the typical day's impact on the boiler plant for domestic hot water heating.

The remaining buildings connected to the steam system utilize electric hot water generators and therefore do not impact the boiler plant.

Table 5.2.3.1, Building 2700's Boiler Plant Demands
Domestic Hot Water - All Months

Building	All Months (Typical Day) lbs/hr			Total (mlbs/day)
	12am-8am	8am-4pm	4pm-12am	
Building 2700 D.H.W.	100	500	100	5.6

5.2.4 Cafeteria Steam Use

Section 3.8 identified equipment used in the kitchen that utilizes steam for cooking, warming, and dishwashing. The four devices listed operate throughout the day and utilize steam at rates of 40-60 lbs/hr with the dishwasher peaking at 100 lbs/hr for short periods of time. For purposes of this analysis Entech will assume a constant rate of 200 lbs/hr from

8:00 am - 4:00 pm. Year-round from 4:00 pm - 8:00 am will be considered a load of 0 lbs/hr. The daily demand throughout the year is estimated to be 1.6 mlbs/day.

5.2.5 Boiler Plant Steam Uses

The only use of steam in Building 2700's boiler plant is in the deaerator. Calculating this number takes into account the quantities and temperatures of condensate return and make-up.

Table 5.2.5.2 summarizes the monthly mass balance for feedwater to the boilers, and steam and blowdown from the boilers. Feedwater is calculated by adding an estimated constant blowdown for this plant of 150 mlbs/month to the monthly adjusted steam totals. Make-up water is metered and recorded in the daily logs. Like the steam log numbers, the make-up numbers require an adjustment. Plant personnel noted that the actual make-up is approximately 50% higher than the recorded values. This is due to the piping arrangement near the make-up water meter which allows for some bypassing of the meter resulting in higher flows than recorded.

The deaerator steam demand is the theoretical percentage of total feedwater required to balance the mass and heat input to the deaerators. The equation for determining the steam percentage is as follows, and the derivation of it can be found in Attachment 8.9.

Deaerator Steam (% of feedwater)

$$\frac{lb}{hr}(S) = 100 \times \frac{\left(\left(\frac{btu}{lb}(F) - \frac{btu}{lb}(C)\right) - \left(\frac{lb}{hr}(M) \times \left(\frac{btu}{lb}(M) - \frac{btu}{lb}(C)\right)\right)\right)}{\left(\frac{btu}{lb}(S) - \frac{btu}{lb}(C)\right)}$$

Condensate Return (% of feedwater)

$$\frac{lb}{hr}(C) = 100 \times \left(1 - \frac{lb}{hr}(M) - \frac{lb}{hr}(S)\right)$$

S	=	Deaerator Steam
F	=	Feedwater
C	=	Condensate Return
M	=	Make-up Water

The results in Table 5.2.5.2 show that the deaerator requires boiler supplied steam which constitutes 6.2 - 7.4% of the feedwater totals throughout the years. The daily demand for feedwater steam during the winter peak month is near 15 mlbs/day. For the typical intermediate and summer months the totals are approximately 9 and 6 mlbs/day respectively.

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 BOILER PLANT - FEEDWATER MASS/HEAT TRANSFER BALANCE
JULY 1993 -JULY 1995

TABLE 5.2.5.2

JULY 1993-JUNE 1994

	Operating	Log Steam	Adj. Steam	Est. Blowdown	Est. Blowdown	Est. Feedwater	Log Make-up	Adj. Make-up			Deaerator Steam			Condensate Return	
month	(days)	(mlbs/month)	(mlbs/month)	(mlbs/month)	FW (%)	(mlbs/month)	(gal/month)	(gal/month)	(mlbs/month)	FW (%)	FW (%)	(mlbs/month)	(mlbs/day)	FW (%)	(mlbs/month)
July	28	3,019	2,334	150	6.0%	2,484	76,400	114,600	229	9.2%	6.640%	165	5.9	78.1%	1,940
August	31	3,994	2,956	150	4.8%	3,106	101,900	152,850	306	9.8%	6.706%	208	6.7	78.6%	2,442
September	30	3,173	2,343	150	6.0%	2,493	100,100	150,150	300	12.0%	6.902%	172	5.7	75.0%	1,870
October	31	3,825	2,832	150	5.0%	2,982	103,100	154,650	309	10.4%	6.753%	201	6.5	77.8%	2,321
November	29.5	5,232	4,142	150	3.5%	4,292	83,200	124,800	250	5.8%	6.330%	272	9.2	84.4%	3,621
December	31	7,273	6,158	150	2.4%	6,308	103,300	154,950	310	4.9%	6.257%	395	12.7	86.5%	5,454
January	31	9,751	6,784	150	2.2%	6,934	107,300	160,950	322	4.6%	6.229%	432	13.9	87.0%	6,030
February	28	8,355	7,044	150	2.1%	7,194	109,700	164,550	329	4.6%	6.220%	447	16.0	87.1%	6,267
March	31	7,687	6,494	150	2.3%	6,644	147,800	221,700	443	6.7%	6.416%	426	13.8	84.7%	5,625
April	30	5,480	4,336	150	3.3%	4,486	116,400	174,600	349	7.8%	6.519%	292	9.7	82.4%	3,694
May	31	5,005	3,964	150	3.6%	4,114	138,700	208,050	416	10.1%	6.734%	277	8.9	79.5%	3,271
June	30	3,874	2,868	150	5.0%	3,018	142,500	213,750	428	14.2%	7.099%	214	7.1	73.8%	2,226
TOTAL:	361.5	66,668	52,256	1,800	3.3%	54,056	1,330,400	1,995,600	3,991	7.4%	6.479%	3,503	9.7	82.8%	44,763

JULY 1994-JULY 1995

	Operating	Log Steam	Adj. Steam	Est. Blowdown	Est. Blowdown	Est. Feedwater	Log Make-up	Adj. Make-up			Deaerator Steam			Condensate Return	
month	(days)	(mlbs/month)	(mlbs/month)	(mlbs/month)	FW (%)	(mlbs/month)	(gal/month)	(gal/month)	(mlbs/month)	FW (%)	FW (%)	(mlbs/month)	(mlbs/day)	FW (%)	(mlbs/month)
July	31	4,020	2,965	150	4.8%	3,115	132,200	198,300	397	12.7%	6.968%	217	7.0	75.5%	2,351
August	31	4,353	3,215	150	4.5%	3,365	199,000	298,500	597	17.7%	7.437%	250	8.1	70.4%	2,367
September	30	4,352	3,199	150	4.5%	3,349	116,600	174,900	350	10.4%	6.762%	226	7.5	78.3%	2,623
October	31	4,669	3,700	150	3.9%	3,850	104,200	156,300	313	8.1%	6.547%	252	8.1	81.4%	3,135
November	30	5,286	4,222	150	3.4%	4,372	109,000	163,500	327	7.5%	6.491%	284	9.5	82.6%	3,612
December	31	6,177	5,352	150	2.7%	5,502	109,000	163,500	327	5.9%	6.350%	349	11.3	85.0%	4,675
January	31	6,854	5,791	150	2.5%	5,941	111,600	167,400	335	5.6%	6.322%	376	12.1	85.5%	5,081
February	28	7,246	6,094	150	2.4%	6,244	92,100	138,150	276	4.4%	6.210%	388	13.8	87.0%	5,430
March	31	6,183	5,214	150	2.8%	5,364	100,600	150,900	302	5.6%	6.322%	339	10.9	85.3%	4,573
April	28	4,654	3,764	150	3.8%	3,914	93,800	140,700	281	7.2%	6.462%	253	9.0	82.5%	3,229
May	Plant Down	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
June	20	2,160	1,604	100	5.9%	1,704	60,400	90,600	181	10.6%	6.762%	115	5.8	76.7%	1,308
July	31	3,189	2,293	150	6.1%	2,443	92,100	138,150	276	11.3%	6.837%	167	5.4	75.7%	1,850
TOTAL:	353.0	59,143	47,413	1,750	3.6%	49,163	1,320,600	1,980,900	3,962	8.1%	6.543%	3,217	9.1	81.8%	40,234

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5.2.6 Steam Distribution Losses

For this report Entech will establish the distribution losses (mass and heat) by determining the residual steam by subtracting the estimated system quantities from the steam produced. Table 5.2.6.1 establishes the expected losses that balance the typical days for winter peak, intermediate and summer months. Table 5.2.6.2 is the same information without MCA water related steam.

Table 5.2.6.1, Building 2700 Boiler Plant
Estimated Steam Distribution Losses w/MCA

Use	Winter Peak Month		Intermediate Month		Summer Month	
	mlbs/day	%	mlbs/day	%	mlbs/day	%
Total	235.0	100.0%	140.5	100.0%	95.0	100.0%
Heating	60	25.5%	22.5	16.0%	1.0	1.0%
Reheat	38.4	16.3%	31.6	22.6%	29.4	31.0%
DHW	5.6	2.4%	5.6	4.0%	5.6	5.9%
Cafeteria	1.6	0.7%	1.6	1.1%	1.6	1.7%
Plant	14.8	6.3%	9.1	6.5%	6.6	6.9%
Losses	114.6	48.8%	70.7	49.8%	50.8	53.5%

Note: The losses predicted here probably include excess steam production estimates that could be attributed to higher losses in less efficient boilers. The actual steam losses probably are in the range of 30% to 40%. However, the fuel consumed to generate the actual totals is still the same.

Table 5.2.6.2, Building 2700 Boiler Plant
Estimated Steam Distribution Losses w/o MCA

Use	Winter Peak Month		Intermediate Month		Summer Month	
	mlbs/day	%	mlbs/day	%	mlbs/day	%
Total	188.5	100.0%	100.0	100.0%	95.0	100.0%
Heating	18.5	9.8%	5.0	5.0%	1.0	1.0%
Reheat	38.4	20.4%	31.6	31.6%	29.4	31.0%
DHW	5.6	3.0%	5.6	5.6%	5.6	5.9%
Cafeteria	1.6	0.8%	1.6	1.6%	1.6	1.7%
Plant	11.9	6.3%	6.5	6.5%	6.6	6.9%
Losses	112.5	59.7%	49.7	49.7%	50.8	53.5%

The results in Tables 5.2.6.1 and 5.2.7.1 suggest that the percentage of loss in the summer months are similar to what is expected in the winter and intermediate months. When considering the distribution system and the way the building operates, the high loss results make sense. The distribution system includes a 12" header in the boiler room, and 10" headers to each end of the building. The system sizing was based on the four original boilers producing 60,000 lb/hr. For various reasons the load is presently estimated to peak at about 15,000 lb/hr during the year. Design velocities for the system were probably close to 6,000 ft/min in the headers. Actual velocities in these headers are now expected to peak at 1,500 ft/min and drop as low as 500 ft/min.

Throughout the year the large pipe system relative to the system demand creates excess heat loss due to the large surface areas of the header

piping. In the past, Building 2700 had a fair amount of piping runs not insulated. A report done in 1993 identified these and reportedly most had been subsequently fixed.

During Entech's site investigation, some steam piping and valves were still seen to be without insulation. How these individual sightings compare to the previous report is unknown. Many areas that contain steam lines generally are overheated year round.

In addition to the inherent losses associated with the oversized pipe, it is expected that steam and condensate leaks exist, especially in the underground piping to and from Buildings 2704 and 2705, and from the greatly oversized traps in the main headers in Building 2700 which tend to wire-draw under these conditions. Wire drawing is the passing of steam/condensate across trap seats that cut lines into the seats causing leaks over time.

In the spring of the year it appears many of the users, primarily air handlers, shut off the supply to the coils until October or November. It is expected that during the summer there is a significant increase in the dead-leg pipe runs that have traps and inherently are condensate generators. Intuitively we can consider that the longer steam is in a system (low vs high flow) the more likely that it may convert to condensate prior to use. Based on the ideas presented, the condensate losses in the summer would remain at the levels predicted in these models.

5.2.7 Steam Use Model Summary

The steam totals from the Building 2700 boiler plant predicted in Section 4 have been evaluated and broken down in the past six subsections.

Table 5.2.7.1 balances the estimated daily usage numbers for the average steam production numbers from Table 4.5.4. Table 5.2.7.2 is the same information less the estimated existing MCA system loads including deaerator steam and an 8% line loss to Building 2706 which is in close proximity of Building 2700 boiler plant. The total steam produced in conjunction with the existing MCA load is approximately 6,400 mlbs/yr. All twelve months are accounted for by prorating/estimating from the pre-determined seasonal values.

Table 5.2.7.3 and Figure 5.2.7.4 summarize the different uses for the entire year including the MCA loads. From the usage total for the MCA hot water system was estimated to be 5,550 mmBtu/yr. The yearly reheat total for Building 2700 is approximated 60% or 6,700 mmBtu/hr of the total reheat required between Building's 2700 and 2705

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 BOILER PLANT - SUMMARY OF DAILY STEAM USAGE
JULY 1993 -JULY 1995

Boiler Plant w/ MCA Hot Water Loads & Losses

TABLE 5.2.7.1

JULY 1993-JUNE 1995 AVERAGE

month	Operating (days)	Average Steam Produced (mlbs/month)	(mlbs/day)	Space Heating (mlbs/day)	Demand (%)	Reheat (mlbs/day)	Demand (%)	Domestic Hot Water (mlbs/day)	Demand (%)	Cafeteria Use (mlbs/day)	Demand (%)	Boiler Plant Use (mlbs/day)	Demand (%)	Distribution Losses (mlbs/day)	Demand (%)
July	31	2,775	89.5	1.0	1.1%	29.4	32.8%	5.6	6.3%	1.6	1.8%	6.2	6.9%	45.7	51.1%
August	31	3,085	99.5	1.5	1.5%	30.2	30.4%	5.6	5.6%	1.6	1.6%	6.9	6.9%	53.7	54.0%
September	30	2,775	92.5	3.0	3.2%	30.2	32.6%	5.6	6.1%	1.6	1.7%	6.4	6.9%	45.7	49.4%
October	31	3,255	105.0	11.3	10.7%	31.0	29.5%	5.6	5.3%	1.6	1.5%	6.8	6.5%	48.7	46.4%
November	30	4,215	140.5	22.5	16.0%	31.0	22.1%	5.6	4.0%	1.6	1.1%	9.1	6.5%	70.7	50.3%
December	31	5,766	186.0	40.5	21.8%	31.6	17.0%	5.6	3.0%	1.6	0.9%	11.7	6.3%	95.0	51.1%
January	31	6,293	203.0	49.5	24.4%	35.0	17.2%	5.6	2.8%	1.6	0.8%	12.8	6.3%	98.5	48.5%
February	28	6,580	235.0	60.0	25.5%	38.4	16.3%	5.6	2.4%	1.6	0.7%	14.8	6.3%	114.6	48.8%
March	31	5,844	188.5	40.5	21.5%	35.0	18.6%	5.6	3.0%	1.6	0.8%	11.9	6.3%	93.9	49.8%
April	30	4,185	139.5	22.5	16.1%	31.6	22.7%	5.6	4.0%	1.6	1.1%	9.1	6.5%	69.1	49.6%
May	31	3,658	118.0	13.5	11.4%	30.2	25.6%	5.6	4.7%	1.6	1.4%	7.7	6.5%	59.4	50.4%
June	30	2,640	88.0	1.5	1.7%	29.4	33.4%	5.6	6.4%	1.6	1.8%	6.1	6.9%	43.8	49.8%
TOTAL:	365.0	51,071	139.9	22.3	15.9%	31.9	22.8%	5.6	4.0%	1.6	1.2%	9.1	6.5%	69.4	49.6%

Boiler Plant w/o MCA Hot Water Loads & Losses

TABLE 5.2.7.2

JULY 1993-JUNE 1995 AVERAGE

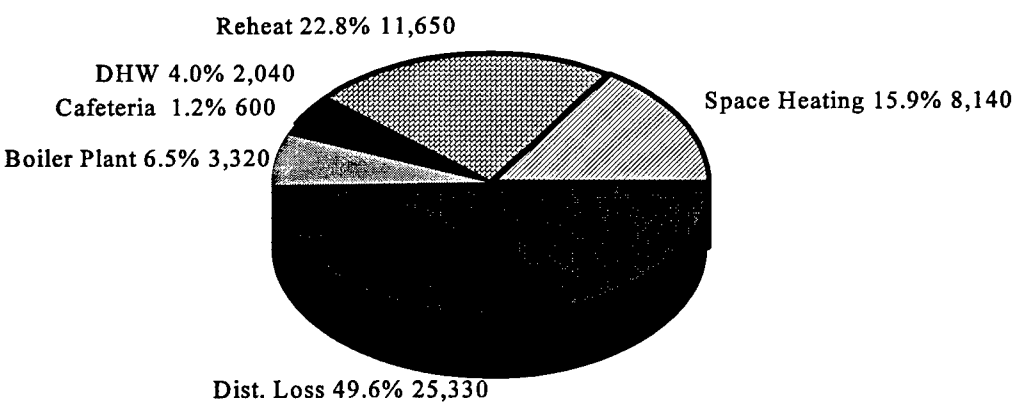
month	Operating (days)	Average Steam Produced (mlbs/month)	(mlbs/day)	Space Heating (mlbs/day)	Demand (%)	Reheat (mlbs/day)	Demand (%)	Domestic Hot Water (mlbs/day)	Demand (%)	Cafeteria Use (mlbs/day)	Demand (%)	Boiler Plant Use (mlbs/day)	Demand (%)	Distribution Losses (mlbs/day)	Demand (%)
July	31	2,775	89.5	1.0	1.1%	29.4	32.8%	5.6	6.3%	1.6	1.8%	6.2	6.9%	45.7	51.1%
August	31	3,085	99.5	1.5	1.5%	30.2	30.4%	5.6	5.6%	1.6	1.6%	6.9	6.9%	53.7	54.0%
September	30	2,775	92.5	3.0	3.2%	30.2	32.6%	5.6	6.1%	1.6	1.7%	6.4	6.9%	45.7	49.4%
October	31	3,030	97.7	4.8	4.9%	31.0	31.7%	5.6	5.7%	1.6	1.6%	6.4	6.5%	48.4	49.5%
November	30	3,685	122.8	6.8	5.5%	31.0	25.2%	5.6	4.6%	1.6	1.3%	8.0	6.5%	69.8	56.9%
December	31	4,745	153.1	11.2	7.3%	31.6	20.6%	5.6	3.7%	1.6	1.0%	9.6	6.3%	93.4	61.0%
January	31	5,098	164.5	15.2	9.2%	35.0	21.3%	5.6	3.4%	1.6	1.0%	10.4	6.3%	96.7	58.8%
February	28	5,274	188.4	18.5	9.8%	38.4	20.4%	5.6	3.0%	1.6	0.8%	11.9	6.3%	112.4	59.7%
March	31	4,850	156.4	12.0	7.7%	35.0	22.4%	5.6	3.6%	1.6	1.0%	9.9	6.3%	92.4	59.1%
April	30	3,639	121.3	6.8	5.6%	31.6	26.1%	5.6	4.6%	1.6	1.3%	7.9	6.5%	67.8	55.9%
May	31	3,110	100.3	4.0	4.0%	30.2	30.1%	5.6	5.6%	1.6	1.6%	6.5	6.5%	52.4	52.2%
June	30	2,640	88.0	1.0	1.1%	29.4	33.4%	5.6	6.4%	1.6	1.8%	6.1	6.9%	44.3	50.4%
TOTAL:	365.0	44,705	122.5	7.1	5.8%	31.9	26.1%	5.6	4.6%	1.6	1.3%	8.0	6.6%	68.2	55.7%

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Table 5.2.7.3, Building 2700 Boiler Plant
Steam Use Summary

Usage	Average mlbs/day	Average %	Total (mlbs/month)	Total (mlbs/yr)
Space Heating	22.3	15.9%	680	8,140
Reheat	31.9	22.8%	970	11,650
Domestic Hot Water	5.6	4.0%	170	2,040
Cafeteria Use	1.6	1.2%	50	600
Boiler Plant Use	9.1	6.5%	275	3,320
Distribution Losses	69.4	49.6%	2,110	25,330
Total	139.9	100.0%	4,255	51,080

Figure 5.2.7.4, Boiler 2700 Boiler Plant
Steam Use Summary w/MCA Loads



5.3 Heat Loss Model (Degree Day Method)

The Heat Loss Model as described in Section 2.5.3 of this report, is shown on the following page in Table 5.3.1. The mezzanine level is included with the totals for the first floor level. The peak estimated by the Heat Loss Model is about 8,700 mmBtu/hr (8,700 lbs/hr of steam). The annual Btu usage for space heating Building 2700 has been calculated to be 13,856 mmBtu per year, or 13,440 mcf of natural gas. The Heat Loss Model energy and associated cost values are considered to be higher (40% or more) than the actual amounts required for heating. Building 2700 has high internal heat gains which are not included in the Heat Loss Model. The steam model and the EZDOE model will reflect lower usage totals. Table 5.3.2 summarizes the Heat Loss Model results. These results are for comparison purposed only. Other models will be used for calculating energy savings and costs.

Note: The ventilation rates shown do not include the make-up ventilation air that is mixed and reheated for the cleanrooms on the second and fourth floors. They are treated separately in the reheat portion of the Steam Model only. Their rates and loads are estimated by the Steam Model and the EZDOE Model. The roof loss and infiltration are calculated from the cleanroom square footage in the heat loss model.

Heat Loss Model (Degree Day Method)
Table 5.3.1
Ft. Monmouth, Myer Center - Bldg. 2700

		EXTERIOR DATA							VENTILATION, INFILTRATION INTERIOR DATA					BELOW GRADE			TOTAL
SPACE NAME		WALL HEIGHT FT	WALL LENGTH FT	WINDOW AREA SQ FT	DOOR AREA SQ FT	WALL AREA SQ FT	WALL U FAC	ROOF AREA SQ FT	CEILING HEIGHT FT	FLOOR AREA SQ FT	SPACE VOLUME CU FT	INF AIR CHANGE CFM	VENT AIR CFM	WALL HT FT	WALL LENGTH FT	FLOOR AREA SQ FT	HEAT LOSS BTU/HR
Ground Floor		11.2	1,440	1,188	1,211	13,729	0.09	15,000	8.0	69,430	555,440	2,074	5,000	3	3,322	69,430	
	BTU/HR			40,511	75,082	76,608		102,300				138,851	334,800		24,556	55,405	848,113
	COST-$			$468	$868	$886		$1,183				$1,606	$3,872		$284	$641	$9,808
First Floor		22.3	3,500	7,020	585	70,550	0.08	0	16.7	179,874	2,998,500	11,194	10,000	0	0	0	
	BTU/HR			239,382	36,270	349,928		0				749,577	669,600		0	0	2,044,757
	COST-$			$2,768	$419	$4,047		$0				$8,668	$7,743		$0	$0	$23,646
Second Floor		15.3	3,500	7,020	0	46,635	0.08	0	9.7	144,067	1,393,128	5,201	13,000	0	0	0	
	BTU/HR			239,382	0	231,310		0				348,260	870,480		0	0	1,689,431
	COST-$			$2,768	$0	$2,675		$0				$4,027	$10,066		$0	$0	$19,537
Third Floor		15.3	3,500	7,020	0	46,635	0.08	0	9.7	144,067	1,393,128	5,201	13,000	0	0	0	
	BTU/HR			239,382	0	231,310		0				348,260	870,480		0	0	1,689,431
	COST-$			$2,768	$0	$2,675		$0				$4,027	$10,066		$0	$0	$19,537
Fourth Floor		15.3	3,500	7,020	0	46,635	0.08	150,000	9.7	144,067	1,393,128	5,201	9,000	0	0	0	
	BTU/HR			239,382	0	231,310		1,023,000				348,260	602,640		0	0	2,444,591
	COST-$			$2,768	$0	$2,675		$11,830				$4,027	$6,969		$0	$0	$28,270
		0.0	0	0	0	0	0.00	0	0.0	0	0	0	0	0	0	0	
	BTU/HR			0	0	0		0				0	0		0	0	0
	COST-$			$0	$0	$0		$0				$0	$0		$0	$0	$0
		0.0	0	0	0	0	0.00	0	0.0	0	0	0	0	0	0	0	
	BTU/HR			0	0	0		0				0	0		0	0	0
	COST-$			$0	$0	$0		$0				$0	$0		$0	$0	$0
		0.0	0	0	0	0	0.00	0	0.0	0	0	0	0	0	0	0	
	BTU/HR			0	0	0		0				0	0		0	0	0
	COST-$			$0	$0	$0		$0				$0	$0		$0	$0	$0
		0.0	0	0	0	0	0.00	0	0.0	0	0	0	0	0	0	0	
	BTU/HR			0	0	0		0				0	0		0	0	0
	COST-$			$0	$0	$0		$0				$0	$0		$0	$0	$0
TOTALS			15,440	29,268	1,796	224,184		165,000		681,505	7,733,300	28,871	50,000		3,322	69,430	
	BTU/HR			998,039	111,352	1,120,465		1,125,300				1,933,207	3,348,000		24,556	55,405	8,716,324
	COST-$			$11,541	$1,288	$12,957		$13,013				$22,356	$38,717		$284	$641	$100,797

OUTSIDE TEMPERATURE(°F)	10
INSIDE TEMPERATURE (°F)	72
DELT TEMPERATURE (°F)	62
HEATING DEGREE DAYS/YR.	5,034
FUEL COST, $/UNIT	$7.50
HT VALUE, MMBTU/UNIT	1.031
SYSTEM EFFICIENCY (.XX)	76.0%
$/MMBTU (WITH EFF.)	$9.57

DOOR U FACTOR (BTU/SQFT*F*H)	1
WINDOW U FACTOR (BTU/SQFT*F*H)	0.55
ROOF U FACTOR (BTU/SQFT*F*H)	0.11
GRND FLOOR FACTOR (BTU/SQFT*H)	0.4
GRND WALL FACTOR (BTU/SQFT*H)	0.4
ANNUAL COST FACTOR ($/YR/BTU/HR)	0.011564
C (D)	0.62

WIND VELOCITY (MPH)	15
INFILTRATION AIR CHANGES/HR	0.2
INFILTRATION AIR CHANGE FACTOR	0.003733
WINTER GRND WATER TEMP (°F)	50
GROUND TEMP DELTA TEMP (°F)	22
GROUND WALL FACTOR	0.3
BELOW GRADE DEL TEMP (AD USTED)	6.6
GROUND FLOOR FACTOR	1.995

HEAT LOSS, MMBTU/YR	13,856
HEAT LOSS,BTU/DEG DA	2,752,523
UNITS FUEL/DEG DAY	2.67
UNITS FUEL/YR	13,440
COST, $/SF/YR	$0.15
COST, $/CF/YR	$0.0130
BTU/HR/SF:	13

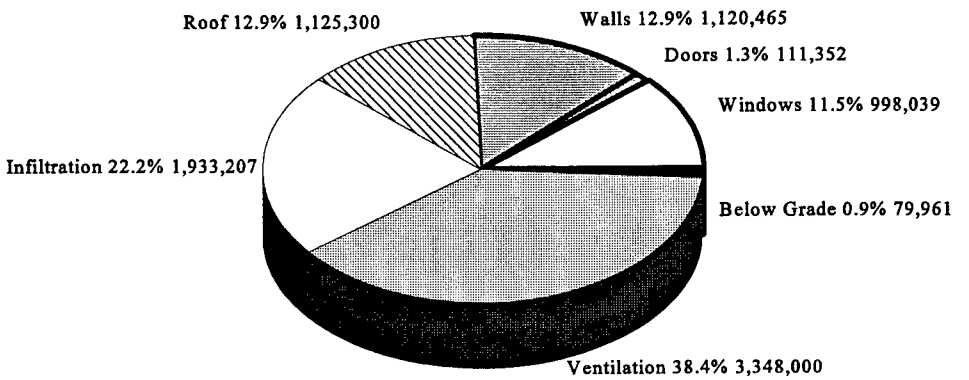
Table 5.3.2, Building 2700 Boiler Plant
Heat Loss Model Results

Area	Loss (Btuh)
Windows	998,039
Doors	111,352
Walls	1,120,465
Roof	1,125,300
Infiltration	1,933,207
Ventilation	3,348,000
Below Grade	79,961
Totals	8,716,324

The above table indicates the design day heat loss is approximately 8.7 mmBtu or 8,700 lb/hr of steam for heating Building 2700, which is slightly less than the connected loads in Tables 3.4.1.1 and 3.4.1.2. With the other loads included, the actual peak is approximately 12,000-14,000 lb/hr during a normal winter. In January of 1994, the peak actually was close to 16,000 lb/hr. That period of time set fuel consumption records throughout the northeast United States. Figure 5.4.3 graphically displays the Heat Loss Model peak demand results.

Figure 5.3.3, Building 2700 (Myer Center)

Heat Loss Model Results



Typical of many buildings, Figure 5.3.3 indicates that ventilation and infiltration loads constitute most of the building heating load. The estimates will be compared to EZDOE results later in Section 5.

5.4 EZDOE (Heat Gain/Heat Loss Model)

5.4.1 General

The following sub-sections describe the setup and results for modeling the heating and cooling requirements for Building 2700. Format, reference information and assumptions are presented as input for the EZDOE modeling. Loads, peaks and other findings are presented as results.

5.4.2 Description - Building 2700 Zones and Systems

Modeling software as sophisticated as EZDOE requires the user to balance the level of detail and accuracy against the feasibility of modeling within the bounds of the project scope. For this project the building was portioned into zones by floor that were served by systems and central plant equipment that are categorically the same. The basis for this report is a combination of the walk through findings and the data developed in Section 3 outlining the building's equipment and operation. The breakdown is as follows:

1. Zones that are supported by the MCA two-pipe system utilizing steam generated heating water and the central chiller plant supplied cooling water. Note: All types of areas utilize MCA-HW fin-tube radiation for skin loss heating.

2. Zones served by air handlers utilizing steam for heating or reheat, and a coil for cooling purposes supported by a variety of refrigeration equipment and condensers. Cooling coil fluids are supplied by chilled water or DX (direct expansion) refrigerant systems that are either cooled by air or water. Throughout this section we will categorically refer to these loads as DX with miscellaneous cooling or just DX.

3. Zones supported by steam feed devices for heating only.

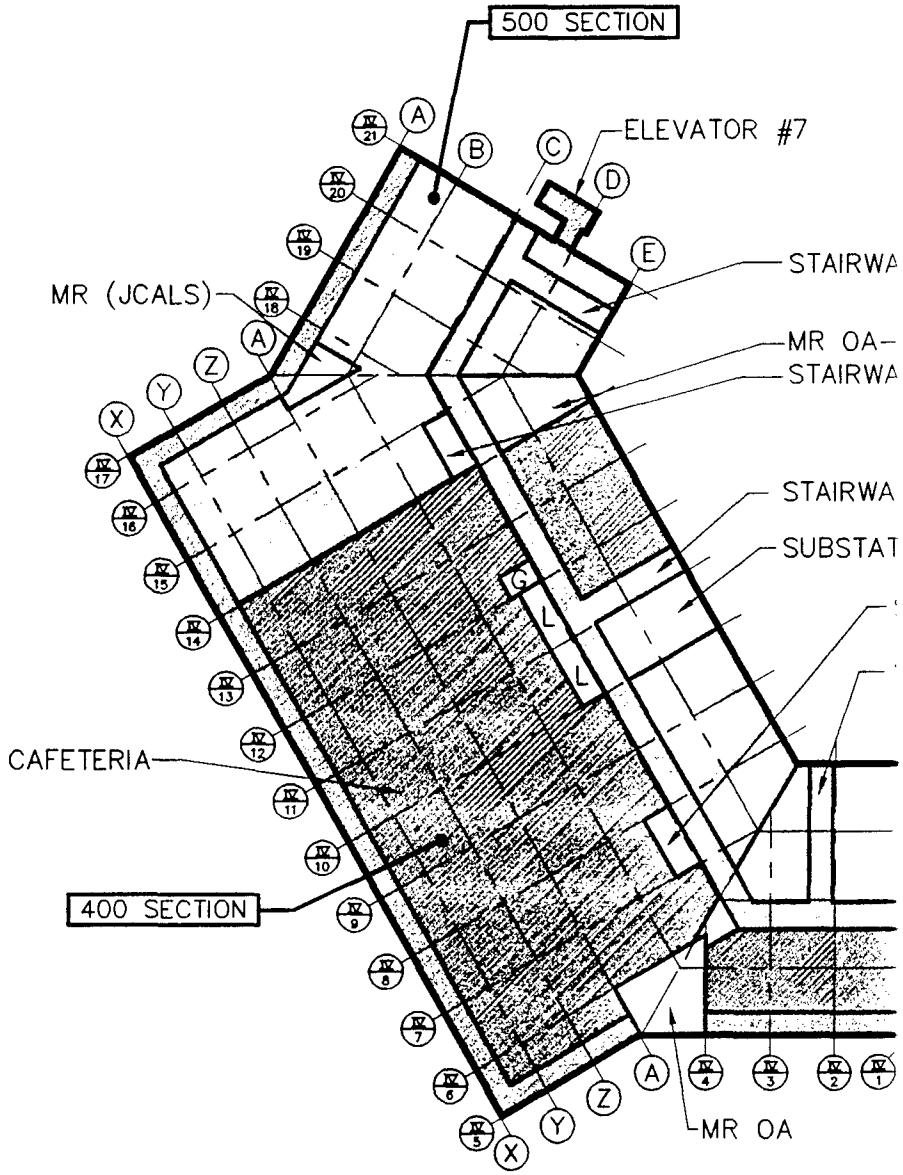
4. Zones that are cooling only because of the low heat loss expected as compared to higher internal loads gained. These recirculation units use a variety of cooling systems (DX w/misc. cooling).

5. Zones supported by MCA-HW heating only, utilizing fin-tube radiation and convectors.

6. Zones that are not supported by any of the heating or cooling devices identified as installed and operating.

Separating the MCA systems from the others is necessary for determining their contribution to the loads for the entire building. With the existing stand alone plant for MCA-CHW in place, and the fact that new boilers have been targeted for supporting the MCA-HW system alone, this separation was imperative to properly analyze the building for energy and cost savings. Refer to the following figures for the various zones defined for each floor in Building 2700. The associated room numbers for the figures can be acquired from the Fort Monmouth supplied sketches for Building 2700 in Appendix 8.10

Figure 5.4.2.1	Building 2700 HVAC Systems (basement plan)
Figure 5.4.2.2	Building 2700 HVAC Systems (first floor plan)
Figure 5.4.2.3	Building 2700 HVAC Systems (mezzanine floor plan)
Figure 5.4.2.4	Building 2700 HVAC Systems (second floor plan)
Figure 5.4.2.5	Building 2700 HVAC Systems (third floor plan)
Figure 5.4.2.6	Building 2700 HVAC Systems (fourth floor plan)



HVAC SYSTEMS – BA

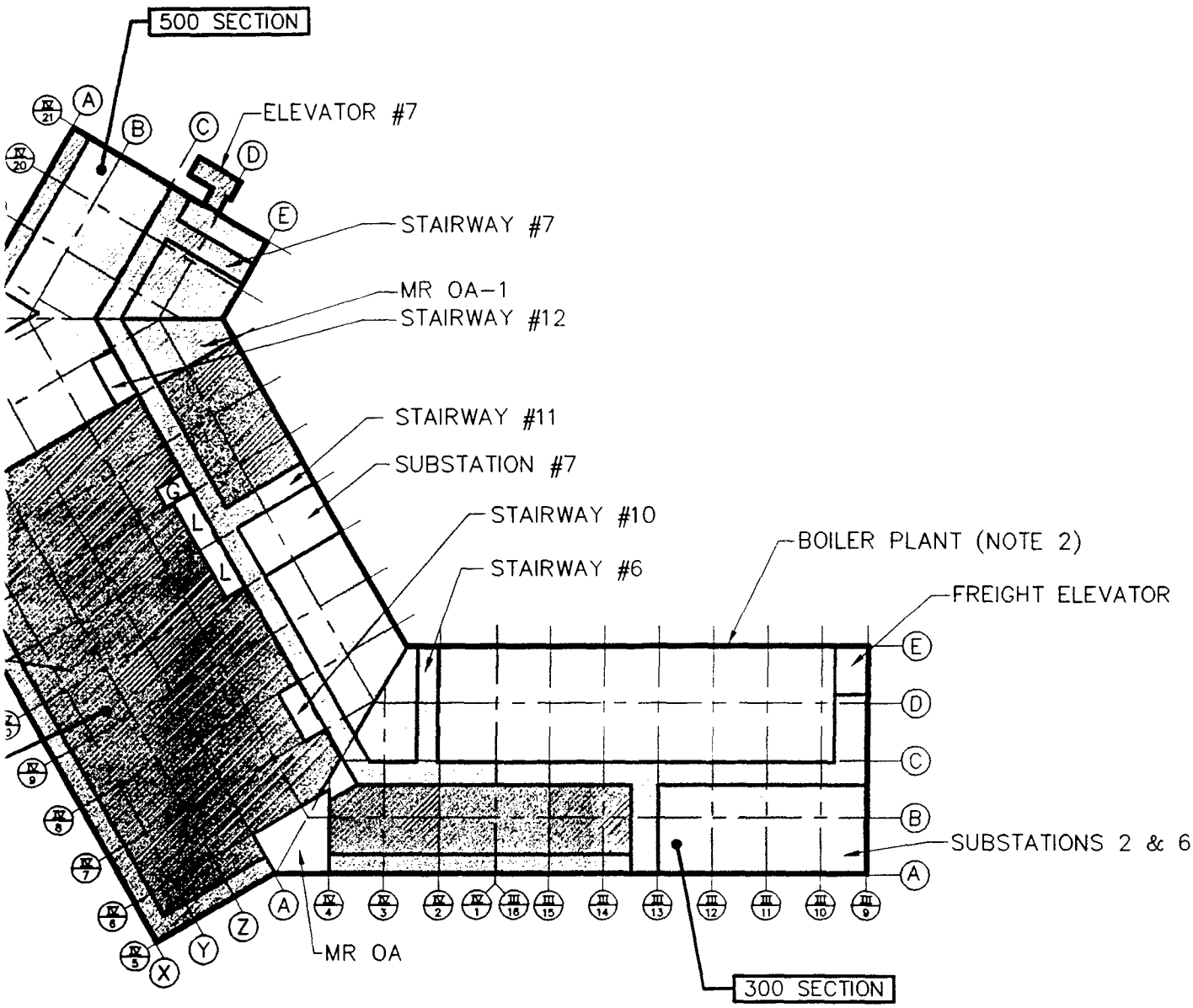
0 20' 40' 80'

GRAPHIC SCALE: 1"=80'

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   THE SPACE



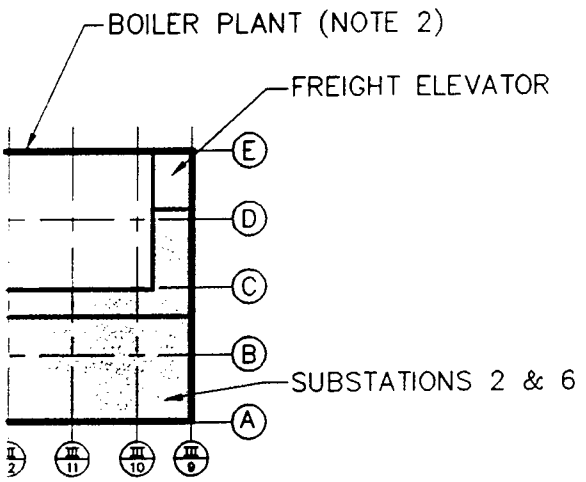
HVAC SYSTEMS - BASEMENT PLAN

20' 40' 80'
GRAPHIC SCALE: 1"=80'

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FORT
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DATE
2/14/9
SCALE
1" = 80'

NOTES

1. REFER TO THE FLOOR BY FLOOR LAYOUT DRAWINGS IN APPENDIX 8.10 FOR LOCATION OF ROOM NUMBERS.
2. PRESENTLY THERE IS NO METHOD OF SPACE HEATING IN THE BOILER PLANT. BOILER AND PIPE LOSSES HEAT THE SPACE AT THIS TIME.



300 SECTION

MCA 2-PIPE (HEATING/COOLING)

STEAM HEAT ONLY

STEAM HEAT/REHEAT W/ MISC. COOLING

COOLING ONLY (DX & MISC. CHILLERS)

MCA HEATING ONLY (CONVECTORS, FINNED TUBE, ETC.)

UNHEATED SPACE

PLAN

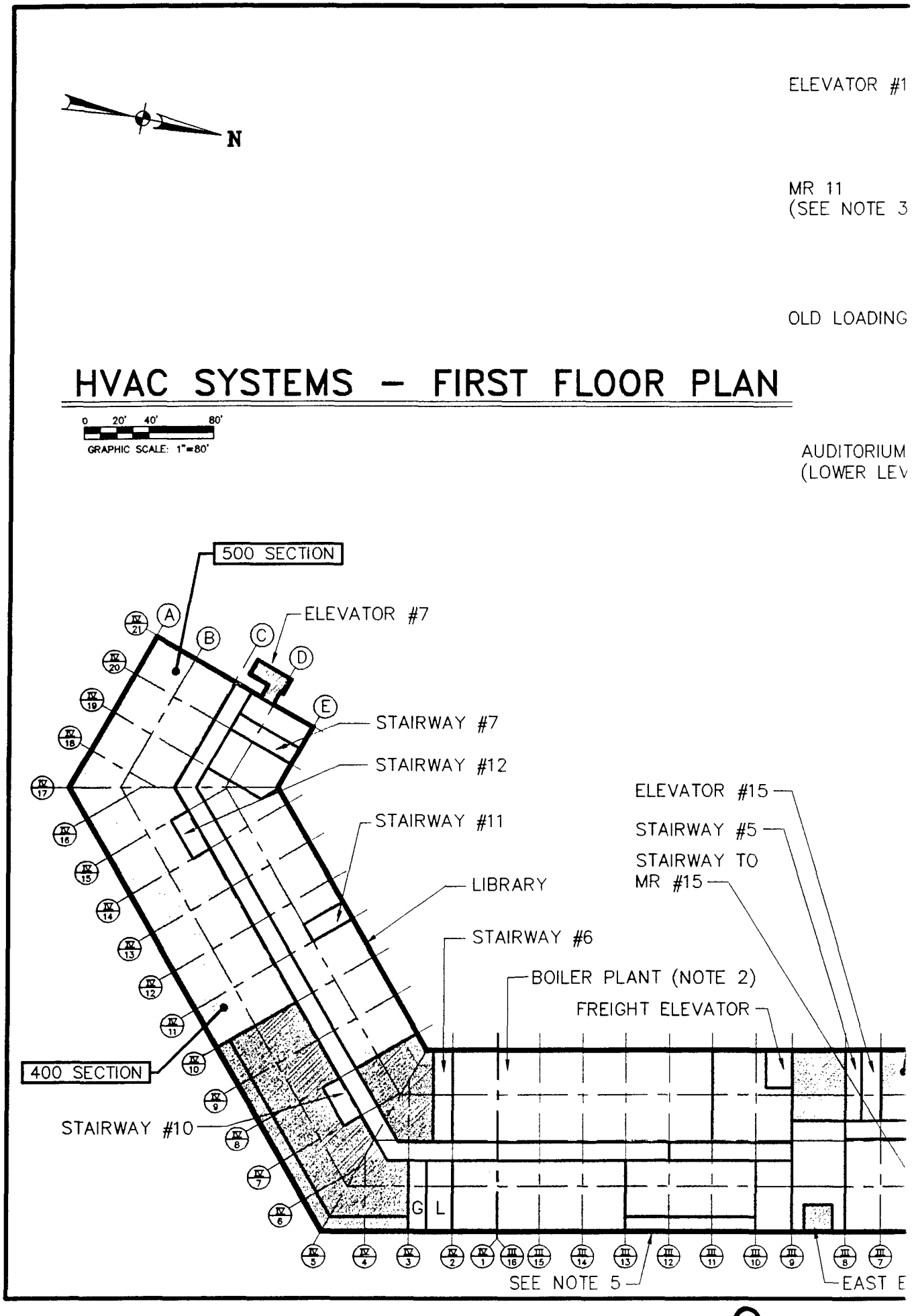
U.S. ARMY ENGINEER DISTRICT, MOBILE/NORFOLK

FORT MONMOUTH NEW JERSEY

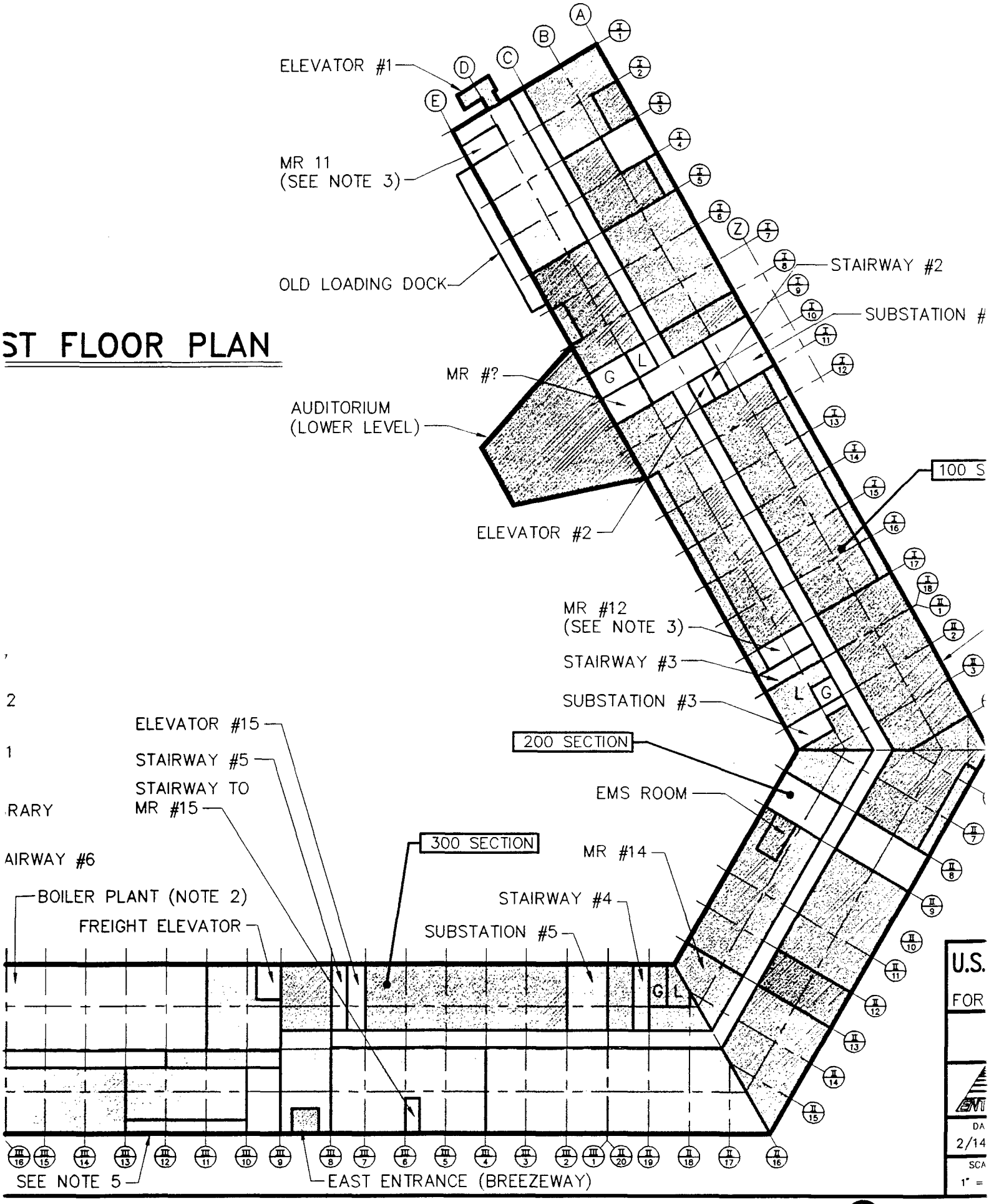
BUILDING 2700 HVAC SYSTEMS
BASEMENT PLAN

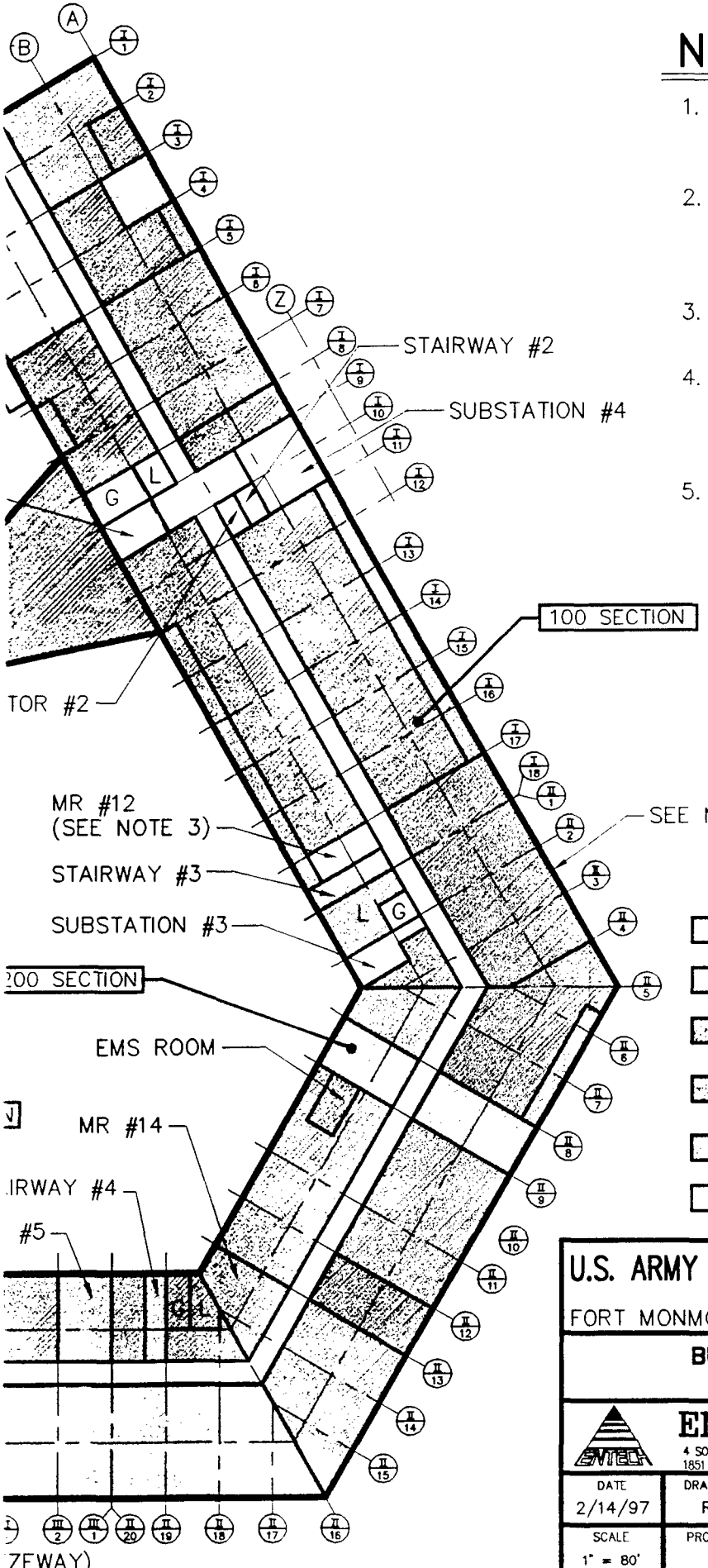
ENTECH Engineering Inc.
4 SOUTH FOURTH STREET P.O. BOX 32 READING, PA 19603 (610) 373-8867
1851 WEST END AVE P.O. BOX 389 POTTSVILLE, PA 17901 (717) 628-5655

DATE	DRAWN BY	CHECKED BY	PROJ. MGR.	APPROVED	
2/14/97	RJI	JED	ELC		
SCALE	PROJECT NO.		DRAWING NO.		REVISION
1" = 80'	4130.05		FIG. 5.4.2.1		0


N
ELEVATOR #1
MR 11
(SEE NOTE 3
OLD LOADING
HVAC SYSTEMS - FIRST FLOOR PLAN
0 20' 40' 80'
GRAPHIC SCALE: 1"=80'
AUDITORIUM
(LOWER LEV
500 SECTION
ELEVATOR #7
STAIRWAY #7
STAIRWAY #12
STAIRWAY #11
LIBRARY
STAIRWAY #6
BOILER PLANT (NOTE 2)
FREIGHT ELEVATOR
ELEVATOR #15
STAIRWAY #5
STAIRWAY TO
MR #15
400 SECTION
STAIRWAY #10
G L
SEE NOTE 5
EAST E

ST FLOOR PLAN





NOTES

1. REFER TO THE FLOOR BY FLOOR LAYOUT DRAWINGS IN APPENDIX 8.10 FOR LOCATION OF ROOM NUMBERS.
2. PRESENTLY THERE IS NO METHOD OF SPACE HEATING IN THE BOILER PLANT. BOILER LOSSES HEAT THE SPACE AT THIS TIME.
3. THIS AREA WAS MODELED AS BLUE (MCA HEATING ONLY) IN EZDOE.
4. THIS AREA FROM I 17 TO II 4 WAS MODELED IN EZDOE AS BROWN (STEAM HEAT/REHEAT W/ MISC. COOLING).
5. THIS AREA FROM III 10 TO III 13 WAS MODELED IN EZDOE AS DX COOLING WITH MCA HEATING ONLY CONVECTORS (BASEBOARD).

- MCA 2-PIPE (HEATING/COOLING)
- STEAM HEAT ONLY
- STEAM HEAT/REHEAT W/ MISC. COOLING
- COOLING ONLY (DX & MISC. CHILLERS)
- MCA HEATING ONLY (CONVECTORS, FINNED TUBE, ETC.)
- UNHEATED SPACE

U.S. ARMY ENGINEER DISTRICT, MOBILE/NORFOLK

FORT MONMOUTH — NEW JERSEY

BUILDING 2700 HVAC SYSTEMS
FIRST FLOOR PLAN

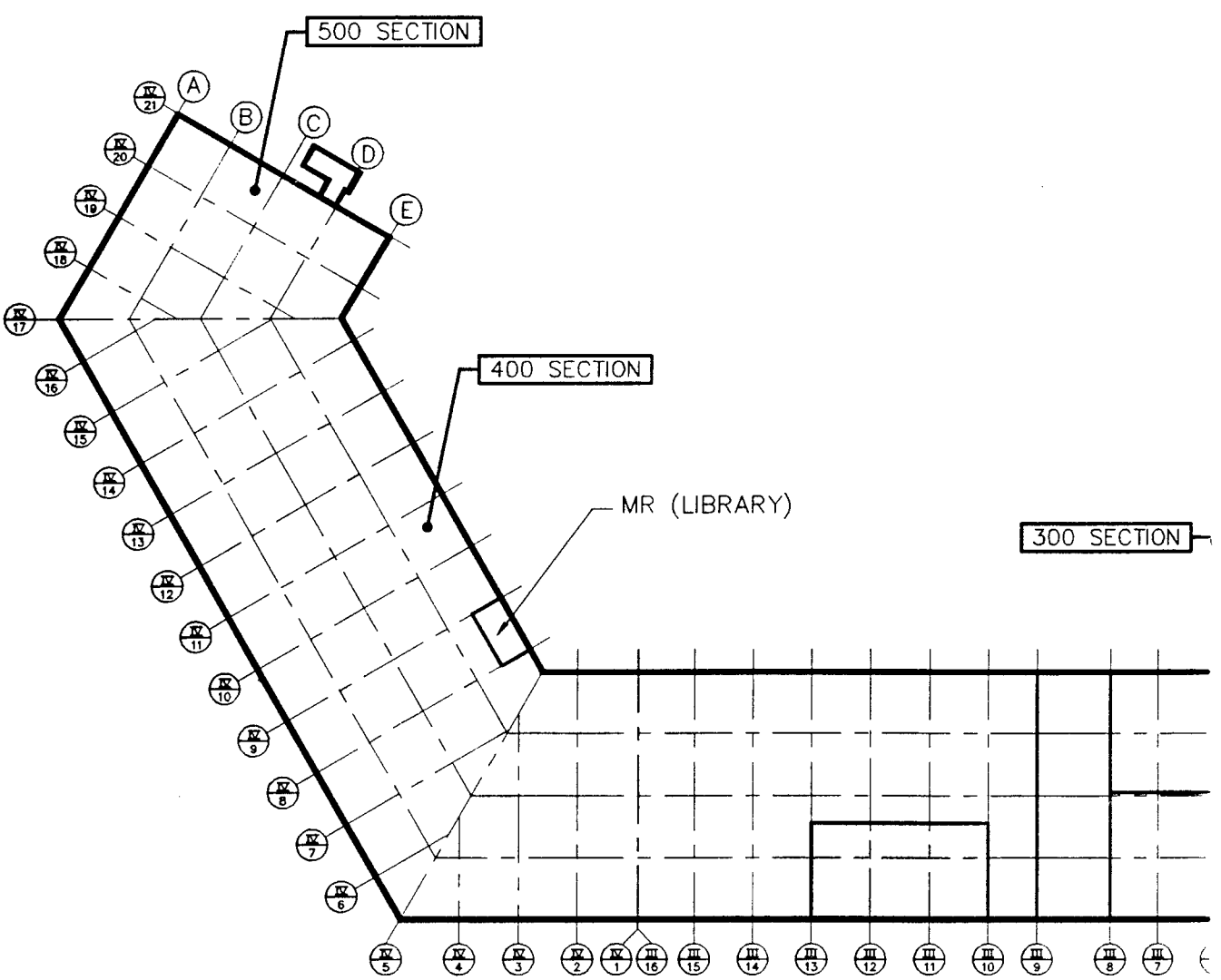
ENTECH Engineering Inc.
4 SOUTH FOURTH STREET P.O. BOX 32 READING, PA 19603 (610) 373-6667
1851 WEST END AVE P.O. BOX 389 POTTSVILLE, PA 17901 (717) 628-5655

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2/14/97	RJI	JED	ELC		
SCALE	PROJECT NO.		DRAWING NO.		REVISION
1" = 80'	4130.05		FIG. 5.4.2.2		0

HVAC SYSTEMS – MEZZANINE FLOOR PLAN

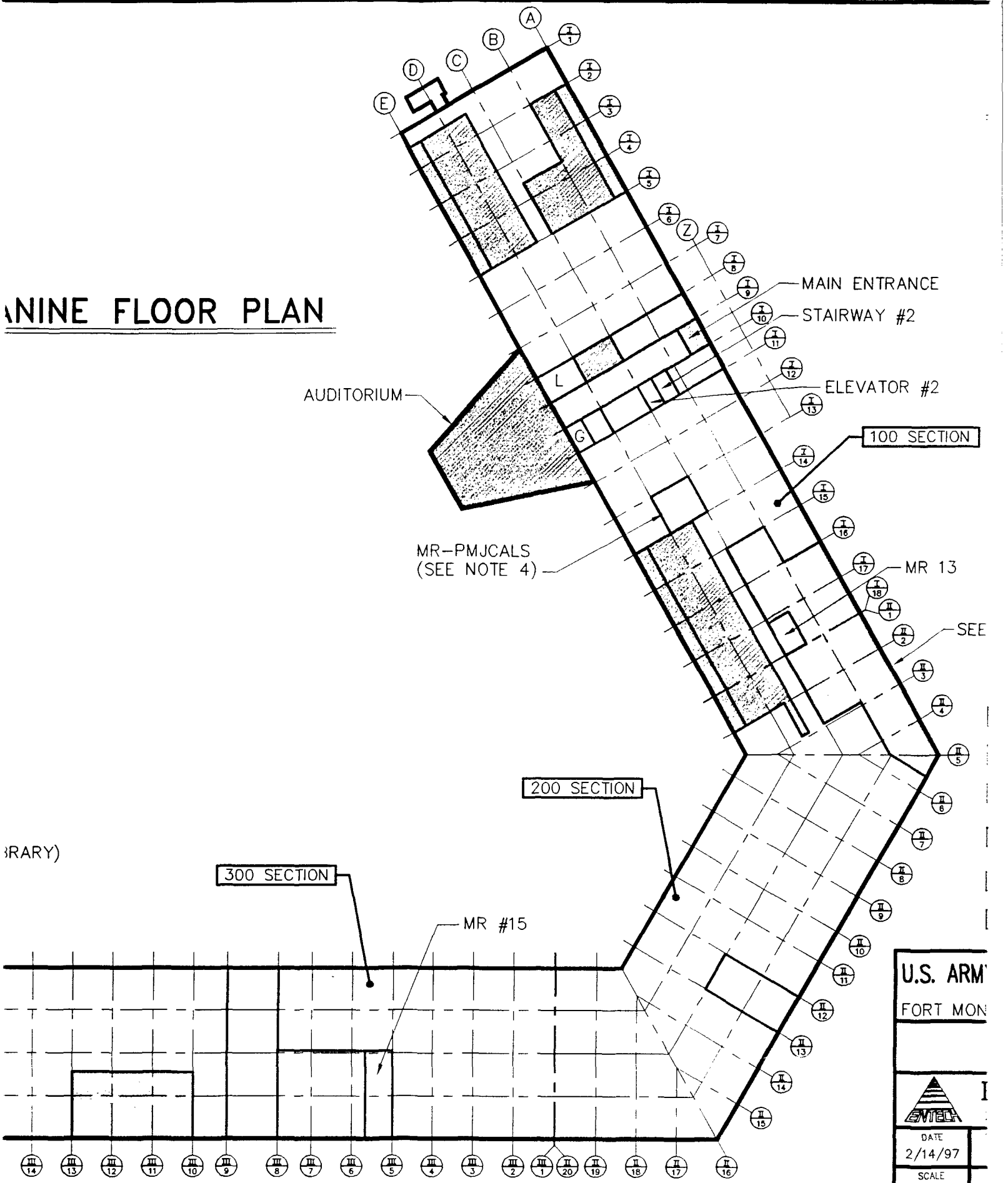
0 20' 40' 80'
GRAPHIC SCALE: 1"=80'

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ANINE FLOOR PLAN

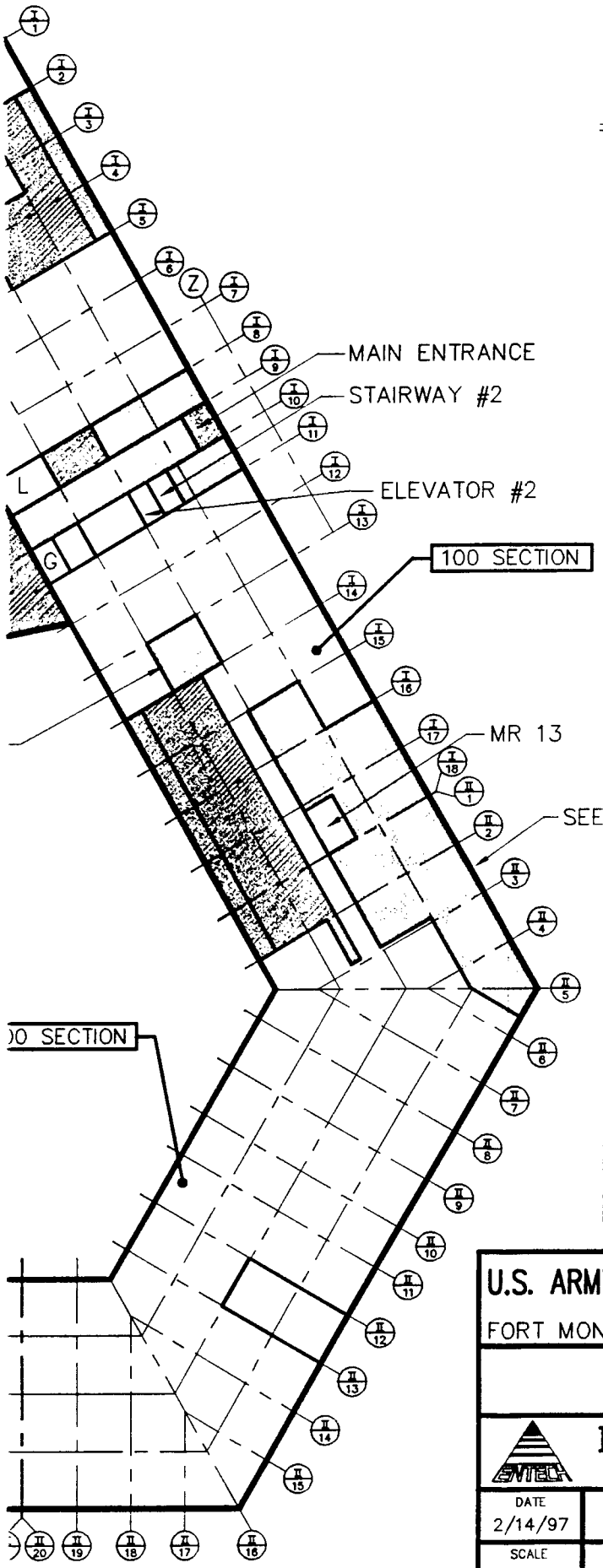


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DATE
2/14/97

SCALE
1" = 80'



NOTES

1. REFER TO THE FLOOR BY FLOOR LAYOUT DRAWINGS IN APPENDIX 8.10 FOR LOCATION OF ROOM NUMBERS.
2. THE MEZZANINE LEVEL IS IN THE UPPER ELEVATION OF THE FIRST FLOOR LEVEL.
3. THIS AREA FROM I 15 TO II 5 WAS MODELED IN EZDOE AS BROWN (STEAM HEAT/REHEAT W/ MISC. COOLING).
4. THIS AREA WAS NOT INCLUDED IN THE LIGHT BROWN (MCA 2-PIPE SYSTEM) MODELING IN EZDOE.

- MCA 2-PIPE (HEATING/COOLING)
- STEAM HEAT ONLY
- STEAM HEAT/REHEAT W/ MISC. COOLING
- COOLING ONLY (DX & MISC. CHILLERS)
- MCA HEATING ONLY (CONVECTORS, FINNED TUBE, ETC.)
- UNHEATED SPACE

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BUILDING 2700 HVAC SYSTEMS
MEZZANINE FLOOR PLAN

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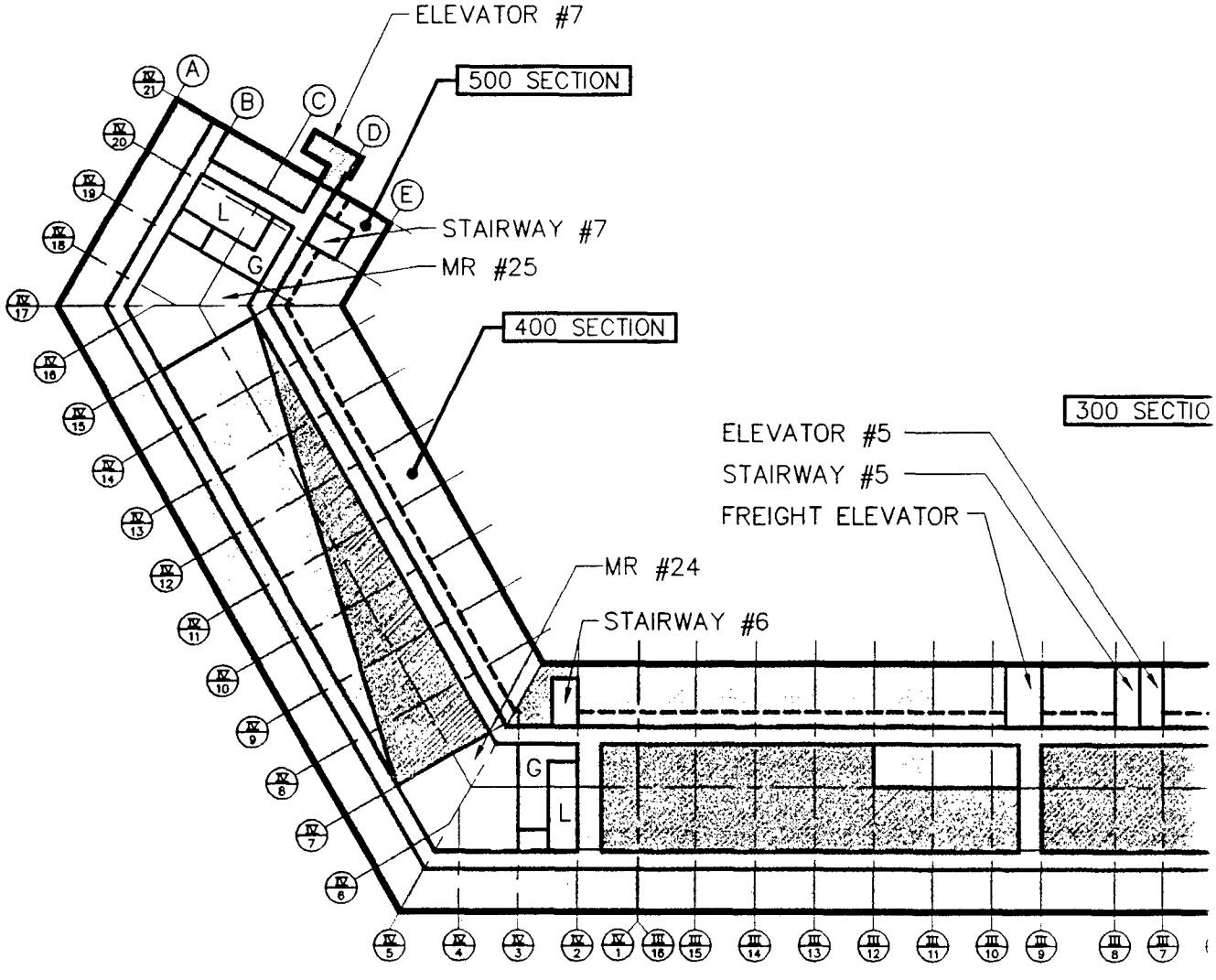
DATE	DRAWN BY	CHECKED BY	PROJ. MGR.	APPROVED	
2/14/97	RJI	JED	ELC		
SCALE	PROJECT NO.		DRAWING NO.		REVISION
1" = 80'	4130.05		FIG. 5.4.2.3		0

ELEVATOR #1

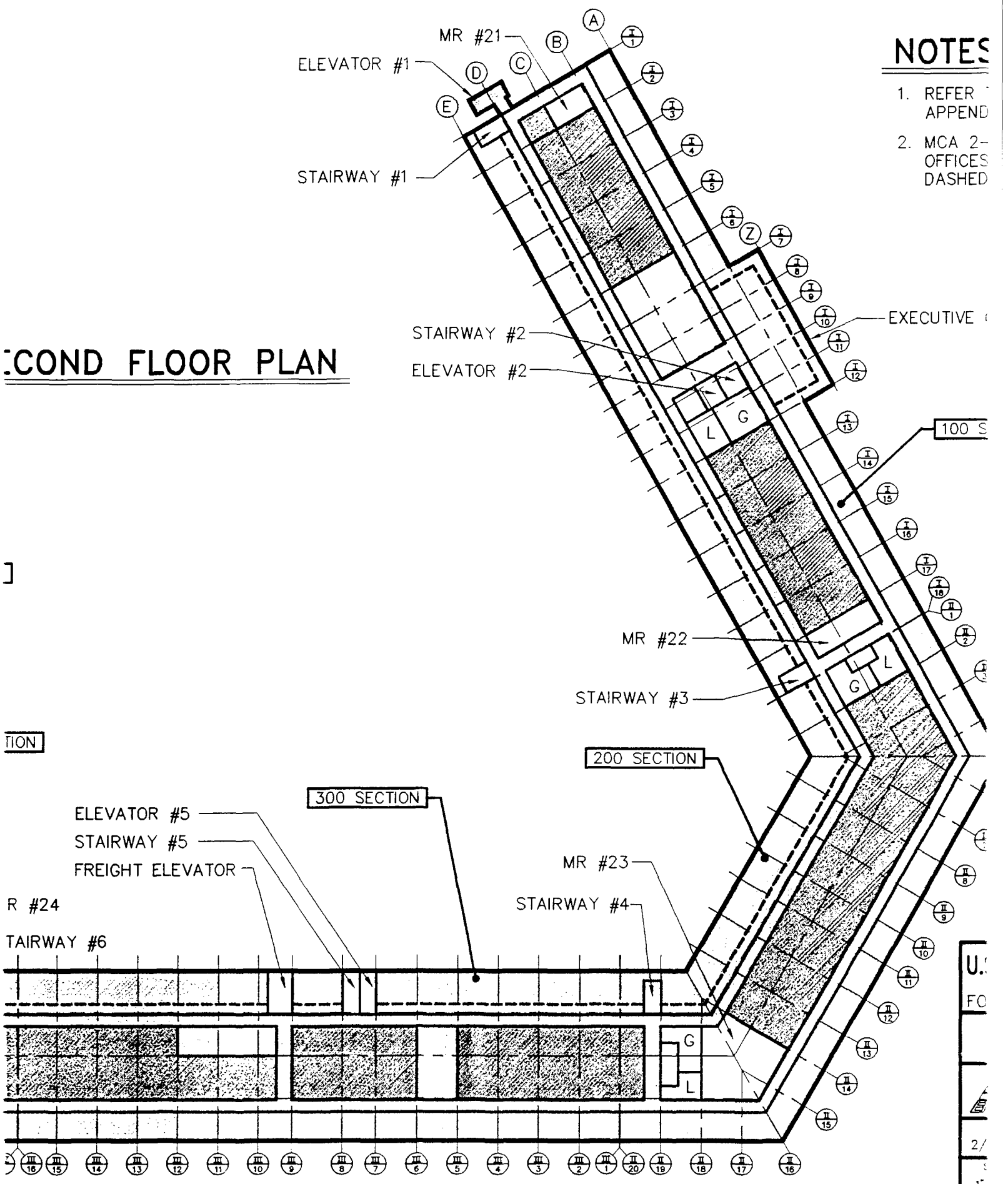
STAIRWAY #1

HVAC SYSTEMS – SECOND FLOOR PLAN

0 20' 40' 80'
GRAPHIC SCALE: 1"=80'



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NOTES

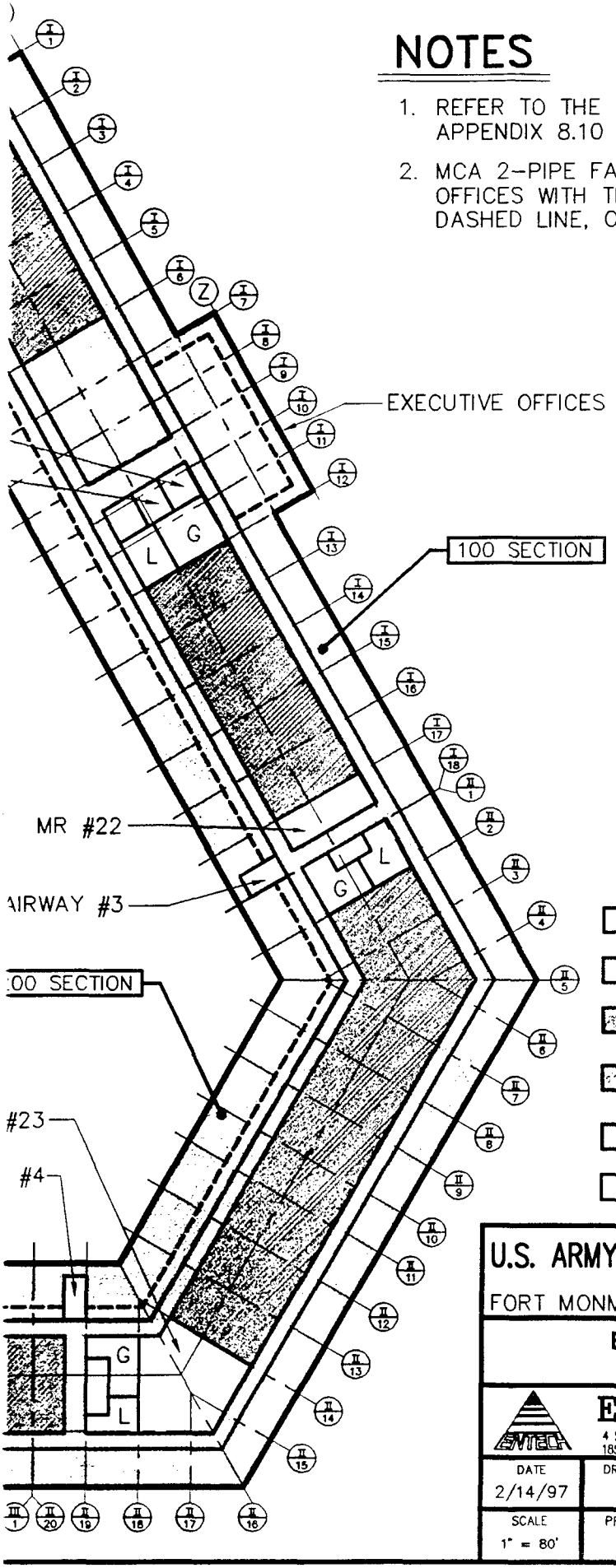
1. REFER
   APPEND
2. MCA 2-
   OFFICES
   DASHED

ECOND FLOOR PLAN

(2)

NOTES

1. REFER TO THE FLOOR BY FLOOR LAYOUT DRAWINGS IN APPENDIX 8.10 FOR LOCATION OF ROOM NUMBERS.
2. MCA 2-PIPE FAN COILS CONDITION ALL PERIMETER OFFICES WITH THE EXCEPTION OF A STRIP NOTED BY A DASHED LINE, OUT TO THE CORRIDOR AREAS.



- MCA 2-PIPE (HEATING/COOLING)
- STEAM HEAT ONLY
- STEAM HEAT/REHEAT W/ MISC. COOLING
- COOLING ONLY (DX & MISC. CHILLERS)
- MCA HEATING ONLY (CONVECTORS, FINNED TUBE, ETC.)
- UNHEATED SPACE

U.S. ARMY ENGINEER DISTRICT, MOBILE/NORFOLK

FORT MONMOUTH — NEW JERSEY

BUILDING 2700 HVAC SYSTEMS
SECOND FLOOR PLAN

ENTECH Engineering Inc.
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1851 WEST END AVE P.O. BOX 389 POTTSVILLE, PA 17901 (717) 628-5655

DATE	DRAWN BY	CHECKED BY	PROJ. MGR.	APPROVED	
2/14/97	RJI	JED	ELC		
SCALE	PROJECT NO.		DRAWING NO.		REVISION
1" = 80'	4130.05		FIG. 5.4.2.4		0

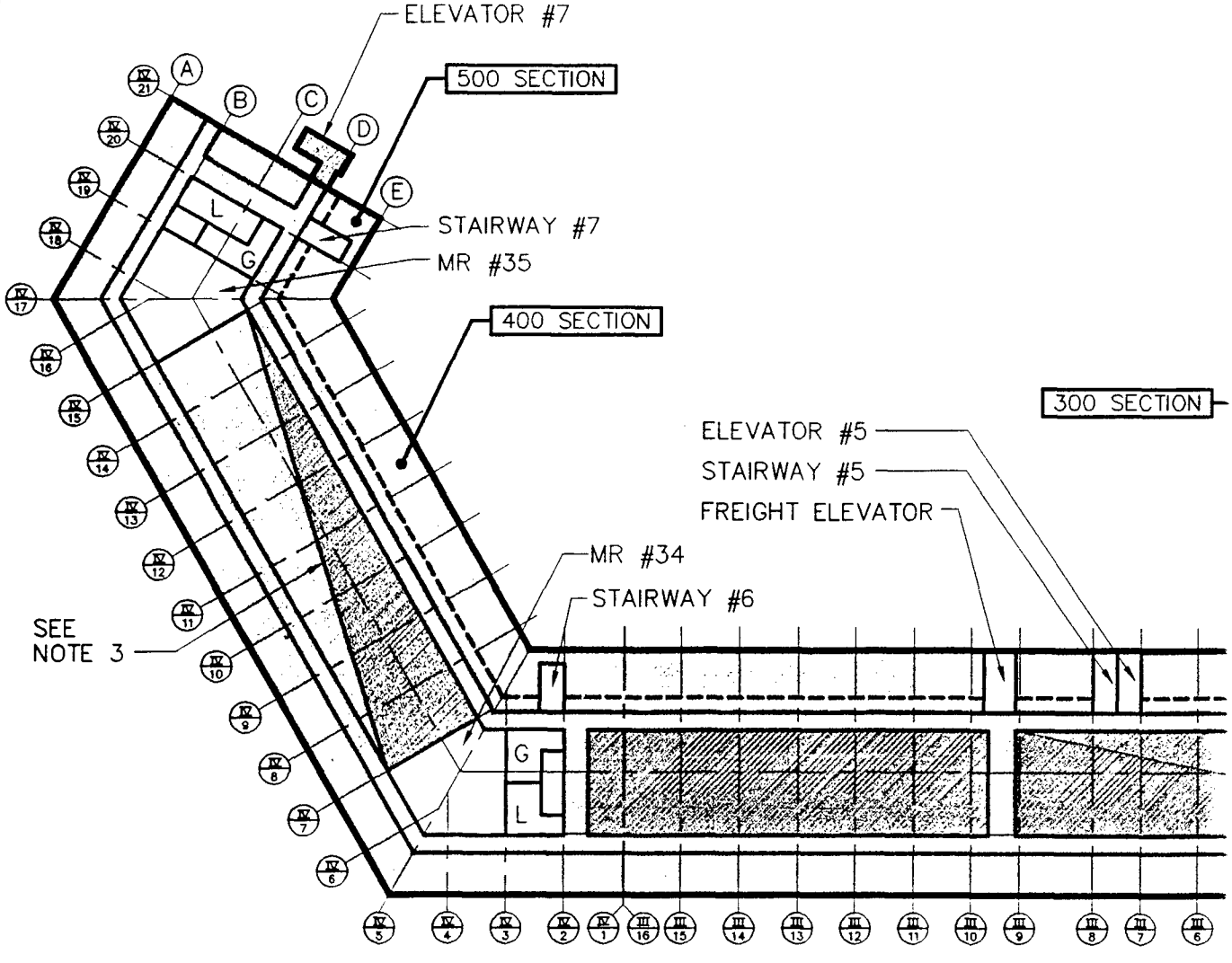


ELEVATOR #1

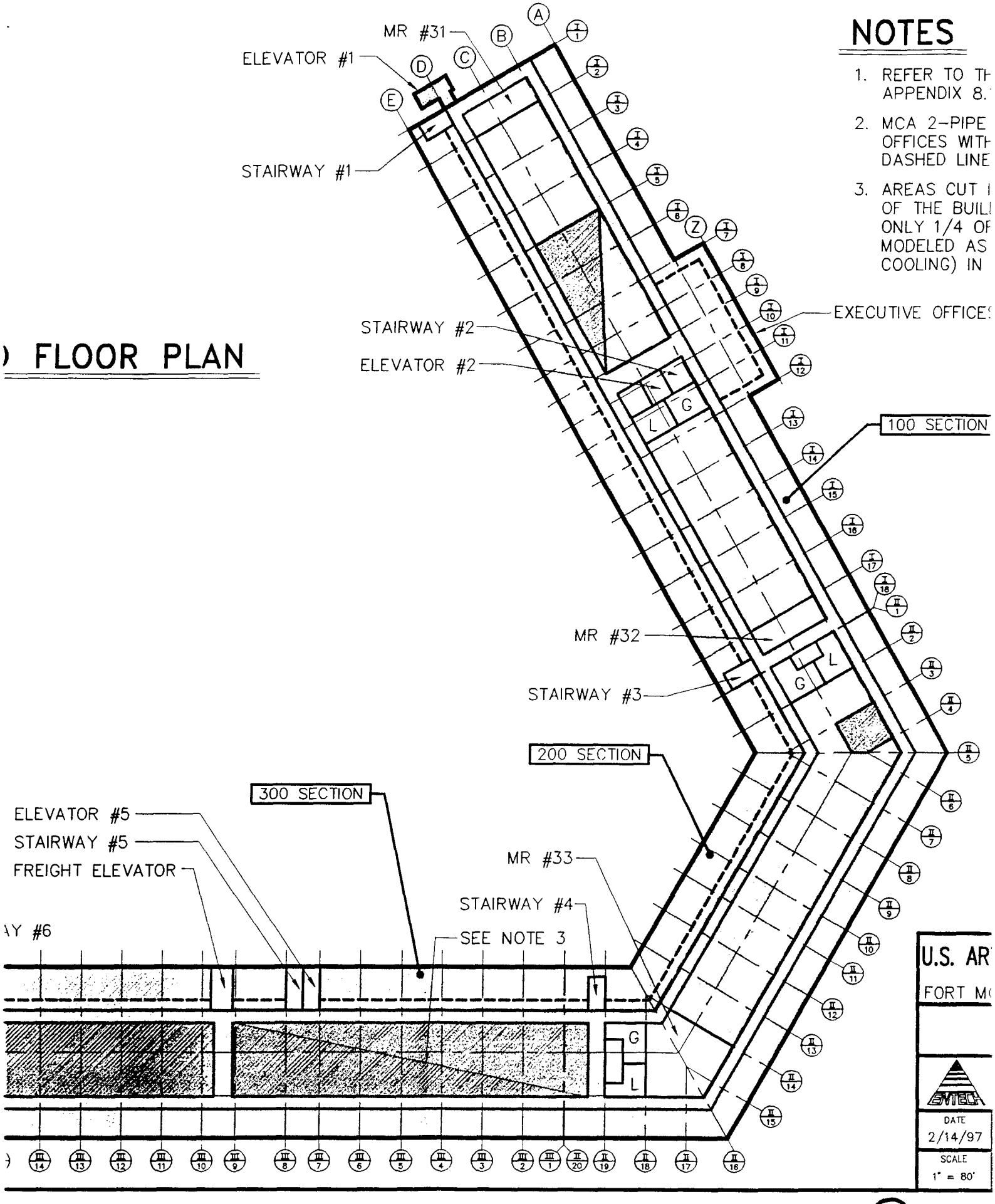
STAIRWAY #1

HVAC SYSTEMS – THIRD FLOOR PLAN

0 20' 40' 80'
GRAPHIC SCALE: 1"=80'



(1)



NOTES

1. REFER TO TH
   APPENDIX 8.
2. MCA 2-PIPE
   OFFICES WITH
   DASHED LINE
3. AREAS CUT I
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   MODELED AS
   COOLING) IN

) FLOOR PLAN

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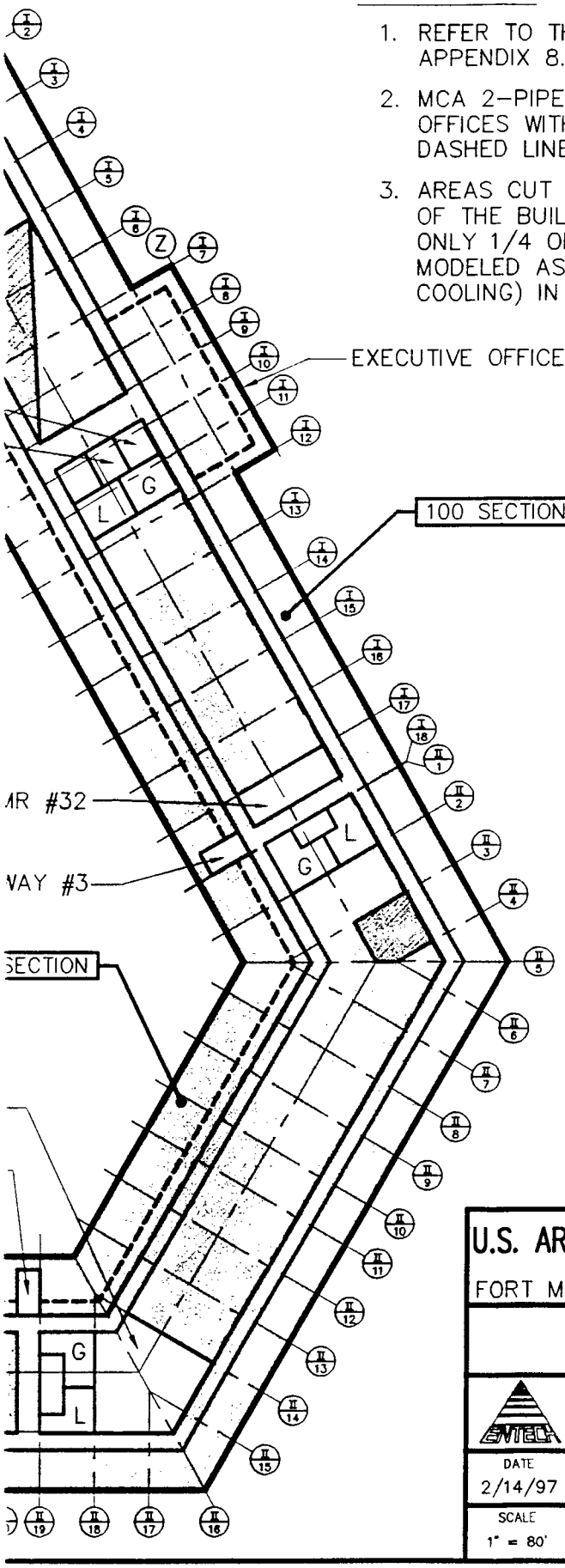
DATE
2/14/97

SCALE
1" = 80'

(2)

NOTES

1. REFER TO THE FLOOR BY FLOOR LAYOUT DRAWINGS IN APPENDIX 8.10 FOR LOCATION OF ROOM NUMBERS.
2. MCA 2-PIPE FAN COILS CONDITION ALL PERIMETER OFFICES WITH THE EXCEPTION OF A STRIP NOTED BY A DASHED LINE, OUT TO THE CORRIDOR AREAS.
3. AREAS CUT IN HALF BY A DIAGONAL REPRESENT PARTS OF THE BUILDING SUPPORTED BY TWO HVAC SYSTEMS. ONLY 1/4 OF THE AREA FROM II 20 TO III 9 WAS MODELED AS BROWN (STEAM HEAT/REHEAT W/ MISC. COOLING) IN EZDOE.



- MCA 2-PIPE (HEATING/COOLING)
- STEAM HEAT ONLY
- STEAM HEAT/REHEAT W/ MISC. COOLING
- COOLING ONLY (DX & MISC. CHILLERS)
- MCA HEATING ONLY (CONVECTORS, FINNED TUBE, ETC.)
- UNHEATED SPACE

U.S. ARMY ENGINEER DISTRICTS, MOBILE/NORFOLK

FORT MONMOUTH — NEW JERSEY

BUILDING 2700 HVAC SYSTEMS
THIRD FLOOR PLAN

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2/14/97	RJI	JED	ELC		
SCALE	PROJECT NO.		DRAWING NO.		REVISION
1" = 80'	4130.05		FIG. 5.4.2.5		0



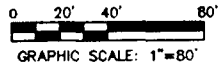
ELEVATOR #1

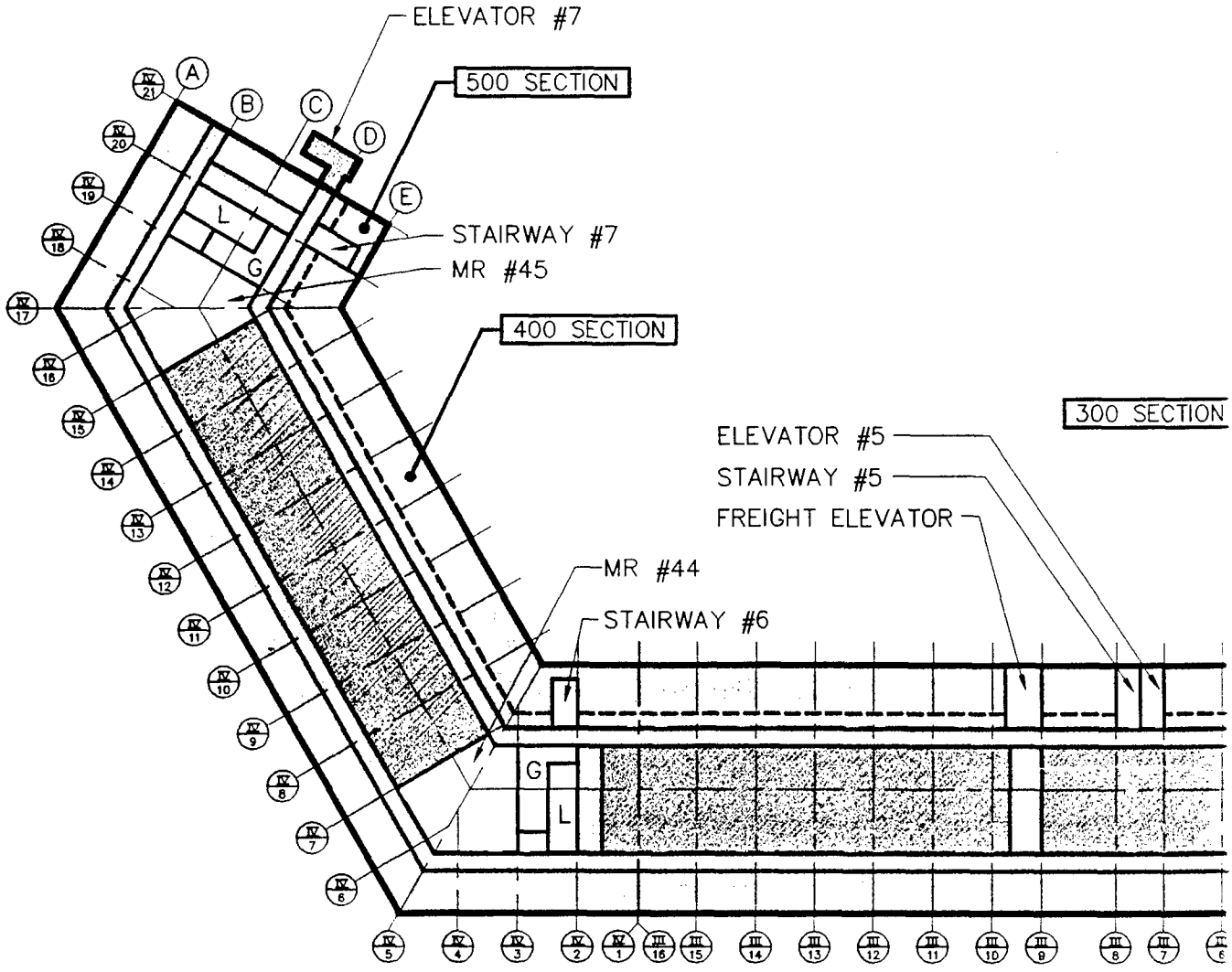
STAIRWAY #1

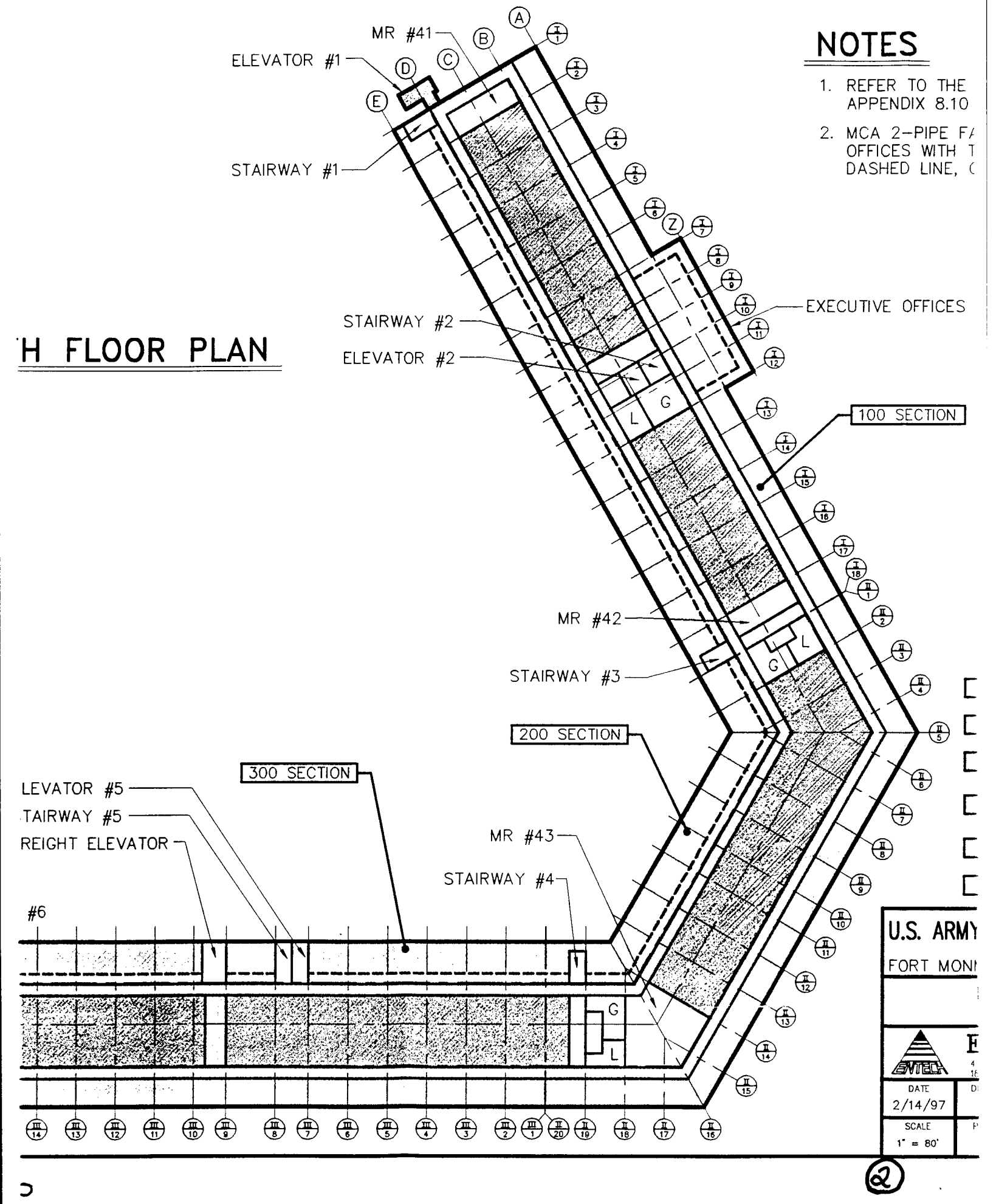
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HVAC SYSTEMS – FOURTH FLOOR PLAN







H FLOOR PLAN

NOTES

1. REFER TO THE APPENDIX 8.10
2. MCA 2-PIPE F/ OFFICES WITH T DASHED LINE, (

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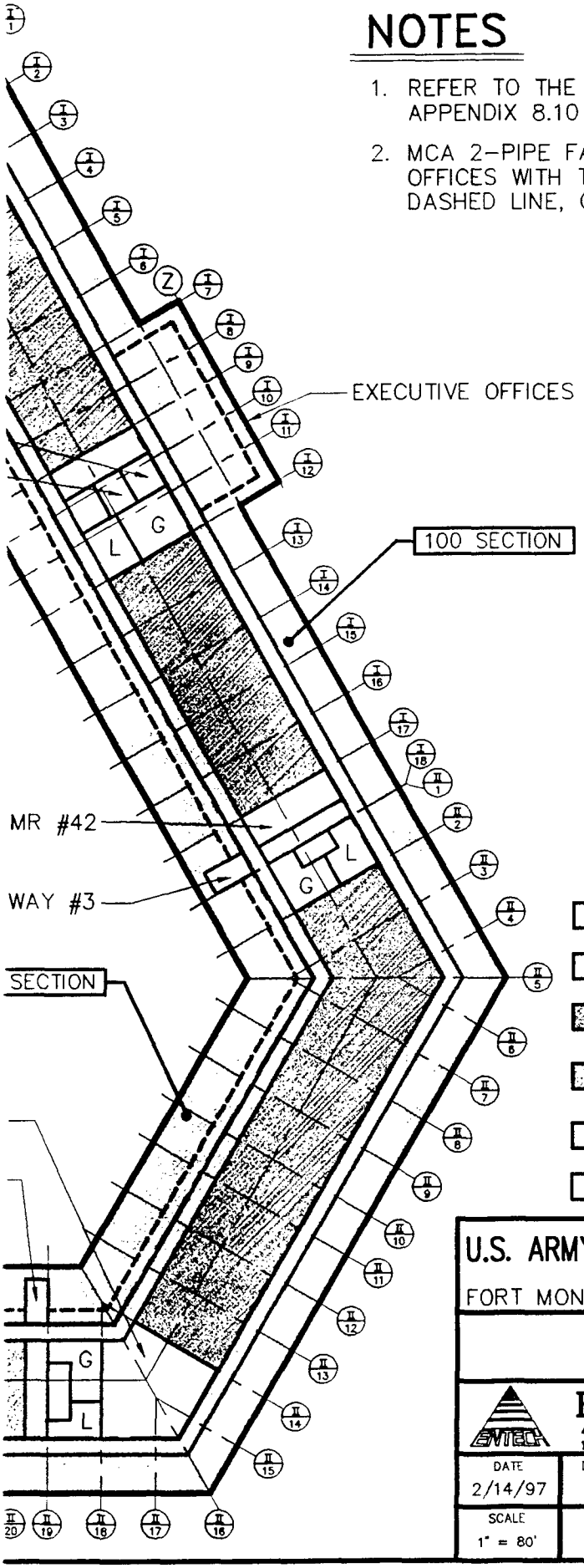
DATE
2/14/97

SCALE
1" = 80'

(2)

NOTES

1. REFER TO THE FLOOR BY FLOOR LAYOUT DRAWINGS IN APPENDIX 8.10 FOR LOCATION OF ROOM NUMBERS.
2. MCA 2-PIPE FAN COILS CONDITION ALL PERIMETER OFFICES WITH THE EXCEPTION OF A STRIP NOTED BY A DASHED LINE, OUT TO THE CORRIDOR AREAS.



- MCA 2-PIPE (HEATING/COOLING)
- STEAM HEAT ONLY
- STEAM HEAT/REHEAT W/ MISC. COOLING
- COOLING ONLY (DX & MISC. CHILLERS)
- MCA HEATING ONLY (CONVECTORS, FINNED TUBE, ETC.)
- UNHEATED SPACE

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FORT MONMOUTH — NEW JERSEY

BUILDING 2700 HVAC SYSTEMS
FOURTH FLOOR PLAN

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2/14/97	RJI	JED	ELC		
SCALE	PROJECT NO.		DRAWING NO.		REVISION
1" = 80'	4130.05		FIG. 5.4.2.6		0

5.4.3 Input - Building 2700 Zones and Systems

Area Covered: Approximately 650,000 sq ft of the nominal 700,000 sq ft building was identified into one category or another, of the 650,000 sq ft accounted for, 70,000 sq ft is considered unconditioned and it primarily consists of areas like the boiler plant, mechanical or machine rooms (MR), most rest rooms and substations, etc..

City of Reference: Weather information contained in EZDOE for the city of Newark, New Jersey is used as the model baseline for Fort Monmouth, New Jersey.

Construction: Refer to the Heat Loss Model for typical U-values and factors assigned to walls, roofs, windows, etc. in the EZDOE models.

Zone Design Conditions: Most areas will utilize the following criteria.

Winter Room	-	72° DB (heating)
Summer Room	-	75° DB (cooling)

Exceptions include the following:

MCA HW Heating only	-	70°DB (heating)
Cleanrooms	-	68°DB (heating and cooling)

System and Plant Conditions: Most zones are supported by equipment that have system/plant settings such as:

— Coil Leaving Air Temp (min): 60° DB (for MCA system)
— Coil Leaving Air Temp (min): 55° DB (for DX/Misc.)
— Air-Side Economizer for MCA Air Handlers only
— 1 (lb/hr) Steam equals 1 (mmBtu) of Hot Water

Exceptions include the following:

— Cleanroom Coil (min) - 49.5° DB to achieve 55% RH (max)
— Cleanroom Reheat (max) - 68°DB

Zone Settings and Parameters: This information is used to establish load criteria for internal heat gains and losses for the EZDOE modeling. Refer to Tables 5.4.3.1 and 5.4.3.2 for the settings by model and by floor respectively. Table 5.4.3.3 describes the EZDOE schedules used.

Occupancy: Approximately 1,400 people are assigned to work at Building 2700 during a normal work day. On average, 30 visitors are expected to be inside the building during a week day. A value of 294 ft^2/person used in the table is based on 60% of the 700,000 nominal square foot building being occupied by an average density at any given time. The final numbers for area modeled suggests that % of area populated is higher which would raise the area per person value.

With the value left alone the concentration numbers go up with the 294 ft/person estimate. On the other hand, the use of 200 Btu/hr (sensible) and 250 Btu/hr (latent) per person is probably low for a building of this size and work nature. The final Btu's related to occupancy should fall in line with what is expected. Therefore the rates were left as they were originally set up.

Note: Specific occupancies are not predicted in this modeling for such areas as the cafeteria or auditorium. The average occupancy will be used throughout these block load analyses under the same schedule conditions.

Lighting: Lighting loads are generally defined as 1 watt/ft^2 for low level and as high as 5 watts/ft^2 for cleanrooms and electronic labs. Refer to the lighting schedule for daily expectations.

Equipment: Connected loads for miscellaneous equipment range from 1 watt/ft^2 for offices and storage to 15 watt/ft^2 for cleanrooms. Again, refer to the schedule for daily operating expectations. We have assigned a maximum constant rate of consumption of 50% of the connected load during the normal work hours.

Ventilation Rates: Areas supplied with outdoor air are set to 15% (min) with the exception of the cafeteria and the cleanrooms which are set at 20%. Outdoor air increases with use of economizers in the colder months for the MCA units.

Note: Many areas in the building do not receive outdoor air or infiltration air. Some of these are cooling only areas for computer rooms, etc.. Again as mentioned in Section 3, these conditions do not meet the requirements set down in ASHRAE 62-1989 establishing minimum air for healthy environments.

Infiltration: The infiltration rates were set for 0.8 air changes per hour (ACH) year round for zones not assigned with a ventilation rate of 0-20%.

The baseline average infiltration rates were assigned in EZDOE to 0.8 ACH year round since the building is continuously exhausted. The 0.8 ACH rate, suggests an ASHRAE definition for a loose to medium type construction for this building during winter conditions. Summer conditions at this rate are considered high but for this building the exhaust differential governs year round.

Because the building is substantially negative (exhaust > than outdoor air + infiltration) the estimated total exhaust expected to leave the building is 50% or 90,000 cfm of the connected/running exhaust fan total of 180,000 cfm.

Many of the exhaust fans on the roof are designed with relatively low static pressure of 1"± water gauge. The negative conditions existing in the building would suggest that the added static pressure would reduce the capacities of these fans and in some cases the fans probably exhaust very little air. Adding 0.5 inches water gauge of static pressure to many of the smaller fans would reduce their capacity significantly with some moving a minimal amount of exhaust air. Total exhaust equates to the ventilation rate plus the infiltration rate. The estimated connected outdoor air quantity is about 65,000 cfm. Modeling factors in EZDOE

project infiltration totals to be about 25,000 cfm to bring the total exhaust to about 90,000 cfm.

Schedules: Generally the schedules are similar between the heating and cooling system. Refer to Table 5.4.3.3 for a synopsis of the schedules used in the EZDOE modeling. To recall, the MCA-HW system is only available from October 15 to May 15 and vice-versa for MCA-CHW. Otherwise steam heating and the DX-Misc. cooling devices are available year round.

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING #2700 - EZDOE INPUT SUMMARY
TABLE 5.4.3.1 - SORTED BY MODEL

Item #	DRAWING DESCRIPTION:	Color (s)	EZDOE Model FTMO+	Floor	ZONE	Serving System #1	Serving System #2	Serving System #3	Wall Hgt. (Ft.)	Area (Ft.²)	Volume (Ft.³)	Occupancy (Ft.²/Person)	Lighting (W/Ft.²)	Equipment (W/Ft.²)	Outside Air (% cfm)	Infiltration (ACH/Hr.)	Floor	Item #
1	MCA 2-Pipe	Lt. Tan	AC0	B	Interior Perimeter	MCA-AHU			14	18,905	151,240	294	3.1	1.3	15	0	B	1
2	MCA 2-Pipe	Lt. Tan	AC0	1	Exterior Perimeter	MCA-AHU			22.3	38,634	847,120	294	3.1	1.3	15	0	1	2
3	MCA 2-Pipe	Lt. Tan	AC0	1	Interior Perimeter	MCA-AHU			22.3	7,696	128,908	294	3.1	1.3	15	0	1	3
4	MCA 2-Pipe	Lt. Tan	AC0	2	Exterior Perimeter	MCA-Fan Coil			15.3	25,789	251,443	294	3.1	1.3		0.8	2	4
5	MCA 2-Pipe	Lt. Tan	AC0	2	Interior Perimeter	MCA-Fan Coil			15.3	20,421	199,105	294	3.1	1.3		0.8	2	5
6	MCA 2-Pipe	Lt. Tan	AC0	2	Middle	MCA-AHU			15.3	40,144	391,404	294	3.1	1.8	15		2	6
7	MCA 2-Pipe	Lt. Tan	AC0	3	Exterior Perimeter	MCA-Fan Coil			15.3	25,789	251,443	294	3.1	1.3		0.8	3	7
8	MCA 2-Pipe	Lt. Tan	AC0	3	Interior Perimeter	MCA-Fan Coil			15.3	20,421	199,105	294	3.1	1.3		0.8	3	8
9	MCA 2-Pipe	Lt. Tan	AC0	3	Middle	MCA-AHU			15.3	49,416	481,806	294	3.1	1.8	15		3	9
10	MCA 2-Pipe	Lt. Tan	AC0	4	Exterior Perimeter	MCA-Fan Coil			15.3	25,789	251,443	294	3.1	1.3		0.8	4	10
11	MCA 2-Pipe	Lt. Tan	AC0	4	Interior Perimeter	MCA-Fan Coil			15.3	20,421	199,105	294	3.1	1.3		0.8	4	11
12	MCA 2-Pipe	Lt. Tan	AC0	4	Middle	MCA-AHU			15.3	36,103	352,004	294	3.1	1.8	15		4	12
13	*MCA 2-Pipe Summary*	*Lt. Tan*	*AC0*	*All*	*All Model AC0 Zones*	*All Model AC0 Sys.*				*329,528*	*3,504,126*						*All*	13
14	Steam Heat Only	Magenta	BB0	B	Corridors & Miscl. Rooms	Steam-Unit Heater			14	23,230	185,840	294	1	0	0	0.8	B	14
15	Steam Heat/RH w/ DX & Miscl. Cooling	Dk. Tan	BB0	B	Cafeteria, Computer/Lab Rooms	Steam-AHU	DX Cooling	MCA-HW Only	14	20,043	160,344	294	2	2	20		B	15
16	Steam Heat Only	Magenta	BB0	1	Miscl. Rooms	Steam-Unit Heater			22.3	17,842	298,854	294	1	0	0		1	16
17	Steam Heat/RH w/ DX & Miscl. Cooling	Dk. Tan	BB0	1	Offices, Computer/Labs	Steam-AHU	DX Cooling		22.3	15,561	550,167	294	2	1	15		1	17
18	Steam Heat/RH w/ DX & Miscl. Cooling	Dk. Tan	BB0	2	Middle	Steam-AHU	DX Cooling		Int.Space	17,634	171,932	294	4	15	15		2	18
19	Steam Heat/RH w/ DX & Miscl. Cooling	Dk. Tan	BB0	3	Middle	Steam-AHU	DX Cooling		Int.Space	11,911	115,179	294	5	10	15		3	19
20	Steam Heat/RH w/ DX & Miscl. Cooling	Dk. Tan	BB0	4	Middle - Clean Room	Steam-AHU	DX Cooling		Int.Space	6,966	67,361	294	5	15	20		4	20
21	Steam Heat/RH w/ DX & Miscl. Cooling	Dk. Tan	BB0	4	Middle - Office/Labs	Steam-AHU	DX Cooling		Int.Space	5,117	49,481	294	5	5	15		4	21
22	*Steam Heat/RH w/ DX Cooling Summary*	*Dk. Tan*	*BB0*	*ALL*	*All Model BB0 Zones*	*Steam-AHU*	*DX Cooling*			*118,304*	*1,899,158*						*ALL*	22
23	Cooling (DX & miscl. Chillers) w/MCA Heat	Green & Blue	CA3	B	Exterior Perimeter	DX-AHU	MCA Ht-Fin Tube/Convector		14	1,872	18,720	294	4	5	0		B	23
24	Cooling (DX & miscl. Chillers)	Green	CA3	B	Interior Perimeter	DX-AHU			14	2,847	28,470	294	4	5	0		B	24
25	Cooling (DX & miscl. Chillers) w/MCA Heat	Green & Blue	CA3	1	Miscl. Exterior & Interior Perimeter	DX-AHU	MCA Ht-Fin Tube/Convector		22.3	16,950	283,065	294	4	10	0		1	25
26	Cooling (DX & miscl. Chillers)	Green	CA3	1	Miscl. Exterior & Interior Perimeter	DX-AHU			22.3	9,601	160,337	294	4	10	0		1	26
27	MCA Heat Only	Blue	CA3	1	Miscl. Exterior & Interior Perimeter		MCA Ht-Fin Tube/Convector		22.3	25,161	421,464	294	2	0.7		0.8	1	27
28	Cooling (DX & miscl. Chillers)	Green	CA3	2	Middle	DX-AHU			Int.Space	21,192	204,927	294	4	10	0		2	28
29	Cooling (DX & miscl. Chillers)	Green	CA3	3	Middle	DX-AHU			Int.Space	14,457	139,800	294	4	10	0		3	29
30	Cooling (DX & miscl. Chillers)	Green	CA3	4	Middle	DX-AHU			Int.Space	35,153	339,930	294	5	10	0		4	30
31	MCA Heat Only	Blue	CA3	B-3	Elevator Tower Spaces at Ends		MCA Ht-Fin Tube/Convector		15.3	1,000	16,756	294	2	0.7		0.8	B-3	31
32	MCA Heat Only	Blue	CA3	4	Elevator Tower Spaces at Ends		MCA Ht-Fin Tube/Convector		15.3	250	2,438	294	2	0.7		0.8	4	32
33	*DX Cooling w/some MCA Heat Summary*	*Green & Blue*	*CA3*	*All*	*All Model CA3 Zones*					*128,483*	*1,615,907*						*All*	33
								TYPICAL:				294				0.8		
								TOTALS:		576,315.0	6,719,191.1							
Item #	DRAWING DESCRIPTION:	Color (s)	EZDOE Model FTMO+	Floor	ZONE	Serving System #1	Serving System #2	Serving System #3	Wall Hgt. (Ft.)	Area (Ft.²)	Volume (Ft.³)	Occupancy (Ft.²/Person)	Lighting (W/Ft.²)	Equipment (W/Ft.²)	(% cfm) Outside Air	Infiltration (ACH/Hr.)	Floor	Item #

FT. MONMOUTH, DEPARTMENT OF THE ARMY

BUILDING #2700 - EZDOE INPUT SUMMARY

TABLE 5.4.3.2 - SORTED BY FLOOR

Item #	DRAWING DESCRIPTION:	Color (s)	EZDOE Model FTMO+	Floor	ZONE	Serving System #1	Serving System #2	Serving System #3	Wall Hgt. (Ft.)	Area (Ft.²)	Volume (Ft.³)	Occupancy (Ft.²/Person)	Lighting (W/Ft.²)	Equipment (W/Ft.²)	Outside Air (% cfm)	Infiltration (ACH/Hr.)	Floor	Item #
1	MCA 2-Pipe	Lt. Tan	AC0	B	Interior Perimeter	MCA-AHU			14	18,905	151,240	294	3.1	1.3	15	0	B	1
2	Steam Heat Only	Magenta	BB0	B	Corridors & Misc. Rooms	Steam-Unit Heater			14	23,230	185,840	294	1	0	0	0.8	B	2
3	Steam Heat/RH w/ DX & Misc. Cooling	Dk. Tan	BB0	B	Cafeteria, Computer/Lab Rooms	Steam-AHU	DX Cooling	MCA-HW Only	14	20,043	160,344	294	2	2	20		B	3
4	Cooling (DX & misc. Chillers) w/MCA Heat	Green & Blue	CA3	B	Exterior Perimeter	DX-AHU	MCA Ht-Fin Tube/Convector		14	1,872	18,720	294	4	5	0		B	4
5	Cooling (DX & misc. Chillers)	Green	CA3	B	Interior Perimeter	DX-AHU			14	2,847	28,470	294	4	5	0		B	5
6	MCA Heat Only	Blue	CA3	B-3	Elevator Tower Spaces at Ends		MCA Ht-Fin Tube/Convector		15.3	1,000	16,756	294	2	0.7		0.8	B-3	6
7	*BASEMENT (B) FLOOR Summary*			*B*	*All Basement Zones*	*Bsmnt. Floor Systems*				67,897	561,370						B	7
8	MCA 2-Pipe	Lt. Tan	AC0	1	Exterior Perimeter	MCA-AHU			22.3	38,634	647,120	294	3.1	1.3	15	0	1	8
9	MCA 2-Pipe	Lt. Tan	AC0	1	Interior Perimeter	MCA-AHU			22.3	7,696	128,908	294	3.1	1.3	15	0	1	9
10	Steam Heat Only	Magenta	BB0	1	Misc. Rooms	Steam-Unit Heater			22.3	17,842	298,854	294	1	0	0		1	10
11	Steam Heat/RH w/ DX & Misc. Cooling	Dk. Tan	BB0	1	Offices, Computer/Labs	Steam-AHU	DX Cooling		22.3	15,581	550,167	294	2	1	15		1	11
12	Cooling (DX & misc. Chillers) w/MCA Heat	Green & Blue	CA3	1	Misc. Exterior & Interior Perimeter	DX-AHU	MCA Ht-Fin Tube/Convector		22.3	18,950	283,065	294	4	10	0		1	12
13	Cooling (DX & misc. Chillers)	Green	CA3	1	Misc. Exterior & Interior Perimeter	DX-AHU			22.3	9,601	160,337	294	4	10	0		1	13
14	MCA Heat Only	Blue	CA3	1	Misc. Exterior & Interior Perimeter		MCA Ht-Fin Tube/Convector		22.3	25,161	421,464	294	2	0.7		0.8	1	14
15	*FIRST (1st) FLOOR Summary*			*1*	*All 1st Floor Zones*	*1st Floor Systems*				*131,445*	*2,489,916*						*1*	15
16	MCA 2-Pipe	Lt. Tan	AC0	2	Exterior Perimeter	MCA-Fan Coil			15.3	25,789	251,443	294	3.1	1.3		0.8	2	16
17	MCA 2-Pipe	Lt. Tan	AC0	2	Interior Perimeter	MCA-Fan Coil			15.3	20,421	199,105	294	3.1	1.3		0.8	2	17
18	MCA 2-Pipe	Lt. Tan	AC0	2	Middle	MCA-AHU			15.3	40,144	391,404	294	3.1	1.8	15		2	18
19	Steam Heat/RH w/ DX & Misc. Cooling	Dk. Tan	BB0	2	Middle	Steam-AHU	DX Cooling		Int.Space	17,634	171,932	294	4	15	15		2	19
20	Cooling (DX & misc. Chillers)	Green	CA3	2	Middle	DX-AHU			Int.Space	21,192	204,927	294	4	10	0		2	20
21	*SECOND (2nd) FLOOR Summary*			*2*	*All 2nd Floor Zones*	*2nd Floor Systems*				*125,180*	*1,218,811*						*2*	21
22	MCA 2-Pipe	Lt. Tan	AC0	3	Exterior Perimeter	MCA-Fan Coil			15.3	25,789	251,443	294	3.1	1.3		0.8	3	22
23	MCA 2-Pipe	Lt. Tan	AC0	3	Interior Perimeter	MCA-Fan Coil			15.3	20,421	199,105	294	3.1	1.3		0.8	3	23
24	MCA 2-Pipe	Lt. Tan	AC0	3	Middle	MCA-AHU			15.3	49,416	481,806	294	3.1	1.8	15		3	24
25	Steam Heat/RH w/ DX & Misc. Cooling	Dk. Tan	BB0	3	Middle	Steam-AHU	DX Cooling		Int.Space	11,911	115,179	294	5	10	15		3	25
26	Cooling (DX & misc. Chillers)	Green	CA3	3	Middle	DX-AHU			Int.Space	14,457	139,800	294	4	10	0		3	26
27	*THIRD (3rd) FLOOR Summary*			*3*	*All 3rd Floor Zones*	*3rd Floor Systems*				*121,994*	*1,187,333*						*3*	27
28	MCA 2-Pipe	Lt. Tan	AC0	4	Exterior Perimeter	MCA-Fan Coil			15.3	25,789	251,443	294	3.1	1.3		0.8	4	28
29	MCA 2-Pipe	Lt. Tan	AC0	4	Interior Perimeter	MCA-Fan Coil			15.3	20,421	199,105	294	3.1	1.3		0.8	4	29
30	MCA 2-Pipe	Lt. Tan	AC0	4	Middle	MCA-AHU			15.3	36,103	352,004	294	3.1	1.8	15		4	30
31	Steam Heat/RH w/ DX & Misc. Cooling	Dk. Tan	BB0	4	Middle - Clean Room	Steam-AHU	DX Cooling		Int.Space	6,968	67,361	294	5	15	20		4	31
32	Steam Heat/RH w/ DX & Misc. Cooling	Dk. Tan	BB0	4	Middle - Office/Labs	Steam-AHU	DX Cooling		Int.Space	5,117	49,481	294	5	5	15		4	32
33	Cooling (DX & misc. Chillers)	Green	CA3	4	Middle	DX-AHU			Int.Space	35,153	339,930	294	5	10	0		4	33
34	MCA Heat Only	Blue	CA3	4	Elevator Tower Spaces at Ends		MCA Ht-Fin Tube/Convector		15.3	250	2,438	294	2	0.7		0.8	4	34
35	*FOURTH (4th) FLOOR Summary*			*4*	*All 4th Floor Zones*	*4th Floor Systems*				*129,799*	*1,261,762*						*4*	35
								TYPICAL:				294				0.8		
								TOTALS:		576,315.0	6,719,191.1							
Item #	DRAWING DESCRIPTION:	Color (s)	EZDOE Model FTMO+	Floor	ZONE	Serving System #1	Serving System #2	Serving System #3	Wall Hgt. (Ft.)	Area (Ft.²)	Volume (Ft.³)	Occupancy (Ft.²/Person)	Lighting (W/Ft.²)	Equipment (W/Ft.²)	(% cfm) Outside Air	Infiltration (ACH/Hr.)	Floor	Item #

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING #2700 - EZDOE SCHEDULES
TABLE 5.4.3.3

	WINTER			*SUMMER*		
Dates:	**Jan 01 thru May 15 Oct 16 thru Dec 31**			**May 16 thru Oct 15**		
Schedule:	**Wk.-Day/End**	**Times:**	**Percent:**	**Wk. Day/End**	**Times:**	**Percent:**
Occupancy	-Day	12a - 6a	7	Day	1a - 6a	7
		7a	70		7a	70
		8a	90		8a	90
		9a - 2p	100		9a - 2p	100
		3p	90		3p	90
		4p	70		4p	70
		5p	25		5p	25
		6p	15		6p	15
		7p - 11p	7		7p - 12a	7
	-End	12a - 11p	7		12a - 11p	7
Lighting	-Day	12a - 6a	10	-Day	12a - 6a	10
		7a	50		7a	50
		8a	90		8a	90
		9a - 2 p	100		9a - 2p	100
		3p	90		3p	90
		4p	70		4p	70
		5p	25		5p	25
		6p	15		6p	15
		7p - 11p	10		7p - 11p	10
	-End	12a - 11p	10	-End	12a - 11p	10
Infiltration	-Day & End	12a - 11p	80 (of 1 achg/hr)	-Day & End	12a-11p	80 (of 1 achg/hr)
Heating Available						
- MCA Heating System	-Day & End	12a - 11p	ON	-Day & End	12a - 11p	OFF
- Steam Heating (all types)	-Day & End	12a - 11p	ON	-Day & End	12a - 11p	ON
Cooling Available						
- MCA Cooling System	-Day & End	12a - 11p	OFF	-Day & End	12a - 11p	ON
- All Other Cooling Systems	-Day & End	12a - 11p	ON	-Day & End	12a - 11p	ON
Rm. Temp. Setting	-Day & End	12a - 11p	72	-Day & End	12a - 11p	75
- Except Some Htg. only Areas	-Day & End	12a - 11p	(70)			
- 4TH Flr Clean Room (Steam/ReHt. w/DX)	-Day & End	12a - 11p	(68)	-Day & End	12a - 11p	(68)
Equipment	-Day	12a - 6a	15	-Day	12a - 6a	15
		7a-6p	50		7a-6p	50
		7p-11p	15		7p-11p	15
	-End	12a-11p	15	-End	12a-11p	15

5.4.4 Results - Building 2700 Zones and Systems

The results from the EZDOE modeling are intended to support/disprove information presented previously for the equipment connected loads in Section 3, the building and the steam use and heat loss models in Section 5. A summary of the EZDOE cooling and heating loads follow in Table 5.4.4.1. Refer to Appendix 8.11 for a copy of the results for the three models.

Table 5.4.4.1, Building 2700 - EZDOE Heating and Cooling Results-Base Case

Plant/System	EZDOE Heating		EZDOE Cooling		
	Peak (mmBtu/hr)	Total (mmBtu/yr)	Peak (mmBtu/hr)	Peak (tons)	Total (mmBtu/yr)
MCA 2-Pipe Heating & Cooling	4.7	3,460	7.7	640	7,690
MCA HW Heating only	1.0	1,940	---	---	---
Steam w/ DX & Misc Cooling	3.1	8,930	4.4	370	14,210
DX & Misc Cooling	---	---	3.8	320	14,860
Totals	8.8	14,330	15.9	1,330	36,760

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING #2700 - EZDOE OUTPUT SUMMARY
TABLE 5.4.4.2 - SORTED BY MODEL

Item #	DRAWING DESCRIPTION:	Color (s)	EZDOE Model FTMO+	Floor	ZONE	Serving System #1	Serving System #2	Serving System #3	OUTSIDE AIR (% cfm)	OUTSIDE AIR (cfm)	Zone Supply Flow (cfm)	HEATING Sys. Ld Ann. Tot. (MMBtu)	Zone Max. SS-A Monthly Demand (MBtuh)	BASEBOARD Zone SS-B Tot. (MMBtu)	Max. Rate (MBtuh)	COOLING SS-A Sys. Ld Ann. (MMBtu)	Zone Max. SS-A Monthly Demand (MBtuh)	Floor	EZDOE Model FTMO+	Item #
1	MCA 2-Pipe	Lt Tan	AC0	B	Interior Perimeter	MCA-AHU			15	2,688	17,920	97	209			521	524	B	AC0	1
2	MCA 2-Pipe	Lt Tan	AC0	1	Exterior Perimeter	MCA-AHU			15	3,888	25,920	114	299			1,001	912	1	AC0	2
3	MCA 2-Pipe	Lt Tan	AC0	1	Interior Perimeter	MCA-AHU			15	714	4,760	--	--			--	--	1	AC0	3
4	MCA 2-Pipe	Lt Tan	AC0	2	Exterior Perimeter	MCA-Fan Coil					27,710	763	1,173			1,085	1,289	2	AC0	4
5	MCA 2-Pipe	Lt Tan	AC0	2	Interior Perimeter	MCA-Fan Coil					21,760	--	--				--	2	AC0	5
6	MCA 2-Pipe	Lt Tan	AC0	2	Middle	MCA-AHU			15	3,860	24,400	15	131			858	744	2	AC0	6
7	MCA 2-Pipe	Lt Tan	AC0	3	Exterior Perimeter	MCA-Fan Coil					27,710	763	1,173			1,085	1,289	3	AC0	7
8	MCA 2-Pipe	Lt Tan	AC0	3	Interior Perimeter	MCA-Fan Coil					21,760	--	--				--	3	AC0	8
9	MCA 2-Pipe	Lt Tan	AC0	3	Middle	MCA-AHU			15	4,478	29,850	18	151			1,051	910	3	AC0	9
10	MCA 2-Pipe	Lt Tan	AC0	4	Exterior Perimeter	MCA-Fan Coil					32,540	1,366	1,440			1,111	1,180	4	AC0	10
11	MCA 2-Pipe	Lt Tan	AC0	4	Interior Perimeter	MCA-Fan Coil					25,520		--				--	4	AC0	11
12	MCA 2-Pipe	Lt Tan	AC0	4	Middle	MCA-AHU			15	4,511	30,070	321	425			878	871	4	AC0	12
13	*MCA 2-Pipe Summary*	*Lt Tan*	*AC0*	*All*	*All Model AC0 Zones*	*Model AC0 Sys.*				*19,938*	*289,920*	*3,454*	*5,000*			*7,699*	*7,719*	*All*	*AC0*	*13*
14	Steam Heat Only	Magenta	BB0	B	Corridors & Miscl. Rooms	Steam-Unit Heater			0		13,960	559	448			0	0	B	BB0	14
15	Steam Heat/RH w/ DX & Miscl. Cooling	Dk. Tan	BB0	B	Cafeteria, Computer/Lab Rooms	Steam-AHU	DX Cooling	MCA-HW	20	4,716	23,580	2,100	957	1,100	241	521	731	B	BB0	15
16	Steam Heat Only	Magenta	BB0	1	Miscl. Rooms	Steam-Unit Heater			0		13,610	710	703			0	0	1	BB0	16
17	Steam Heat/RH w/ DX & Miscl. Cooling	Dk. Tan	BB0	1	Offices, Computer/Labs	Steam-AHU	DX Cooling		15	1,536	10,240	310	236			367	294	1	BB0	17
18	Steam Heat/RH w/ DX & Miscl. Cooling	Dk. Tan	BB0	2	Middle	Steam-AHU	DX Cooling		15	4,413	29,420	1	65			2,879	919	2	BB0	18
19	Steam Heat/RH w/ DX & Miscl. Cooling	Dk. Tan	BB0	3	Middle	Steam-AHU	DX Cooling		15	2,576	17,170	2	50			1,586	524	3	BB0	19
20	Steam Heat/RH w/ DX & Miscl. Cooling	Dk. Tan	BB0	4	Middle - Clean Room	Steam-AHU	DX Cooling		20	10,000	50,000	6,320	903			6,416	1,706	4	BB0	20
21	Steam Heat/RH w/ DX & Miscl. Cooling	Dk. Tan	BB0	4	Middle - Office/Labs	Steam-AHU	DX Cooling		15	996	6,640	28	84			423	196	4	BB0	21
22	*Steam Heat/RH w/ DX Cooling Summary*	*Dk. Tan*	*BB0*	*ALL*	*All Model BB0 Zones*	*Model BB0 Sys.*	*DX Cooling*			*24,237*	*164,620*	*10,028*	*3,424*	*1,100*	*241*	*14,214*	*4,372*	*ALL*	*BB0*	*22*
23	Cooling (DX & miscl. Chillers) w/MCA Heat	Green & Blue	CA3	B	Exterior Perimeter	DX-AHU	MCA Ht-Fin Tube/Conv.		0		1,890	0		0	36	127	44	B	CA3	23
24	Cooling (DX & miscl. Chillers)	Green	CA3	B	Interior Perimeter	DX-AHU			0		2,820	0		0	0	234	68	B	CA3	24
25	Cooling (DX & miscl. Chillers) w/MCA Heat	Green & Blue	CA3	1	Miscl. Exterior & Interior Perimeter	DX-AHU	MCA Ht-Fin Tube/Conv.		0		25,900	0		0	467	2,527	613	1	CA3	25
26	Cooling (DX & miscl. Chillers)	Green	CA3	1	Miscl. Exterior & Interior Perimeter	DX-AHU			0		13,190	0		0	0	1,433	314	1	CA3	26
27	MCA Heat Only	Blue	CA3	1	Miscl. Exterior & Interior Perimeter		MCA Ht-Fin Tube/Conv.				1	0	515	745	515	0		1	CA3	27
28	Cooling (DX & miscl. Chillers)	Green	CA3	2	Middle	DX-AHU			0		27,660	0				3,276	864	2	CA3	28
29	Cooling (DX & miscl. Chillers)	Green	CA3	3	Middle	DX-AHU			0		18,870	0				2,235	453	3	CA3	29
30	Cooling (DX & miscl. Chillers)	Green	CA3	4	Middle	DX-AHU			0		69,080	0				5,027	1,628	4	CA3	30
31	MCA Heat Only	Blue	CA3	B-3	Elevator Tower Spaces at Ends		MCA Ht-Fin Tube/Conv.				0	0	70	93	300			B-3	CA3	31
32	MCA Heat Only	Blue	CA3	4	Elevator Tower Spaces at Ends		MCA Ht-Fin Tube/Conv.				0	0	--					4	CA3	32
33	*DX Cooling w/some MCA Heat Summary*	*Green & Blue*	*CA3*	*All*	*All Model CA3 Zones*	*Model CA3 Sys.*				*0*	*159,411*	*0*	*585*	*839*	*1,317*	*14,860*	*3,782*	*All*	*CA3*	*33*
								TYPICAL:												
								TOTALS:		44,175	613,951	13,482	9,008	1,939	1,558	36,764	15,872			
Item #	DRAWING DESCRIPTION:	Color (s)	EZDOE Model FTMO+	Floor	ZONE	Serving System #1	Serving System #2	Serving System #3	OUTSIDE AIR (% cfm)	OUTSIDE AIR (cfm)	Zone Supply Flow (cfm)	HEATING SS-A Sys. Ld Ann. Tot. (MMBtu)	Zone Max. SS-A Monthly Demand (MBtuh)	BASEBOARD Zone SS-B Tot. (MMBtu)	Max. Rate (MBtuh)	COOLING SS-A Sys. Ld Ann. (MMBtu)	Zone Max. SS-A Monthly Demand (MBtuh)	Floor	EZDOE Model FTMO+	Item #

System	Peak mmBtu	Usage mmBtu
Hot Water Boiler Plant Loads	4.7	5,384
Steam Boiler Loads	3.1	8,929
Chilled Water Loads	7.7	7,690
DX Cooling Loads	8.2	29,074

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING #2700 - EZDOE OUTPUT SUMMARY
TABLE 5.4.4.3 - SORTED BY FLOOR

Item #	DRAWING DESCRIPTION:	Color (s)	EZDOE Model FTMO+	Floor	ZONE	Serving System #1	Serving System #2	Serving System #3	OUTSIDE AIR (% cfm)	OUTSIDE AIR (cfm)	Zone Supply Flow (cfm)	HEATING Sys. Ld Ann. Tot. (MMBtu)	Zone Max. SS-A Monthly Demand (MBtuh)	BASEBOARD Zone SS-B Tot. (MMBtu)	BASEBOARD Max. Rate (MBtuh)	COOLING SS-A Sys. Ld Ann. (MMBtu)	Zone Max. SS-A Monthly Demand (MBtuh)	Floor	EZDOE Model FTMO+	Item #
1	MCA 2-Pipe	Lt. Tan	AC0	B	Interior Perimeter	MCA-AHU			15	2,688	17,920	97	209.0			621.0	524	B	AC0	1
2	Steam Heat Only	Magenta	BB0	B	Corridors & Misc. Rooms	Steam-Unit Heater			0		13,960	559.0	446.0			0.0	0	B	BB0	2
3	Steam Heat/RH w/ DX & Misc. Cooling	Dk. Tan	BB0	B	Cafeteria, Computer/Lab Rooms	Steam-AHU	DX Cooling	MCA-HW	20	4,716	23,580	2,100.0	957.0	1100	241	521.0	731	B	BB0	3
4	Cooling (DX & misc. Chillers) w/MCA Heat	Green & Blue	CA3	B	Exterior Perimeter	DX-AHU	MCA Ht-Fin Tube/Conv.		0		1,890	0		0	36	127.0	44	B	CA3	4
5	Cooling (DX & misc. Chillers)	Green	CA3	B	Interior Perimeter	DX-AHU			0		2,820	0		0	0	234.0	66	B	CA3	5
6	MCA Heat Only	Blue	CA3	B-3	Elevator Tower Spaces at Ends		MCA Ht-Fin Tube/Conv.				0	0	70	93	300			B	CA3	6
7	*BASEMENT (B) FLOOR Summary*			*B*	*All Basement Zones*	*Basement Sys.*				*7,404*	*60,170*	*2,756*	*1,682*	*1,193*	*877*	*1,503*	*1,385*	*B*		*7*
8	MCA 2-Pipe	Lt. Tan	AC0	1	Exterior Perimeter	MCA-AHU			15	3,888	25,920	114.0	298.0			1,001.0	912	1	AC0	8
9	MCA 2-Pipe	Lt. Tan	AC0	1	Interior Perimeter	MCA-AHU			15	714	4,760	–	–			–	–	1	AC0	9
10	Steam Heat Only	Magenta	BB0	1	Misc. Rooms	Steam-Unit Heat			0		13,610	710.0	703.0			0.0	0	1	BB0	10
11	Steam Heat/RH w/ DX & Misc. Cooling	Dk. Tan	BB0	1	Offices, Computer/Labs	Steam-AHU	DX Cooling		15	1,536	10,240	310.0	236.0			387.0	294	1	BB0	11
12	Cooling (DX & misc. Chillers) w/MCA Heat	Green & Blue	CA3	1	Misc. Exterior & Interior Perimeter	DX-AHU	MCA Ht-Fin Tube/Conv.		0		25,900	0		0	467	2,527.0	613	1	CA3	12
13	Cooling (DX & misc. Chillers)	Green	CA3	1	Misc. Exterior & Interior Perimeter	DX-AHU			0		13,190	0		0	0	1,433.0	314	1	CA3	13
14	MCA Heat Only	Blue	CA3	1	Misc. Exterior & Interior Perimeter		MCA Ht-Fin Tube/Conv.				1	0	515	745	515	0.0		1	CA3	14
15	*FIRST (1st) FLOOR Summary*			*1*	*All 1st Floor Zones*	*1st Floor Sys.*				*6,138*	*83,821*	*1,134*	*1,753*	*745*	*982*	*5,348*	*2,733*	*1*		*15*
16	MCA 2-Pipe	Lt. Tan	AC0	2	Exterior Perimeter	MCA-Fan Coil					27,710	763.0	1,173.0			1,065.0	1289	2	AC0	16
17	MCA 2-Pipe	Lt. Tan	AC0	2	Interior Perimeter	MCA-Fan Coil					21,760	–	–			–	–	2	AC0	17
18	MCA 2-Pipe	Lt. Tan	AC0	2	Middle	MCA-AHU			15	3660	24,400	15.0	131.0			858.0	744	2	AC0	18
19	Steam Heat/RH w/ DX & Misc. Cooling	Dk. Tan	BB0	2	Middle	Steam-AHU	DX Cooling		15	4,413	29,420	1.0	65.0			2,879.0	919	2	BB0	19
20	Cooling (DX & misc. Chillers)	Green	CA3	2	Middle	DX-AHU			0		27,660	0				3,276.4	664	2	CA3	20
21	*SECOND (2nd) FLOOR Summary*			*2*	*All 2nd Floor Zones*	*2nd Floor Sys.*				*8,073*	*130,950*	*779*	*1,369*	*0*	*0*	*6,998*	*3,616*	*2*		*21*
22	MCA 2-Pipe	Lt. Tan	AC0	3	Exterior Perimeter	MCA-Fan Coil					27,710	763.0	1,173.0			1,065.0	1289	3	AC0	22
23	MCA 2-Pipe	Lt. Tan	AC0	3	Interior Perimeter	MCA-Fan Coil					21,760	–	–			–	–	3	AC0	23
24	MCA 2-Pipe	Lt. Tan	AC0	3	Middle	MCA-AHU			15	4477.5	29,850	16.0	151.0			1,051.0	910	3	AC0	24
25	Steam Heat/RH w/ DX & Misc. Cooling	Dk. Tan	BB0	3	Middle	Steam-AHU	DX Cooling		15	2575.5	17,170	2.0	50.0			1,586.0	524	3	BB0	25
26	Cooling (DX & misc. Chillers)	Green	CA3	3	Middle	DX-AHU			0		18,870	0				2,235.0	453	3	CA3	26
27	*THIRD (3rd) FLOOR Summary*			*3*	*All 3rd Floor Zones*	*3rd Floor Sys.*				*7,053*	*115,360*	*781*	*1,374*			*5,957*	*3,176*	*3*		*27*
28	MCA 2-Pipe	Lt. Tan	AC0	4	Exterior Perimeter	MCA-Fan Coil					32,540	1,366.0	1,440.0			1,111.0	1180	4	AC0	28
29	MCA 2-Pipe	Lt. Tan	AC0	4	Interior Perimeter	MCA-Fan Coil					25,520	–	–			–	–	4	AC0	29
30	MCA 2-Pipe	Lt. Tan	AC0	4	Middle	MCA-AHU			15	4510.5	30,070	321.0	425.0			878.0	671	4	AC0	30
31	Steam Heat/RH w/ DX & Misc. Cooling	Dk. Tan	BB0	4	Middle - Clean Room	Steam-AHU	DX Cooling		40	10,000	50,000	8,320.0	903.0			8,418.0	1708	4	BB0	31
32	Steam Heat/RH w/ DX & Misc. Cooling	Dk. Tan	BB0	4	Middle - Office/Labs	Steam-AHU	DX Cooling		15	996	6,640	26.0	64.0			423.0	196	4	BB0	32
33	Cooling (DX & misc. Chillers)	Green	CA3	4	Middle	DX-AHU			0		69,080	0				5,027.0	1626	4	CA3	33
34	MCA Heat Only	Blue	CA3	4	Elevator Tower Spaces at Ends		MCA Ht-Fin Tube/Conv.				0	0	–					4	CA3	34
35	*FOURTH (4th) FLOOR Summary*			*4*	*All 4th Floor Zones*	*4th Floor Sys.*				*15,507*	*213,850*	*8,033*	*2,832*	*0*	*0*	*15,857*	*6,543*	*4*		*35*
								TYPICAL:												
								TOTALS:		*44,175*	*613,951*	*13,482*	*9,008*	*1,938*	*1,558*	*36,764*	*15,872*			
Item #	DRAWING DESCRIPTION:	Color (s)	EZDOE Model FTMO+	Floor	ZONE	Serving System #1	Serving System #2	Serving System #3	OUTSIDE AIR (% cfm)	OUTSIDE AIR (cfm)	Zone Supply Flow (cfm)	HEATING SS-A Sys. Ld Ann. Tot. (MMBtu)	Zone Max. SS-A Monthly Demand (MBtuh)	BASEBOARD Zone SS-B Tot. (MMBtu)	BASEBOARD Max. Rate (MBtuh)	COOLING SS-A Sys. Ld Ann. (MMBtu)	Zone Max. SS-A Monthly Demand (MBtuh)	Floor	EZDOE Model FTMO+	Item #

System	mmBtu	mmBtu
Hot Water Boiler Plant Loads	4.7	5,394
Steam Boiler Loads	3.1	8,929
Chilled Water Loads	7.7	7,690
DX Cooling Loads	8.2	29,074

5.5 Comparison of Modeling Results

5.5.1 General

The comparison of models for heating and cooling with the equipment lists in Section 3 is summarized in Tables 5.5.1.1 and 5.5.1.2

Table 5.5.1.1, Building 2700 - Heating/Reheat Model Comparisons

	Steam Model			Heat Loss Model (Heating only)	EZDOE Modeling Results			Equip. List Connect Loads		
	Heat	Reheat	Total		MCA HW	Steam Units	Model Total	MCA HW	Steam Units	Total
Heating Load (mmBtu/hr or `mlb/hr)	7.5	1.2	8.7	8.7	5.7	3.1	8.8	5.7	5.2	10.9
Annual Heating (mmBtu or mlbs)	6,910	6,990	13,900	13,860	5,500	8,900	14,300	---	---	---

Notes: 1) The Building 2700 Heating Peak for the steam model is estimated to be three (3) times the peak month average flow rate of 60 mlbs/day.
2) During the heating season Building 2700 is estimated to require 85% of the steam model total of 8,130 mlbs for heating.
3) For an explanation of why the heat loss annual heating is predicted high refer to Section 5.3.
4) The steam model predicts the heat and reheat loads separately, while the EZDOE modeling lumps the two together in the "Steam" category units.

Table 5.5.1.1 shows that the Building 2700 combined heating and reheat loads are about 14,000 mmBtu or mlbs per year. The combined peak for Building 2700 is expected to be about 9 mmBtu/hr or 9,000 lb/hr. The peak capacity relates to about 85% the connected equipment loads.

In Table 5.5.1.2, the cooling load peak of 1,330 tons is found to be near 75% of the connected equipment loads. The EZDOE cooling load for the year totaled 35,400 mmBtu per year. The estimated kWh/yr for cooling is 2,950,000. This number will compared to values calculated in the electric model in Section 5.6

Table 5.5.1.2, Building 2700, Cooling Modeling Comparison

	EZDOE Modeling Results			Equip. List Connect Load		
	MCA CHW	DX & Misc	Total	MCA CHW	DX & Misc	Total
Cooling Load Peak (tons)	640	690	1,330	663	1,134	1,797
Cooling Load Peak (mmBtu/hr)	7.7	8.2	15.9	8.0	13.6	21.6
Annual Cooling (mmBtu/yr)	7,700	29,100	36,800	---	---	---

5.6 Electric Model - Building 2700

5.6.1 General

An electric model, as described in Section 2.5.5, has been developed by Entech for Building 2700. The model represents our estimation of the current operation of the building. The model is employed to approximate the contribution from all electrical users to an annual electric cost.

5.6.2 Results

The electric model culminated the modeling information provided in Section 3, 4, and 5. It defines a baseline for Building 2700's influence on the electric bills for the Hope Road/Charles Wood Area. Table 5.6.2.1 summarizes the results of the electric model. Table 5.6.2.2 is the electric model for the entire building.

Table 5.6.2.1, Electric Model Cost Summary

Location	Cost/yr
Basement HVAC	$35,850
First/Mezzanine HVAC	$91,000
Second Floor HVAC	$84,470
Third Floor HVAC	$98,820
Fourth Floor HVAC	$173,300
Exhaust Fans	$44,940
Chillers - Towers	$74,850
Pumps	$85,790
Misc. Refrigeration	$8,420
Lighting	$443,730
Misc. Equipment	$302,790
Totals	$1,443,960

The summary above in the Table 5.6.2.1 reflects that the lighting and miscellaneous equipment constitute approximately 52% of the total electrical yearly cost. The fourth floor is shown to have the highest electric cost. Based on the modeled area the of building the average cost per square foot is $2.49 ($1,443,960 ÷ 580,000). It is important to realize that the electric model is an approximation of the electricity used by each load. It shows general relationships and gives a reasonable allocation of electrical demand, usage and cost.

HVAC Item	HVAC Airside Equipment - General Information				Cooling Equipment	Total	Winter	Intermed.	Su
	Design/Site Designatio	Equip. Type	Field Data/Reference/(Location)	Area Served	Field Data/Reference/(Location)	Connected Load (kW)	Demand kW/month	Demand kW/month	De kW
1	-	AHU	McQuay LML(OA418 - JCALS)	Cafetena	McQuay ALP(Outside on grade)	49 3	12 3	24 7	
2	-	AC	Camer 38(Cafetena - above ceiling)	Cafetena office	Camer 38(Location unknown)	5 1	1 3	2 5	
3	-	AC	Camer 38(Cafetena - above ceiling)	Cafetena office	Camer 38(Location unknown)	5 1	1 3	2 5	
4	-	AHU	unknown(OA400)	OA400 (J-CALS)	unknown (Outside on grade)	49 3	12 3	24 7	
5	-	AHU	unknown(Mech Room (MR)-OA-1)	OA415 offices	unknown(Outside on grade)	7 9	2 0	3 9	
6	-	Recirc AC	Liebert(OA-413)	OA413	Liebert(Outside on grade)	10 8	5 4	8 1	
7	-	Recirc AC	Liebert(OA-334)	OA334	Liebert(Outside on grade)	20 3	10 2	15 2	
8	-	Recirc AC	Liebert(OA-336)	OA336	Liebert(Outside on grade)	10 8	5 4	8 1	
9	AHU-B-3	AHU-MCA	Trane C C (OA403)	OA403 offices	Plant Chilled Water @ 55 degrees F	1 1	0 8	0 8	
10	-	AHU-MCA	unknown(OA418 - JCALS offices)	OA418 (J-CALS)	Plant Chilled Water @ 55 degrees F	0 8	0 6	0 6	
11	-	AHU-MCA	unknown(OA418 - JCALS offices)	OA418 (J-CALS)	Plant Chilled Water @ 55 degrees F	0 8	0 6	0 6	
12	-	AHU-MCA	unknown(OA418 - JCALS offices)	OA418 (J-CALS)	Plant Chilled Water @ 55 degrees F	0 8	0 6	0 6	
13	-	AHU-MCA	unknown(OA418 - JCALS offices)	OA418 (J-CALS)	Plant Chilled Water @ 55 degrees F	0 8	0 6	0 6	
14	-	AHU-MCA	unknown(OA418 - JCALS offices)	OA418 (J-CALS)	Plant Chilled Water @ 55 degrees F	0 8	0 6	0 6	
15	-	UH	unknown(OA501-storage)	OA501	N/A	0 03	0 022	0 011	
16	-	UH	unknown(OA503-storage)	OA503	N/A	0 03	0 022	0 011	
17	-	UH	unknown(OA321-hallway)	OA321	N/A	0 03	0 022	0 011	
18	-	UH	unknown(OA326-Substations #2 & 6)	OA326	N/A	0 03	0 022	0 011	
19	-	UH	unknown(OA328-Substations #2 & 6)	OA328	N/A	0 03	0 022	0 011	
20	FC-1(9)	FC	unknown(9 on West wall)	OA400 Area - West	Plant Chilled Water @ 55 degrees F	0 11	0 1	0 1	
21	C-4	Convector	unknown(Near Elevator #1 - Basement)	Hallway - Elev #1	N/A	0 00	0 0	0 0	
22	-	Fin-tube	unknown(625 ft of East/South wall)	JCALS/Cafetena/Lab	N/A	0 00	0 0	0 0	
23	-	AHU	unknown(1B110 Comp Lab Mezz)	B110,112/Mezz	unknown (Outside on grade)	6 0	3 0	4 5	
24	-	AHU	Atmostech(1B120 Cleanroom)	1B120 Cleanroom	Compressor in 1B120 & tower on roof	33 3	25 0	25 0	
25	-	AHU	McQuay VSC(1B134 Print Shop)	1B134 Print Shop	Packaged unit w/tower on roof	44 6	11 1	22 3	
26	-	AHU	unknown(1B115)	1B115 office/storage	unknown (Outside on grade)	9 0	0 1	2 2	
27	-	AHU	unknown(1B115 - backup unit)	1B115 office/storage	unknown (Outside on grade)	-	0 0	0 0	
28	-	AHU	Trane BWV180(1B131 Computer Rm)	1B131/Mezz	Trane BWA 180(Outside on grade)	15 1	3 8	7 6	
29	-	AHU	Trane BWE120(1B131 Computer Rm)	1B131/Mezz	Trane BWE 120(Outside on grade)	7 2	1 8	1 8	
30	-	AHU	Trane BTE120(1B131 Computer Rm)	1B131/Mezz	Trane BWA 120(Outside on grade)	5 6	1 4	1 4	
31	-	AHU	Trane BTE120(1B131 Computer Rm)	1B131/Mezz	Trane BWA 120(Outside on grade)	-	0 0	0 0	
32	-	AHU	Trane BWE090(1B131 Computer Rm)	1B131/Mezz	Trane BTA 090(Outside on grade)	-	0 0	0 0	
33	AC-6	AHU	Camer(MR - 1B123)	1B123	Compressor in 1B123 & tower on roof	4 1	1 0	2 0	
34	-	AHU	Comfort Air(1B138)	1B138 Offices	Comfort Air(Outside on grade)	14 4	3 6	7 2	
35	AC-1(New)	AHU	Dunham Bush(1B142)	1B142	Compressor in 1B142 & tower on roof	20 2	5 0	10 1	
36	-	AHU	Chrysler 1005(1B141A)	1B141A	Compressor in 1B141A & tower on roof	6 4	1 6	3 2	
37	-	UH	unknown(Stairway #1)	Stairway #1	N/A	0 03	0 022	0 011	
38	-	UH	unknown(1B107 - storage)	1B107	N/A	0 07	0 056	0 028	
39	-	UH	unknown(1B109 - storage)	1B109	N/A	0 07	0 056	0 028	
40	-	UH	unknown(1B111- storage)	1B111	N/A	0 07	0 056	0 028	
41	-	UH	unknown (1B109 - storage)	1B107	N/A	0 03	0 022	0 011	
42	-	UH	unknown (1B110 - shop)	1B110	N/A	0 07	0 056	0 028	
43	-	UH	unknown(Stairway #3)	Stairway #3	N/A	0 03	0 022	0 011	
44	C-4	Convector	unknown(Near Elevator #1 - First floor)	Hallway - Elev. #1	N/A	0 00	0 0	0 0	
45	C-2(2)	Convector	unknown(1B4L ladies room)	1B4L	N/A	0 00	0 0	0 0	
46	-	Fin-tube	unknown(420 ft of 1B100 Area))	Vanous	N/A	0 00	0 0	0 0	
47	-	AHU	Camer 50(1B202 - Photography)	1B202	unknown(Location unknown)	7 3	1 8	3 7	
48	-	AHU	Trane SAHB(1B205 - EMS Room)	1B205	Trane(Outside on grade)	7 5	1 9	3 7	
49	AHU-2	AHU-MCA	Trane C C (1B204)	1B204	Plant Chilled Water @ 55 degrees F	1 5	1 1	1 1	
50	-	AHU	Chrysler 1005(1B212)	1B212	Compressor in 1B212 & tower on roof	6 4	4 8	4 8	
51	-	UH	unknown (1B212 - shop)	1B212	N/A	0 07	0 056	0 028	
52	-	Fin-tube	unknown(200 ft of 1B200 Area))	Vanous	N/A	0 00	0 0	0 0	
53	-	AHU-MCA	Camer 39(1B302 - offices)	1B302	Plant Chilled Water @ 55 degrees F	0 8	0 6	0 6	
54	-	AHU-MCA	Camer 39(1B302 - offices)	1B302	Plant Chilled Water @ 55 degrees F	1 2	0 9	0 9	
55	-	AHU-MCA	Camer 39(1B306 - offices)	1B306	Plant Chilled Water @ 55 degrees F	1 2	0 9	0 9	
56	-	AHU-MCA	Camer 39(1B306 - offices)	1B306	Plant Chilled Water @ 55 degrees F	1 2	0 9	0 9	
57	AHU-3	AHU-MCA	Trane C C (1B322)	1B318,1B324, Entrance	Plant Chilled Water @ 55 degrees F	2 2	1 7	1 7	
58	-	AHU-MCA	McQuay(!B332 - offices)	1B332	Plant Chilled Water @ 55 degrees F	1 1	0 8	0 8	
59	-	AHU-MCA	McQuay(!B332 - offices)	1B332	Plant Chilled Water @ 55 degrees F	1 1	0 8	0 8	
60	-	UH	unknown(Stairway #4)	Stairway #4	N/A	0 02	0 017	0 008	
61	-	UH	unknown(1B307))	1B307	N/A	0 11	0 084	0 042	
62	UH-21	UH	unknown(hallway near 1B322)	hallway	N/A	0 04	0 028	0 014	
63	-	UH	unknown(1B321 Receiving)	1B321	N/A	0 15	0 112	0 056	
64	-	UH	unknown(1B321 Receiving)	1B321	N/A	0 15	0 112	0 056	
65	-	Recirc AC	unknown(1B322- above ceiling)	1B324	Compressor in 1B322 & tower on roof	18 7	9 4	14 0	
66	UH-23	UH	unknown(Stairway #6)	Stairway #6	N/A	0 02	0 017	0 008	
67	UH-1to7(Ne	(7)UH-MCA	unknown((6) Bldg 2706 & (1)Nit Stor Area	Bldg 2706 & Nitrogen Stora	N/A	0 32	0 2	0 2	
68	C-3	Convector	unknown(1B6L ladies room)	1B6L	N/A	0 00	0 0	0 0	
69	C-2	Convector	unknown(1B6G gentlemen room)	1B7G	N/A	0 00	0 0	0 0	
70	FC-1(11)	FC	unknown(11 in 1B300 Area)	Vanous	Plant Chilled Water @ 55 degrees F	0 14	0 1	0 1	
71	-	Fin-tube	unknown(320 ft of 1B300 Area)	Vanous	N/A	0 00	0 0	0 0	
72	CUH-1(2)	CUH	unknown(New Entrance Area)	entrance way	N/A	0 02	0 02	0 02	
73	-	AHU-MCA	Camer 39(1B401 - offices)	1B401	Plant Chilled Water @ 55 degrees F	1 2	0 9	0 9	
74	AHU-4	AHU-MCA	Trane C C (1B405 - Library)	Library	Plant Chilled Water @ 55 degrees F	2 1	1 5	1 5	
75	-	AHU-MCA	Trane(above 1B416 - offices)	1B416 area	Plant Chilled Water @ 55 degrees F	5 6	4 2	4 2	

(1)

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 ELECTRIC MODEL - ALL FLOORS & BUILDING 2706 HVAC EQUIPMENT

TABLE 5.6.2.2

						Winter Billing Months				Intermediate Billing Months				Summer Billing Months					
						Off-Peak		On-Peak		Off-Peak		On-Peak		Off-Peak		On-Peak			
Area	Cooling Equipment	Total	Winter	Intermed.	Summer	hrs/		hrs/		hrs/		hrs/		hrs/		hrs/		Demand	Off-
erved	Field Data/Reference/(Location)	Connected Load (kW)	Demand kW/month	Demand kW/month	Demand kW/month	day	kWh/Mo	day	kWh/Mo	day	kWh/Mo	day	kWh/Mo	day	kWh/Mo	day	kWh/Mo	kW/Yr.	KW
	McQuay ALP(Outside on grade)	49.3	12.3	24.7	37.0	1	1,480	4	3,947	2	2,961	4	3,947	4	5,921	6	5,921	148	
ice	Carrier 38(Location unknown)	5.1	1.3	2.5	3.8	1	152	4	405	2	304	4	405	4	608	6	608	15	
ice	Carrier 38(Location unknown)	5.1	1.3	2.5	3.8	1	152	4	405	2	304	4	405	4	608	6	608	15	
ALS)	unknown (Outside on grade)	49.3	12.3	24.7	37.0	1	1,480	4	3,947	2	2,961	4	3,947	4	5,921	6	5,921	148	1
es	unknown(Outside on grade)	7.9	2.0	3.9	5.9	1	236	4	630	2	472	4	630	4	945	6	945	24	
	Liebert(Outside on grade)	10.8	5.4	8.1	8.1	2	649	6	1,298	3	974	8	1,731	4	1,298	10	2,163	54	
	Liebert(Outside on grade)	20.3	10.2	15.2	15.2	2	1,220	6	2,439	3	1,830	8	3,253	4	2,439	10	4,066	102	1
	Liebert(Outside on grade)	10.8	5.4	8.1	8.1	2	649	6	1,298	3	974	8	1,731	4	1,298	10	2,163	54	
es	Plant Chilled Water @ 55 degrees F	1.1	0.8	0.8	0.8	12	405	8	180	12	405	8	180	12	405	8	180	7	
ALS)	Plant Chilled Water @ 55 degrees F	0.8	0.6	0.6	0.6	12	283	8	126	12	283	8	126	12	283	8	126	5	
ALS)	Plant Chilled Water @ 55 degrees F	0.8	0.6	0.6	0.6	12	283	8	126	12	283	8	126	12	283	8	126	5	
ALS)	Plant Chilled Water @ 55 degrees F	0.8	0.6	0.6	0.6	12	283	8	126	12	283	8	126	12	283	8	126	5	
ALS)	Plant Chilled Water @ 55 degrees F	0.8	0.6	0.6	0.6	12	283	8	126	12	283	8	126	12	283	8	126	5	
ALS)	Plant Chilled Water @ 55 degrees F	0.8	0.6	0.6	0.6	12	283	8	126	12	283	8	126	12	283	8	126	5	
	N/A	0.03	0.022	0.011	0.0	10	9	8	5	8	7	6	4	0.5	0	0.5	0	0	
	N/A	0.03	0.022	0.011	0.0	10	9	8	5	8	7	6	4	0.5	0	0.5	0	0	
	N/A	0.03	0.022	0.011	0.0	10	9	8	5	8	7	6	4	0.5	0	0.5	0	0	
	N/A	0.03	0.022	0.011	0.0	10	9	8	5	8	7	6	4	0.5	0	0.5	0	0	
	N/A	0.03	0.022	0.011	0.0	10	9	8	5	8	7	6	4	0.5	0	0.5	0	0	
- West	Plant Chilled Water @ 55 degrees F	0.11	0.1	0.1	0.1	12	40	8	18	12	40	8	18	12	40	8	18	1	
v. #1	N/A	0.00	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ena/La	N/A	0.00	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
zz	unknown (Outside on grade)	6.0	3.0	4.5	4.5	2	360	6	721	3	540	8	961	4	721	10	1,201	30	
room	Compressor in 1B120 & tower on roof	33.3	25.0	25.0	25.0	8	7,999	8	5,333	8	7,999	8	5,333	8	7,999	10	6,666	200	6
Shop	Packaged unit w/tower on roof	44.6	11.1	22.3	33.4	2	2,674	4	3,565	2	2,674	5	5,348	4	5,348	8	7,131	134	2
storage	unknown (Outside on grade)	9.0	0.1	2.2	3.6	1	269	1	180	2	539	2	359	4	1,077	6	1,077	9	
storage	unknown (Outside on grade)	-	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Trane BWA 180(Outside on grade)	15.1	3.8	7.6	11.3	2	908	4	1,210	4	1,815	6	1,815	4	1,815	8	2,421	45	1
	Trane BWE 120(Outside on grade)	7.2	1.8	1.8	3.6	1	217	2	289	2	433	3	433	2	433	4	578	14	
	Trane BWA 120(Outside on grade)	5.6	1.4	1.4	2.8	1	169	2	225	2	338	3	338	2	338	4	450	11	
	Trane BWA 120(Outside on grade)	-	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Trane BTA 090(Outside on grade)	-	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Compressor in 1B123 & tower on roof	4.1	1.0	2.0	3.1	1	122	4	326	2	244	4	326	4	489	6	489	12	
s	Comfort Air(Outside on grade)	14.4	3.6	7.2	10.8	1	432	4	1,152	2	864	4	1,152	4	1,728	6	1,728	43	
	Compressor in 1B142 & tower on roof	20.2	5.0	10.1	15.1	1	605	4	1,613	2	1,210	4	1,613	4	2,420	6	2,420	60	
	Compressor in 1B141A & tower on roof	6.4	1.6	3.2	4.8	1	193	4	514	2	386	4	514	4	771	6	771	19	
	N/A	0.03	0.022	0.011	0.0	10	9	8	5	8	7	6	4	0.5	0	0.5	0	0	
	N/A	0.07	0.056	0.028	0.1	10	22	8	12	8	18	6	9	0.5	1	0.5	1	0	
	N/A	0.07	0.056	0.028	0.1	10	22	8	12	8	18	6	9	0.5	1	0.5	1	0	
	N/A	0.07	0.056	0.028	0.1	10	22	8	12	8	18	6	9	0.5	1	0.5	1	0	
	N/A	0.03	0.022	0.011	0.0	10	9	8	5	8	7	6	4	0.5	0	0.5	0	0	
	N/A	0.07	0.056	0.028	0.1	10	22	8	12	8	18	6	9	0.5	1	0.5	1	0	
	N/A	0.03	0.022	0.011	0.0	10	9	8	5	8	7	6	4	0.5	0	0.5	0	0	
v. #1	N/A	0.00	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	N/A	0.00	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	N/A	0.00	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	unknown(Location unknown)	7.3	1.8	3.7	5.5	1	220	4	586	2	439	4	586	4	879	6	879	22	
	Trane(Outside on grade)	7.5	1.9	3.7	5.6	1	225	4	599	2	449	4	599	4	899	6	899	22	
	Plant Chilled Water @ 55 degrees F	1.5	1.1	1.1	1.1	12	537	8	239	12	537	8	239	12	537	8	239	9	
	Compressor in 1B212 & tower on roof	6.4	4.8	4.8	4.8	8	1,543	10	1,286	4	771	10	1,286	4	771	10	1,286	39	
	N/A	0.07	0.056	0.028	0.1	10	22	8	12	8	18	6	9	0.5	1	0.5	1	0	
	N/A	0.00	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Plant Chilled Water @ 55 degrees F	0.8	0.6	0.6	0.6	12	300	8	133	12	300	8	133	12	300	8	133	5	
	Plant Chilled Water @ 55 degrees F	1.2	0.9	0.9	0.9	12	420	8	187	12	420	8	187	12	420	8	187	7	
	Plant Chilled Water @ 55 degrees F	1.2	0.9	0.9	0.9	12	420	8	187	12	420	8	187	12	420	8	187	7	
	Plant Chilled Water @ 55 degrees F	1.2	0.9	0.9	0.9	12	420	8	187	12	420	8	187	12	420	8	187	7	
Entrance	Plant Chilled Water @ 55 degrees F	2.2	1.7	1.7	1.7	12	806	8	358	12	806	8	358	12	806	8	358	13	
	Plant Chilled Water @ 55 degrees F	1.1	0.8	0.8	0.8	12	403	8	179	12	403	8	179	12	403	8	179	7	
	Plant Chilled Water @ 55 degrees F	1.1	0.8	0.8	0.8	12	403	8	179	12	403	8	179	12	403	8	179	7	
	N/A	0.02	0.017	0.008	0.0	10	7	8	4	8	5	6	3	0.5	0	0.5	0	0	
	N/A	0.11	0.084	0.042	0.1	10	34	8	18	8	27	6	13	0.5	2	0.5	1	1	
	N/A	0.04	0.028	0.014	0.0	10	11	8	6	8	9	6	4	0.5	1	0.5	0	0	
	N/A	0.15	0.112	0.056	0.1	10	45	8	24	8	36	6	18	0.5	2	0.5	1	1	
	N/A	0.15	0.112	0.056	0.1	10	45	8	24	8	36	6	18	0.5	2	0.5	1	1	
	Compressor in 1B322 & tower on roof	18.7	9.4	14.0	14.0	2	1,124	6	2,247	3	1,686	8	2,997	4	2,247	10	3,746	94	1
	N/A	0.02	0.017	0.008	0.0	10	7	8	4	8	5	6	3	0.5	0	0.5	0	0	
Nitrogen Stora	N/A	0.32	0.2	0.2	0.0	12	114	8	51	8	76	6	38	0	0	0	0	2	
	N/A	0.00	0.0	0.0	0.0	1	0	0	0	0	0	0	0	0	0	0	0	0	
	N/A	0.00	0.0	0.0	0.0	1	0	0	0	0	0	0	0	0	0	0	0	0	
	Plant Chilled Water @ 55 degrees F	0.14	0.1	0.1	0.1	12	49	8	22	12	49	8	22	12	49	8	22	1	
	N/A	0.00	0.0	0.0	0.0	1	0	0	0	0	0	0	0	0	0	0	0	0	
	N/A	0.02	0.02	0.02	0.00	12	9	8	4	4	3	4	2	0	0	0	0	0	
	Plant Chilled Water @ 55 degrees F	1.2	0.9	0.9	0.9	12	420	8	187	12	420	8	187	12	420	8	187	7	
	Plant Chilled Water @ 55 degrees F	2.1	1.5	1.5	1.5	12	739	8	328	12	739	8	328	12	739	8	328	12	
	Plant Chilled Water @ 55 degrees F	5.6	4.2	4.2	4.2	12	2,012	8	894	12	2,012	8	894	12	2,012	8	894	34	16

(2)

)F THE ARMY
.UILDING 2706 HVAC EQUIPMENT

Intermediate Billing Months				Summer Billing Months				Non-Summer				Summer				Annual	
Off-Peak		On-Peak		Off-Peak		On-Peak											
hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	Demand kW/Yr.	Off-Peak KWH/Yr.	On-Peak KWH/Yr.	Cost $	Demand kW/Yr.	Off-Peak KWH/Yr.	On-Peak KWH/Yr.	Cost $	Cost $	No.
2	2,961	4	3,947	4	5,921	6	5,921	148	17,764	31,580	$4,624	148	23,685	23,685	$4,563	$9,186	1
2	304	4	405	4	608	6	608	15	1,823	3,240	$474	15	2,430	2,430	$468	$943	2
2	304	4	405	4	608	6	608	15	1,823	3,240	$474	15	2,430	2,430	$468	$943	3
2	2,961	4	3,947	4	5,921	6	5,921	148	17,764	31,580	$4,624	148	23,685	23,685	$4,563	$9,186	4
2	472	4	630	4	945	6	945	24	2,834	5,037	$738	24	3,778	3,778	$728	$1,465	5
3	974	8	1,731	4	1,298	10	2,163	54	6,490	12,115	$1,731	32	5,192	8,654	$1,251	$2,982	6
3	1,830	8	3,253	4	2,439	10	4,066	102	12,197	22,768	$3,253	61	9,758	16,263	$2,351	$5,604	7
3	974	8	1,731	4	1,298	10	2,163	54	6,490	12,115	$1,731	32	5,192	8,654	$1,251	$2,982	8
12	405	8	180	12	405	8	180	7	3,243	1,442	$363	3	1,622	721	$185	$548	9
12	283	8	126	12	283	8	126	5	2,267	1,007	$254	2	1,133	504	$129	$383	10
12	283	8	126	12	283	8	126	5	2,267	1,007	$254	2	1,133	504	$129	$383	11
12	283	8	126	12	283	8	126	5	2,267	1,007	$254	2	1,133	504	$129	$383	12
12	283	8	126	12	283	8	126	5	2,267	1,007	$254	2	1,133	504	$129	$383	13
12	283	8	126	12	283	8	126	5	2,267	1,007	$254	2	1,133	504	$129	$383	14
8	7	6	4	0.5	0	0.5	0	0	64	33	$8	0	2	1	$1	$9	15
8	7	6	4	0.5	0	0.5	0	0	64	33	$8	0	2	1	$1	$9	16
8	7	6	4	0.5	0	0.5	0	0	64	33	$8	0	2	1	$1	$9	17
8	7	6	4	0.5	0	0.5	0	0	64	33	$8	0	2	1	$1	$9	18
8	7	6	4	0.5	0	0.5	0	0	64	33	$8	0	2	1	$1	$9	19
12	40	8	18	12	40	8	18	1	322	143	$36	0	161	72	$18	$54	20
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	21
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	22
3	540	8	961	4	721	10	1,201	30	3,603	6,726	$961	18	2,883	4,804	$695	$1,656	23
8	7,999	8	5,333	8	7,999	10	6,666	200	63,995	42,664	$8,744	100	31,998	26,665	$4,856	$13,600	24
2	2,674	6	5,348	4	5,348	8	7,131	134	21,393	35,655	$5,026	134	21,393	28,524	$4,638	$9,664	25
2	539	2	359	4	1,077	6	1,077	9	3,231	2,154	$436	14	4,308	4,308	$714	$1,150	26
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	27
4	1,815	6	1,815	4	1,815	8	2,421	45	10,893	12,103	$1,933	45	7,262	9,683	$1,574	$3,507	28
2	433	3	433	2	433	4	578	14	2,600	2,889	$491	14	1,733	2,311	$409	$900	29
2	338	3	338	2	338	4	450	11	2,027	2,252	$383	11	1,351	1,802	$319	$702	30
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	31
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	32
2	244	4	326	4	489	6	489	12	1,466	2,607	$382	12	1,955	1,955	$377	$758	33
2	864	4	1,152	4	1,728	6	1,728	43	5,183	9,215	$1,349	43	6,911	6,911	$1,331	$2,681	34
2	1,210	4	1,613	4	2,420	6	2,420	60	7,259	12,904	$1,889	60	9,678	9,678	$1,864	$3,754	35
2	386	4	514	4	771	6	771	19	2,314	4,114	$602	19	3,085	3,085	$594	$1,197	36
8	7	6	4	0.5	0	0.5	0	0	64	33	$8	0	2	1	$1	$9	37
8	18	6	9	0.5	1	0.5	1	0	161	84	$19	0	4	3	$3	$21	38
8	18	6	9	0.5	1	0.5	1	0	161	84	$19	0	4	3	$3	$21	39
8	18	6	9	0.5	1	0.5	1	0	161	84	$19	0	4	3	$3	$21	40
8	7	6	4	0.5	0	0.5	0	0	64	33	$8	0	2	1	$1	$9	41
8	18	6	9	0.5	1	0.5	1	0	161	84	$19	0	4	3	$3	$21	42
8	7	6	4	0.5	0	0.5	0	0	64	33	$8	0	2	1	$1	$9	43
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	44
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	45
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	46
2	439	4	586	4	879	6	879	22	2,636	4,687	$686	22	3,515	3,515	$677	$1,363	47
2	449	4	599	4	899	6	899	22	2,696	4,793	$702	22	3,595	3,595	$693	$1,394	48
12	537	8	239	12	537	8	239	9	4,297	1,910	$481	4	2,148	955	$245	$726	49
4	771	10	1,286	4	771	10	1,286	39	9,256	10,285	$1,642	19	3,085	5,142	$743	$2,386	50
8	18	6	9	0.5	1	0.5	1	0	161	84	$19	0	4	3	$3	$21	51
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	52
12	300	8	133	12	300	8	133	5	2,399	1,066	$268	2	1,199	533	$137	$405	53
12	420	8	187	12	420	8	187	7	3,358	1,493	$376	3	1,679	746	$191	$567	54
12	420	8	187	12	420	8	187	7	3,358	1,493	$376	3	1,679	746	$191	$567	55
12	420	8	187	12	420	8	187	7	3,358	1,493	$376	3	1,679	746	$191	$567	56
12	806	8	358	12	806	8	358	13	6,445	2,865	$721	7	3,223	1,432	$367	$1,089	57
12	403	8	179	12	403	8	179	7	3,223	1,432	$361	3	1,611	716	$184	$544	58
12	403	8	179	12	403	8	179	7	3,223	1,432	$361	3	1,611	716	$184	$544	59
8	5	6	3	0.5	0	0.5	0	0	48	25	$6	0	1	1	$1	$6	60
8	27	6	13	0.5	2	0.5	1	1	242	125	$28	0	7	4	$4	$32	61
8	9	6	4	0.5	1	0.5	0	0	81	42	$9	0	2	1	$1	$11	62
8	36	6	18	0.5	2	0.5	1	1	322	167	$38	0	9	6	$5	$43	63
8	36	6	18	0.5	2	0.5	1	1	322	167	$38	0	9	6	$5	$43	64
3	1,686	8	2,997	4	2,247	10	3,746	94	11,237	20,976	$2,997	56	8,990	14,983	$2,166	$5,163	65
8	5	6	3	0.5	0	0.5	0	0	48	25	$6	0	1	1	$1	$6	66
8	76	6	38	0	0	0	0	2	761	355	$89	0	0	0	$0	$89	67
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	68
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	69
12	49	8	22	12	49	8	22	1	394	175	$44	0	197	88	$22	$67	70
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	71
4	3	4	2	0	0	0	0	0	48	24	$6	0	0	0	$0	$6	72
12	420	8	187	12	420	8	187	7	3,358	1,493	$376	3	1,679	746	$191	$567	73
12	739	8	328	12	739	8	328	12	5,908	2,626	$661	6	2,954	1,313	$337	$998	74
12	2,012	8	894	12	2,012	8	894	34	16,092	7,152	$1,801	17	8,046	3,576	$917	$2,718	75

(3)

HVAC Item	HVAC Airside Equipment - General Information				Cooling Equipment	Total	Winter	Interme
	Design/Site Designatio	Equip. Type	Field Data/Reference/(Location)	Area Served	Field Data/Reference/(Location)	Connected Load (kW)	Demand kW/month	Demar kW/mor
76	-	AHU-MCA	Trane(above 1B416 - offices)	1B500 area	Plant Chilled Water @ 55 degrees F	5 6	4 2	
77	-	Recirc. AC	Liebert(OA-413)	OA413	Liebert(Outside on grade)	10 8	5 4	
78	-	Recirc. AC	Liebert(OA-413)	OA413	Liebert(Outside on grade)	10 8	2 7	
79	-	UH	unknown(Stairway #7)	Stairway #7	N/A	0 04	0 028	0 0
80	-	UH	unknown(Stairway #11)	Stairway #11	N/A	0 02	0 017	0 0
81	C-4	Convector	unknown(Near Elevator #7 - First floor)	Hallway - Elev. #7	N/A	0 00	0 0	
82	FC-1(11)	FC	unknown(1B405 - Library)	Library	Plant Chilled Water @ 55 degrees F	0 14	0 1	
83	-	Fin-tube	unknown(360 ft of 1B400 & 500 Areas)	various	N/A	0 00	0 0	
84	-	AHU	Trane(above 1B109 - Computer Area)	Mezz Computer Area	Trane(Outside on grade)	12 1	6 0	
85	-	Recirc. AC	Liebert(above 1B109 - Computer Area)	Mezz Computer Area	Liebert(Outside on grade)	10 8	5 4	
86	CUH-1(2)	CUH	unknown(Main Lobby Entrance Area)	Mezz entrance way	N/A	0 02	0 02	0
87	AHU-1	AHU-MCA	unknown(above Main Lobby)	Mezz Lobby Area	Plant Chilled Water @ 55 degrees F	3 4	2 5	
88	-	AHU-MCA	unknown(1B120 on floor)	Build Mgr office/Mezz	Plant Chilled Water @ 55 degrees F	0 2	0 2	
89	-	AHU	McQuay LSL(Auditonum M-Area)	Auditonum	McQuay AHR(Common - out on grade)	27 0	6 8	1
90	-	AHU	McQuay LSL(Auditonum M-Area)	Auditonum	McQuay AHR(Common - out on grade)	27 0	6 8	1
91	AC-1	AHU	unknown(MR - 1aB138/Mezz)	1aB138 Mezz Area	Compressor in 1B123 & tower on roof	18 7	4 7	
92	FC-1(5)	FC	unknown(1aB324/Mezz)	1aB138 Mezz Area	Plant Chilled Water @ 55 degrees F	0 07	0 1	
93	-	Fin-tube	unknown(250 ft of 1aB100 Areas)	1aB100 Mezz Area	N/A	0 00	0 0	
94	AC-2	AHU	unknown(MR - 21 South 2C/D100 Area)	2D110 offices	Compressor in MR-21 & tower on roof	18 7	4 7	
95	-	Recirc. AC	Datac(2D106/Computer room)	2D106	Liebert Unit in 2D106 & tower on roof	6 7	3 4	
96	AHU-2-1	AHU-MCA	Trane C C (MR - 21-A South 2C/D100 Area	2C/D100 offices/comdors	Plant Chilled Water @ 55 degrees F	9 7	7 3	
97	AC-3	AHU	unknown(MR - 22 North 2C/D100 Area)	2D130 electronics lab	Compressor in MR-21 & tower on roof	28 2	7 1	1
98	AHU-2-2	AHU-MCA	Trane C.C (MR - 22-A North 2C/D100 Area	2C/D100 offices/comdors	Plant Chilled Water @ 55 degrees F	7 8	5 9	
99	-	AHU	Cargoaire(located on roof)	2D140 Dryroom	Cargo Packaged AHU/AC cond on roof	44 5	22 3	3
100	-	AHU	unknown(MR-22 North 2C/D100 Area)	2D204 lab area	Packaged Unit in MR-22 & tower on roof	29 7	7 4	1
101	FC-1(78)	FC	unknown(78 in 2C/D100 area)	2C/D100 penmeter areas	Plant Chilled Water @ 55 degrees F	1 0	0 7	
102	C-4	Convector	unknown(Near Elevator #1 - Second floor)	Hallway - Elev. #1	N/A	0 00	0 0	
103	-	AHU-MCA	Carrier 39LV(MR-23 East 2C/D200 Area)	2D210 lab area	Compressor in MR-23 & condenser on r	20 5	5 1	1
104	AHU-2-3	AHU-MCA	Trane C.C (MR-23 East 2C/D200 Area)	2C/D200/300 offices/comdor	Plant Chilled Water @ 55 degrees F	14 9	11 2	1
105	FC-1(35)	FC	unknown(35 in 2C/D200 area)	2C/D200 penmeter areas	Plant Chilled Water @ 55 degrees F	0 4	0 3	
106	AC-14	AHU	unknown(MR - 23 East 2C/D200 Area)	2D306 lab area	Compressor in MR-23 & tower on roof	38 7	19 4	2
107	-	AHU	unknown(2D310 Cleanroom)	2D310 Cleanroom	Pack. Carrier Air Cooled Chiller on roof	22 4	11 2	1
108	-	AHU	Trane SWUB(2C325)	2C325	Packaged Unit in 2C325 & tower on roof	9 8	2 4	
109	-	AHU	Chrysler(2D330)	2D330 area	Compressor in 2D330 & cond. on roof	25 0	6 2	1
110	-	Recirc. AC	Liebert(2D335/Computer room)	2D335	Liebert Unit in 2D332 & tower on roof	6 7	3 4	
111	-	AC	Hideaway Pkg Unit(2D337)	2D337	Packaged Unit in 2D337 & tower on roof	2 6	0 7	
112	AHU-2-4	AHU-MCA	Trane C C (MR-24 East 2C/D300 Area)	2C/D300 offices/comdors	Plant Chilled Water @ 55 degrees F	7 8	5 9	
113	FC-1(83)	FC	unknown(83 in 2C/D300 area)	2C/D300 penmeter areas	Plant Chilled Water @ 55 degrees F	1 0	0 8	
114	AHU-2-4A	AHU-MCA	Trane C C (MR-24 East 2C/D300 Area)	2C/D400 offices/comdors	Plant Chilled Water @ 55 degrees F	4 8	3 6	
115	-	Recirc. AC	Datac(2C405/Computer room)	2C405	Datac Unit in 2C405 & tower on roof	6 3	3 2	
116	-	Recirc. AC	Datac(2C407/Computer room)	2C407	Datac Unit in 2C407 & tower on roof	6 3	3 2	
117	FC-1(41)	FC	unknown(41 in 2C/D400 area)	2C/D400 penmeter areas	Plant Chilled Water @ 55 degrees F	0 5	0 4	
118	AHU-2-5	AHU-MCA	Trane C.C (MR-25 South 2C/D400 Area)	2C/D400 offices/comdors	PCW @ 55F-Comp. in MR25/tower on r	4 8	3 6	
119	AHU-2-5A	AHU-MCA	Trane C.C (MR-25 South 2C/D400 Area)	2C/D400/500 offices/comdor	Plant Chilled Water @ 55 degrees F	2 6	2 0	
120	FC-1(19)	FC	unknown(19 in 2C/D500 area)	2C/D500 penmeter areas	Plant Chilled Water @ 55 degrees F	0 2	0 2	
121	C-5	Convector	unknown(Near Elevator #7 - Second floor)	Hallway - Elev. #7	N/A	0 00	0 0	
122	AHU-3-1	AHU-MCA	Trane C.C (MR-31 South 3C/D100 Area)	3C/D100 offices/comdors	Plant Chilled Water @ 55 degrees F	7 1	5 3	
123	AHU-3-1A	AHU-MCA	Trane C.C (MR-31 South 3C/D100 Area)	3C/D100 offices/comdors	Plant Chilled Water @ 55 degrees F	4 8	3 6	
124	-	AHU	Copeland WZW(3D114)	3D114 area	Compressor in 3D114 & tower on roof	14 9	3 7	
125	AHU-3-2	AHU-MCA	Trane C.C (MR-32 North 3C/D100 Area)	3C/D100 offices/comdors	Plant Chilled Water @ 55 degrees F	7 5	5 6	
126	AHU-3-2A	AHU-MCA	Trane C.C (MR-32 North 3C/D100 Area)	3C/D100/200 offices/comdor	Plant Chilled Water @ 55 degrees F	6 7	5 0	
127	-	Recirc. AC	Trane RAVC(3C141/Computer room)	3C141	Trane Unit in 3C141 & condenser on roo	9 3	2 3	
128	-	Recirc. AC	Liebert(3C143/Computer room)	3C143	Liebert Unit in 2C407 & tower on roof	8 6	4 3	
129	FC-1(95)	FC	unknown(95 in 3C/D100 area)	3C/D100 penmeter areas	Plant Chilled Water @ 55 degrees F	1 2	0 9	
130	C-5	Convector	unknown(Near Elevator #1 - Third floor)	Hallway - Elev. #1	N/A	0 00	0 0	
131	-	(2)AHU	York(MR - 33 East 3C/D200 Area)	3D306-3C321 lab area	York Comp. in MR-33 & condenser on r	56 4	14 1	2
132	-	FC's(?)	unknown(Rooms 3D314 - 3C321)	3D314 - 3C321 lab area	Trane Chiller in MR23 & condenser on r	16 0	4 0	
133	AHU-3-3	AHU-MCA	Trane C.C (MR-33 East 3C/D200/300 Area)	3C/D200/300 offices/corridor	Plant Chilled Water @ 55 degrees F	14 9	11 2	1
134	FC-1(35)	FC	unknown(35 in 3C/D200 area)	3C/D200 penmeter areas	Plant Chilled Water @ 55 degrees F	0 4	0 3	
135	-	AHU	Climatrol(MR-34 South 3C/D300 Area)	3D330 Cleanroom	Climatrol Chiller in MR34 & cond. on roo	73 6	36 8	5
136	AHU-3-4	AHU-MCA	Trane C.C (MR-34 South 3C/D300/400 Are	3C/D300/400 offices/comdor	Plant Chilled Water @ 55 degrees F	7 5	5 6	
137	FC-1(83)	FC	unknown(83 in 3C/D300 area)	3C/D300 penmeter areas	Plant Chilled Water @ 55 degrees F	1 0	0 8	
138	-	Recirc. AC	Liebert(3D402/Computer room)	3D402	Liebert(located on roof)	10 8	5 4	
139	-	Recirc. AC	Liebert(3D402/Computer room)	3D402	Liebert(located on roof)	10 8	2 7	
140	-	Recirc. AC	Liebert(3D404/Computer room)	3D404	Liebert(located on roof)	16 6	8 3	1
141	-	Recirc. AC	Liebert(3D406/Computer room)	3D406	Liebert(located on roof)	10 8	5 4	
142	-	Recirc. AC	Liebert(3D406/Computer room)	3D406	Liebert(located on roof)	10 8	2 7	
143	-	Recirc. AC	Liebert(3D409/Computer room)	3D409	Liebert(located on roof)	14 9	7 5	1
144	-	Recirc. AC	Liebert(3D410/Computer room)	3D410	Liebert(located on roof)	16 6	8 3	1
145	-	Recirc. AC	Liebert(3D412/Computer room)	3D412	Liebert(located on roof)	23 1	11 6	1
146	-	Recirc. AC	Liebert(3D412/Computer room)	3D412	Liebert(located on roof)	23 1	5 8	1
147	FC-1(40)	FC	unknown(40 in 3C/D400 area)	3C/D400 penmeter areas	Plant Chilled Water @ 55 degrees F	0 5	0 4	
148	AHU-3-5	AHU-MCA	Trane C.C (MR-35 South 3C/D400 Area)	3C/D400 offices/comdors	Plant Chilled Water @ 55 degrees F	7 8	5 9	
149	AHU-3-5A	AHU-MCA	Trane C.C (MR-35 South 3C/D400 Area)	3C/D400/500 offices/comdor	Plant Chilled Water @ 55 degrees F	2 1	1 5	
150	FC-1(19)	FC	unknown(19 in 3C/D500 area)	3C/D500 penmeter areas	Plant Chilled Water @ 55 degrees F	0 2	0 2	
151	C-5	Convector	unknown(Near Elevator #7 - Third floor)	Hallway - Elev. #7	N/A	0 00	0 0	

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 ELECTRIC MODEL - ALL FLOORS & BUILDING 2706 HVAC EQUIPMENT

TABLE 5.6.2.2

	Cooling Equipment Field Data/Reference/(Location)	Total Connected Load (kW)	Winter Demand kW/month	Intermed. Demand kW/month	Summer Demand kW/month	Winter Billing Months Off-Peak hrs/day	Winter Billing Months Off-Peak kWh/Mo	Winter Billing Months On-Peak hrs/day	Winter Billing Months On-Peak kWh/Mo	Intermediate Billing Months Off-Peak hrs/day	Intermediate Billing Months Off-Peak kWh/Mo	Intermediate Billing Months On-Peak hrs/day	Intermediate Billing Months On-Peak kWh/Mo	Summer Billing Months Off-Peak hrs/day	Summer Billing Months Off-Peak kWh/Mo	Summer Billing Months On-Peak hrs/day	Summer Billing Months On-Peak kWh/Mo	Demand kW/Yr.	Non-Sur Off-Peak KWH/Yr.
	Plant Chilled Water @ 55 degrees F	5.6	4.2	4.2	4.2	12	2,012	8	894	12	2,012	8	894	12	2,012	8	894	34	16,092
	Liebert(Outside on grade)	10.8	5.4	8.1	8.1	2	649	6	1,298	3	974	8	1,731	4	1,298	10	2,163	54	6,490
	Liebert(Outside on grade)	10.8	2.7	5.4	5.4	1	325	4	865	2	649	4	865	4	1,298	6	1,298	32	3,894
	N/A	0.04	0.028	0.014	0.0	10	11	8	6	8	9	6	4	0.5	1	0.5	0	0	81
	N/A	0.02	0.017	0.008	0.0	10	7	8	4	8	5	6	3	0.5	0	0.5	0	0	48
	N/A	0.00	0.0	0.0	0.0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Plant Chilled Water @ 55 degrees F	0.14	0.1	0.1	0.1	12	49	8	22	12	49	8	22	12	49	8	22	1	394
	N/A	0.00	0.0	0.0	0.0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Trane(Outside on grade)	12.1	6.0	9.1	9.1	2	724	6	1,449	3	1,086	8	1,931	4	1,449	10	2,414	60	7,243
	Liebert(Outside on grade)	10.8	5.4	8.1	8.1	2	649	6	1,298	3	974	8	1,731	4	1,298	10	2,163	54	6,490
	N/A	0.02	0.02	0.02	0.02	12	9	8	4	8	6	6	3	0	0	0	0	0	60
	Plant Chilled Water @ 55 degrees F	3.4	2.5	2.5	2.5	12	1,209	8	537	12	1,209	8	537	12	1,209	8	537	20	9,668
z	Plant Chilled Water @ 55 degrees F	0.2	0.2	0.2	0.2	12	86	8	38	12	86	8	38	12	86	8	38	1	689
	McQuay AHR(Common - out on grade)	27.0	6.8	13.5	20.3	2	1,621	4	2,162	3	2,432	6	3,243	4	3,243	8	4,324	81	16,214
	McQuay AHR(Common - out on grade)	27.0	6.8	13.5	20.3	2	1,621	4	2,162	3	2,432	6	3,243	4	3,243	8	4,324	81	16,214
	Compressor in 1B123 & tower on roof	18.7	4.7	9.3	14.0	1	560	4	1,492	2	1,119	4	1,492	4	2,238	6	2,238	56	6,714
	Plant Chilled Water @ 55 degrees F	0.07	0.1	0.1	0.1	12	27	8	12	12	27	8	12	12	27	8	12	0	215
	N/A	0.00	0.0	0.0	0.0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Compressor in MR-21 & tower on roof	18.7	4.7	9.3	14.0	1	560	4	1,492	2	1,119	4	1,492	4	2,238	6	2,238	56	6,714
	Liebert Unit in 2D106 & tower on roof	6.7	3.4	5.0	5.0	2	403	6	806	3	604	8	1,074	4	806	10	1,343	34	4,028
iors	Plant Chilled Water @ 55 degrees F	9.7	7.3	7.3	7.3	4	1,164	8	1,552	4	1,164	8	1,552	4	1,164	8	1,552	58	9,310
	Compressor in MR-21 & tower on roof	28.2	7.1	14.1	21.2	1	846	4	2,257	2	1,693	4	2,257	4	3,386	6	3,386	85	10,157
iors	Plant Chilled Water @ 55 degrees F	7.8	5.9	5.9	5.9	12	2,820	8	1,253	12	2,820	8	1,253	12	2,820	8	1,253	47	22,559
	Cargo Packaged AHU/AC cond. on roof	44.5	22.3	33.4	33.4	2	2,670	6	5,340	3	4,005	8	7,120	4	5,340	10	8,900	223	26,701
	Packaged Unit in MR-22 & tower on roof	29.7	7.4	14.9	22.3	1	892	4	2,380	2	1,785	4	2,380	4	3,569	6	3,569	89	10,708
eas	Plant Chilled Water @ 55 degrees F	1.0	0.7	0.7	0.7	12	349	8	155	12	349	8	155	12	349	8	155	6	2,793
	N/A	0.00	0.0	0.0	0.0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	Compressor in MR-23 & condenser on r	20.5	5.1	10.3	15.4	1	616	4	1,643	2	1,232	4	1,643	4	2,464	6	2,464	62	7,393
omdor	Plant Chilled Water @ 55 degrees F	14.9	11.2	11.2	11.2	12	5,371	8	2,387	12	5,371	8	2,387	12	5,371	8	2,387	90	42,970
eas	Plant Chilled Water @ 55 degrees F	0.4	0.3	0.3	0.3	12	157	8	70	12	157	8	70	12	157	8	70	3	1,253
	Compressor in MR-23 & tower on roof	38.7	19.4	29.0	29.0	2	2,322	6	4,645	3	3,483	8	6,193	4	4,645	10	7,741	194	23,223
	Pack. Carrier Air Cooled Chiller on roof	22.4	11.2	16.8	16.8	2	1,347	6	2,693	3	2,020	8	3,591	4	2,693	10	4,489	112	13,466
	Packaged Unit in 2C325 & tower on roof	9.8	2.4	4.9	7.3	1	293	4	781	2	586	4	781	4	1,171	6	1,171	29	3,514
	Compressor in 2D330 & cond. on roof	25.0	6.2	12.5	18.7	1	749	4	1,998	2	1,499	4	1,998	4	2,997	6	2,997	75	8,992
	Liebert Unit in 2D332 & tower on roof	6.7	3.4	5.0	5.0	2	403	6	806	3	604	8	1,074	4	806	10	1,343	34	4,028
	Packaged Unit in 2D337 & tower on roof	2.6	0.7	1.3	2.0	1	78	4	208	2	156	4	208	4	313	6	313	8	936
iors	Plant Chilled Water @ 55 degrees F	7.8	5.9	5.9	5.9	4	940	8	1,253	4	940	8	1,253	4	940	8	1,253	47	7,520
eas	Plant Chilled Water @ 55 degrees F	1.0	0.8	0.8	0.8	12	372	8	165	12	372	8	165	12	372	8	165	6	2,972
iors	Plant Chilled Water @ 55 degrees F	4.8	3.6	3.6	3.6	4	582	8	776	4	582	8	776	4	582	8	776	29	4,655
	Datac Unit in 2C405 & tower on roof	6.3	3.2	4.8	4.8	2	380	6	761	3	571	8	1,015	4	761	10	1,268	32	3,805
	Datac Unit in 2C407 & tower on roof	6.3	3.2	4.8	4.8	2	380	6	761	3	571	8	1,015	4	761	10	1,268	32	3,805
eas	Plant Chilled Water @ 55 degrees F	0.5	0.4	0.4	0.4	12	184	8	82	12	184	8	82	12	184	8	82	3	1,468
iors	PCW @ 55F-Comp. in MR25/tower on r	4.8	3.6	3.6	3.6	12	1,746	8	776	12	1,746	8	776	12	1,746	8	776	29	13,965
omdor	Plant Chilled Water @ 55 degrees F	2.6	2.0	2.0	2.0	12	940	8	418	12	940	8	418	12	940	8	418	16	7,520
eas	Plant Chilled Water @ 55 degrees F	0.2	0.2	0.2	0.2	12	85	8	38	12	85	8	38	12	85	8	38	1	680
	N/A	0.00	0.0	0.0	0.0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
iors	Plant Chilled Water @ 55 degrees F	7.1	5.3	5.3	5.3	12	2,551	8	1,134	12	2,551	8	1,134	12	2,551	8	1,134	43	20,411
iors	Plant Chilled Water @ 55 degrees F	4.8	3.6	3.6	3.6	12	1,746	8	776	12	1,746	8	776	12	1,746	8	776	29	13,965
	Compressor in 3D114 & tower on roof	14.9	3.7	7.4	11.2	1	446	4	1,190	2	892	4	1,190	4	1,785	6	1,785	45	5,354
iors	Plant Chilled Water @ 55 degrees F	7.5	5.6	5.6	5.6	12	2,686	8	1,194	12	2,686	8	1,194	12	2,686	8	1,194	45	21,485
omdor	Plant Chilled Water @ 55 degrees F	6.7	5.0	5.0	5.0	12	2,417	8	1,074	12	2,417	8	1,074	12	2,417	8	1,074	40	19,336
	Trane Unit in 3C141 & condenser on roo	9.3	2.3	4.7	7.0	1	280	4	746	2	560	4	746	4	1,119	6	1,119	28	3,357
	Liebert Unit in 2C407 & tower on roof	8.6	4.3	6.4	6.4	2	515	6	1,029	3	772	8	1,373	4	1,029	10	1,716	43	5,147
eas	Plant Chilled Water @ 55 degrees F	1.2	0.9	0.9	0.9	12	425	8	189	12	425	8	189	12	425	8	189	7	3,402
	N/A	0.00	0.0	0.0	0.0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
a	York Comp. in MR-33 & condenser on r	56.4	14.1	28.2	42.3	1	1,692	4	4,513	2	3,385	4	4,513	4	6,769	6	6,769	169	20,307
ea	Trane Chiller in MR23 & condenser on r	16.0	4.0	8.0	12.0	1	480	4	1,281	2	961	4	1,281	4	1,922	6	1,922	48	5,765
omdor	Plant Chilled Water @ 55 degrees F	14.9	11.2	11.2	11.2	4	1,790	8	2,387	4	1,790	8	2,387	4	1,790	8	2,387	90	14,323
eas	Plant Chilled Water @ 55 degrees F	0.4	0.3	0.3	0.3	12	157	8	70	12	157	8	70	12	157	8	70	3	1,253
	Climatrol Chiller in MR34 & cond. on roo	73.6	36.8	55.2	55.2	2	4,418	6	8,835	3	6,626	8	11,780	4	8,835	10	14,725	368	44,175
omdor	Plant Chilled Water @ 55 degrees F	7.5	5.6	5.6	5.6	4	895	8	1,194	4	895	8	1,194	4	895	8	1,194	45	7,162
eas	Plant Chilled Water @ 55 degrees F	1.0	0.8	0.8	0.8	12	372	8	165	12	372	8	165	12	372	8	165	6	2,972
	Liebert(located on roof)	10.8	5.4	8.1	8.1	2	649	6	1,298	3	974	8	1,731	4	1,298	10	2,163	54	6,490
	Liebert(located on roof)	10.8	2.7	5.4	8.1	1	325	4	865	2	649	4	865	4	1,298	6	1,298	32	3,894
	Liebert(located on roof)	16.6	8.3	12.4	12.4	2	996	6	1,992	3	1,494	8	2,656	4	1,992	10	3,320	83	9,959
	Liebert(located on roof)	10.8	5.4	8.1	8.1	2	649	6	1,298	3	974	8	1,731	4	1,298	10	2,163	54	6,490
	Liebert(located on roof)	10.8	2.7	5.4	8.1	1	325	4	865	2	649	4	865	4	1,298	6	1,298	32	3,894
	Liebert(located on roof)	14.9	7.5	11.2	11.2	2	895	6	1,790	3	1,343	8	2,387	4	1,790	10	2,984	75	8,952
	Liebert(located on roof)	16.6	8.3	12.4	12.4	2	996	6	1,992	3	1,494	8	2,656	4	1,992	10	3,320	83	9,959
	Liebert(located on roof)	23.1	11.6	17.3	17.3	2	1,388	6	2,775	3	2,081	8	3,700	4	2,775	10	4,625	116	13,876
	Liebert(located on roof)	23.1	5.8	11.6	17.3	1	694	4	1,850	2	1,388	4	1,850	4	2,775	6	2,775	69	8,325
eas	Plant Chilled Water @ 55 degrees F	0.5	0.4	0.4	0.4	12	179	8	80	12	179	8	80	12	179	8	80	3	1,432
iors	Plant Chilled Water @ 55 degrees F	7.8	5.9	5.9	5.9	4	940	8	1,253	4	940	8	1,253	4	940	8	1,253	47	7,520
omdor	Plant Chilled Water @ 55 degrees F	2.1	1.5	1.5	1.5	4	246	8	328	4	246	8	328	4	246	8	328	12	1,969
eas	Plant Chilled Water @ 55 degrees F	0.2	0.2	0.2	0.2	12	85	8	38	12	85	8	38	12	85	8	38	1	680
	N/A	0.00	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NT OF THE ARMY
& BUILDING 2706 HVAC EQUIPMENT

hs	Intermediate Billing Months				Summer Billing Months				Non-Summer				Summer				Annual	
eak	Off-Peak		On-Peak		Off-Peak		On-Peak										Cost	
kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	Demand kW/Yr.	Off-Peak KWH/Yr.	On-Peak KWH/Yr.	Cost $	Demand kW/Yr.	Off-Peak KWH/Yr.	On-Peak KWH/Yr.	Cost $	$	No.
894	12	2,012	8	894	12	2,012	8	894	34	16,092	7,152	$1,801	17	8,046	3,576	$917	$2,718	76
1,298	3	974	8	1,731	4	1,298	10	2,163	54	6,490	12,115	$1,731	32	5,192	8,654	$1,251	$2,982	77
865	2	649	4	865	4	1,298	6	1,298	32	3,894	6,923	$1,014	22	5,192	5,192	$901	$1,914	78
6	8	9	6	4	0.5	1	0.5	0	0	81	42	$9	0	2	1	$1	$11	79
4	8	5	6	3	0.5	0	0.5	0	0	48	25	$6	0	1	1	$1	$6	80
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	81
22	12	49	8	22	12	49	8	22	1	394	175	$44	0	197	88	$22	$67	82
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	83
1,449	3	1,086	8	1,931	4	1,449	10	2,414	60	7,243	13,520	$1,932	30	5,794	9,657	$1,396	$3,328	84
1,298	3	974	8	1,731	4	1,298	10	2,163	54	6,490	12,115	$1,731	32	5,192	8,654	$1,251	$2,982	85
4	8	6	6	3	0	0	0	0	0	60	28	$7	0	0	0	$1	$8	86
537	12	1,209	8	537	12	1,209	8	537	20	9,668	4,297	$1,082	10	4,834	2,148	$551	$1,633	87
38	12	86	8	38	12	86	8	38	1	689	306	$77	1	345	153	$39	$116	88
2,162	3	2,432	6	3,243	4	3,243	8	4,324	81	16,214	21,619	$3,250	81	12,972	17,295	$2,812	$6,062	89
2,162	3	2,432	6	3,243	4	3,243	8	4,324	81	16,214	21,619	$3,250	81	12,972	17,295	$2,812	$6,062	90
1,492	2	1,119	4	1,492	4	2,238	6	2,238	56	6,714	11,936	$1,748	56	8,952	8,952	$1,725	$3,472	91
12	12	27	8	12	12	27	8	12	0	215	95	$24	0	107	48	$12	$36	92
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	93
1,492	2	1,119	4	1,492	4	2,238	6	2,238	56	6,714	11,936	$1,748	56	8,952	8,952	$1,725	$3,472	94
806	3	604	8	1,074	4	806	10	1,343	34	4,028	7,520	$1,074	20	3,223	5,371	$777	$1,851	95
1,552	4	1,164	8	1,552	4	1,164	8	1,552	58	9,310	12,413	$1,963	29	4,655	6,207	$1,009	$2,972	96
2,257	2	1,693	4	2,257	4	3,386	6	3,386	85	10,157	18,057	$2,644	85	13,543	13,543	$2,609	$5,253	97
1,253	12	2,820	8	1,253	12	2,820	8	1,253	47	22,559	10,026	$2,524	23	11,280	5,013	$1,286	$3,810	98
5,340	3	4,005	8	7,120	4	5,340	10	8,900	223	26,701	49,842	$7,122	134	21,361	35,601	$5,147	$12,269	99
2,380	2	1,785	4	2,380	4	3,569	6	3,569	89	10,708	19,036	$2,787	89	14,277	14,277	$2,750	$5,538	100
155	12	349	8	155	12	349	8	155	6	2,793	1,241	$313	3	1,397	621	$159	$472	101
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	102
1,643	2	1,232	4	1,643	4	2,464	6	2,464	62	7,393	13,143	$1,924	62	9,857	9,857	$1,899	$3,823	103
2,387	12	5,371	8	2,387	12	5,371	8	2,387	90	42,970	19,098	$4,808	45	21,485	9,549	$2,449	$7,257	104
70	12	157	8	70	12	157	8	70	3	1,253	557	$140	1	627	279	$71	$212	105
4,645	3	3,483	8	6,193	4	4,645	10	7,741	194	23,223	43,349	$6,194	116	18,578	30,963	$4,476	$10,670	106
2,693	3	2,020	8	3,591	4	2,693	10	4,489	112	13,466	25,137	$3,592	67	10,773	17,955	$2,596	$6,188	107
781	2	586	4	781	4	1,171	6	1,171	29	3,514	6,247	$915	29	4,685	4,685	$903	$1,817	108
1,998	2	1,499	4	1,998	4	2,997	6	2,997	75	8,992	15,986	$2,341	75	11,990	11,990	$2,310	$4,650	109
806	3	604	8	1,074	4	806	10	1,343	34	4,028	7,520	$1,074	20	3,223	5,371	$777	$1,851	110
208	2	156	4	208	4	313	6	313	8	938	1,668	$244	8	1,251	1,251	$241	$485	111
1,253	4	940	8	1,253	4	940	8	1,253	47	7,520	10,026	$1,585	23	3,760	5,013	$815	$2,401	112
165	12	372	8	165	12	372	8	165	6	2,972	1,321	$333	3	1,486	660	$169	$502	113
776	4	582	8	776	4	582	8	776	29	4,655	6,207	$981	15	2,328	3,103	$505	$1,486	114
761	3	571	8	1,015	4	761	10	1,268	32	3,805	7,102	$1,015	19	3,044	5,073	$733	$1,748	115
761	3	571	8	1,015	4	761	10	1,268	32	3,805	7,102	$1,015	19	3,044	5,073	$733	$1,748	116
82	12	184	8	82	12	184	8	82	3	1,468	653	$164	2	734	326	$84	$248	117
776	12	1,746	8	776	12	1,746	8	776	29	13,965	6,207	$1,563	15	6,983	3,103	$796	$2,359	118
418	12	940	8	418	12	940	8	418	16	7,520	3,342	$841	8	3,760	1,671	$429	$1,270	119
38	12	85	8	38	12	85	8	38	1	680	302	$76	1	340	151	$39	$115	120
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	121
1,134	12	2,551	8	1,134	12	2,551	8	1,134	43	20,411	9,071	$2,284	21	10,205	4,536	$1,163	$3,447	122
776	12	1,746	8	776	12	1,746	8	776	29	13,965	6,207	$1,563	15	6,983	3,103	$796	$2,359	123
1,190	2	892	4	1,190	4	1,785	6	1,785	45	5,354	9,518	$1,394	45	7,139	7,139	$1,375	$2,769	124
1,194	12	2,686	8	1,194	12	2,686	8	1,194	45	21,485	9,549	$2,404	22	10,742	4,774	$1,224	$3,629	125
1,074	12	2,417	8	1,074	12	2,417	8	1,074	40	19,336	8,594	$2,164	20	9,668	4,297	$1,102	$3,266	126
746	2	560	4	746	4	1,119	6	1,119	28	3,357	5,968	$874	28	4,476	4,476	$862	$1,736	127
1,029	3	772	8	1,373	4	1,029	10	1,716	43	5,147	9,608	$1,373	26	4,118	6,863	$992	$2,365	128
189	12	425	8	189	12	425	8	189	7	3,402	1,512	$381	4	1,701	756	$194	$575	129
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	130
4,513	2	3,385	4	4,513	4	6,769	6	6,769	169	20,307	36,102	$5,286	169	27,076	27,076	$5,216	$10,502	131
1,281	2	961	4	1,281	4	1,922	6	1,922	48	5,765	10,249	$1,501	48	7,687	7,687	$1,481	$2,981	132
2,387	4	1,790	8	2,387	4	1,790	8	2,387	90	14,323	19,098	$3,020	45	7,162	9,549	$1,553	$4,572	133
70	12	157	8	70	12	157	8	70	3	1,253	557	$140	1	627	279	$71	$212	134
8,835	3	6,626	8	11,780	4	8,835	10	14,725	368	44,175	82,460	$11,783	221	35,340	58,900	$8,515	$20,298	135
1,194	4	895	8	1,194	4	895	8	1,194	45	7,162	9,549	$1,510	22	3,581	4,774	$776	$2,286	136
165	12	372	8	165	12	372	8	165	6	2,972	1,321	$333	3	1,486	660	$169	$502	137
1,298	3	974	8	1,731	4	1,298	10	2,163	54	6,490	12,115	$1,731	32	5,192	8,654	$1,251	$2,982	138
865	2	649	4	865	4	1,298	6	1,298	32	3,894	6,923	$1,014	32	5,192	5,192	$1,000	$2,014	139
1,992	3	1,494	8	2,656	4	1,992	10	3,320	83	9,959	18,590	$2,656	50	7,967	13,279	$1,920	$4,576	140
1,298	3	974	8	1,731	4	1,298	10	2,163	54	6,490	12,115	$1,731	32	5,192	8,654	$1,251	$2,982	141
865	2	649	4	865	4	1,298	6	1,298	32	3,894	6,923	$1,014	32	5,192	5,192	$1,000	$2,014	142
1,790	3	1,343	8	2,387	4	1,790	10	2,984	75	8,952	16,710	$2,388	45	7,162	11,936	$1,726	$4,113	143
1,992	3	1,494	8	2,656	4	1,992	10	3,320	83	9,959	18,590	$2,656	50	7,967	13,279	$1,920	$4,576	144
2,775	3	2,081	8	3,700	4	2,775	10	4,625	116	13,876	25,901	$3,701	69	11,100	18,501	$2,675	$6,376	145
1,850	2	1,388	4	1,850	4	2,775	6	2,775	69	8,325	14,801	$2,167	69	11,100	11,100	$2,138	$4,305	146
80	12	179	8	80	12	179	8	80	3	1,432	637	$160	1	716	318	$82	$242	147
1,253	4	940	8	1,253	4	940	8	1,253	47	7,520	10,026	$1,585	23	3,760	5,013	$815	$2,401	148
328	4	246	8	328	4	246	8	328	12	1,969	2,626	$415	6	985	1,313	$213	$629	149
38	12	85	8	38	12	85	8	38	1	680	302	$76	1	340	151	$39	$115	150
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	151

HVAC Item	HVAC Airside Equipment - General Information				Cooling Equipment	Total	Winter	Intermed.	Sur
	Design/Site Designatio	Equip. Type	Field Data/Reference/(Location)	Area Served	Field Data/Reference/(Location)	Connected Load (kW)	Demand kW/month	Demand kW/month	Der kW/
152	AC-7	AHU	unknown(MR - 41 South 4C/D100 Area)	4D110 lab/offices	Compressor in MR-41 & tower on roof	40 2	10 1	20 1	
153	AC-1(New)	AHU	Governair RSA06(located on roof)	4D130 Cleanroom (Class 10	Common Bohn Chiller on roof	97 9	49 0	73 4	
154	AC-2(New)	AHU	Governair RSA03(located on roof)	4D130/140 Cleanrooms(Clas	Common Bohn Chiller on roof	62 4	31 2	46 8	
155	AC-3(New)	AHU	Governair RSA02(located on roof)	4D130 Cleanroom (Class 10	Common Bohn Chiller on roof	37 4	18 7	28 1	
156	-	AHU	Carrier ?(in/above 4D140 Cleanroom)	4D140 Cleanroom	Carrier Chiller on roof	26 7	13 4	20 0	
157	AHU-R-1	AHU-MCA	Trane C C.(On roof above 4C/D100 Area)	4C/D100 offices/corridors	Plant Chilled Water @ 55 degrees F	7 8	5 9	5 9	
158	AHU-R-2	AHU-MCA	Trane C C (On roof above 4C/D100 Area)	4C/D100 offices/corridors	Plant Chilled Water @ 55 degrees F	7 1	5 3	5 3	
159	FC-1(83)	FC	unknown(83 in 4C/D100 area)	4C/D100 penmeter areas	Plant Chilled Water @ 55 degrees F	1 0	0 8	0 8	
160	C-5	Convector	unknown(Near Elevator #1 - Fourth floor)	Hallway - Elev #1	N/A	0 00	0 0	0 0	
161	-	Recirc AC	Data Air(4C205/Computer room)	4C205 Area	(2) Common Bohn units(located on roof)	23 9	11 9	17 9	
162	-	Recirc AC	Data Air(4C209/Computer room)	4C209 Area	(2) Common Bohn units(located on roof)	12 7	6 3	9 5	
163	-	Recirc AC	Data Air(4C211/Computer room)	4C211 Area	(2) Common Bohn units(located on roof)	12 7	6 3	9 5	
164	-	Recirc AC	Data Air(4C213/Computer room)	4C213 Area	(2) Common Bohn units(located on roof)	12 7	6 3	9 5	
165	-	Recirc AC	Edpac(4D204/Computer room)	4D204 Area	(2) Common Bohn units(located on roof)	12 7	6 3	9 5	
166	-	Recirc AC	Edpac(4D204/Computer room)	4D204 Area	(2) Common Bohn units(located on roof)	12 7	6 3	9 5	
167	-	Recirc AC	Data Air(4D208/Computer room)	4D208 Area	(2) Common Bohn units(located on roof)	18 7	9 3	14 0	
168	-	Recirc AC	Data Air(4D210/Computer room)	4D210 Area	(2) Common Bohn units(located on roof)	6 3	3 2	4 8	
169	-	Recirc AC	Data Air(4D214/Computer room)	4D214 Area	(2) Common Bohn units(located on roof)	6 3	3 2	4 8	
170	AHU-R-3	AHU-MCA	Trane C.C.(On roof above 4C/D300 Area)	4C/D100/200/300 offices/cor	Plant Chilled Water @ 55 degrees F	9 7	7 3	7 3	
171	FC-1(40)	FC	unknown(40 in 4C/D200 area)	4C/D200 penmeter areas	Plant Chilled Water @ 55 degrees F	0 5	0 4	0 4	
172	-	Recirc AC	Liebert(4D308/Computer room)	4D308	Liebert Unit in 4D308 & tower on roof	12 7	6 3	9 5	
173	-	Recirc AC	Edpac(4D317/Computer room)	4C317	Edpac Unit in 4C317 & tower on roof	13 4	6 7	10 1	
174	-	Recirc AC	Liebert(4D324/Computer room)	4D324	Liebert(located on roof)	16 6	8 3	12 4	
175	-	Recirc AC	Liebert(4D326/Computer room)	4D326	Liebert(located on roof)	10 8	5 4	8 1	
176	-	Recirc AC	Liebert(4D328/Computer room)	4D328	Liebert(located on roof)	10 8	5 4	8 1	
177	-	Recirc AC	Liebert(4D328/Computer room)	4D328	Liebert(located on roof)	10 8	2 7	5 4	
178	AHU-R-4	AHU-MCA	Trane C.C (On roof above 4C/D300 Area)	4C/D300 offices/corridors	Plant Chilled Water @ 55 degrees F	4 8	3 6	3 6	
179	FC-1(88)	FC	unknown(88 in 4C/D300 area)	4C/D300 penmeter areas	Plant Chilled Water @ 55 degrees F	1 1	0 8	0 8	
180	-	Recirc AC	Datac(4C405/Computer room)	4C405	Liebert(located on roof)	16 6	8 3	12 4	
181	-	Recirc AC	Liebert(4C405/Computer room)	4C405	Liebert(located on roof)	16 6	8 3	12 4	
182	-	Recirc AC	Liebert(4C405/Computer room)	4C405	Liebert(located on roof)	16 6	4 1	8 3	
183	-	Recirc AC	Liebert(4C405/Computer room)	4C405	Liebert(located on roof)	10 8	2 7	5 4	
184	-	Recirc AC	Liebert(4C417/Computer room)	4C417	Liebert(located on roof)	16 6	8 3	12 4	
185	-	Recirc AC	Liebert(4C417/Computer room)	4C417	Liebert(located on roof)	16 6	8 3	12 4	
186	-	Recirc AC	Liebert(4C417/Computer room)	4C417	Liebert(located on roof)	8 6	2 1	4 3	
187	AHU-R-5	AHU-MCA	Trane C C (On roof above 4C/D300 Area)	4C/D300/400 offices/corridor	Plant Chilled Water @ 55 degrees F	5 2	3 9	3 9	
188	FC-1(44)	FC	unknown(44 in 4C/D400 area)	4C/D400 penmeter areas	Plant Chilled Water @ 55 degrees F	0 5	0 4	0 4	
189	AHU-R-6	AHU-MCA	Trane C.C.(On roof above 4C/D500 Area)	4C/D400/500 offices/corridor	Plant Chilled Water @ 55 degrees F	9 7	7 3	7 3	
190	FC-1(20)	FC	unknown(20 in 4C/D500 area)	4C/D500 penmeter areas	Plant Chilled Water @ 55 degrees F	0 2	0 2	0 2	
191	C-5	Convector	unknown(Near Elevator #7 - Fouth floor)	Hallway - Elev #7	N/A	0 0	0 0	0 0	
192	A1	Scrubber	AAF Colag	Room 4D110	N/A	3 02	2 3	2 3	
193	A2	Exhaust	Trane CF13A	Room 4D110	N/A	0 37	0 3	0 3	
194	A3	Exhaust	Dayton	MR 21, 31, & 41	N/A	1 49	1 1	1 1	
195	A5	Scrubber	AAF	Room 4D120	N/A	14 92	11 2	11 2	
196	A6	Scrubber	Duall (Met-Pro) Model NH40	Room 4D120	N/A	5 59	4 2	4 2	
197	A8	Exhaust	EV-1	East End Toilets	N/A	1 49	1 1	1 1	
198	A11	Exhaust	Car-Mon Model CMB-35	4D130 - Toxic Gas	N/A	3 73	2 8	2 8	
199	A12	Exhaust	EV-2	Substation 4	N/A	0 75	0 6	0 6	
200	A13	Exhaust	EV-7 (2-speed at 18,000 & 9,000 CFM)	1st Floor Audio/Visual	N/A	2 24	1 7	1 7	
201	A14	Scrubber	Duall (Met-Pro) Model NH36 5	Room 4D130	N/A	7 46	5 6	5 6	
202	A15	Scrubber	Amencan Standard Type S	Room 4D108	N/A	3 73	2 8	2 8	
203	A17	Exhaust	EV-39	Room 2D134	N/A	0 37	0 3	0 3	
204	A18	Scrubber	Duall (Met-Pro) Model NH36 5	Room 2D134	N/A	7 46	5 6	5 6	
205	A19	Exhaust	None	Room 2D129	N/A	0 37	0 3	0 3	
206	A20	Exhaust	None	Room 4D130	N/A	0 06	0 04	0 04	
207	A21	Exhaust	None	Room 4D130	N/A	0 06	0 04	0 04	
208	A29	Scrubber	Duall (Met-Pro) Model SI10	Room 4D130	N/A	1 47	1 1	1 1	
209	A31	Scrubber	Duall (Met-Pro) Model NH36 5	Room 2D202	N/A	7 46	5 6	5 6	
210	A32	Exhaust	None	Room 2D202	N/A	0 15	0 1	0 1	
211	A33	Exhaust	EV-54 (Guess)	MR 22, 32, & 42	N/A	1 49	1 1	1 1	
212	A34	Exhaust	None	Room 4D130	N/A	0 04	0 03	0 03	
213	B1	Exhaust	None (Not In Service or NIS)	Unknown	N/A	0 37	0 28	0 28	
214	B1A	Exhaust	None (NIS)	Unknown	N/A	0 04	0 03	0 03	
215	B4	Exhaust	Trane CF13	3rd Floor (Guess)	N/A	0 37	0 3	0 3	
216	B5	Exhaust	Trane U10K5	Room 4C204	N/A	0 37	0 3	0 3	
217	B6	Exhaust	EV-66A	4th Floor	N/A	2 24	1 7	1 7	
218	B7	Exhaust	EV-32	4th Floor	N/A	0 25	0 2	0 2	
219	B9	Exhaust	EV-4	2nd Floor	N/A	0 75	0 6	0 6	
220	B9A	Exhaust	EV-31	4th Floor	N/A	0 25	0 2	0 2	
221	B10	Exhaust	EV-66	2nd Floor	N/A	2 24	1 7	1 7	
222	B11	Exhaust	EV-67	2nd Floor	N/A	0 37	0 3	0 3	
223	B12	Exhaust	EV-26	2nd Floor	N/A	1 49	1 1	1 1	
224	B13	Exhaust	EV-67A (NIS)	2nd Floor	N/A	0 37	0 3	0 3	
225	B14	Exhaust	EV-99 (NIS)	2nd Floor	N/A	0 00	0 0	0 0	

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 ELECTRIC MODEL - ALL FLOORS & BUILDING 2706 HVAC EQUIPMENT

TABLE 5.6.2.2

	Cooling Equipment Field Data/Reference/(Location)	Total Connected Load (kW)	Winter Demand kW/month	Intermed. Demand kW/month	Summer Demand kW/month	Winter Billing Months Off-Peak hrs/day	Winter Billing Months Off-Peak kWh/Mo	Winter Billing Months On-Peak hrs/day	Winter Billing Months On-Peak kWh/Mo	Intermediate Billing Months Off-Peak hrs/day	Intermediate Billing Months Off-Peak kWh/Mo	Intermediate Billing Months On-Peak hrs/day	Intermediate Billing Months On-Peak kWh/Mo	Summer Billing Months Off-Peak hrs/day	Summer Billing Months Off-Peak kWh/Mo	Summer Billing Months On-Peak hrs/day	Summer Billing Months On-Peak kWh/Mo	Demand kW/Yr.	Non-Sum Off-Peak KWH/Yr.	Non-Sum O K
	Compressor in MR-41 & tower on roof	40.2	10.1	20.1	30.2	1	1,207	4	3,219	2	2,414	4	3,219	4	4,828	6	4,828	121	14,484	
ss 10	Common Bohn Chiller on roof	97.9	49.0	73.4	73.4	2	5,874	4	7,832	4	11,748	6	11,748	8	23,496	10	19,580	490	70,488	
s(Clas	Common Bohn Chiller on roof	62.4	31.2	46.8	46.8	2	3,744	4	4,992	4	7,488	6	7,488	8	14,976	10	12,480	312	44,928	
ss 10	Common Bohn Chiller on roof	37.4	18.7	28.1	28.1	2	2,244	4	2,992	4	4,488	6	4,488	8	8,976	10	7,480	187	26,928	
	Carrier Chiller on roof	26.7	13.4	20.0	20.0	2	1,604	4	2,138	4	3,208	6	3,208	8	6,415	10	5,346	134	19,246	
ors	Plant Chilled Water @ 55 degrees F	7.8	5.9	5.9	5.9	12	2,820	8	1,253	12	2,820	8	1,253	12	2,820	8	1,253	47	22,559	
ors	Plant Chilled Water @ 55 degrees F	7.1	5.3	5.3	5.3	12	2,551	8	1,134	12	2,551	8	1,134	12	2,551	8	1,134	43	20,411	
as	Plant Chilled Water @ 55 degrees F	1.0	0.8	0.8	0.8	12	372	8	165	12	372	8	165	12	372	8	165	6	2,972	
	N/A	0.00	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	(2) Common Bohn units(located on roof)	23.9	11.9	17.9	17.9	2	1,432	6	2,865	3	2,148	8	3,820	4	2,865	10	4,774	119	14,323	
	(2) Common Bohn units(located on roof)	12.7	6.3	9.5	9.5	2	761	6	1,522	3	1,141	8	2,029	4	1,522	10	2,536	63	7,609	
	(2) Common Bohn units(located on roof)	12.7	6.3	9.5	9.5	2	761	6	1,522	3	1,141	8	2,029	4	1,522	10	2,536	63	7,609	
	(2) Common Bohn units(located on roof)	12.7	6.3	9.5	9.5	2	761	6	1,522	3	1,141	8	2,029	4	1,522	10	2,536	63	7,609	
	(2) Common Bohn units(located on roof)	12.7	6.3	9.5	9.5	2	761	6	1,522	3	1,141	8	2,029	4	1,522	10	2,536	63	7,609	
	(2) Common Bohn units(located on roof)	12.7	6.3	9.5	9.5	2	761	6	1,522	3	1,141	8	2,029	4	1,522	10	2,536	63	7,609	
	(2) Common Bohn units(located on roof)	18.7	9.3	14.0	14.0	2	1,119	6	2,238	3	1,679	8	2,984	4	2,238	10	3,730	93	11,190	
	(2) Common Bohn units(located on roof)	6.3	3.2	4.8	4.8	2	380	6	761	3	571	8	1,015	4	761	10	1,268	32	3,805	
	(2) Common Bohn units(located on roof)	6.3	3.2	4.8	4.8	2	380	6	761	3	571	8	1,015	4	761	10	1,268	32	3,805	
s/con	Plant Chilled Water @ 55 degrees F	9.7	7.3	7.3	7.3	12	3,491	8	1,552	12	3,491	8	1,552	12	3,491	8	1,552	58	27,930	
as	Plant Chilled Water @ 55 degrees F	0.5	0.4	0.4	0.4	12	179	8	80	12	179	8	80	12	179	8	80	3	1,432	
	Liebert Unit in 4D308 & tower on roof	12.7	6.3	9.5	9.5	2	761	6	1,522	3	1,141	8	2,029	4	1,522	10	2,536	63	7,609	
	Edpac Unit in 4C317 & tower on roof	13.4	6.7	10.1	10.1	2	806	6	1,611	3	1,209	8	2,148	4	1,611	10	2,686	67	8,057	
	Liebert(located on roof)	16.6	8.3	12.4	12.4	2	996	6	1,992	3	1,494	8	2,656	4	1,992	10	3,320	83	9,959	
	Liebert(located on roof)	10.8	5.4	8.1	8.1	2	649	6	1,298	3	974	8	1,731	4	1,298	10	2,163	54	6,490	
	Liebert(located on roof)	10.8	5.4	8.1	8.1	2	649	6	1,298	3	974	8	1,731	4	1,298	10	2,163	54	6,490	
	Liebert(located on roof)	10.8	2.7	5.4	8.1	1	325	4	865	2	649	4	865	4	1,298	6	1,298	32	3,894	
ors	Plant Chilled Water @ 55 degrees F	4.8	3.6	3.6	3.6	12	1,746	8	776	12	1,746	8	776	12	1,746	8	776	29	13,965	
as	Plant Chilled Water @ 55 degrees F	1.1	0.8	0.8	0.8	12	394	8	175	12	394	8	175	12	394	8	175	7	3,151	
	Liebert(located on roof)	16.6	8.3	12.4	12.4	2	996	6	1,992	3	1,494	8	2,656	4	1,992	10	3,320	83	9,959	
	Liebert(located on roof)	16.6	8.3	12.4	12.4	2	996	6	1,992	3	1,494	8	2,656	4	1,992	10	3,320	83	9,959	
	Liebert(located on roof)	16.6	4.1	8.3	12.4	1	498	4	1,328	2	996	4	1,328	4	1,992	6	1,992	50	5,975	
	Liebert(located on roof)	10.8	2.7	5.4	8.1	1	325	4	865	2	649	4	865	4	1,298	6	1,298	32	3,894	
	Liebert(located on roof)	16.6	8.3	12.4	12.4	2	996	6	1,992	3	1,494	8	2,656	4	1,992	10	3,320	83	9,959	
	Liebert(located on roof)	16.6	8.3	12.4	12.4	2	996	6	1,992	3	1,494	8	2,656	4	1,992	10	3,320	83	9,959	
	Liebert(located on roof)	8.6	2.1	4.3	6.4	1	257	4	686	2	515	4	686	4	1,029	6	1,029	26	3,088	
mdor	Plant Chilled Water @ 55 degrees F	5.2	3.9	3.9	3.9	12	1,880	8	836	12	1,880	8	836	12	1,880	8	836	31	15,039	
as	Plant Chilled Water @ 55 degrees F	0.5	0.4	0.4	0.4	12	197	8	88	12	197	8	88	12	197	8	88	3	1,576	
mdor	Plant Chilled Water @ 55 degrees F	9.7	7.3	7.3	7.3	12	3,491	8	1,552	12	3,491	8	1,552	12	3,491	8	1,552	58	27,930	
as	Plant Chilled Water @ 55 degrees F	0.2	0.2	0.2	0.2	12	90	8	40	12	90	8	40	12	90	8	40	1	716	
	N/A	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	N/A	3.02	2.3	2.3	2.3	12	1,086	8	483	12	1,086	8	483	12	1,086	8	483	18	8,689	
	N/A	0.37	0.3	0.3	0.3	12	134	8	60	12	134	8	60	12	134	8	60	2	1,074	
	N/A	1.49	1.1	1.1	1.1	12	537	8	239	12	537	8	239	12	537	8	239	9	4,297	
	N/A	14.92	11.2	11.2	11.2	12	5,371	8	2,387	12	5,371	8	2,387	12	5,371	8	2,387	90	42,970	
	N/A	5.59	4.2	4.2	4.2	12	2,011	8	894	12	2,011	8	894	12	2,011	8	894	34	16,090	
	N/A	1.49	1.1	1.1	1.1	12	537	8	239	12	537	8	239	12	537	8	239	9	4,297	
	N/A	3.73	2.8	2.8	2.8	12	1,343	8	597	12	1,343	8	597	12	1,343	8	597	22	10,742	
	N/A	0.75	0.6	0.6	0.6	12	269	8	119	12	269	8	119	12	269	8	119	4	2,148	
	N/A	2.24	1.7	1.7	1.7	12	806	8	358	12	806	8	358	12	806	8	358	13	6,445	
	N/A	7.46	5.6	5.6	5.6	12	2,686	8	1,194	12	2,686	8	1,194	12	2,686	8	1,194	45	21,485	
	N/A	3.73	2.8	2.8	2.8	12	1,343	8	597	12	1,343	8	597	12	1,343	8	597	22	10,742	
	N/A	0.37	0.3	0.3	0.3	12	134	8	60	12	134	8	60	12	134	8	60	2	1,074	
	N/A	7.46	5.6	5.6	5.6	12	2,686	8	1,194	12	2,686	8	1,194	12	2,686	8	1,194	45	21,485	
	N/A	0.37	0.3	0.3	0.3	12	134	8	60	12	134	8	60	12	134	8	60	2	1,074	
	N/A	0.06	0.04	0.04	0.04	12	21	8	9	12	21	8	9	12	21	8	9	0	169	
	N/A	0.06	0.04	0.04	0.04	12	21	8	9	12	21	8	9	12	21	8	9	0	169	
	N/A	1.47	1.1	1.1	1.1	12	528	8	235	12	528	8	235	12	528	8	235	9	4,225	
	N/A	7.46	5.6	5.6	5.6	12	2,686	8	1,194	12	2,686	8	1,194	12	2,686	8	1,194	45	21,485	
	N/A	0.15	0.1	0.1	0.1	12	53	8	23	12	53	8	23	12	53	8	23	1	423	
	N/A	1.49	1.1	1.1	1.1	12	537	8	239	12	537	8	239	12	537	8	239	9	4,297	
	N/A	0.04	0.03	0.03	0.03	3	4	2	2	3	4	2	2	3	4	2	2	0	32	
	N/A	0.37	0.28	0.28	0.28	3	34	2	15	3	34	2	15	3	34	2	15	2	269	
	N/A	0.04	0.03	0.03	0.03	3	4	2	2	3	4	2	2	3	4	2	2	0	32	
	N/A	0.37	0.3	0.3	0.3	12	134	8	60	12	134	8	60	12	134	8	60	2	1,074	
	N/A	0.37	0.3	0.3	0.3	12	134	8	60	12	134	8	60	12	134	8	60	2	1,074	
	N/A	2.24	1.7	1.7	1.7	12	806	8	358	12	806	8	358	12	806	8	358	13	6,445	
	N/A	0.25	0.2	0.2	0.2	12	89	8	39	12	89	8	39	12	89	8	39	1	709	
	N/A	0.75	0.6	0.6	0.6	12	269	8	119	12	269	8	119	12	269	8	119	4	2,148	
	N/A	0.25	0.2	0.2	0.2	12	89	8	39	12	89	8	39	12	89	8	39	1	709	
	N/A	2.24	1.7	1.7	1.7	12	806	8	358	12	806	8	358	12	806	8	358	13	6,445	
	N/A	0.37	0.3	0.3	0.3	12	134	8	60	12	134	8	60	12	134	8	60	2	1,074	
	N/A	1.49	1.1	1.1	1.1	12	537	8	239	12	537	8	239	12	537	8	239	9	4,297	
	N/A	0.37	0.3	0.3	0.3	3	34	2	15	3	34	2	15	3	34	2	15	2	269	
	N/A	0.00	0.0	0.0	0.0	3	0	2	0	3	0	2	0	3	0	2	0	0	0	

IENT OF THE ARMY
RS & BUILDING 2706 HVAC EQUIPMENT

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Months		Intermediate Billing Months				Summer Billing Months													
On-Peak		Off-Peak		On-Peak		Off-Peak		On-Peak		Non-Summer				Summer				Annual	
s/		hrs/		hrs/		hrs/		hrs/		Demand	Off-Peak	On-Peak	Cost	Demand	Off-Peak	On-Peak	Cost	Cost	
ıy	kWh/Mo	day	kWh/Mo	day	kWh/Mo	day	kWh/Mo	day	kWh/Mo	kW/Yr.	KWH/Yr.	KWH/Yr.	$	kW/Yr.	KWH/Yr.	KWH/Yr.	$	$	No.
4	3,219	2	2,414	4	3,219	4	4,828	6	4,828	121	14,484	25,749	$3,770	121	19,312	19,312	$3,720	$7,490	152
4	7,832	4	11,748	6	11,748	8	23,496	10	19,580	490	70,488	78,320	$14,135	294	93,984	78,320	$14,263	$28,397	153
4	4,992	4	7,488	6	7,488	8	14,976	10	12,480	312	44,928	49,920	$9,009	187	59,904	49,920	$9,091	$18,100	154
4	2,992	4	4,488	6	4,488	8	8,976	10	7,480	187	26,928	29,920	$5,400	112	35,904	29,920	$5,449	$10,848	155
4	2,138	4	3,208	6	3,208	8	6,415	10	5,346	134	19,246	21,384	$3,859	80	25,661	21,384	$3,894	$7,754	156
8	1,253	12	2,820	8	1,253	12	2,820	8	1,253	47	22,559	10,026	$2,524	23	11,280	5,013	$1,286	$3,810	157
8	1,134	12	2,551	8	1,134	12	2,551	8	1,134	43	20,411	9,071	$2,284	21	10,205	4,536	$1,163	$3,447	158
8	165	12	372	8	165	12	372	8	165	6	2,972	1,321	$333	3	1,486	660	$169	$502	159
0	0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	160
6	2,865	3	2,148	8	3,820	4	2,865	10	4,774	119	14,323	26,737	$3,820	72	11,459	19,098	$2,761	$6,581	161
6	1,522	3	1,141	8	2,029	4	1,522	10	2,536	63	7,609	14,204	$2,030	38	6,087	10,146	$1,467	$3,496	162
6	1,522	3	1,141	8	2,029	4	1,522	10	2,536	63	7,609	14,204	$2,030	38	6,087	10,146	$1,467	$3,496	163
6	1,522	3	1,141	8	2,029	4	1,522	10	2,536	63	7,609	14,204	$2,030	38	6,087	10,146	$1,467	$3,496	164
6	1,522	3	1,141	8	2,029	4	1,522	10	2,536	63	7,609	14,204	$2,030	38	6,087	10,146	$1,467	$3,496	165
6	1,522	3	1,141	8	2,029	4	1,522	10	2,536	63	7,609	14,204	$2,030	38	6,087	10,146	$1,467	$3,496	166
6	2,238	3	1,679	8	2,984	4	2,238	10	3,730	93	11,190	20,886	$2,985	56	8,952	14,920	$2,157	$5,142	167
6	761	3	571	8	1,015	4	761	10	1,268	32	3,805	7,102	$1,015	19	3,044	5,073	$733	$1,748	168
6	761	3	571	8	1,015	4	761	10	1,268	32	3,805	7,102	$1,015	19	3,044	5,073	$733	$1,748	169
8	1,552	12	3,491	8	1,552	12	3,491	8	1,552	58	27,930	12,413	$3,125	29	13,965	6,207	$1,592	$4,717	170
8	80	12	179	8	80	12	179	8	80	3	1,432	637	$160	1	716	318	$82	$242	171
6	1,522	3	1,141	8	2,029	4	1,522	10	2,536	63	7,609	14,204	$2,030	38	6,087	10,146	$1,467	$3,496	172
6	1,611	3	1,209	8	2,148	4	1,611	10	2,686	67	8,057	15,039	$2,149	40	6,445	10,742	$1,553	$3,702	173
6	1,992	3	1,494	8	2,656	4	1,992	10	3,320	83	9,959	18,590	$2,656	50	7,967	13,279	$1,920	$4,576	174
6	1,298	3	974	8	1,731	4	1,298	10	2,163	54	6,490	12,115	$1,731	32	5,192	8,654	$1,251	$2,982	175
6	1,298	3	974	8	1,731	4	1,298	10	2,163	54	6,490	12,115	$1,731	32	5,192	8,654	$1,251	$2,982	176
4	865	2	649	4	865	4	1,298	6	1,298	32	3,894	6,923	$1,014	32	5,192	5,192	$1,000	$2,014	177
8	776	12	1,746	8	776	12	1,746	8	776	29	13,965	6,207	$1,563	15	6,983	3,103	$796	$2,359	178
8	175	12	394	8	175	12	394	8	175	7	3,151	1,400	$353	3	1,576	700	$180	$532	179
6	1,992	3	1,494	8	2,656	4	1,992	10	3,320	83	9,959	18,590	$2,656	50	7,967	13,279	$1,920	$4,576	180
6	1,992	3	1,494	8	2,656	4	1,992	10	3,320	83	9,959	18,590	$2,656	50	7,967	13,279	$1,920	$4,576	181
4	1,328	2	996	4	1,328	4	1,992	6	1,992	50	5,975	10,623	$1,555	50	7,967	7,967	$1,535	$3,090	182
4	865	2	649	4	865	4	1,298	6	1,298	32	3,894	6,923	$1,014	32	5,192	5,192	$1,000	$2,014	183
6	1,992	3	1,494	8	2,656	4	1,992	10	3,320	83	9,959	18,590	$2,656	50	7,967	13,279	$1,920	$4,576	184
6	1,992	3	1,494	8	2,656	4	1,992	10	3,320	83	9,959	18,590	$2,656	50	7,967	13,279	$1,920	$4,576	185
4	686	2	515	4	686	4	1,029	6	1,029	26	3,088	5,491	$804	26	4,118	4,118	$793	$1,597	186
8	836	12	1,880	8	836	12	1,880	8	836	31	15,039	6,684	$1,683	16	7,520	3,342	$857	$2,540	187
8	88	12	197	8	88	12	197	8	88	3	1,576	700	$176	2	788	350	$90	$266	188
8	1,552	12	3,491	8	1,552	12	3,491	8	1,552	58	27,930	12,413	$3,125	29	13,965	6,207	$1,592	$4,717	189
8	40	12	90	8	40	12	90	8	40	1	716	318	$80	1	358	159	$41	$121	190
0	0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	191
8	483	12	1,086	8	483	12	1,086	8	483	18	8,689	3,862	$972	9	4,344	1,931	$495	$1,467	192
8	60	12	134	8	60	12	134	8	60	2	1,074	477	$120	1	537	239	$61	$181	193
8	239	12	537	8	239	12	537	8	239	9	4,297	1,910	$481	4	2,148	955	$245	$726	194
8	2,387	12	5,371	8	2,387	12	5,371	8	2,387	90	42,970	19,098	$4,808	45	21,485	9,549	$2,449	$7,257	195
8	894	12	2,011	8	894	12	2,011	8	894	34	16,090	7,151	$1,801	17	8,045	3,576	$917	$2,717	196
8	239	12	537	8	239	12	537	8	239	9	4,297	1,910	$481	4	2,148	955	$245	$726	197
8	597	12	1,343	8	597	12	1,343	8	597	22	10,742	4,774	$1,202	11	5,371	2,387	$612	$1,814	198
8	119	12	269	8	119	12	269	8	119	4	2,148	955	$240	2	1,074	477	$122	$363	199
8	358	12	806	8	358	12	806	8	358	13	6,445	2,865	$721	7	3,223	1,432	$367	$1,089	200
8	1,194	12	2,686	8	1,194	12	2,686	8	1,194	45	21,485	9,549	$2,404	22	10,742	4,774	$1,224	$3,629	201
8	597	12	1,343	8	597	12	1,343	8	597	22	10,742	4,774	$1,202	11	5,371	2,387	$612	$1,814	202
8	60	12	134	8	60	12	134	8	60	2	1,074	477	$120	1	537	239	$61	$181	203
8	1,194	12	2,686	8	1,194	12	2,686	8	1,194	45	21,485	9,549	$2,404	22	10,742	4,774	$1,224	$3,629	204
8	60	12	134	8	60	12	134	8	60	2	1,074	477	$120	1	537	239	$61	$181	205
8	9	12	21	8	9	12	21	8	9	0	169	75	$19	0	85	38	$10	$29	206
8	9	12	21	8	9	12	21	8	9	0	169	75	$19	0	85	38	$10	$29	207
8	235	12	528	8	235	12	528	8	235	9	4,225	1,878	$473	4	2,113	939	$241	$714	208
8	1,194	12	2,686	8	1,194	12	2,686	8	1,194	45	21,485	9,549	$2,404	22	10,742	4,774	$1,224	$3,629	209
8	23	12	53	8	23	12	53	8	23	1	423	188	$47	0	211	94	$24	$71	210
8	239	12	537	8	239	12	537	8	239	9	4,297	1,910	$481	4	2,148	955	$245	$726	211
2	2	3	4	2	2	3	4	2	2	0	32	14	$5	0	16	7	$3	$8	212
2	15	3	34	2	15	3	34	2	15	2	269	119	$44	1	134	60	$23	$67	213
2	2	3	4	2	2	3	4	2	2	0	32	14	$5	0	16	7	$3	$8	214
8	60	12	134	8	60	12	134	8	60	2	1,074	477	$120	1	537	239	$61	$181	215
8	60	12	134	8	60	12	134	8	60	2	1,074	477	$120	1	537	239	$61	$181	216
8	358	12	806	8	358	12	806	8	358	13	6,445	2,865	$721	7	3,223	1,432	$367	$1,089	217
8	39	12	89	8	39	12	89	8	39	1	709	315	$79	1	354	158	$40	$120	218
8	119	12	269	8	119	12	269	8	119	4	2,148	955	$240	2	1,074	477	$122	$363	219
8	39	12	89	8	39	12	89	8	39	1	709	315	$79	1	354	158	$40	$120	220
8	358	12	806	8	358	12	806	8	358	13	6,445	2,865	$721	7	3,223	1,432	$367	$1,089	221
8	60	12	134	8	60	12	134	8	60	2	1,074	477	$120	1	537	239	$61	$181	222
8	239	12	537	8	239	12	537	8	239	9	4,297	1,910	$481	4	2,148	955	$245	$726	223
2	15	3	34	2	15	3	34	2	15	2	269	119	$44	1	134	60	$23	$67	224
2	0	3	0	2	0	3	0	2	0	0	0	0	$0	0	0	0	$0	$0	225

(3)

HVAC Item	HVAC Airside Equipment - General Information				Cooling Equipment	Total	Winter	Intermed.
	Design/Site Designatio	Equip. Type	Field Data/Reference/(Location)	Area Served	Field Data/Reference/(Location)	Connected Load (kW)	Demand kW/month	Demand kW/month
226	B15	Exhaust	EV-20	3rd Floor	N/A	0 25	0 2	0 2
227	B17	Exhaust	Trane CUBA-163 (NIS)	Unknown	N/A	1 49	1 1	1 1
228	B18	Exhaust	Trane CUBA-163 (NIS)	Unknown	N/A	1 49	1 1	1 1
229	B19	Exhaust	Trane CUBA-163 (NIS)	Unknown	N/A	1 49	1 1	1 1
230	B20	Exhaust	EV-23 (NIS)	2nd Floor	N/A	0 25	0 2	0 2
231	B21	Exhaust	EV-25	2nd Floor	N/A	2 24	1 7	1 7
232	B22	Exhaust	EV-22 (NIS)	2nd Floor	N/A	1 49	1 1	1 1
233	B23	Exhaust	EV-103	2nd Floor	N/A	0 37	0 3	0 3
234	B24	Exhaust	EV-102	2nd Floor	N/A	0 19	0 1	0 1
235	B25	Exhaust	EV-84 (NIS)	4th Floor	N/A	0 37	0 3	0 3
236	B26	Exhaust	EV-100 (NIS)	Unknown	N/A	0 00	0 0	0 0
237	B28	Exhaust	Dead Unit	Unknown	N/A	0 00	0 0	0 0
238	B33	Exhaust	EV-25A	2nd Floor	N/A	0 37	0 3	0 3
239	C2	Exhaust	EV-127	MR 23, 33, & 43	N/A	0 37	0 3	0 3
240	C4	Exhaust	EV-86 (NIS)	1st Floor	N/A	0 37	0 3	0 3
241	C11	Exhaust	EV-110	2nd Floor	N/A	0 07	0 1	0 1
242	C12	Exhaust	EV-108	2nd Floor	N/A	0 56	0 4	0 4
243	C13	Scrubber	Duall (Met-Pro)	Room 2D202	N/A	3 52	2 6	2 6
244	C15	Exhaust	EV-89 (NIS)	1st Floor	N/A	1 49	1 1	1 1
245	C16	Exhaust	EV-96	1st Floor	N/A	0 37	0 3	0 3
246	C17	Exhaust	EV-88	1st Floor	N/A	0 75	0 6	0 6
247	D6	Exhaust	EV-108A (NIS)	2nd Floor	N/A	0 56	0 4	0 4
248	D11	Exhaust	None (NIS)	Unknown	N/A	0 19	0 1	0 1
249	D12	Exhaust	None (NIS)	3rd Floor	N/A	0 15	0 1	0 1
250	D21	Exhaust	EV-125	4D336	N/A	0 56	0 4	0 4
251	E1	Exhaust	RF-1 (Amencan)	3rd Floor (Guess)	N/A	0 37	0 3	0 3
252	E5	Exhaust	None (NIS or Dead Unit ?)	Unknown	N/A	0 00	0 0	0 0
253	E10	Exhaust	New York Blower (NIS or Dead ?)	Unknown	N/A	0 00	0 0	0 0
254	E12	Exhaust	Dead Unit	Unknown	N/A	0 00	0 0	0 0
255	E18	Exhaust	EV-73	Basement	N/A	0 56	0 4	0 4
256	E22	Exhaust	EV-73 (NIS)	1st Floor	N/A	0 25	0 2	0 2
257	E23	Exhaust	RF-2	3rd Floor (Guess)	N/A	0 19	0 1	0 1
258	E25	Exhaust	RF-3	4th Floor (Guess)	N/A	0 56	0 4	0 4
259	E32	Exhaust	None (NIS)	3rd Floor (Guess)	N/A	0 75	0 6	0 6
260	E35	Exhaust	RF-4 (NIS)	4D336	N/A	0 75	0 6	0 6
261	E36	Exhaust	Dead Unit	Unknown	N/A	0 00	0 0	0 0
262	E37	Exhaust	EV-101	1st Floor (Guess)	N/A	0 37	0 3	0 3
263	E39	Exhaust	None	3rd Floor (Guess)	N/A	1 53	1 1	1 1
264	E40	Exhaust	None (NIS)	3rd Floor (Guess)	N/A	0 19	0 1	0 1
265	-	Exhaust	EV-57 (Located in MR-12)	MR-12	N/A	0 04	0 0	0 0
266	-	Exhaust	EV-58 (Located in MR-12)	MR-12	N/A	0 04	0 0	0 0
267	-	Exhaust	EV-68 (Located in Substation #3)	Substation #3	N/A	0 19	0 1	0 1
268	-	Exhaust	EV-79 (Located in Kitchen)	Kitchen exhaust system	N/A	5 60	4 2	4 2
269	-	Exhaust	EV-82 (Located in Substation #7)	Substation #7	N/A	0 75	0 6	0 6
270	E40	Exhaust	EV-98 (Located in Substation #2 & 6)	Substation #2 & 6	N/A	0 75	0 6	0 6
271	CH-1	Chiller	Trane (690 Tons) - Building 2706	MCA Chilled Water	Tower CT-1 (Building 2706)	538 0	0 0	80 7
272	CH-2	Chiller	Trane (690 Tons) - Building 2706	MCA Chilled Water - Standb	Tower CT-1 (Building 2706)	538 0	0 0	0 0
273	CT-1	Tower	B.A.C. (1380 Tons) - Building 2706	MCA Condenser Water	Outdoor Air	59 6	0 0	8 9
274	CT-1	Tower	Thermal Care(200 Tons)-Build 2700 Roof	Misc Chillers & DX Equipme	Outdoor Air	5 6	4 2	4 2
275	CT-2	Tower	Thermal Care(200 Tons)-Build 2700 Roof	Misc Chillers & DX Equipme	Outdoor Air	5 6	4 2	4 2
276	CT-3	Tower	B.A.C. (210 Tons) - Building 2700 Roof	Misc Chillers & DX Equipme	Outdoor Air	5 6	4 2	4 2
277	CT-4	Tower	B.A.C. (210 Tons) - Building 2700 Roof	Misc Chillers & DX Equipme	Outdoor Air	5 6	4 2	4 2
278	CT-5	Tower	B A C - Building 2700 Roof	to be removed	N/A	0 0	0 0	0 0
279	CHWP-1	Pump	Allis Charmers - Building 2706	MCA Chilled Water	N/A	74 6	0 0	11 2
280	CHWP-2	Pump	Allis Charmers - Building 2706	MCA Chilled Water - Lag	N/A	74 6	0 0	0 0
281	CHWP-3	Pump	Allis Charmers - Building 2706	MCA Chilled Water - Standb	N/A	74 6	0 0	0 0
282	HWP-1	Pump	Allis Charmers - Building 2706	MCA Hot Water	N/A	11 2	8 4	6 7
283	HWP-2	Pump	Allis Charmers - Building 2706	MCA Hot Water - Lag	N/A	11 2	8 4	6 7
284	HWP-3	Pump	Allis Charmers - Building 2706	MCA Hot Water - Standby	N/A	11 2	0 0	0 0
285	CWP-1	Pump	Allis Charmers - Building 2706	MCA Condenser Water	N/A	18 7	0 0	9 4
286	CWP-2	Pump	Allis Charmers - Building 2706	MCA Condenser Water - La	N/A	18 7	0 0	0 0
287	CWP-3	Pump	Allis Charmers - Building 2706	MCA Cond Wtr - Standby	N/A	18 7	0 0	0 0
288	CT1P-1	Pump	PACO - Building 2700	Cooling Tower #1	N/A	14 9	11 2	11 2
289	CT1P-2	Pump	PACO - Building 2700	Cooling Tower #1 - Lag	N/A	14 9	3 7	7 5
290	CT2P-1	Pump	PACO - Building 2700	Cooling Tower #2	N/A	14 9	11 2	11 2
291	CT2P-2	Pump	PACO - Building 2700	Cooling Tower #2 - Lag	N/A	14 9	3 7	7 5
292	CT3P-1	Pump	PACO - Building 2700	Cooling Tower #3	N/A	14 9	11 2	11 2
293	CT3P-2	Pump	PACO - Building 2700	Cooling Tower #3 - Lag	N/A	14 9	3 7	7 5
294	CT4P-1	Pump	PACO - Building 2700	Cooling Tower #4	N/A	14 9	11 2	11 2
295	CT4P-2	Pump	PACO - Building 2700	Cooling Tower #4 - Lag	N/A	14 9	3 7	7 5
296	FWP-1	Pump	Aurora - Building 2700	Boiler Feedwater	N/A	18 7	14 0	14 0
297	FWP-2	Pump	Worthington - Building 2700	Boiler Feedwater	N/A	18 7	0 0	0 0
298	FWP-3	Pump	Ingersol Rand - Building 2700	Boiler Feedwater	N/A	18 7	0 0	0 0
299	CP-1	Pump	Aurora - Building 2700	Condensate	N/A	3 7	2 8	2 8
300	CP-2	Pump	Aurora - Building 2700	Condensate	N/A	3 7	2 8	2 8

(1)

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 ELECTRIC MODEL - ALL FLOORS & BUILDING 2706 HVAC EQUIPMENT

TABLE 5.6.2.2

						Winter Billing Months				Intermediate Billing Months				Summer Billing Months				
						Off-Peak		On-Peak		Off-Peak		On-Peak		Off-Peak		On-Peak		
Area Served	Cooling Equipment Field Data/Reference/(Location)	Total Connected Load (kW)	Winter Demand kW/month	Intermed. Demand kW/month	Summer Demand kW/month	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	Demand kW/Yr.
›or	N/A	0 25	0 2	0 2	0 2	12	89	8	39	12	89	8	39	12	89	8	39	1
wn	N/A	1 49	1 1	1 1	1 1	3	134	2	60	3	134	2	60	3	134	2	60	9
wn	N/A	1 49	1 1	1 1	1 1	3	134	2	60	3	134	2	60	3	134	2	60	9
wn	N/A	1 49	1 1	1 1	1 1	3	134	2	60	3	134	2	60	3	134	2	60	9
›or	N/A	0.25	0 2	0 2	0 2	3	22	2	10	3	22	2	10	3	22	2	10	1
›or	N/A	2 24	1 7	1 7	1 7	12	806	8	358	12	806	8	358	12	806	8	358	13
›or	N/A	1 49	1 1	1 1	1 1	3	134	2	60	3	134	2	60	3	134	2	60	9
›or	N/A	0 37	0 3	0 3	0 3	12	134	8	60	12	134	8	60	12	134	8	60	2
›or	N/A	0 19	0 1	0 1	0 1	12	67	8	30	12	67	8	30	12	67	8	30	1
›or	N/A	0 37	0 3	0 3	0 3	3	34	2	15	3	34	2	15	3	34	2	15	2
wn	N/A	0 00	0 0	0 0	0 0	0	0	0	0	0	0	0	0	0	0	0	0	0
wn	N/A	0 00	0 0	0 0	0 0	0	0	0	0	0	0	0	0	0	0	0	0	0
›or	N/A	0 37	0 3	0 3	0 3	12	134	8	60	12	134	8	60	12	134	8	60	2
3, 33, & 43	N/A	0 37	0 3	0 3	0 3	12	134	8	60	12	134	8	60	12	134	8	60	2
›or	N/A	0 37	0 3	0 3	0 3	3	34	2	15	3	34	2	15	3	34	2	15	2
›or	N/A	0 07	0 1	0 1	0 1	12	27	8	12	12	27	8	12	12	27	8	12	0
›or	N/A	0 56	0 4	0 4	0 4	12	201	8	90	12	201	8	90	12	201	8	90	3
2D202	N/A	3 52	2 6	2 6	2 6	12	1,268	8	563	12	1,268	8	563	12	1,268	8	563	21
›or	N/A	1 49	1 1	1 1	1 1	3	134	2	60	3	134	2	60	3	134	2	60	9
›or	N/A	0 37	0 3	0 3	0 3	12	134	8	60	12	134	8	60	12	134	8	60	2
›or	N/A	0 75	0 6	0 6	0 6	12	269	8	119	12	269	8	119	12	269	8	119	4
›or	N/A	0 56	0 4	0 4	0 4	3	50	2	22	3	50	2	22	3	50	2	22	3
wn	N/A	0 19	0 1	0 1	0 1	3	17	2	8	3	17	2	8	3	17	2	8	1
›or	N/A	0 15	0 1	0 1	0 1	3	13	2	6	3	13	2	6	3	13	2	6	1
	N/A	0 56	0 4	0 4	0 4	12	201	8	90	12	201	8	90	12	201	8	90	3
›or (Guess)	N/A	0 37	0 3	0 3	0 3	12	134	8	60	12	134	8	60	12	134	8	60	2
wn	N/A	0 00	0 0	0 0	0 0	0	0	0	0	0	0	0	0	0	0	0	0	0
wn	N/A	0 00	0 0	0 0	0 0	0	0	0	0	0	0	0	0	0	0	0	0	0
wn	N/A	0 00	0 0	0 0	0 0	0	0	0	0	0	0	0	0	0	0	0	0	0
ient	N/A	0 56	0 4	0 4	0 4	12	201	8	90	12	201	8	90	12	201	8	90	3
›or	N/A	0.25	0 2	0 2	0 2	3	22	2	10	3	22	2	10	3	22	2	10	1
›or (Guess)	N/A	0 19	0 1	0 1	0 1	12	67	8	30	12	67	8	30	12	67	8	30	1
›or (Guess)	N/A	0 56	0 4	0 4	0 4	12	201	8	90	12	201	8	90	12	201	8	90	3
›or (Guess)	N/A	0 75	0 6	0 6	0 6	3	67	2	30	3	67	2	30	3	67	2	30	4
	N/A	0 75	0 6	0 6	0 6	3	67	2	30	3	67	2	30	3	67	2	30	4
wn	N/A	0 00	0 0	0 0	0 0	0	0	0	0	0	0	0	0	0	0	0	0	0
›or (Guess)	N/A	0 37	0 3	0 3	0 3	12	134	8	60	12	134	8	60	12	134	8	60	2
›or (Guess)	N/A	1 53	1 1	1 1	1 1	12	549	8	244	12	549	8	244	12	549	8	244	9
›or (Guess)	N/A	0 19	0 1	0 1	0 1	3	17	2	8	3	17	2	8	3	17	2	8	1
	N/A	0 04	0 0	0 0	0 0	3	3	2	1	3	3	2	1	3	3	2	1	0
	N/A	0 04	0 0	0 0	0 0	3	3	2	1	3	3	2	1	3	3	2	1	0
ition #3	N/A	0 19	0 1	0 1	0 1	3	17	2	7	3	17	2	7	3	17	2	7	1
exhaust system	N/A	5 60	4 2	4 2	4 2	3	504	2	224	3	504	2	224	3	504	2	224	34
ition #7	N/A	0 75	0 6	0 6	0 6	3	67	2	30	3	67	2	30	3	67	2	30	4
ition #2 & 6	N/A	0 75	0 6	0 6	0 6	3	67	2	30	3	67	2	30	3	67	2	30	4
hilled Water	Tower CT-1 (Building 2706)	538 0	0 0	80 7	403 5	0	0	0	0	1	16,140	2	21,520	3	48,420	6	64,560	323
hilled Water - Standb	Tower CT-1 (Building 2706)	538 0	0 0	0 0	0 0	0	0	0	0	0	0	0	0	0	0	0	0	0
ondenser Water	Outdoor Air	59 6	0 0	8 9	44 7	0	0	0	0	1	1,788	4	4,768	8	14,304	8	9,536	36
hillers & DX Equipme	Outdoor Air	5 6	4 2	4 2	4 2	2	336	4	448	4	672	6	672	6	1,008	8	896	34
hillers & DX Equipme	Outdoor Air	5 6	4 2	4 2	4 2	2	336	4	448	4	672	6	672	6	1,008	8	896	34
hillers & DX Equipme	Outdoor Air	5 6	4 2	4 2	4 2	2	336	4	448	4	672	6	672	6	1,008	8	896	34
hillers & DX Equipme	Outdoor Air	5 6	4 2	4 2	4 2	2	336	4	448	4	672	6	672	6	1,008	8	896	34
emoved	N/A	0 0	0 0	0 0	0 0	0	0	0	0	0	0	0	0	0	0	0	0	0
hilled Water	N/A	74 6	0 0	11 2	56 0	0 0	0	0	0	4	8,952	3	4,476	12	26,856	8	11,936	45
hilled Water - Lag	N/A	74 6	0 0	0 0	56 0	0 0	0	0	0	1	2,238	1	1,492	3	6,714	2	2,984	0
hilled Water - Standb	N/A	74 6	0 0	0 0	0 0	0 0	0	0	0	0	0	0	0	0	0	0	0	0
ot Water	N/A	11 2	8 4	6 7	0 0	12 0	4,032	8	1,792	9	3,024	6	1,344	0	0	0	0	60
ot Water - Lag	N/A	11 2	8 4	6 7	0 0	4 0	1,344	2	448	3	1,008	2	448	0	0	0	0	60
ot Water - Standby	N/A	11 2	0 0	0 0	0 0	0 0	0	0	0	0	0	0	0	0	0	0	0	0
ondenser Water	N/A	18 7	0 0	9 4	14 0	0 0	0	0	0	6	3,366	8	2,992	10	5,610	12	4,488	37
ondenser Water - La	N/A	18 7	0 0	0 0	14 0	0 0	0	0	0	1	561	1	374	3	1,683	4	1,496	0
ond Wtr - Standby	N/A	18 7	0 0	0 0	0 0	0 0	0	0	0	0	0	0	0	0	0	0	0	0
g Tower #1	N/A	14 9	11 2	11 2	11 2	12	5,364	8	2,384	12	5,364	8	2,384	12	5,364	8	2,384	89
g Tower #1 - Lag	N/A	14 9	3 7	7 5	8 9	1	447	1	298	3	1,341	2	596	4	1,788	3	894	45
g Tower #2	N/A	14 9	11 2	11 2	11 2	12	5,364	8	2,384	12	5,364	8	2,384	12	5,364	8	2,384	89
g Tower #2 - Lag	N/A	14 9	3 7	7 5	8 9	1	447	1	298	3	1,341	2	596	4	1,788	3	894	45
g Tower #3	N/A	14 9	11 2	11 2	11 2	12	5,364	8	2,384	12	5,364	8	2,384	12	5,364	8	2,384	89
g Tower #3 - Lag	N/A	14 9	3 7	7 5	8 9	1	447	1	298	3	1,341	2	596	4	1,788	3	894	45
g Tower #4	N/A	14 9	11 2	11 2	11 2	12	5,364	8	2,384	12	5,364	8	2,384	12	5,364	8	2,384	89
g Tower #4 - Lag	N/A	14 9	3 7	7 5	8 9	1	447	1	298	3	1,341	2	596	4	1,788	3	894	45
Feedwater	N/A	18 7	14 0	14 0	14 0	12	6,732	8	2,992	12	6,732	8	2,992	12	6,732	8	2,992	112
Feedwater	N/A	18 7	0 0	0 0	0 0	0 0	0	0	0	0	0	0	0	0	0	0	0	0
Feedwater	N/A	18 7	0 0	0 0	0 0	0 0	0	0	0	0	0	0	0	0	0	0	0	0
nsate	N/A	3 7	2 8	2 8	2 8	3 0	333	2	148	3	333	2	148	3	333	2	148	22
nsate	N/A	3 7	2 8	2 8	2 8	3 0	333	2	148	3	333	2	148	3	333	2	148	22

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ENT OF THE ARMY
S & BUILDING 2706 HVAC EQUIPMENT

nths	Intermediate Billing Months				Summer Billing Months												
n-Peak	Off-Peak		On-Peak		Off-Peak		On-Peak		Non-Summer				Summer				Annual
	hrs/		hrs/		hrs/		hrs/		Demand	Off-Peak	On-Peak	Cost	Demand	Off-Peak	On-Peak	Cost	Cost
kWh/Mo	day	kWh/Mo	day	kWh/Mo	day	kWh/Mo	day	kWh/Mo	kW/Yr.	KWH/Yr.	KWH/Yr.	$	kW/Yr.	KWH/Yr.	KWH/Yr.	$	$
39	12	89	8	39	12	89	8	39	1	709	315	$79	1	354	156	$40	$120
60	3	134	2	60	3	134	2	60	9	1,074	477	$176	4	537	239	$92	$268
60	3	134	2	60	3	134	2	60	9	1,074	477	$176	4	537	239	$92	$268
60	3	134	2	60	3	134	2	60	9	1,074	477	$176	4	537	239	$92	$268
10	3	22	2	10	3	22	2	10	1	177	79	$29	1	89	39	$15	$44
358	12	806	8	358	12	806	8	358	13	6,445	2,865	$721	7	3,223	1,432	$367	$1,089
60	3	134	2	60	3	134	2	60	9	1,074	477	$176	4	537	239	$92	$268
60	12	134	8	60	12	134	8	60	2	1,074	477	$120	1	537	239	$61	$181
30	12	67	8	30	12	67	8	30	1	537	239	$60	1	269	119	$31	$91
15	3	34	2	15	3	34	2	15	2	269	119	$44	1	134	60	$23	$67
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0
60	12	134	8	60	12	134	8	60	2	1,074	477	$120	1	537	239	$61	$181
60	12	134	8	60	12	134	8	60	2	1,074	477	$120	1	537	239	$61	$181
15	3	34	2	15	3	34	2	15	2	269	119	$44	1	134	60	$23	$67
12	12	27	8	12	12	27	8	12	0	215	95	$24	0	107	48	$12	$36
90	12	201	8	90	12	201	8	90	3	1,611	716	$180	2	806	358	$92	$272
563	12	1,268	8	563	12	1,268	8	563	21	10,141	4,507	$1,135	11	5,070	2,253	$578	$1,713
60	3	134	2	60	3	134	2	60	9	1,074	477	$176	4	537	239	$92	$268
60	12	134	8	60	12	134	8	60	2	1,074	477	$120	1	537	239	$61	$181
119	12	269	8	119	12	269	8	119	4	2,148	955	$240	2	1,074	477	$122	$363
22	3	50	2	22	3	50	2	22	3	403	179	$66	2	201	90	$35	$101
8	3	17	2	8	3	17	2	8	1	137	61	$22	1	69	31	$12	$34
6	3	13	2	6	3	13	2	6	1	106	47	$17	0	53	23	$9	$26
90	12	201	8	90	12	201	8	90	3	1,611	716	$180	2	806	358	$92	$272
60	12	134	8	60	12	134	8	60	2	1,074	477	$120	1	537	239	$61	$181
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0
90	12	201	8	90	12	201	8	90	3	1,611	716	$180	2	806	358	$92	$272
10	3	22	2	10	3	22	2	10	1	177	79	$29	1	89	39	$15	$44
30	12	67	8	30	12	67	8	30	1	537	239	$60	1	269	119	$31	$91
90	12	201	8	90	12	201	8	90	3	1,611	716	$180	2	806	358	$92	$272
30	3	67	2	30	3	67	2	30	4	537	239	$88	2	269	119	$46	$134
30	3	67	2	30	3	67	2	30	4	537	239	$88	2	269	119	$46	$134
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0
60	12	134	8	60	12	134	8	60	2	1,074	477	$120	1	537	239	$61	$181
244	12	549	8	244	12	549	8	244	9	4,394	1,953	$492	5	2,197	977	$250	$742
8	3	17	2	8	3	17	2	8	1	137	61	$22	1	69	31	$12	$34
1	3	3	2	1	3	3	2	1	0	27	12	$4	0	13	6	$2	$7
1	3	3	2	1	3	3	2	1	0	27	12	$4	0	13	6	$2	$7
7	3	17	2	7	3	17	2	7	1	134	60	$22	1	67	30	$12	$34
224	3	504	2	224	3	504	2	224	34	4,028	1,790	$660	17	2,014	895	$346	$1,006
30	3	67	2	30	3	67	2	30	4	537	239	$88	2	269	119	$46	$134
30	3	67	2	30	3	67	2	30	4	537	239	$88	2	269	119	$46	$134
0	1	16,140	2	21,520	3	48,420	6	64,560	323	64,560	86,080	$12,941	1,614	193,680	258,240	$45,710	$58,650
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0
0	1	1,788	4	4,768	8	14,304	8	9,536	36	7,152	19,072	$2,123	179	57,216	38,144	$7,992	$10,115
448	4	672	6	672	6	1,008	8	896	34	4,032	4,480	$855	17	4,032	3,584	$667	$1,522
448	4	672	6	672	6	1,008	8	896	34	4,032	4,480	$855	17	4,032	3,584	$667	$1,522
448	4	672	6	672	6	1,008	8	896	34	4,032	4,480	$855	17	4,032	3,584	$667	$1,522
448	4	672	6	672	6	1,008	8	896	34	4,032	4,480	$855	17	4,032	3,584	$667	$1,522
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0
0	4	8,952	3	4,476	12	26,856	8	11,936	45	35,808	17,904	$3,903	224	107,424	47,744	$12,243	$16,146
0	1	2,238	1	1,492	3	6,714	2	2,984	0	8,952	5,968	$991	224	26,856	11,936	$4,608	$5,599
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0
1,792	9	3,024	6	1,344	0	0	0	0	60	28,224	12,544	$3,172	0	0	0	$0	$3,172
448	3	1,008	2	448	0	0	0	0	60	9,408	3,584	$1,349	0	0	0	$0	$1,349
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0
0	6	3,366	8	2,992	10	5,610	12	4,488	37	13,464	11,968	$2,017	56	22,440	17,952	$3,222	$5,239
0	1	561	1	374	3	1,683	4	1,496	0	2,244	1,496	$248	56	6,732	5,984	$1,372	$1,620
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0
2,384	12	5,364	8	2,384	12	5,364	8	2,384	89	42,912	19,072	$4,802	45	21,456	9,536	$2,445	$7,247
298	3	1,341	2	596	4	1,788	3	894	45	7,152	3,576	$1,077	36	7,152	3,576	$1,036	$2,113
2,384	12	5,364	8	2,384	12	5,364	8	2,384	89	42,912	19,072	$4,802	45	21,456	9,536	$2,445	$7,247
298	3	1,341	2	596	4	1,788	3	894	45	7,152	3,576	$1,077	36	7,152	3,576	$1,036	$2,113
2,384	12	5,364	8	2,384	12	5,364	8	2,384	89	42,912	19,072	$4,802	45	21,456	9,536	$2,445	$7,247
298	3	1,341	2	596	4	1,788	3	894	45	7,152	3,576	$1,077	36	7,152	3,576	$1,036	$2,113
2,384	12	5,364	8	2,384	12	5,364	8	2,384	89	42,912	19,072	$4,802	45	21,456	9,536	$2,445	$7,247
298	3	1,341	2	596	4	1,788	3	894	45	7,152	3,576	$1,077	36	7,152	3,576	$1,036	$2,113
2,992	12	6,732	8	2,992	12	6,732	8	2,992	112	53,856	23,936	$6,027	56	26,928	11,968	$3,069	$9,096
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0
148	3	333	2	148	3	333	2	148	22	2,664	1,184	$436	11	1,332	592	$229	$665
148	3	333	2	148	3	333	2	148	22	2,664	1,184	$436	11	1,332	592	$229	$665

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(3)

HVAC Item	HVAC Airside Equipment - General Information: Design/Site Designatio	Equip. Type	Field Data/Reference/(Location)	Area Served	Cooling Equipment Field Data/Reference/(Location)	Total Connected Load (kW)	Winter Demand kW/month	Intermed. Demand kW/month	Sum Den kW/n
301	CP-7	Pump	Aurora - Building 2700	Condensate	N/A	3.7	2.8	2.8	
302	CP-8	Pump	Aurora - Building 2700	Condensate	N/A	3.7	2.8	2.8	
303	CP-1 (New)	Pump	unknown - Building 2706	Condensate	N/A	4.4	3.3	3.3	
304	Misc	Pumps	unknown - Building 2706	Various	N/A	14.9	11.2	11.2	
305	-	(4)Coolers	unknown - Building 2700 Cafetena	Cafetena	Condenser	3.7	2.8	2.8	
306	-	Refrigerato	unknown - Building 2700 Cafetena	Cafetena	Condenser	1.5	1.1	1.1	
307	-	Refrigerato	unknown - Building 2700 Cafetena	Cafetena	Condenser	0.8	0.6	0.6	
308	-	Freezer	unknown - Building 2700 Cafetena	Cafetena	Condenser	1.2	0.9	0.9	
309	-	Proc Chille	Edwards - Building 2700 Roof	unknown process	Condenser	11.2	8.4	8.4	
310	-	Lighting	unknown - Building 2700	Basement Level	N/A	126.0	75.6	75.6	
311	-	Lighting	unknown - Building 2700	First/Mezzanine Floor Levels	N/A	349.0	209.4	209.4	
312	-	Lighting	unknown - Building 2700	Second Floor Level	N/A	423.0	253.8	253.8	
313	-	Lighting	unknown - Building 2700	Third Floor Level	N/A	414.0	248.4	248.4	
314	-	Lighting	unknown - Building 2700	Fourth Floor Level	N/A	492.0	295.2	295.2	
315	-	Misc. Equi	unknown - Building 2700	Basement Level	N/A	100.0	25.0	25.0	
316	-	Misc. Equi	unknown - Building 2700	First/Mezzanine Floor Levels	N/A	360.0	90.0	90.0	
317	-	Misc. Equi	unknown - Building 2700	Second Floor Level	N/A	609.0	152.3	152.3	
318	-	Misc. Equi	unknown - Building 2700	Third Floor Level	N/A	413.0	103.3	103.3	
319	-	Misc. Equi	unknown - Building 2700	Fourth Floor Level	N/A	676.0	169.0	169.0	
				TOTALS		7,592	2,642	3,156	

Note: The total connected kW loads for the MCA system building HVAC equipment do not include the equivalent tons of cooling shown in Section 3. The chiller incorporates these loads.

The Hope Road/Charles Wood electric billing data is shown at the right for comparison to the data calculated for Building 2700

Historical Billing Demand Average

	4,716	4,701
	4,726	4,957
	4,692	4,482
	4,676	4,865
Av	4,702	4,751
Totals	18,814	19,005
	Winter	Intermediate

Winter Months: October, November, December, January, February, March, April, May
Summer Months: June, July, August, September

	Winter	Summer
Incremental Demand Cost, $/kW	$8.31	$9.22
Off-Peak Incremental Usage Cost, $/kWh	$0.062	$0.063
On-Peak Incremental Usage Cost, $/kWh	$0.072	$0.072

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FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 ELECTRIC MODEL - ALL FLOORS & BUILDING 2706 HVAC EQUIPMENT

TABLE 5.6.2.2

	Cooling Equipment Field Data/Reference/(Location)	Total Connected Load (kW)	Winter Demand kW/month	Intermed. Demand kW/month	Summer Demand kW/month	Winter Billing Months Off-Peak hrs/ day	Off-Peak kWh/Mo	On-Peak hrs/ day	On-Peak kWh/Mo	Intermediate Billing Months Off-Peak hrs/ day	Off-Peak kWh/Mo	On-Peak hrs/ day	On-Peak kWh/Mo	Summer Billing Months Off-Peak hrs/ day	Off-Peak kWh/Mo	On-Peak hrs/ day	On-Peak kWh/Mo	Demand kW/Yr.	Non-Summe Off-Peak KWH/Yr.	On-P KWH
	N/A	3.7	2.8	2.8	2.8	3.0	333	2	148	3	333	2	148	3	333	2	148	22	2,664	
	N/A	3.7	2.8	2.8	2.8	3.0	333	2	148	3	333	2	148	3	333	2	148	22	2,664	
	N/A	4.4	3.3	3.3	3.3	3.0	396	2	176	3	396	2	176	3	396	2	176	26	3,168	
	N/A	14.9	11.2	11.2	11.2	3.0	1,341	2	596	3	1,341	2	596	3	1,341	2	596	89	10,728	
	Condenser	3.7	2.8	2.8	2.8	12	1,332	8	592	12	1,332	8	592	12	1,332	8	592	22	10,656	
	Condenser	1.5	1.1	1.1	1.1	12	540	8	240	12	540	8	240	12	540	8	240	9	4,320	
	Condenser	0.8	0.6	0.6	0.6	12	270	8	120	12	270	8	120	12	270	8	120	5	2,160	
	Condenser	1.2	0.9	0.9	0.9	12	432	8	192	12	432	8	192	12	432	8	192	7	3,456	
	Condenser	11.2	8.4	8.4	8.4	10	3,360	8	1,792	10	3,360	8	1,792	10	3,360	8	1,792	67	26,880	1
	N/A	126.0	75.6	75.6	75.6	2	7,560	8	20,160	2	7,560	8	20,160	2	7,560	8	20,160	605	60,480	16
els	N/A	349.0	209.4	209.4	209.4	2	20,940	8	55,840	2	20,940	8	55,840	2	20,940	8	55,840	1,675	167,520	44
	N/A	423.0	253.8	253.8	253.8	2	25,380	8	67,680	2	25,380	8	67,680	2	25,380	8	67,680	2,030	203,040	54
	N/A	414.0	248.4	248.4	248.4	2	24,840	8	66,240	2	24,840	8	66,240	2	24,840	8	66,240	1,987	198,720	52
	N/A	492.0	295.2	295.2	295.2	2	29,520	8	78,720	2	29,520	8	78,720	2	29,520	8	78,720	2,362	236,160	62
	N/A	100.0	25.0	25.0	25.0	2	6,000	4	8,000	2	6,000	4	8,000	2	6,000	4	8,000	200	48,000	6
els	N/A	360.0	90.0	90.0	90.0	2	21,600	4	28,800	2	21,600	4	28,800	2	21,600	4	28,800	720	172,800	23
	N/A	609.0	152.3	152.3	152.3	2	36,540	4	48,720	2	36,540	4	48,720	2	36,540	4	48,720	1,218	292,320	38
	N/A	413.0	103.3	103.3	103.3	2	24,780	4	33,040	2	24,780	4	33,040	2	24,780	4	33,040	826	198,240	26
	N/A	676.0	169.0	169.0	169.0	2	40,560	4	54,080	2	40,560	4	54,080	2	40,560	4	54,080	1,352	324,480	42
s		7,592	2,642	3,156	3,799	1,894	461,853	1,711	688,523	1,937	551,002	1,791	765,951	1,912	705,897	1,863	899,287	23,192	4,051,422	5,81

The Hope Road/Charles Wood electric billing data is shown at the right for comparison to the data calculated for Building 2700

Historical Billing Demand Average

	4,716	4,201	6,977
	4,726	4,957	7,020
	4,692	4,482	6,757
	4,678	4,865	5,621
Avg	4,703	4,551	6,594
Totals	18,814	19,017	26,375
	Winter	Intermediate	Summer

Historical Billing On-Peak Average

Dec	996,000	Apr	1,031,400	Jun	1,368,000
Jan	1,006,000	May	990,000	Jul	1,629,000
Feb	1,044,000	Oct	981,000	Aug	1,305,000
Mar	1,003,500	Nov	1,116,000	Sep	1,233,000
Avg	1,012,950		1,029,600		1,387,750
Totals	4,051,800		4,118,400		5,555,000
	Winter		Intermediate		Summer

Historical Billing Off-Peak Average

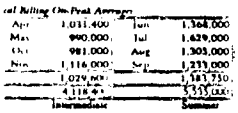
Dec	1,215,000	Apr	1,485,000
Jan	1,170,000	May	1,314,000
Feb	1,449,000	Oct	1,386,000
Mar	1,296,000	Nov	1,566,000
Avg	1,282,500		1,437,750
Totals	5,130,000		5,751,000
	Winter		Intermediate

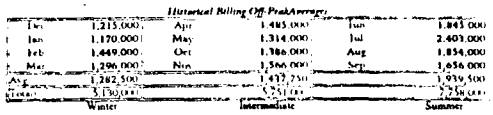
Winter Months October, November, December, January, February, March, April, May
Summer Months June, July, August, September

	Winter	Summer
Incremental Demand Cost, $/kW	$8.31	$9.22
Off-Peak Incremental Usage Cost, $/kWh	$0.062	$0.063
On-Peak Incremental Usage Cost, $/kWh	$0.072	$0.072

: THE ARMY
ILDING 2706 HVAC EQUIPMENT

Intermediate Billing Months				Summer Billing Months				Non-Summer				Summer				Annual	
Off-Peak		On-Peak		Off-Peak		On-Peak											
hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	Demand kW/Yr.	Off-Peak KWH/Yr.	On-Peak KWH/Yr.	Cost $	Demand kW/Yr.	Off-Peak KWH/Yr.	On-Peak KWH/Yr.	Cost $	Cost $	No.
3	333	2	148	3	333	2	148	22	2,664	1,184	$436	11	1,332	592	$229	$665	301
3	333	2	148	3	333	2	148	22	2,664	1,184	$436	11	1,332	592	$229	$665	302
3	396	2	176	3	396	2	176	26	3,168	1,408	$519	13	1,584	704	$272	$791	303
3	1,341	2	596	3	1,341	2	596	89	10,728	4,768	$1,758	45	5,364	2,384	$920	$2,678	304
12	1,332	8	592	12	1,332	8	592	22	10,656	4,736	$1,192	11	5,328	2,368	$607	$1,800	305
12	540	8	240	12	540	8	240	9	4,320	1,920	$483	5	2,160	960	$246	$730	306
12	270	8	120	12	270	8	120	5	2,160	960	$242	2	1,080	480	$123	$365	307
12	432	8	192	12	432	8	192	7	3,456	1,536	$387	4	1,728	768	$197	$584	308
10	3,360	8	1,792	10	3,360	8	1,792	67	26,880	14,336	$3,274	34	13,440	7,168	$1,670	$4,944	309
2	7,560	8	20,160	2	7,560	8	20,160	605	60,480	161,280	$20,469	302	30,240	80,640	$10,523	$30,992	310
2	20,940	8	55,840	2	20,940	8	55,840	1,675	167,520	446,720	$56,697	838	83,760	223,360	$29,147	$85,844	311
2	25,380	8	67,680	2	25,380	8	67,680	2,030	203,040	541,440	$68,718	1,015	101,520	270,720	$35,328	$104,046	312
2	24,840	8	66,240	2	24,840	8	66,240	1,987	198,720	529,920	$67,256	994	99,360	264,960	$34,576	$101,832	313
2	29,520	8	78,720	2	29,520	8	78,720	2,362	236,160	629,760	$79,928	1,181	118,080	314,880	$41,090	$121,018	314
2	6,000	4	8,000	2	6,000	4	8,000	200	48,000	64,000	$9,289	100	24,000	32,000	$4,742	$14,031	315
2	21,600	4	28,800	2	21,600	4	28,800	720	172,800	230,400	$33,440	360	86,400	115,200	$17,072	$50,512	316
2	36,540	4	48,720	2	36,540	4	48,720	1,218	292,320	389,760	$56,569	609	146,160	194,880	$28,880	$85,449	317
2	24,780	4	33,040	2	24,780	4	33,040	826	198,240	264,320	$38,363	413	99,120	132,160	$19,585	$57,948	318
2	40,560	4	54,080	2	40,560	4	54,080	1,352	324,480	432,640	$62,793	676	162,240	216,320	$32,057	$94,850	319
1,937	551,002	1,791	765,951	1,912	705,897	1,863	899,287	23,192	4,051,422	5,817,896	$866,560	15,197	2,823,588	3,597,149	$577,413	$1,443,973	





(3)

5.6.3 Comparison

The results of the electric demand, usage and cost for Building 2700 when compared to the same values from the Hope Road/Charles Wood Area data is as follows in Table 5.6.3.1.

The results show that the electrical costs for Building 2700 constitute approximately 54% of the billing for the large area. Of that, the on-peak usage and demands are slightly higher because the building is basically operated during the day only, while the usage and demands go up at night in the outlying areas primarily made up of relatively small buildings, and large residential areas with barracks and homes.

Included in this section are two comparisons of HVAC system totals for DOE Modeling results versus the Electric Model results. MCA hot and chilled water systems analysis is within 4% of the estimates developed in the Electric Model. Comparisons of the areas which utilize miscellaneous cooling systems are not as accurate, ±25%. This is primarily due to the large quantity of units and spaces which are conditioned. DOE has limitations as to the quantity of systems and zones which can be modeled. These limitations do not provide praticality in modeling every 1 ton to 5 ton unit. To save space and time, large areas were modeled under one-cooling system rather than the multiple systems that exist whereas the Electric Model is modeled on a much smaller scale. However, a variance of less than 25% is still acceptable and within the confines of this study. Because DOE can provide a wide array of energy

conservation simulations, these models and results will be utilized in ECOs where applicable.

Table 5.6.3.1, Electric Modeling Results Comparison Building 2700 vs Hope Road/Charles Wood Area

	Billing - Hope Road/ Charles Wood Area	Building 2700 Electric Model	%
Summer Demand (kW/mo)	6,594	3,799	58%
Summer On-peak Usage (kWh/mo)	1,383,750	899,287	65%
Summer Off-peak Usage (kWh/mo)	1,939,500	705,897	36%
Summer Cost ($/mo)	$277,058	$144,353	52%
Summer Total Cost ($)	$1,108,232	$577,410	52%
Intermediate Demand (kW/mo)	4,751	3,156	66%
Intermediate On-peak Usage (kWh/mo)	1,029,600	765,951	74%
Intermediate Off-peak Usage (kWh/mo)	1,437,750	551,002	38%
Intermediate Cost ($/mo)	$200,050	$115,263	58%
Intermediate Total Cost ($)	$800,200	$461,060	58%
Winter Demand (kW/mo)	4,709	2,642	56%
Winter On-peak Usage (kWh/mo)	1,012,950	688,523	68%
Winter Off-peak Usage (kWh/mo)	1,282,500	461,853	36%
Winter Cost ($/mo)	$196,945	$101,373	51%
Winter Total Cost ($)	$787,780	$405,490	51%
Total Demand (kW/yr)	64,216	38,388	60%
Total On-peak Usage (kW/yr)	13,705,200	9,415,044	69%
Total Off-peak Usage (kW/yr)	18,639,000	6,875,008	37%
Total Cost ($/yr)	$2,696,200	$1,443,960	54%

6.0 ENERGY CONSERVATION OPPORTUNITIES

6.1 General

The items discussed in this section of the report are the result of investigation of many energy cost reduction strategies.

Existing, discusses the current operational energy levels and approximate costs.

Proposed, presents a new concept designed to save energy; however, it should be understood that the actual design has not yet been performed. Arrangements and quantities may change somewhat during final design.

Construction Costs, covers materials, labor, and indirect costs needed for a complete project, including associated engineering design and construction management costs. Escalation is not included. Costs are in 1996 dollars.

Savings, shows an expected level of annual energy and cost savings; however does not include price increases of various energy sources or interactive savings. The ECOs are calculated on a stand alone basis.

Operation/Maintenance Savings, estimate of the proposed maintenance savings resulting from implementing the ECO.

Discussion, notes the results of the life cycle costs (LCCID) summary.

6.2 ECO List

Below is Entech's list with explanations for the ECOs considered for evaluation with this study. Additional ECOs may be added if considered appropriate for the building and this study in general.

ECOs not evaluated will include lighting issues which are presently being studied by Fort Monmouth personnel through other means and the possibility of converting Building 2705 to a geo-thermal heat pump system which is being evaluated by Fort Monmouth with the assistance of the utility company.

Note: ECO -5 is included as an example for review.

ECO List

1. Steam Decentralization - Base Case
   - — Heating
     - — Building 2700 AHU's and UH's converted to MCA 2-pipe hot water heating system/season.
     - — Building's 2704 and 2705 converted to new boiler plants located in each building.
   - — Reheat
     - — Building 2700 cleanrooms to new boiler on fourth floor (MR-#43).
     - — Building 2705 reheat on new heating boiler.
   - — Kitchen Equipment - Convert to gas appliances.
   - — Domestic Hot Water - Convert to gas with existing distribution system.

   Variations on the base case will be reviewed with specific changes being evaluated against the base. Each change or option will be looked at individually to see if it is beneficial or not to the base case. The options are limited and are listed below:

Base Case Options:

a. New Steam Heating Boilers in Building 2700 basement area for steam loads considered essential for year round operation. (This is in addition to new cleanroom boilers on the fourth floor.)

b. New Hot Water Boilers for Cleanroom (in lieu of new steam boiler).

c. Operate Ceanrooms with MCA Hot Water supplied from Building 2706 (utility). Requires year round operation of proposed boilers for system, and the installation of dedicated supply and return piping from Building 2706.

d. Electric Domestic Hot Water Generator with existing central system.

e. Decentralize Domestic Hot Water System with point of use electric water heaters.

The evaluation of the base case and it's options will determine the best answer for this ECO. Natural gas at $7.50/mcf will be assumed for all existing and future fuel requirements.

2. Occupied/Unoccupied cycle for the MCA 2-pipe AHU's time clocks, (perimeter heat by fan coil units).

3. Reduce Building Infiltration.

4. Replace Existing Central Chillers.

5. Convert Specific Air Cooled Chillers to Water Cooled Chillers.

6. Free Cooling for specific chiller loops using a heat exchanger with cooling tower water bypassing the chillers.

7. 2-Speed Fan Operation for Central Cooling Tower Optimization.

8. Replace DHW Recirculation Pumps.

9. Automated MCA HW Temperature Reset based on outside air temperature.

10. Full Chilled Water Storage for central chiller plant

11. Partial Chilled Water Storage for central chiller plant.

12. Variable Flow Primary-Secondary Chilled Water Distribution (to replace pressure bypass and primary system with VFD's on secondary loop).

6.3 ECOs Evaluations

ECO-1 and Options A, B, C, D and E, and ECO-2 through 12 follow in detail.

ECO-1
STEAM DECENTRALIZATION - BASE CASE

Existing. The present installation at Fort Monmouth for supplying steam to Buildings 2700, 2704, 2705, and 2715 is housed in the basement of Building 2700. Underground piping supplies and returns steam and condensate, respectively to/from the other buildings. Section 4, Table 4.5.4 reflects that in recent years the plant produces approximately 51,070 mlbs/yr.

Building 2706 Boiler Plant (MCA HW). For the existing conditions of this ECO we will assume that the new boilers in Building 2706 are up and running thereby separating the MCA hot water load from the existing boiler plant. The MCA hot water load is estimated to be 5,500 mlbs/yr (5,500 mmBtu/yr).

Since this is now considered a hot water boiler operation for the MCA system, we can eliminate most of the losses (leaks and heat loss) associated with this system by assuming a slightly lower boiler efficiency than what is expected (82-84%) with this new installation, taking into account some reduction due to system inefficiencies (ie: heat loss).

For this ECO we will assume an 80% efficiency for the existing (new) hot water boilers, and for all future boilers analyzed in this ECO. Additional losses will be applied to those boilers in future evaluations that are steam.

The existing fuel consumption in Building 2706 associated with producing hot water for the MCA system is estimated to be 6,670 mcf. The cost for MCA hot water production is $50,000.

Natural Gas (mcf) (for MCA Hot Water)	=	5,500 mmBtu/yr ÷.80 eff ÷ 1.031 mcf/mmBtu
Natural Gas (mcf)	=	6,670 mcf/yr

Fuel Cost ($)
(for MCA Hot Water) = 6,670 mcf/yr x $7.50/mcf = $50,000

Building 2700 Boiler Plant. From Table 5.2.7.2, the steam production required to support the remainder of the loads excluding the MCA hot water is 44,700 mlbs/yr (44,700 mmBtu/yr). The efficiency associated with Boiler #3 utilizing a new gas train is estimated to be 76%, which is the same as the past use with No. 2 fuel oil. The fuel consumption associated with these loads is 63,720 mcf. The fuel cost for these loads is $428,000.

Natural Gas (mcf)
(for Bldg 2700 plant) = 44,700 mmBtu/yr x .76 eff ÷ 1.031 mmBtu/mcf = 63,720 mcf/yr

Fuel Cost ($)
(for Bldg 2700 plant) = 63,720 mcf/yr x $7.50/mcf = $428,000

The combined yearly totals for the two boiler plants for production, fuel and cost are as follows:

	Heating (mmBtu/yr)	Fuel (mmBtu/yr)	Fuel Nat. Gas (mcf/yr)	Fuel Cost ($/yr)
Building 2706 BP (MCA HW)	5,500	6,875	6,670	$50,000
Building 2700 Boiler Plant	44,700	58,820	57,050	$428,000
Totals	50,200	65,695	63,720	$478,000

Building 2700 and 2706 Boiler Plant Electric Totals. The electric demand and consumption totals for the pumps related to Building 2700 steam/heating systems are calculated next. The forced draft fans for both the old and newer boilers with the existing condition are included in the miscellaneous totals in the Electric Model. Also included in these totals are the domestic hot

water pumps. Future changes are not expected to impact these totals to any degree. Only new pumps, boiler fans, etc. will be evaluated in the future section of this ECO. The annual electric demand and usage totals for the existing pumps associated with the Building 2700 and 2706 boiler plants are 462 kW/yr and 200,862 kWh/yr. All at a yearly cost of $17,068/yr. The summary is shown below. Also refer to Table ECO-1E following this page for the Electric Model impact.

Season	Demand (kW)	Off-Peak (kWh)	On-Peak (kWh)	Energy (mmBtu)	Cost ($)
Non-Summer	348	105,312	46,208	517	$12,813
Summer	114	33,840	15,040	167	$4,255
Totals	462	139,152	61,248	684	$17,068

The total energy cost to operate the two boilers and support equipment is approximately $495,000/yr.

Operating and Maintenance Cost.

The yearly operating and maintenance costs for the two plants is estimated to be approximately:

1) Building 2700 Continuous Operation/Monitoring (5 people) $200,000/yr
Equipment Maintenance (Boilers, pumps, etc.) $200,000/yr

2) Building 2706 Daily Monitoring $40,000/yr
Equipment Maintenance $50,000/yr

The one year cost for firing, operating and maintaining the two plants is estimated to be close to $1 million.

Energy Cost	$495,000
Operation/Maintenance	$490,000
Total	$985,000

HVAC Item	HVAC Airside Equipment - General Information				Cooling Equipment Field Data/Reference/(Location)	Total Connected Load (kW)	Winter Demand kW/month	Interm Dema kW/mo
	Design/Site Designation	Equip. Type	Field Data/Reference/(Location)	Area Served				
282	HWP-1	Pump	Allis Charmers - Building 2706	MCA Hot Water	N/A	11.2	8.4	
283	HWP-2	Pump	Allis Charmers - Building 2706	MCA Hot Water - Lag	N/A	11.2	8.4	
284	HWP-3	Pump	Allis Charmers - Building 2706	MCA Hot Water - Standby	N/A	11.2	0.0	
296	FWP-1	Pump	Aurora - Building 2700	Boiler Feedwater	N/A	18.7	14.0	
297	FWP-2	Pump	Worthington - Building 2700	Boiler Feedwater	N/A	18.7	0.0	
298	FWP-3	Pump	Ingersol Rand - Building 2700	Boiler Feedwater	N/A	18.7	0.0	
299	CP-1	Pump	Aurora - Building 2700	Condensate	N/A	3.7	2.8	
300	CP-2	Pump	Aurora - Building 2700	Condensate	N/A	3.7	2.8	
301	CP-7	Pump	Aurora - Building 2700	Condensate	N/A	3.7	2.8	
302	CP-8	Pump	Aurora - Building 2700	Condensate	N/A	3.7	2.8	
303	CP-1 (New)	Pump	unknown - Building 2706	Condensate	N/A	4.4	3.3	
				TOTALS		109	45	

(1)

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 ELECTRIC MODEL - EXISTING HEATING SYSTEM TOTALS

TABLE ECO-1-E

Area Served	Cooling Equipment Field Data/Reference/(Location)	Total Connected Load (kW)	Winter Demand kW/month	Intermed. Demand kW/month	Summer Demand kW/month	Winter Billing Months				Intermediate Billing Months				Summer Billing Months					
						Off-Peak		On-Peak		Off-Peak		On-Peak		Off-Peak		On-Peak			
						hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	Demand kW/Yr	Non Off-Peak KWH/Yr
Hot Water	N/A	11.2	8.4	6.7	0.0	12.0	4,032	8	1,792	9	3,024	6	1,344	0	0	0	0	69	28,22
Hot Water - Lag	N/A	11.2	8.4	6.7	0.0	4.0	1,344	2	448	3	1,008	2	448	0	0	0	0	69	9,40
Hot Water - Standby	N/A	11.2	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	
Feedwater	N/A	18.7	14.0	14.0	14.0	12	6,732	8	2,992	12	6,732	8	2,992	12	6,732	8	2,992	112	53,85
Feedwater	N/A	18.7	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	
Feedwater	N/A	18.7	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	
nsate	N/A	3.7	2.8	2.8	2.8	3.0	333	2	148	3	333	2	148	3	333	2	148	22	2,66
nsate	N/A	3.7	2.8	2.8	2.8	3.0	333	2	148	3	333	2	148	3	333	2	148	22	2,66
nsate	N/A	3.7	2.8	2.8	2.8	3.0	333	2	148	3	333	2	148	3	333	2	148	22	2,66
nsate	N/A	3.7	2.8	2.8	2.8	3.0	333	2	148	3	333	2	148	3	333	2	148	22	2,66
nsate	N/A	4.4	3.3	3.3	3.3	3.0	396	2	176	3	396	2	176	3	396	2	176	26	3,16
TOTALS		109	45	42	28	43	13,836	28	6,000	39	12,492	26	5,552	27	8,460	18	3,760	348	105,31

(2)

'MENT OF THE ARMY
ISTING HEATING SYSTEM TOTALS

)-1-E

g Months		Intermediate Billing Months				Summer Billing Months													
On-Peak		Off-Peak		On-Peak		Off-Peak		On-Peak		Non-Summer				Summer				Annual	
hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	Demand kW/Yr.	Off-Peak KWH/Yr.	On-Peak KWH/Yr.	Cost $	Demand kW/Yr	Off-Peak KWH/Yr.	On-Peak KWH/Yr.	Cost $	Cost $	No.
8	1,792	9	3,024	6	1,344	0	0	0	0	60	28,224	12,544	$3,172	0	0	0	$0	$3,172	282
2	448	3	1,008	2	448	0	0	0	0	60	9,408	3,584	$1,349	0	0	0	$0	$1,349	283
0	0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	284
8	2,992	12	6,732	8	2,992	12	6,732	8	2,992	112	53,856	23,936	$8,027	56	26,928	11,968	$3,069	$9,096	296
0	0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	297
0	0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	298
2	148	3	333	2	148	3	333	2	148	22	2,664	1,184	$436	11	1,332	592	$229	$665	299
2	148	3	333	2	148	3	333	2	148	22	2,664	1,184	$436	11	1,332	592	$229	$665	300
2	148	3	333	2	148	3	333	2	148	22	2,664	1,184	$436	11	1,332	592	$229	$665	301
2	148	3	333	2	148	3	333	2	148	22	2,664	1,184	$436	11	1,332	592	$229	$665	302
2	176	3	396	2	176	3	396	2	176	26	3,168	1,408	$519	13	1,584	704	$272	$791	303
28	6,000	39	12,492	26	5,552	27	8,460	18	3,760	348	105,312	46,208	$12,813	114	33,840	15,040	$4,255	$17,068	

(3)

Proposed.

To replace the outdated Central Steam Boiler Plant in Building 2700 with alternative methods for providing energy for heating and reheat where applicable for Buildings 2700, 2704, 2705, 2706 and 2715, domestic hot water for Building 2700, and new support equipment for the cafeteria in Building 2700. The proposed base case for this decentralization is as follows:

Steam Decentralization - Base Case

- Heating
  - Building 2700 AHU's and UH's converted to MCA 2-pipe hot water heating system/season.
  - Building's 2704 (steam) and 2705 (hot water) converted to new boiler plants located in/near each building. Steam coils and unit heaters to be replaced by hot water equipment in Building 2705.
- Reheat
  - Building 2700 cleanrooms to new steam (or hot water, see ECO-1B) boilers on fourth floor (MR-#43).
  - Building 2705 reheat on new hot water heating boilers.
- Kitchen Equipment - Convert to gas appliances.
- Domestic Hot Water - Convert to new gas generator with existing distribution system.

Note: See the proposed electric and the construction cost sections for implementation details about each of these.

Table 5.2.7.4 Summarizes the daily requirements in mlbs/day of steam. These totals when converted (1 to1) to mmBtu/day are listed in the following table. Since the old boiler loads are being replaced by new boilers including the hot water boilers in Building 2706 dedicated to the MCA system, we can lump the totals as shown. Some adjustments to the totals are made for incorporating losses associated with the steam boilers dedicated for Building 2704, and for the cleanroom areas in Building 2700. An additional 10% will be included for losses with heating Building 2704 and 10% is added to the reheat loads for Building 2700. The mmBtu/yr totals were adjusted accordingly. Refer to the following table for

the totals for heating type energies required with the proposed conditions.

Usage	Average mmBtu/day	Adjusted mmBtu/day	Total mmBtu/yr	Adjusted mmBtu/yr
Space Heating	22.3	22.6	8,140	8,240
Reheat	31.9	33.8	11,650	12,320
Domestic Hot Water	5.6	5.6	2,040	2,040
Cafeteria Use	1.6	1.6	600	600
Totals	61.4	63.6	22,430	23,200

Proposed Natural Gas Usage and Cost. Using the proposed adjusted energy requirements listed above we can now predict the fuel (natural gas) requirements for the new arrangement. As stated before, an efficiency of 80% will be assumed for all gas-fired heating equipment thereby allowing for grouping the different uses and/or boilers. The totals for fuel energy (mmBtu), natural gas (mcf), and fuel cost are summarized below with the total for fuel (natural gas) predicted to be about $211,000.

Usage	Heating (mmBtu/yr)	Fuel (mmBtu/yr)	Natural Gas (mcf/yr)	Fuel Cost ($/yr)
Space Heating	8,250	10,310	10,000	$75,000
Reheat	12,320	15,400	14,940	$112,050
Domestic Hot Water	2,040	2,550	2,475	$18,560
Cafeteria Use	600	750	725	$5,440
Totals	23,210	29,010	28,140	$211,050

Proposed Electric Usage and Cost. The proposed electric demand and usage totals for the decentralization of Buildings 2700's central steam plant is determined below. The following assumptions will be established

to support equipment for the installation of each piece of replacement equipment.

Proposed Electric Assumptions

1) Savings will be recognized from the elimination of the pumps related to the existing Building 2700 central steam plant.

2) Added energy costs will be incurred from the increased size in pump horsepower for the MCA system. This increase is from the added load (50%) being placed on the system. The new pumps are estimated to require 30 HP motors in lieu of the existing 15 HP motors.

3) Support of Building 2700, Fourth floor cleanroom loads will require (2) 25 HP boilers which will utilize forced draft fans estimated to be about 1.5 HP (each). The boiler feed (condensate return) pumps will require 0.5 HP motors (each).

4) The new steam boilers in Building 2704 will require forced draft fans of about 1 HP (each). The boiler feed (condensate return) pumps will require 0.5 HP motors (each). The lighting for the new space is estimated to be about 1.75 watt/ft^2 or 2600 watts.

5) The new hot water boilers in Building 2705 will require forced draft fans of about 1.5 HP (each). New hot water pumps are estimated to require 7.5 HP motors. The lighting for the new space is estimated to be about 1.75 watts/ft^2 or 2600 watts.

6) The electrical energies associated with changes to Building 2700's domestic hot water system, and cafeteria systems are assumed not to change.

7) Chemical treatment pumps if required, are not included in the totals.

8) The electrical requirements for the MCA boilers fans will go up but the elimination of the existing boiler plant's fan offsets these

totals. Again these values will not be separated and are considered in the miscellaneous totals.

The annual electric demand and usage totals for the proposed heating system equipment are 452 kW/yr and 220,068 kWh/yr, all at a cost of $18,157. The summary is shown below.

Season	Demand (kW)	Off-Peak (kWh)	On-Peak (kWh)	Energy (mmBtu)	Cost ($)
Non-Summer	394	139,680	53,392	659	$15,861
Summer	58	19,860	7,136	92	$2,296
Totals	452	159,540	60,528	751	$18,157

HVAC Item	HVAC Airside Equipment - General Information				Cooling Equipment Field Data/Reference/(Location)	Total Connected Load (kW)	Winter Demand kW/month	Intermed Demand kW/mont
	Design/Site Designation	Equip. Type	Field Data/Reference/(Location)	Area Served				
282	HWP-1	Pump	Allis Chalmers - Building 2706	MCA Hot Water	N/A	22.4	16.8	13
283	HWP-2	Pump	Allis Chalmers - Building 2706	MCA Hot Water - Lag	N/A	22.4	16.8	13
284	HWP-3	Pump	Allis Chalmers - Building 2706	MCA Hot Water - Standby	N/A	22.4	0.0	0
296	FWP-1	Pump	Aurora - Building 2700	Boiler Feedwater	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0
297	FWP-2	Pump	Worthington - Building 2700	Boiler Feedwater	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0
298	FWP-3	Pump	Ingersol Rand - Building 2700	Boiler Feedwater	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0
299	CP-1	Pump	Aurora - Building 2700	Condensate	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0
300	CP-2	Pump	Aurora - Building 2700	Condensate	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0
301	CP-7	Pump	Aurora - Building 2700	Condensate	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0
302	CP-8	Pump	Aurora - Building 2700	Condensate	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0
303	CP-1 (New)	Pump	unknown - Building 2706	Condensate	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0
320	-	F.D. Fan	Proposed as New in MR # 43	Building 2700 Cleanrooms	N/A	1.1	0.8	0
321	-	F.D. Fan	Proposed as New in MR # 43	Building 2700 Cleanrooms	N/A	1.1	0.8	0
322	-	Pump	Proposed as New in MR # 43	Building 2700 Cleanrooms	N/A	0.8	0.6	0
323	-	Pump	Proposed as New in MR # 43	Building 2700 Cleanrooms	N/A	0.8	0.6	0
324	-	F.D. Fan	Proposed Building 2704 Boiler Plant	Building 2704 Heating Loads	N/A	0.8	0.6	0
325	-	F.D. Fan	Proposed Building 2704 Boiler Plant	Building 2704 Heating Loads	N/A	0.8	0.6	0
326	-	Pump	Proposed Building 2704 Boiler Plant	Building 2704 Heating Loads	N/A	0.8	0.6	0
327	-	Pump	Proposed Building 2704 Boiler Plant	Building 2704 Heating Loads	N/A	0.8	0.6	0
328	-	Pump	Proposed Building 2704 Boiler Plant	Building 2704 Lighting	N/A	2.6	2.0	2
329	-	F.D. Fan	Proposed Building 2705 Boiler Plant	Building 2705 Heat/Reheat	N/A	1.1	0.8	0
330	-	F.D. Fan	Proposed Building 2705 Boiler Plant	Building 2705 Heat/Reheat	N/A	1.1	0.8	0
331	-	Pump	Proposed Building 2705 Boiler Plant	Building 2705 Heat/Reheat	N/A	5.6	4.2	4
332	-	Pump	Proposed Building 2705 Boiler Plant	Building 2705 Heat/Reheat	N/A	5.6	4.2	4
333	-	Lighting	Proposed Building 2705 Boiler Plant	Building 2704 Lighting	N/A	2.6	2.0	2
				TOTALS		93	53	4

(1)

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 ELECTRIC MODEL - PROPOSED DECENTRALIZED HEATING SYSTEM TOTALS

TABLE ECO-1-P

	Cooling Equipment Field Data/Reference/(Location)	Total Connected Load (kW)	Winter Demand kW/month	Intermed. Demand kW/month	Summer Demand kW/month	Winter Billing Months Off-Peak hrs/day	Winter Billing Months Off-Peak kWh/Mo	Winter Billing Months On-Peak hrs/day	Winter Billing Months On-Peak kWh/Mo	Intermediate Billing Months Off-Peak hrs/day	Intermediate Billing Months Off-Peak kWh/Mo	Intermediate Billing Months On-Peak hrs/day	Intermediate Billing Months On-Peak kWh/Mo	Summer Billing Months Off-Peak hrs/day	Summer Billing Months Off-Peak kWh/Mo	Summer Billing Months On-Peak hrs/day	Summer Billing Months On-Peak kWh/Mo	Non-Summer Demand kW/Yr.	Non-Summer Off-Peak KWH/Yr.	Non-Summer On-Peak KWH/Yr.
	N/A	22.4	16.8	13.4	0.0	12.0	8,064	8	3,584	9	6,048	6	2,688	0	0	0	0	121	56,448	25,088
	N/A	22.4	16.8	13.4	0.0	8.0	5,376	4	1,792	6	4,032	3	1,344	0	0	0	0	121	37,632	12,544
dby	N/A	22.4	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
oms	N/A	1.1	0.8	0.8	0.0	12.0	396	8	176	12	396	8	176	12	396	8	176	7	3,168	1,408
oms	N/A	1.1	0.8	0.8	0.0	3.0	99	0	0	3	99	0	0	0	0	0	0	7	792	0
oms	N/A	0.8	0.6	0.6	0.6	12.0	270	8	120	12	270	8	120	12	270	8	120	5	2,160	960
oms	N/A	0.8	0.6	0.6	0.6	3.0	68	0	0	3	68	0	0	3	68	0	0	5	540	0
Loads	N/A	0.8	0.6	0.6	0.0	12.0	288	8	128	8	192	4	64	0	0	0	0	5	1,920	768
Loads	N/A	0.8	0.6	0.6	0.0	3.0	72	0	0	3	72	0	0	0	0	0	0	5	576	0
Loads	N/A	0.8	0.6	0.6	0.6	12.0	270	8	120	8	180	4	60	0	0	0	0	5	1,800	720
Loads	N/A	0.8	0.6	0.6	0.6	3.0	68	0	0	3	68	0	0	3	68	0	0	5	540	0
	N/A	2.6	2.0	2.0	2.0	8.0	624	4	208	8	624	4	208	8	624	4	208	16	4,992	1,664
heat	N/A	1.1	0.8	0.8	0.0	12.0	396	8	176	12	396	8	176	12	396	8	176	7	3,168	1,408
heat	N/A	1.1	0.8	0.8	0.0	3.0	99	0	0	3	99	0	0	0	0	0	0	7	792	0
heat	N/A	5.6	4.2	4.2	4.2	12.0	2,016	8	896	12	2,016	8	896	12	2,016	8	896	34	16,128	7,168
heat	N/A	5.6	4.2	4.2	4.2	3.0	504	0	0	3	504	0	0	3	504	0	0	34	4,032	0
	N/A	2.6	2.0	2.0	2.0	8.0	624	4	208	8	624	4	208	8	624	4	208	16	4,992	1,664
TALS		93	53	46	15	126	19,233	68	7,408	113	15,687	57	5,940	73	4,965	40	1,784	394	139,680	53,392

(2)

OF THE ARMY
TRALIZED HEATING SYSTEM TOTALS

	Intermediate Billing Months				Summer Billing Months													
	Off-Peak		On-Peak		Off-Peak		On-Peak		Non-Summer				Summer				Annual	
Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	Demand kW/Yr.	Off-Peak KWH/Yr.	On-Peak KWH/Yr.	Cost $	Demand kW/Yr.	Off-Peak KWH/Yr.	On-Peak KWH/Yr.	Cost $	Cost $	No.
584	9	6,048	6	2,688	0	0	0	0	121	56,448	25,088	$6,345	0	0	0	$0	$6,345	282
792	6	4,032	3	1,344	0	0	0	0	121	37,632	12,544	$4,262	0	0	0	$0	$4,262	283
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	284
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	296
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	297
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	298
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	299
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	300
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	301
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	302
0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	303
176	12	396	8	176	12	396	8	176	7	3,168	1,408	$355	0	1,584	704	$150	$505	320
0	3	99	0	0	0	0	0	0	7	792	0	$104	0	0	0	$0	$104	321
120	12	270	8	120	12	270	8	120	5	2,160	960	$242	2	1,080	480	$123	$365	322
0	3	68	0	0	3	68	0	0	5	540	0	$71	2	270	0	$38	$109	323
328	8	192	4	64	0	0	0	0	5	1,920	768	$215	0	0	0	$0	$215	324
0	3	72	0	0	0	0	0	0	5	576	0	$76	0	0	0	$0	$76	325
120	8	180	4	60	0	0	0	0	5	1,800	720	$202	2	0	0	$21	$223	326
0	3	68	0	0	3	68	0	0	5	540	0	$71	2	270	0	$38	$109	327
208	8	624	4	208	8	624	4	208	16	4,992	1,664	$562	8	2,496	832	$288	$850	328
176	12	396	8	176	12	396	8	176	7	3,168	1,408	$355	0	1,584	704	$150	$505	329
0	3	99	0	0	0	0	0	0	7	792	0	$104	0	0	0	$0	$104	330
896	12	2,016	8	896	12	2,016	8	896	34	16,128	7,168	$1,805	17	8,064	3,584	$919	$2,724	331
0	3	504	0	0	3	504	0	0	34	4,032	0	$531	17	2,016	0	$281	$812	332
208	8	624	4	208	8	624	4	208	16	4,992	1,664	$562	8	2,496	832	$288	$850	333
208	113	15,687	57	5,940	73	4,965	40	1,784	394	139,680	53,392	$15,861	58	19,860	7,136	$2,296	$18,157	

(3)

Proposed Operating and Maintenance Cost.

The proposed yearly operating and maintenance costs for the decentralized boiler plant are estimated. Estimates for Building 2706 have been raised because the proposed load on this system has been increased by 50% causing speculation for more attention and costs.

1) Building 2706 (MCA Hot Water)	Daily Monitoring	$50,000/yr
	Equipment Maintenance	$70,000/yr
2) Building 2700 (Cleanrooms)	Daily Monitoring	$30,000/yr
	Equipment Maintenance	$30,000/yr
3) Building 2704 (Steam)	Daily Monitoring	$30,000/yr
	Equipment Maintenance	$30,000/yr
4) Building 2705 (Hot Water)	Daily Monitoring	$30,000/yr
	Equipment Maintenance	$30,000/yr
Totals	Daily Monitoring	$140,000/yr
	Equipment Maintenance	$160,000/yr

The proposed one year cost for firing, operating and maintaining the decentralized boiler plant is estimated to be near $538,000.

Energy Cost	$238,000
Operation/Maintenance	$300,000
Total	$538,000

Construction Cost.

The construction costs for decentralizing the Building 2700 boiler plant system is estimated to be about $1,340,000.

There are six (6) major changes required to accomplish the decentralization. The description and estimated costs for the six changes to the systems are listed below and discussed further in detail in this section.

1) Building 2700 steam air handling coils and unit heaters switched to MCA hot water. The existing hot water pumps would also be replaced with this option.

2) Building 2700 cleanroom loads dedicated to new steam (or hot water ECO-1B) boilers located in Machine Room #43 on the fourth floor.

3) Building 2700 domestic hot water loads dedicated to a new hot water generator in the old boiler room in the basement.

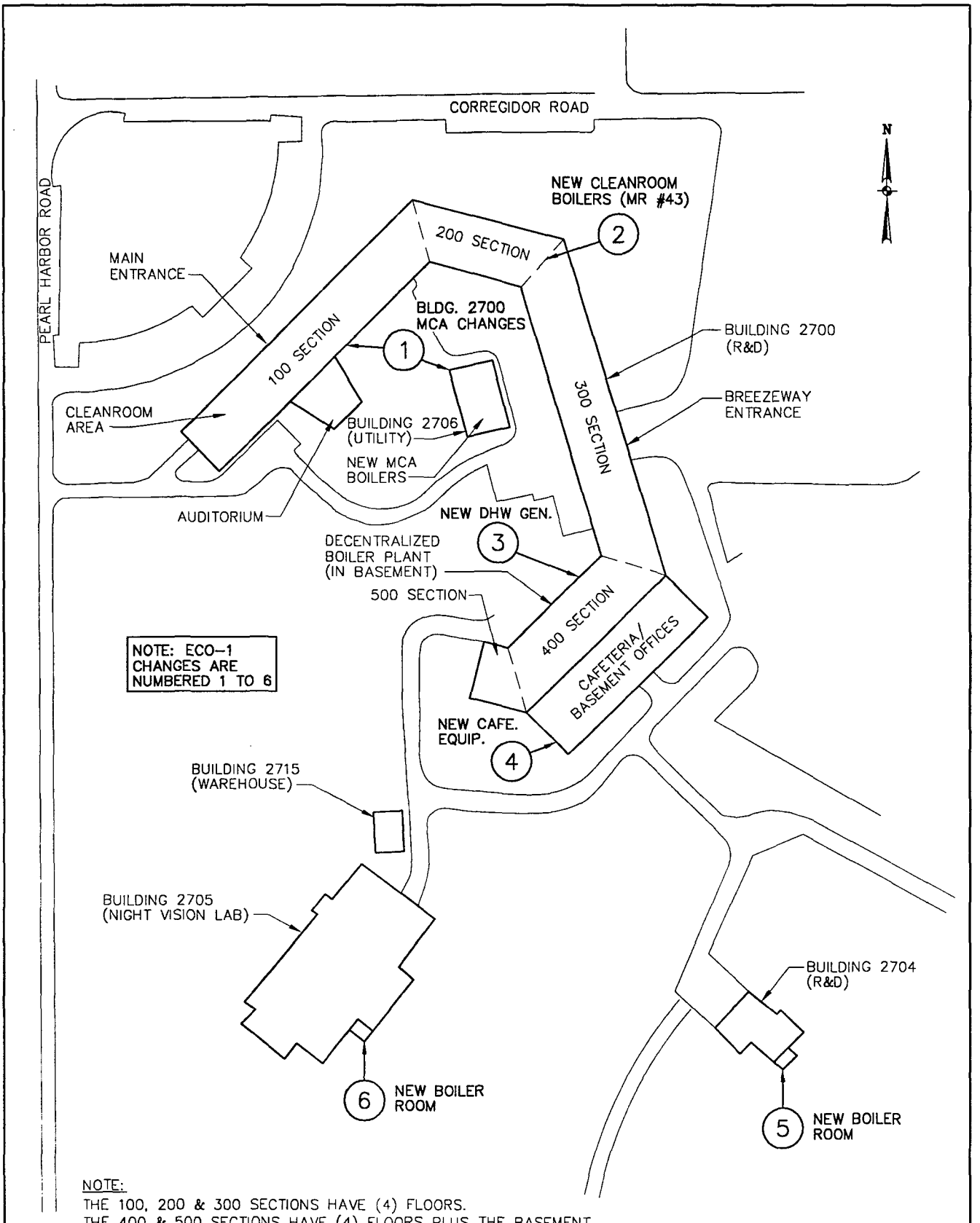
4) Building 2700 cafeteria steam loads converted to new gas-fired equipment.

5) Building 2704 heating loads dedicated to new steam boilers housed in a new building structure located near the existing mechanical room that contains the supply and return piping to the system.

6) Buildings 2705 and 2715 heating loads and Building 2705 reheat loads dedicated to new hot water boilers housed in a new building structure located near the existing mechanical room that contains the supply and return piping to the systems.

Note: Details and costs associated with the demolition, cleanup, and any possible renovations to the existing boiler plant space, after the decentralization is complete, are not speculated in this report. Provisions for heating this space, if required, are not detailed but some costs have been included by raising the contigency totals by 3%. The impact to the ECO for providing heat to this area is considered minor.

Each change is described on the following pages and included are the cost estimates for each. Figure ECO-1 is a markup of the site plant from section locating the changes described. At the end of this section is an estimate that summarizes all six changes.



NOTE:
THE 100, 200 & 300 SECTIONS HAVE (4) FLOORS.
THE 400 & 500 SECTIONS HAVE (4) FLOORS PLUS THE BASEMENT.

U.S. ARMY ENGINEER DISTRICT, MOBILE/NORFOLK

FORT MONMOUTH NEW JERSEY

LIMITED ENERGY STUDY, EEAP PROGRAM
MYER CENTER, BLDG. 2700 – SITE PLAN

ENTECH Engineering Inc.
4 SOUTH FOURTH STREET P.O. BOX 32 READING, PA 19603 (610) 373-6667
1851 WEST END AVE P.O. BOX 389 POTTSVILLE, PA 17901 (717) 628-5655

DATE	DRAWN BY	CHECKED BY	PROJ. MGR.	APPROVED	
12/28/95	RJI	JED	ELC		
SCALE	PROJECT NO.		DRAWING NO.		REVISION
1" = 200'	4130.05		FIG. ECO-1		0

1. Building 2700 - Steam Air Handling Coils and Unit Heaters to MCA-HW.

With the exception of the one cleanroom on the second floor and the three on the fourth floor all the remaining steam supplied heating devices in Building 2700 will be replaced by MCA Hot Water Coils/Equipment operating on a seven month schedule. The steam coils in the (19) air handlers will be replaced by hot water coils and the (21) steam unit heaters will be replaced by hot water unit heaters. The two types total up to about 400 gallons per minute of additional connected load for the MCA system. The existing connected load is about 650 gpm bringing the proposed total to about 1,050 gpm. Presently the MCA system with its two (2) 8,400 mmBtu/hr hot water boilers in Building 2706 has two (2) of three (3) pumps operating at 455 gpm each. With the proposed MCA load additions, these three (3) pumps are recommended for changeout to larger pumps estimated to be about 550-600 gpm in capacity.

The 2-pipe MCA water distribution system was sized for chilled water and therefore it is not a problem (in general) to add flow to the system piping. Controls and individual feed details would have to be resolved during the design phase.

Refer to the following two tables ECO-1AHU and ECO-1UH which document the individual units and their demands. The coil piping size is also shown in these tables. Those sizes range from 3/4" to 2" for the air handler coils and 3/4" to 1-1/4" for the unit heaters.

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 AHU SWITCHOVER FROM STEAM TO MCA HOT WATER COILS

TABLE EC0-1AHU

HVAC Item	HVAC Airside Equipment - General Information				Est. Airside/Fan Data (Evap. Fan)					Est. Heating Load		Heating Type (Est. Flows/KW)			Coil
	Design/Site Designation	Equip. Type	Field Data/Reference/(Location)	Area Served	Flowrate (cfm)	OA (cfm)	TSP (in w.g.)	Supp.Fan (hp)	RA/OA (hp)	Heating (MBH)	Re-Heat (MBH)	Steam (lb/hr)	MCA-HW (gpm)	Electric (Kw)	Line Size (inches)
1	-	AHU	McQuay LML(OA418 - JCALS)	Cafeteria	21,300	2,130	3	20		492	0	N/A	49	N/A	2"
4	-	AHU	unknown(OA400)	OA400 (J-CALS)	21,300	2,130	3	20		492	0	N/A	49	N/A	2"
26	-	AHU	unknown(1B115)	1B115 office/storage	3600	540	3	3		40	0	N/A	4.0	N/A	3/4"
34	-	AHU	Comfort Air(1B138)	1B138 Offices	3,810	572	2	2		42	0	N/A	4.2	N/A	3/4"
35	AC-1(New)	AHU	Dunham Bush(1B142)	1B142	8,700	1,305	2.6	7.5		96	0	N/A	10	N/A	1 1/4"
36	-	AHU	Chrysler 1005(1B141A)	1B141A	1,905	286	2	1		21	0	N/A	2.1	N/A	3/4"
47	-	AHU	Carrier 50(1B202 - Photography)	1B202	1,905	286	2	1		21	0	N/A	2.1	N/A	3/4"
48	-	AHU	Trane SAHB(1B205 - EMS Room)	1B205	2,286	343	2	1		25	0	N/A	2.5	N/A	3/4"
50	-	AHU	Chrysler 1005(1B212)	1B212	1,905	286	2	1		21	0	N/A	2.1	N/A	3/4"
89	-	AHU	McQuay LSL(Auditorium M-Area)	Auditorium	7,700	1,540	3	7.5		110	0	N/A	11	N/A	1 1/4"
90	-	AHU	McQuay LSL(Auditorium M-Area)	Auditorium	7,700	1,540	3	7.5		110	0	N/A	11	N/A	1 1/4"
91	AC-1	AHU	unknown(MR - 1aB138/Mezz.)	1aB138 Mezz. Area	8,165	1,650	2	5		132	0	N/A	13	N/A	1 1/4"
94	AC-2	AHU	unknown(MR - 21 South 2C/D100 Area)	2D110 offices	11,800	800	1	5		128	0	N/A	13	N/A	1 1/4"
97	AC-3	AHU	unknown(MR - 22 North 2C/D100 Area)	2D130 electronics lab	10,200	2,100	2	5		209	0	N/A	21	N/A	1 1/2"
106	AC-14	AHU	unknown(MR - 23 East 2C/D200 Area)	2D306 lab area	16,520	2,250	2	7.5		393	0	N/A	39	N/A	2"
131	-	(2)AHU	York(MR - 33 East 3C/D200 Area)	3D306-3C321 lab area	32,000	3,200	3	30		458	0	N/A	46	N/A	2"
135	-	AHU	Climatrol(MR-34 South 3C/D300 Area)	3D330 Cleanroom	25,000	5,000	3	20		358	0	N/A	36	N/A	2"
152	AC-7	AHU	unknown(MR - 41 South 4C/D100 Area)	4D110 lab/offices	16,300	2,000	3	10		264	0	N/A	26	N/A	1 1/2"
				Basement, First, Second, Third and Fourth Floors	202,096	27,957	N/A	154	0	3,411	0	0	341	0	-

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 UH SWITCHOVER FROM STEAM TO MCA HOT WATER UNIT HEATERS

TABLE EC0-1UH

HVAC Item	HVAC Airside Equipment - General Information				Est. Airside/Fan Data (Evap. Fan)					Est. Heating Load		Heating Type (Est. Flows/KW)			Coil
	Design/Site Designation	Equip. Type	Field Data/Reference/(Location)	Area Served	Flowrate (cfm)	OA (cfm)	TSP (in w.g.)	Supp.Fan (hp)	RA/OA (hp)	Heating (MBH)	Re-Heat (MBH)	Steam (lb/hr)	MCA-HW (gpm)	Electric (Kw)	Line Size (inches)
15	-	UH	unknown(OA501-storage)	OA501	320	0	0.5	0.04		20	0	N/A	2.0	N/A	3/4"
16	-	UH	unknown(OA503-storage)	OA503	320	0	0.5	0.04		20	0	N/A	2.0	N/A	3/4"
17	-	UH	unknown(OA321-hallway)	OA321	320	0	0.5	0.04		20	0	N/A	2.0	N/A	3/4"
18	-	UH	unknown(OA326-Substations #2 & 6)	OA326	320	0	0.5	0.04		20	0	N/A	2.0	N/A	3/4"
19	-	UH	unknown(OA328-Substations #2 & 6)	OA328	320	0	0.5	0.04		20	0	N/A	2.0	N/A	3/4"
37	-	UH	unknown(Stairway #1)	Stairway #1	250	0	0.5	0.04		15	0	N/A	1.5	N/A	3/4"
38	-	UH	unknown(1B107 - storage)	1B107	640	0	0.5	0.1		40	0	N/A	4.0	N/A	3/4"
39	-	UH	unknown(1B109 - storage)	1B109	640	0	0.5	0.1		40	0	N/A	4.0	N/A	3/4"
40	-	UH	unknown(1B111- storage)	1B111	640	0	0.5	0.1		40	0	N/A	4.0	N/A	3/4"
41	-	UH	unknown (1B109 - storage)	1B107	250	0	0.5	0.04		15	0	N/A	1.5	N/A	3/4"
42	-	UH	unknown (1B110 - shop)	1B110	500	0	0.5	0.1		30	0	N/A	3.0	N/A	3/4"
43	-	UH	unknown(Stairway #3)	Stairway #3	250	0	0.5	0.04		15	0	N/A	1.5	N/A	3/4"
51	-	UH	unknown (1B212 - shop)	1B212	500	0	0.5	0.1		30	0	N/A	3.0	N/A	3/4"
60	-	UH	unknown(Stairway #4)	Stairway #4	200	0	0.5	0.03		10	0	N/A	1.0	N/A	3/4"
61	-	UH	unknown(1B307))	1B307	1,000	0	0.5	0.15		66	0	N/A	6.6	N/A	1"
62	UH-21	UH	unknown(hallway near 1B322)	hallway	320	0	0.5	0.05		20	0	N/A	2.0	N/A	3/4"
63	-	UH	unknown(1B321 Receiving)	1B321	1,300	0	0.5	0.20		84	0	N/A	8.4	N/A	1 1/4"
64	-	UH	unknown(1B321 Receiving)	1B321	1,300	0	0.5	0.20		84	0	N/A	8.4	N/A	1 1/4"
66	UH-23	UH	unknown(Stairway #6)	Stairway #6	200	0	0.5	0.03		10	0	N/A	1.0	N/A	3/4"
79	-	UH	unknown(Stairway #7)	Stairway #7	320	0	0.5	0.05		15	0	N/A	1.5	N/A	3/4"
80	-	UH	unknown(Stairway #11)	Stairway #11	200	0	0.5	0.03		10	0	N/A	1.0	N/A	3/4"
				Basement and First Floors	9,150	0	N/A	1	0	564	0	0	62	0	-

To determine cost estimates for these steam to MCA hot water changeouts, we must first develop costs for each coil/unit heater replacement. Unit costs for material and labor were developed for each size based on Means Estimating Methods and they are tabled below. An estimated 200 linear feet of piping has been assumed for each new MCA HW user.

Pipe Size	Control Valve		Balancing Valve		Y-Strainer		Misc. Valves		Piping		Total Cost	
	Mat'l	Labor	Mat'l	Labor	Mat'l	Labor	Mat'l	Labor	Mat'l	Labor	Mat'l	Labor
3/4"	600	50	40	10	10	15	60	75	800	800	$1,510	$950
1"	700	60	50	15	15	15	95	90	1,000	800	$1,860	$980
1-1/4"	850	70	60	20	20	20	150	120	1,200	1,000	$2,280	$1,230
1-1/2"	900	100	70	25	30	25	180	150	1,400	1,200	$2,580	$1,500
2"	1,000	120	100	50	40	30	250	200	1,600	1,600	$2,990	$2,000

From these unit costs we can proceed in determining the estimated costs for material and labor for each unit being reworked. The total costs for the AHU coils is approximately $60,000 for material and $54,400 for labor. As for replacing the unit heaters the costs are estimated to be $43,000 and $32,000 respectively for material and labor. These estimates are summarized in Tables ECO-1AHU-C and ECO-1UH-C.

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 AHU SWITCHOVER FROM STEAM TO MCA HOT WATER COILS - COST ESTIMATE

TABLE EC0-1AHU-C

HVAC Item	HVAC Airside Equipment - General Information				Demand MCA-HW (gpm)	Coil Line Size (inches)	AHU Unit Steam Coil Demo.		AHU Unit Hot Water Coil		Hot Water Coil Piping Costs		AHU Unit Total Rework Costs	
	Design/Site Designation	Equip. Type	Field Data/Reference/(Location)	Area Served			Material	Labor	Material	Labor	Material	Labor	Material	Labor
1	-	AHU	McQuay LML(OA418 - JCALS)	Cafeteria	49	2"	$200	$1,500	$1,500	$750	$3,000	$2,000	$4,700	$4,250
4	-	AHU	unknown(OA400)	OA400 (J-CALS)	49	2"	$200	$1,500	$1,500	$750	$3,000	$2,000	$4,700	$4,250
26	-	AHU	unknown(1B115)	1B115 office/storage	4	3/4"	$200	$1,000	$300	$150	$1,510	$950	$2,010	$2,100
34	-	AHU	Comfort Air(1B138)	1B138 Offices	4	3/4"	$200	$1,000	$300	$150	$1,510	$950	$2,010	$2,100
35	AC-1(New)	AHU	Dunham Bush(1B142)	1B142	10	1 1/4"	$200	$1,200	$800	$400	$2,280	$1,230	$3,280	$2,830
36	-	AHU	Chrysler 1005(1B141A)	1B141A	2	3/4"	$200	$1,000	$300	$150	$1,510	$950	$2,010	$2,100
47	-	AHU	Carrier 50(1B202 - Photography)	1B202	2	3/4"	$200	$1,000	$300	$150	$1,510	$950	$2,010	$2,100
48	-	AHU	Trane SAHB(1B205 - EMS Room)	1B205	3	3/4"	$200	$1,000	$300	$150	$1,510	$950	$2,010	$2,100
50	-	AHU	Chrysler 1005(1B212)	1B212	2	3/4"	$200	$1,000	$300	$150	$1,510	$950	$2,010	$2,100
89	-	AHU	McQuay LSL(Auditorium M-Area)	Auditorium	11	1 1/4"	$200	$1,200	$800	$400	$2,280	$1,230	$3,280	$2,830
90	-	AHU	McQuay LSL(Auditorium M-Area)	Auditorium	11	1 1/4"	$200	$1,200	$800	$400	$2,280	$1,230	$3,280	$2,830
91	AC-1	AHU	unknown(MR - 1aB138/Mezz.)	1aB138 Mezz. Area	13	1 1/4"	$200	$1,200	$800	$400	$2,280	$1,230	$3,280	$2,830
94	AC-2	AHU	unknown(MR - 21 South 2C/D100 Area)	2D110 offices	13	1 1/4"	$200	$1,200	$800	$400	$2,280	$1,230	$3,280	$2,830
97	AC-3	AHU	unknown(MR - 22 North 2C/D100 Area)	2D130 electronics lab	21	1 1/2"	$200	$1,200	$1,000	$500	$2,580	$1,500	$3,780	$3,200
106	AC-14	AHU	unknown(MR - 23 East 2C/D200 Area)	2D306 lab area	39	2"	$200	$1,500	$1,500	$750	$3,000	$2,000	$4,700	$4,250
131	-	(2)AHU	York(MR - 33 East 3C/D200 Area)	3D306-3C321 lab area	46	2"	$200	$1,500	$1,500	$750	$3,000	$2,000	$4,700	$4,250
135	-	AHU	Climatrol(MR-34 South 3C/D300 Area)	3D330 Cleanroom	36	2"	$200	$1,500	$1,500	$750	$3,000	$2,000	$4,700	$4,250
152	AC-7	AHU	unknown(MR - 41 South 4C/D100 Area)	4D110 lab/offices	26	1 1/2"	$200	$1,200	$1,000	$500	$2,580	$1,500	$3,780	$3,200
				Basement, First, Second, Third and Fourth Floors	341	-	$3,600	$21,900	$15,300	$7,650	$40,620	$24,850	$59,520	$54,400

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 UH SWITCHOVER FROM STEAM TO MCA HOT WATER UNIT HEATERS - COST ESTIMATE

TABLE EC0-1UH - C

HVAC Item	HVAC Airside Equipment - General Information				Demand MCA-HW (gpm)	Coil Line Size (inches)	Steam Unit Heater Demolition Costs.		HW Unit Heater Installation Costs		HW Unit Heater Piping Costs		Unit Heater Total Rework Costs	
	Design/Site Designation	Equip. Type	Field Data/Reference/(Location)	Area Served			Material	Labor	Material	Labor	Material	Labor	Material	Labor
15	-	UH	unknown(OA501-storage)	OA501	2	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
16	-	UH	unknown(OA503-storage)	OA503	2	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
17	-	UH	unknown(OA321-hallway)	OA321	2	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
18	-	UH	unknown(OA326-Substations #2 & 6)	OA326	2	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
19	-	UH	unknown(OA328-Substations #2 & 6)	OA328	2	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
37	-	UH	unknown(Stairway #1)	Stairway #1	1.5	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
38	-	UH	unknown(1B107 - storage)	1B107	4	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
39	-	UH	unknown(1B109 - storage)	1B109	4	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
40	-	UH	unknown(1B111- storage)	1B111	4	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
41	-	UH	unknown (1B109 - storage)	1B107	1.5	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
42	-	UH	unknown (1B110 - shop)	1B110	3	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
43	-	UH	unknown(Stairway #3)	Stairway #3	1.5	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
51	-	UH	unknown (1B212 - shop)	1B212	3	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
60	-	UH	unknown(Stairway #4)	Stairway #4	1	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
61	-	UH	unknown(1B307))	1B307	6.6	1"	$50	$500	$800	$300	$1,860	$980	$2,710	$1,780
62	UH-21	UH	unknown(hallway near 1B322)	hallway	2	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
63	-	UH	unknown(1B321 Receiving)	1B321	8.4	1 1/4"	$50	$500	$1,000	$400	$2,280	$1,230	$3,330	$2,130
64	-	UH	unknown(1B321 Receiving)	1B321	8.4	1 1/4"	$50	$500	$1,000	$400	$2,280	$1,230	$3,330	$2,130
66	UH-23	UH	unknown(Stairway #6)	Stairway #6	1	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
79	-	UH	unknown(Stairway #7)	Stairway #7	1.5	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
80	-	UH	unknown(Stairway #11)	Stairway #11	1	3/4"	$50	$500	$700	$300	$1,510	$950	$2,260	$1,750
				Basement and First Floors	62	-	$900	$9,000	$13,300	$5,600	$29,070	$17,690	$43,270	$32,290

The cost estimate including factors for Material (10%) and Labor (55%), Overhead and Profit, Contingency (10%) and the Life Cycle Analyses for SIOH (5.5%), and the Design Fee (6%) can now be completed for the first of six (6) changes for Building 2700 Boiler Plan Decentralization. From the cost estimate attached we can see that the construction cost estimate to change the steam coils and unit heaters in Building 2700 to MCA hot water is approximately $417,000. Note, the contingency for this option was increased from 15% to 18% to accommodate the installation of unit heaters in the existing boiler plant area. The energy used by these is considered to be minor and therefore not included in the analysis.

FORT MONMOUTH
PROJECT COST ESTIMATE

BUILDING 2700 DECENTRALIZATION (EC0-1 - CH #1) - STEAM AHU COILS & UNIT HEATERS TO MCA HW

NO.	DESCRIPTION	QTY	UNIT	MATERIAL		LABOR		TOTAL BARE COST	COMMENTS
				$/UNIT	COST	$/UNIT	COST		
1	Replace AHU Steam Coils w/MCA HW Coils	1	Lot	$59,500.00	$59,500	$54,400.00	$54,400	$113,900	See Table ECO-1AHU-C
2	Replace Steam Unit Heaters w/MCA UH's	1	Lot	$43,300.00	$43,300	$32,300.00	$32,300	$75,600	See Table ECO-1UH-C
3	Replace (3) Existing MCA HW Pumps	3	Each	$3,000.00	$9,000	$2,000.00	$6,000	$15,000	Including Demolition & Foundation Work
4	Electrical wiring, connections, etc. for Pumps	3	Each	$1,000.00	$3,000	$2,000.00	$6,000	$9,000	Including Demolition
5	Rework Piping Around Pumps	1	Lot	$3,000.00	$3,000	$5,000.00	$5,000	$8,000	In Building 2706
6	Control Adjustments, etc.	1	Lot	$500.00	$500	$1,000.00	$1,000	$1,500	
7	Misc. Reworking of Distribution Pipng	1	Lot	$3,000.00	$3,000	$3,000.00	$3,000	$6,000	
8	System Balancing	1	Lot	$1,000.00	$1,000	$10,000.00	$10,000	$11,000	
9					$0		$0	$0	
10					$0		$0	$0	
11					$0		$0	$0	
12					$0		$0	$0	
13					$0		$0	$0	
14					$0		$0	$0	
15					$0		$0	$0	
16					$0		$0	$0	
17					$0		$0	$0	
18					$0		$0	$0	
19					$0		$0	$0	
20					$0		$0	$0	
21					$0		$0	$0	
22					$0		$0	$0	
23					$0		$0	$0	
24					$0		$0	$0	
25					$0		$0	$0	
26					$0		$0	$0	
27					$0		$0	$0	
	SUBTOTAL							$240,000	
	OVERHEAD AND PROFIT				$12,200		$64,700	$76,900	
	CITY COST INDEX MULTIPLIER								
	DIFFICULTY FACTOR								
	CONTINGENCY (18 %)				$24,200		$32,800	$57,000	
	SIOH(5.5%) & DESIGN FEE(6%)			21,000		22,000		$43,000	
	BASE TOTAL COST				**$159,000**		**$215,000**	**$417,000**	

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2. Building 2700 - Cleanroom Loads Converted to New Steam Boilers on the Fourth Floor (for Hot Water Boilers see ECO-1B)

Three (3) cleanrooms on the fourth floor and one (1) small cleanroom on the second floor require reheat year round. Presently these areas are supported by the building steam distribution system which is being considered for abandonment through this decentralization ECO. Since the MCA hot water system is only available for about seven months out of the year, another source is required.

In place of the existing steam system to these cleanroom units, Entech proposes that Machine Room #43 be converted into a boiler room. Fire rated doors, and dampers for air shaft connections, shall be required to make this room acceptable for steam production. Some demolition will also be needed to clear the room for the boilers, etc. Per the appropriate military guidelines, the individual sizing of the two boilers is 780 lb/hr or 25 HP which is 65% of the overall peak requirement of about 1,200 lbs/hr of steam. The installation will require not only the two boilers and the above mentioned room changes but also support equipment including condensate receiver/pump set, chemical treatment, electrical work, and the piping from Machine Room #43 to the applicable cleanrooms.

The total cost for converting the Building 2700 cleanroom loads to a dedicated steam boiler system is estimated to be about $289,000.

FORT MONMOUTH
PROJECT COST ESTIMATE

BUILDING 2700 DECENTRALIZATION (EC0-1 - CH #2) - CLEANROOM STEAM LOADS TO NEW STEAM BOILERS (MR #43)

NO.	DESCRIPTION	QTY	UNIT	MATERIAL		LABOR		TOTAL BARE COST	COMMENTS
				$/UNIT	COST	$/UNIT	COST		
1	Demolition/Removal of Abandoned Equipment	1	Lot	$3,000.00	$3,000	$5,000.00	$5,000	$8,000	
2	Install (2) Large Fire Doors	2	Each	$2,000.00	$4,000	$500.00	$1,000	$5,000	
3	Seal Penetrations	1	Lot	$1,000.00	$1,000	$2,000.00	$2,000	$3,000	
4	Install (2) Duct Mounted Fire Dampers	2	Each	$500.00	$1,000	$1,000.00	$2,000	$3,000	
5	Install (2) 25 HP Steam Boilers	2	Each	$15,000.00	$30,000	$7,000.00	$14,000	$44,000	Including Foundation Work
6	Install Primary Condensate Receiver/Pumps Se	1	Lot	$500.00	$500	$1,000.00	$1,000	$1,500	Including Foundation Work
7	Install Chemical Feed System	1	Lot	$1,500.00	$1,500	$1,000.00	$1,000	$2,500	
8	Electrical Work for Pumps, Boiler Fans, etc.	1	Lot	$3,000.00	$3,000	$6,000.00	$6,000	$9,000	
9	Steam Piping to 4TH Floor Cleanrooms	1,000	Each	$13.00	$13,000	$11.00	$11,000	$24,000	Including Insulation
10	Condensate Piping to 4TH Floor Cleanrooms	1,000	Each	$8.00	$8,000	$8.00	$8,000	$16,000	Including Insulation
11	Steam Piping to 2ND Floor Cleanrooms	500	Each	$8.00	$4,000	$8.00	$4,000	$8,000	Including Insulation
12	Condensate Piping to 2ND Floor Cleanrooms	500	Each	$7.00	$3,500	$7.00	$3,500	$7,000	Including Insulation
13	Miscellaneous Steam Valves, Strainers, etc.	1	Lot	$8,000.00	$8,000	$2,000.00	$2,000	$10,000	
14	Condensate Pump Sets For Cleanrroom Feeds	2	Lot	$300.00	$600	$800.00	$1,600	$2,200	
15	Make-up Water Feed including Valving	500	Each	$7.00	$3,500	$7.00	$3,500	$7,000	Including Insulation
16	Natural Gas Piping From First Floor	1,000	Each	$5.00	$5,000	$5.00	$5,000	$10,000	
17	Miscellaneous Natural Gas Valves, Strainers, et	1	Lot	$3,000.00	$3,000	$500.00	$500	$3,500	
18	Provide Vent Stack(s) Thru Roof	2	Each	$3,000.00	$6,000	$2,000.00	$4,000	$10,000	
19					$0		$0	$0	
20					$0		$0	$0	
21					$0		$0	$0	
22					$0		$0	$0	
23					$0		$0	$0	
24					$0		$0	$0	
25					$0		$0	$0	
26					$0		$0	$0	
27					$0		$0	$0	
	SUBTOTAL							$173,700	
	OVERHEAD AND PROFIT				$9,900		$41,300	$51,200	
	CITY COST INDEX MULTIPLIER								
	DIFFICULTY FACTOR								
	CONTINGENCY (15 %)				$16,300		$17,500	$33,800	
	SIOH(5.5%) & DESIGN FEE(6%)			14,000		16,000		$30,000	
	BASE TOTAL COST				**$125,000**		**$134,000**	**$289,000**	

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3. Building 2700 - Domestic Hot Water

The domestic hot water loads will be dedicated to a new gas-fired hot water generator located in the old boiler plant in the basement. The generator replaces existing steam fed heat exchangers that have failed in recent years. The circulating pumps which had also failed, in 1995, will be assumed to be either repaired or replaced and subsequently not in the construction estimate for this change.

The total cost for converting the domestic hot water load to a nominal 1200 mmBtu/hr (output) generator with a 1500 gallon storage capacity is estimated to be near $54,000.

FORT MONMOUTH
PROJECT COST ESTIMATE

BUILDING 2700 DECENTRALIZATION (EC0-1 - CH #3) - NEW DOMESTIC HOT WATER GENERATOR IN EXISTING BOILER ROOM

NO.	DESCRIPTION	QTY	UNIT	MATERIAL		LABOR		TOTAL BARE COST	COMMENTS
				$/UNIT	COST	$/UNIT	COST		
1	Demolition/Removal of Abandoned Equipment	1	Lot	$3,000.00	$3,000	$3,000.00	$3,000	$6,000	
2	Install New Natural Gas DHW Generator	1	Each	$8,000.00	$8,000	$4,000.00	$4,000	$12,000	Including Foundation Work
3	Electrical Work for Controls, etc.	1	Lot	$1,000.00	$1,000	$1,000.00	$1,000	$2,000	
4	Provide Vent Stack(s) Thru Roof	1	Each	$3,000.00	$3,000	$2,000.00	$2,000	$5,000	
5	Natural Gas Piping From Local Connection	200	Each	$5.00	$1,000	$5.00	$1,000	$2,000	
6	Natural Gas Valving	1	Lot	$1,000.00	$1,000	$2,000.00	$2,000	$3,000	
7	Rework Existing DHW Piping	1	Lot	$1,000.00	$1,000	$1,000.00	$1,000	$2,000	
8					$0		$0	$0	
9					$0		$0	$0	
10					$0		$0	$0	
11					$0		$0	$0	
12					$0		$0	$0	
13					$0		$0	$0	
14					$0		$0	$0	
15					$0		$0	$0	
16					$0		$0	$0	
17					$0		$0	$0	
18					$0		$0	$0	
19					$0		$0	$0	
20					$0		$0	$0	
21					$0		$0	$0	
22					$0		$0	$0	
23					$0		$0	$0	
24					$0		$0	$0	
25					$0		$0	$0	
26					$0		$0	$0	
27					$0		$0	$0	
	SUBTOTAL							$32,000	
	OVERHEAD AND PROFIT				$1,800		$7,700	$9,500	
	CITY COST INDEX MULTIPLIER								
	DIFFICULTY FACTOR								
	CONTINGENCY (15 %)				$3,000		$3,300	$6,300	
	SIOH(5.5%) & DESIGN FEE(6%)			3,000		3,000		$6,000	
	BASE TOTAL COST				**$23,000**		**$25,000**	**$54,000**	

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4. Building 2700 - Cafeteria Equipment Operating on Steam Converted to Gas-Fired:

The Cafeteria has operated with equipment that will now be replaced as part of the decentralization of Building 2700 Boiler Plant. Four (4) pieces of equipment used for cooking, warming or dishwashing will be replaced by gas-fired equipment. The estimated cost to install the equipment alone was given by Fort Monmouth personnel equating to about $18,000.

Miscellaneous work outside the scope for actual equipment replacement is estimated to bring the costs up to about $35,000 for this particular change. These changes are expected to have no impact on the electric model.

FORT MONMOUTH
PROJECT COST ESTIMATE

BUILDING 2700 DECENTRALIZATION (ECO-1 - CH #4) - NEW GAS FIRED CAFETERIA EQUIPMENT

NO.	DESCRIPTION	QTY	UNIT	MATERIAL		LABOR		TOTAL BARE COST	COMMENTS
				$/UNIT	COST	$/UNIT	COST		
1	Demolition/Removal of Existing Equipment	1	Lot	$1,000.00	$1,000	$1,500.00	$1,500	$2,500	
2	Install New Natural Gas-Fired Cafe. Equipment	1	Lot	$8,000.00	$8,000	$3,000.00	$3,000	$11,000	
3	Electrical Work for Controls, etc.	1	Lot	$1,000.00	$1,000	$1,000.00	$1,000	$2,000	
4	Provide Vent Stack(s) Thru Roof	1	Each	$1,000.00	$1,000	$1,000.00	$1,000	$2,000	
5	Natural Gas Piping From Local Connection	200	Each	$5.00	$1,000	$5.00	$1,000	$2,000	
6	Natural Gas Valving	1	Lot	$1,000.00	$1,000	$1,000.00	$1,000	$2,000	
7					$0		$0	$0	
8					$0		$0	$0	
9					$0		$0	$0	
10					$0		$0	$0	
11					$0		$0	$0	
12					$0		$0	$0	
13					$0		$0	$0	
14					$0		$0	$0	
15					$0		$0	$0	
16					$0		$0	$0	
17					$0		$0	$0	
18					$0		$0	$0	
19					$0		$0	$0	
20					$0		$0	$0	
21					$0		$0	$0	
22					$0		$0	$0	
23					$0		$0	$0	
24					$0		$0	$0	
25					$0		$0	$0	
26					$0		$0	$0	
27					$0		$0	$0	
	SUBTOTAL							$21,500	
	OVERHEAD AND PROFIT				$1,300		$4,700	$6,000	
	CITY COST INDEX MULTIPLIER								
	DIFFICULTY FACTOR								
	CONTINGENCY (15 %)				$2,100		$1,800	$3,900	
	SIOH(5.5%) & DESIGN FEE(6%)			2,000		2,000		$4,000	
	BASE TOTAL COST				***$16,000***		***$15,000***	***$35,000***	

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5. Building 2704 - Heating Load Replacement with New Steam Boilers:

New steam boilers are proposed for supporting the heating loads for Building 2704. A new building/room must be added to accommodate the new boilers. The sizing for each of the two boilers is 65% of the peak load of 800 lbs/hr or 520 lbs/hr, thus equating to about a 16 HP of load for each. A nominal size of 20 HP would be the selection for these boilers.

The estimated cost to install the steam boilers in a new building addition to Building 2704 is $240,000.

FORT MONMOUTH
PROJECT COST ESTIMATE

BUILDING 2700 DECENTRALIZATION (ECO-1 - CH #5) - BUILDING 2704 STEAM BOILERS

NO.	DESCRIPTION	QTY	UNIT	MATERIAL		LABOR		TOTAL BARE	COMMENTS
				$/UNIT	COST	$/UNIT	COST	COST	
1	Install New Building/Addition for Boilers	1,500	SF	$15.00	$22,500	$25.00	$37,500	$60,000	
2	Install (2) 20 HP Steam Boilers	2	Each	$12,000.00	$24,000	$5,000.00	$10,000	$34,000	Including Foundation Work
3	Install Primary Condensate Receiver/Pumps Se	1	Lot	$500.00	$500	$1,000.00	$1,000	$1,500	Including Foundation Work
4	Install Chemical Feed System	1	Lot	$1,500.00	$1,500	$1,000.00	$1,000	$2,500	
5	Electrical Work for Pumps, Boiler Fans, etc.	1	Lot	$2,000.00	$2,000	$4,000.00	$4,000	$6,000	
6	Steam Piping to Existing Bldg. 2704 Header	100	Each	$8.00	$800	$8.00	$800	$1,600	Including Insulation
7	Condensate Piping to Existing Bldg. 2704 Head	100	Each	$7.00	$700	$7.00	$700	$1,400	Including Insulation
8	Miscellaneous Steam Valves, Strainers, etc.	1	Lot	$4,000.00	$4,000	$2,000.00	$2,000	$6,000	
9	Make-up Water Feed including Valving	100	Each	$7.00	$700	$7.00	$700	$1,400	Including Insulation
10	Undergrnd. Nat. Gas Piping From Outdoor Hea	500	Each	$10.00	$5,000	$25.00	$12,500	$17,500	
11	Miscellaneous Natural Gas Valves, Strainers, et	1	Lot	$3,000.00	$3,000	$500.00	$500	$3,500	
12	Provide Vent Stack(s) Thru Roof	2	Each	$1,500.00	$3,000	$1,000.00	$2,000	$5,000	
13					$0		$0	$0	
14					$0		$0	$0	
15					$0		$0	$0	
16					$0		$0	$0	
17					$0		$0	$0	
18					$0		$0	$0	
19					$0		$0	$0	
20					$0		$0	$0	
21					$0		$0	$0	
22					$0		$0	$0	
23					$0		$0	$0	
24					$0		$0	$0	
25					$0		$0	$0	
26					$0		$0	$0	
27					$0		$0	$0	
	SUBTOTAL							$140,400	
	OVERHEAD AND PROFIT				$6,800		$40,000	$46,800	
	CITY COST INDEX MULTIPLIER								
	DIFFICULTY FACTOR								
	CONTINGENCY (15 %)				$11,200		$16,900	$28,100	
	SIOH(5.5%) & DESIGN FEE(6%)			12,000		14,000		$26,000	
	BASE TOTAL COST				**$86,000**		**$130,000**	**$241,000**	

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6. Building 2705 - Heating/Reheat Load Replacement with New Hot Water Boilers:

New hot water boilers are proposed for supporting the heating and reheat loads for Building 2705. A new building/room addition is required to accommodate the new boilers. The sizing for each of the two boilers is 65% of the peak load of 1,100 lbs/hr or 750 lbs/hr. This total equates to about 25 HP of boiler each. Two air handler steam coils and three steam unit heaters will be replaced by hot water equipment.

The estimated cost to install the hot water boilers in a new building addition to Building 2705 is $302,000.

FORT MONMOUTH
PROJECT COST ESTIMATE

BUILDING 2700 DECENTRALIZATION (EC0-1 - CH #6) - BUILDING 2705 HOT WATER BOILERS

NO.	DESCRIPTION	QTY	UNIT	MATERIAL		LABOR		TOTAL BARE COST	COMMENTS
				$/UNIT	COST	$/UNIT	COST		
1	Install New Building/Addition for Boilers	1,500	SF	$15.00	$22,500	$25.00	$37,500	$60,000	
2	Install (2) 25 HP Hot Water Boilers	2	Each	$15,000.00	$30,000	$6,000.00	$12,000	$42,000	Including Foundation Work
3	Install (2) 7.5 HP Hot Water Pumps	2	Each	$1,500.00	$3,000	$1,000.00	$2,000	$5,000	Including Foundation Work
4	Install Chemical Feed System	1	Lot	$1,500.00	$1,500	$1,000.00	$1,000	$2,500	
5	Electrical Work for Pumps, Boiler Fans, etc.	1	Lot	$2,000.00	$2,000	$4,000.00	$4,000	$6,000	
6	Hot Water Piping to Existing Bldg. 2705 Header	100	Each	$8.00	$800	$8.00	$800	$1,600	Includes Insulation
7	New Hot Water Coils for AHU's	2	Each	$3,000.00	$6,000	$2,000.00	$4,000	$10,000	
8	New Hot Water Unit Heaters	3	Each	$2,500.00	$7,500	$1,500.00	$4,500	$12,000	
9	New Hot Water Piping	200	Each	$8.00	$1,600	$8.00	$1,600	$3,200	
10	Miscellaneous HW Valves, Strainers, etc.	1	Lot	$8,000.00	$8,000	$4,000.00	$4,000	$12,000	
11	Make-up Water Feed including Valving	100	Each	$7.00	$700	$7.00	$700	$1,400	Includes Insulation
12	Undergrnd.Gas Piping From Outdoor Header	500	Each	$10.00	$5,000	$20.00	$10,000	$15,000	
13	Miscellaneous Natural Gas Valves, Strainers, et	1	Lot	$3,000.00	$3,000	$500.00	$500	$3,500	
14	Provide Vent Stack(s) Thru Roof	2	Each	$1,500.00	$3,000	$1,000.00	$2,000	$5,000	
15					$0		$0	$0	
16					$0		$0	$0	
17					$0		$0	$0	
18					$0		$0	$0	
19					$0		$0	$0	
20					$0		$0	$0	
21					$0		$0	$0	
22					$0		$0	$0	
23					$0		$0	$0	
24					$0		$0	$0	
25					$0		$0	$0	
26					$0		$0	$0	
27					$0		$0	$0	
	SUBTOTAL							$179,200	
	OVERHEAD AND PROFIT				$9,500		$46,500	$56,000	
	CITY COST INDEX MULTIPLIER								
	DIFFICULTY FACTOR								
	CONTINGENCY (15 %)				$15,600		$19,700	$35,300	
	SIOH(5.5%) & DESIGN FEE(6%)			15,000		16,000		$31,000	
	BASE TOTAL COST				$120,000		$151,000	$302,000	

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Building 2700 Boiler Plant Decentralization Summary

Change	Material	Labor	SIOH	Design	Total
1) Building 2700 Steam Coils to MCA HW	$159,000	$215,000	$21,000	$22,000	$417,000
2) Building 2700 Cleanrooms to Dedicated Boilers	$125,000	$134,000	$14,000	$16,000	$289,000
3) Building 2700 DHW to Dedicated Gas-fired Generator	$23,000	$25,000	$3,000	$3,000	$54,000
4) Building 2700 Cafeteria Equip. to Gas-fired	$16,000	$15,000	$2,000	$2,000	$35,000
5) Building 2704 Steam Boilers	$86,000	$130,000	$12,000	$14,000	$242,000
6) Building 2705 Hot Water Boilers	$120,000	$151,000	$15,000	$16,000	$302,000
Totals	$529,000	$670,000	$67,000	$73,000	$1,339,000

Construction Cost Estimate. The total construction cost estimate to perform the six changes for decentralizing the Building 2700 boiler plant is approximately $1,340,000.

Fuel Savings (Natural Gas). The total yearly fuel savings associated with this ECO is

Savings	Heating (mmBtu/yr)	Fuel (mmBtu/yr)	Nat. Gas (mcf/yr)	Fuel Cost ($/yr)
Totals	27,000	36,685	35,580	$267,000
Percent Reduction	53.8%	55.8%	55.8%	55.8%

Electric Savings. The total yearly electric savings associated with this ECO is

Season	Demand (kW)	Off-Peak (kWh/yr)	On-Peak (kWh/yr)	Energy (mmBtu)	Cost ($/yr)
Non-Summer	(46)	(34,368)	(7,184)	(142)	($3,048)
Summer	56	13,980	7,904	(75)	$1,959
Totals	10	(20,388)	720	(67)	($1,089)
Percent Reduction	2.2%	-14.6%	3.9%	-9.8%	-6.4%

Operation/Maintenance Savings. The operation and maintenance savings associated with this ECO is $190,000 ($490,000 - $300,000).

Discussion. Payback = 2.9 years

SIR = 5.32

The payback for this ECO is 2.9 years. Decentraliztion of Building 2700's central boiler plant is recommended. The use of the existing plant for generating steam should be stopped when feasible.

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#1
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

A. CONSTRUCTION COST	$ 1199000.	
B. SIOH	$ 67000.	
C. DESIGN COST	$ 73000.	
D. TOTAL COST (1A+1B+1C)	$ 1339000.	
E. SALVAGE VALUE OF EXISTING EQUIPMENT	$ 0.	
F. PUBLIC UTILITY COMPANY REBATE	$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)		$ 1339000.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ 16.25	-67.	$ -1089.	13.86	$ -15090.
B. DIST	$ .00	0.	$ 0.	16.99	$ 0.
C. RESID	$ .00	0.	$ 0.	17.38	$ 0.
D. NAT G	$ 7.28	36685.	$ 267067.	17.14	$ 4577525.
E. COAL	$ .00	0.	$ 0.	13.56	$ 0.
F. LPG	$ .00	0.	$ 0.	15.12	$ 0.
M. DEMAND SAVINGS			$ 0.	13.47	$ 0.
N. TOTAL		36618.	$ 265978.		$ 4562435.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-)		$ 190000.
(1) DISCOUNT FACTOR (TABLE A)	13.47	
(2) DISCOUNTED SAVING/COST (3A X 3A1)		$ 2559300.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-)(4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)	$ 2559300.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))	$ 455978.
5. SIMPLE PAYBACK PERIOD (1G/4)	2.94 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)	$ 7121735.
7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= (IF < 1 PROJECT DOES NOT QUALIFY)	5.32

ECO-1A
STEAM DECENTRALIZATION - OPTION A
NEW STEAM BOILERS IN BUILDING 2700

Existing. Same existing conditions as the Base Case.

Proposed. No changes are required to the Base Case as it relates to this ECO option.

Savings. No changes.

Construction Cost. No changes.

Discussion. This option was not evaluated because after further discussion with Fort Monmouth personnel no other year round steam loads other than the cleanroom reheat are required for Building 2700.

ECO-1B
STEAM DECENTRALIZATION - OPTION B
NEW HOT WATER BOILERS FOR CLEANROOM

Existing. Same existing conditions as the Base Case.

Proposed. To utilize a hot water boiler in lieu of the steam boiler specified in the Base Case. Existing steam reheat coils in the four units would require replacement along with local piping and controls.

Proposed Natural Gas Usage and Cost. The average mmBtu/day of 31.9 for reheat does not need adjustment because no losses are assumed as compared to a steam boiler. The total then became 61.7 mmBtu/day for a total of 22,530 mmBtu/yr. The reheat cost for Building's 2700 and 2705 then becomes $105,900. The total fuel cost related to the steam plant decentralization would be approximately $208,000.

	Heating (mmBtu/day)	Total (mmBtu/day)	Natural Gas (mcf/yr)	Fuel Cost ($/yr)
Reheat	11,650	14,560	14,120	$105,900
New Totals	22,540	28,170	27,320	$208,000

Note: All other totals for ECO-1 with the exception of reheat remain the same.

Proposed Plant Electric Total. The proposed electric demand and usage totals for ECO-1 Option B. All conditions are the same except that the pumps for this system are now hot water only. The motor size for each is estimated to be 5 HP. The electric cost for ECO-1 Option B is estimated to be $20,100. Refer to Table ECO-1B-P on the following page.

Season	Demand (kW)	Off Peak (kWh)	On Peak (kWh)	Cost ($)
Non-summer	415	145,524	55,581	$17,116
Summer	76	25,298	9,062	$2,941
Totals	491	170,822	64,643	$20,057

Proposed Operating and Maintenance Costs. No changes from what was predicted for this change in the Base Case.

Total Daily Monitoring	$140,000
Equipment Maintenance	$160,000

Construction Cost. The only changes to the cost estimate are associated with the boiler plant for Building 2700's cleanrooms. The cost for this portion of the option is attached and totals $323,000. The total cost for ECO-1B is $1,372,000. The cost estimate summary totals for Option B are shown below. The detailed estimate follows.

Change	Material	Labor	SIOH	Design	Total
2) Building 2700 Cleanrooms to Dedicated HW Boilers	$143,000	$146,000	$16,000	$18,000	$323,000
Option B Totals	$547,000	$682,000	$69,000	$74,000	$1,372,000

HVAC Item	HVAC Airside Equipment - General Information				Cooling Equipment		Total Connected Load (kW)	Winter Demand kW/month	Inte Der kW/
	Design/Site Designation	Equip. Type	Field Data/Reference/(Location)	Area Served	Field Data/Reference/(Location)				
282	HWP-1	Pump	Allis Charmers - Building 2706	MCA Hot Water	N/A		22 4	16 8	
283	HWP-2	Pump	Allis Charmers - Building 2706	MCA Hot Water - Lag	N/A		22 4	16 8	
284	HWP-3	Pump	Allis Charmers - Building 2706	MCA Hot Water - Standby	N/A		22 4	0 0	
296	FWP-1	Pump	Aurora - Building 2700	Boiler Feedwater	N/A	(SYSTEM SHUTDOWN)	0 0	0 0	
297	FWP-2	Pump	Worthington - Building 2700	Boiler Feedwater	N/A	(SYSTEM SHUTDOWN)	0 0	0 0	
298	FWP-3	Pump	Ingersol Rand - Building 2700	Boiler Feedwater	N/A	(SYSTEM SHUTDOWN)	0 0	0 0	
299	CP-1	Pump	Aurora - Building 2700	Condensate	N/A	(SYSTEM SHUTDOWN)	0 0	0 0	
300	CP-2	Pump	Aurora - Building 2700	Condensate	N/A	(SYSTEM SHUTDOWN)	0 0	0 0	
301	CP-7	Pump	Aurora - Building 2700	Condensate	N/A	(SYSTEM SHUTDOWN)	0 0	0 0	
302	CP-8	Pump	Aurora - Building 2700	Condensate	N/A	(SYSTEM SHUTDOWN)	0 0	0 0	
303	CP-1 (New)	Pump	unknown - Building 2706	Condensate	N/A	(SYSTEM SHUTDOWN)	0 0	0 0	
320	-	F.D. Fan	Proposed as New in MR # 43	Building 2700 Cleanrooms	N/A		1 1	0 8	
321	-	F.D. Fan	Proposed as New in MR # 43	Building 2700 Cleanrooms	N/A		1 1	0 8	
322	-	Pump	Proposed as New in MR # 43	Building 2700 Cleanrooms	N/A		3 8	2 8	
323	-	Pump	Proposed as New in MR # 43	Building 2700 Cleanrooms	N/A		3 8	2 8	
324	-	F.D. Fan	Proposed Building 2704 Boiler Plant	Building 2704 Heating Loads	N/A		0 8	0 6	
325	-	F.D. Fan	Proposed Building 2704 Boiler Plant	Building 2704 Heating Loads	N/A		0 8	0 6	
326	-	Pump	Proposed Building 2704 Boiler Plant	Building 2704 Heating Loads	N/A		0 8	0 6	
327	-	Pump	Proposed Building 2704 Boiler Plant	Building 2704 Heating Loads	N/A		0 8	0 6	
328	-	Pump	Proposed Building 2704 Boiler Plant	Building 2704 Lighting	N/A		2 6	2 0	
329	-	F.D. Fan	Proposed Building 2705 Boiler Plant	Building 2705 Heat/Reheat	N/A		1 1	0 8	
330	-	F.D. Fan	Proposed Building 2705 Boiler Plant	Building 2705 Heat/Reheat	N/A		1 1	0 8	
331	-	Pump	Proposed Building 2705 Boiler Plant	Building 2705 Heat/Reheat	N/A		5 6	4 2	
332	-	Pump	Proposed Building 2705 Boiler Plant	Building 2705 Heat/Reheat	N/A		5 6	4 2	
333	-	Lighting	Proposed Building 2705 Boiler Plant	Building 2704 Lighting	N/A		2 6	2 0	
				TOTALS:			96	55	

FT. MONMOUTH, DEPARTMENT OF THE ARMY

BUILDING 2700 ELECTRIC MODEL - PROPOSED DECENTRALIZED HEATING SYSTEM TOTALS (Option B)

TABLE ECO-1P-B

nformation						Winter Billing Months				Intermediate Billing Months				Summer Billing Months				
Area Served	Cooling Equipment Field Data/Reference/(Location)	Total Connected Load (kW)	Winter Demand kW/month	Intermed. Demand kW/month	Summer Demand kW/month	Off-Peak hrs/ day	Off-Peak kWh/Mo	On-Peak hrs/ day	On-Peak kWh/Mo	Off-Peak hrs/ day	Off-Peak kWh/Mo	On-Peak hrs/ day	On-Peak kWh/Mo	Off-Peak hrs/ day	Off-Peak kWh/Mo	On-Peak hrs/ day	On-Peak kWh/Mo	Demand kW/Yr
MCA Hot Water	N/A	22.4	16.8	13.4	0.0	12.0	8,064	8	3,584	9	6,048	6	2,688	0	0	0	0	1
MCA Hot Water - Lag	N/A	22.4	16.8	13.4	0.0	8.0	5,376	4	1,792	6	4,032	3	1,344	0	0	0	0	1
MCA Hot Water - Standby	N/A	22.4	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	
Boiler Feedwater	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	
Boiler Feedwater	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	
Boiler Feedwater	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	
Condensate	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	
Condensate	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	
Condensate	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	
Condensate	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	
Condensate	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0	0	0	0	
Building 2700 Cleanrooms	N/A	1.1	0.8	0.8	0.0	12.0	396	8	176	12	396	8	176	12	396	8	176	
Building 2700 Cleanrooms	N/A	1.1	0.8	0.8	0.0	3.0	99	0	0	3	99	0	0	0	0	0	0	
Building 2700 Cleanrooms	N/A	3.8	2.8	2.8	2.8	12.0	1,354	8	602	12	1,354	8	602	12	1,354	8	602	
Building 2700 Cleanrooms	N/A	3.8	2.8	2.8	2.8	3.0	338	0	0	3	338	0	0	3	338	0	0	
Building 2704 Heating Loads	N/A	0.8	0.6	0.6	0.0	12.0	288	8	128	8	192	4	64	0	0	0	0	
Building 2704 Heating Loads	N/A	0.8	0.6	0.6	0.0	3.0	72	0	0	3	72	0	0	0	0	0	0	
Building 2704 Heating Loads	N/A	0.8	0.6	0.6	0.6	12.0	270	8	120	8	180	4	60	0	0	0	0	
Building 2704 Heating Loads	N/A	0.8	0.6	0.6	0.6	3.0	68	0	0	3	68	0	0	3	68	0	0	
Building 2704 Lighting	N/A	2.6	2.0	2.0	2.0	8.0	624	4	208	8	624	4	208	8	624	4	208	
Building 2705 Heat/Reheat	N/A	1.1	0.8	0.8	0.0	12.0	396	8	176	12	396	8	176	12	396	8	176	
Building 2705 Heat/Reheat	N/A	1.1	0.8	0.8	0.0	3.0	99	0	0	3	99	0	0	0	0	0	0	
Building 2705 Heat/Reheat	N/A	5.6	4.2	4.2	4.2	12.0	2,016	8	896	12	2,016	8	896	12	2,016	8	896	
Building 2705 Heat/Reheat	N/A	5.6	4.2	4.2	4.2	3.0	504	0	0	3	504	0	0	3	504	0	0	
Building 2704 Lighting	N/A	2.6	2.0	2.0	2.0	8.0	624	4	208	8	624	4	208	8	624	4	208	
TOTALS		96	55	48	17	118	19,964	64	7,682	105	16,418	53	6,214	65	5,696	36	2,058	4

(2)

RTMENT OF THE ARMY

CENTRALIZED HEATING SYSTEM TOTALS (Option B)

CO-1P-B

Billing Months			Intermediate Billing Months				Summer Billing Months													
	On-Peak		Off-Peak		On-Peak		Off-Peak		On-Peak		Non-Summer				Summer				Annual	
o	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	Demand kW/Yr.	Off-Peak KWH/Yr.	On-Peak KWH/Yr.	Cost $	Demand kW/Yr.	Off-Peak KWH/Yr.	On-Peak KWH/Yr.	Cost $	Cost $	No.
4	8	3,584	9	6,048	6	2,688	0	0	0	0	121	56,448	25,088	$6,345	0	0	0	$0	$6,345	282
6	4	1,792	6	4,032	3	1,344	0	0	0	0	121	37,632	12,544	$4,262	0	0	0	$0	$4,262	283
0	0	0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	284
0	0	0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	296
0	0	0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	297
0	0	0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	298
0	0	0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	299
0	0	0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	300
0	0	0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	301
0	0	0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	302
0	0	0	0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	303
6	8	176	12	396	8	176	12	396	8	176	7	3,168	1,408	$355	0	1,584	704	$150	$505	320
9	0	0	3	99	0	0	0	0	0	0	7	792	0	$104	0	0	0	$0	$104	321
4	8	602	12	1,354	8	602	12	1,354	8	602	23	10,829	4,813	$1,212	11	5,414	2,406	$617	$1,829	322
8	0	0	3	338	0	0	3	338	0	0	23	2,707	0	$357	11	1,354	0	$189	$545	323
8	8	128	8	192	4	64	0	0	0	0	5	1,920	768	$215	0	0	0	$0	$215	324
2	0	0	3	72	0	0	0	0	0	0	5	576	0	$76	0	0	0	$0	$76	325
0	8	120	8	180	4	60	0	0	0	0	5	1,800	720	$202	2	0	0	$21	$223	326
8	0	0	3	68	0	0	3	68	0	0	5	540	0	$71	2	270	0	$38	$109	327
4	4	208	8	624	4	208	8	624	4	208	16	4,992	1,664	$562	8	2,496	832	$288	$850	328
6	8	176	12	396	8	176	12	396	8	176	7	3,168	1,408	$355	0	1,584	704	$150	$505	329
9	0	0	3	99	0	0	0	0	0	0	7	792	0	$104	0	0	0	$0	$104	330
6	8	896	12	2,016	8	896	12	2,016	8	896	34	16,128	7,168	$1,805	17	8,064	3,584	$919	$2,724	331
4	0	0	3	504	0	0	3	504	0	0	34	4,032	0	$531	17	2,016	0	$281	$812	332
4	4	208	8	624	4	208	8	624	4	208	16	4,992	1,664	$562	8	2,496	832	$288	$850	333
4	64	7,682	105	16,418	53	6,214	65	5,696	36	2,058	415	145,524	55,581	$17,116	76	25,278	9,062	$2,941	$20,057	

(3)

FORT MONMOUTH
PROJECT COST ESTIMATE

BUILDING 2700 DECENTRALIZATION (EC0-1B - CH #2) - CLEANROOM STEAM LOADS TO NEW HOT WATER BOILERS (MR #43)

NO.	DESCRIPTION	QTY	UNIT	MATERIAL		LABOR		TOTAL BARE COST	COMMENTS
				$/UNIT	COST	$/UNIT	COST		
1	Demolition/Removal of Abandoned Equipment	1	Lot	$3,000.00	$3,000	$5,000.00	$5,000	$8,000	
2	Install (2) Large Fire Doors	2	Each	$2,000.00	$4,000	$500.00	$1,000	$5,000	
3	Seal Penetrations	1	Lot	$1,000.00	$1,000	$2,000.00	$2,000	$3,000	
4	Install (2) Duct Mounted Fire Dampers	2	Each	$500.00	$1,000	$1,000.00	$2,000	$3,000	
5	Install (2) 25 HP Hot Water Boilers	2	Each	$15,000.00	$30,000	$7,000.00	$14,000	$44,000	Including Foundation Work
6	Install Primary Hot Water Pumps	1	Lot	$1,250.00	$1,250	$1,000.00	$1,000	$2,250	Including Foundation Work
7	Install Chemical Feed System	1	Lot	$1,500.00	$1,500	$1,000.00	$1,000	$2,500	
8	Electrical Work for Pumps, Boiler Fans, etc.	1	Lot	$3,000.00	$3,000	$6,000.00	$6,000	$9,000	
9	Hot Water Piping to 4TH Floor Cleanrooms	2,000	Each	$8.00	$16,000	$8.00	$16,000	$32,000	Including Insulation
10	New HW AHU Coils	3	Each	$5,000.00	$15,000	$2,500.00	$7,500	$22,500	
11	Hot Water Piping to 4TH Floor Cleanrooms	1,000	Each	$8.00	$8,000	$8.00	$8,000	$16,000	Including Insulation
12	New HW AHU Coils	1	Each	$2,000.00	$2,000	$1,500.00	$1,500	$3,500	
13	Miscellaneous Hot Water Valves, Strainers, etc.	1	Lot	$10,000.00	$10,000	$4,000.00	$4,000	$14,000	
14	Make-up Water Feed including Valving	500	Each	$7.00	$3,500	$7.00	$3,500	$7,000	Including Insulation
15	Natural Gas Piping From First Floor	1,000	Each	$5.00	$5,000	$5.00	$5,000	$10,000	
16	Miscellaneous Natural Gas Valves, Strainers, et	1	Lot	$3,000.00	$3,000	$500.00	$500	$3,500	
17	Provide Vent Stack(s) Thru Roof	2	Each	$3,000.00	$6,000	$2,000.00	$4,000	$10,000	
18					$0		$0	$0	
19					$0		$0	$0	
20					$0		$0	$0	
21					$0		$0	$0	
22					$0		$0	$0	
23					$0		$0	$0	
24					$0		$0	$0	
25					$0		$0	$0	
26					$0		$0	$0	
27					$0		$0	$0	
	SUBTOTAL							$195,300	
	OVERHEAD AND PROFIT				$11,300		$44,700	$56,000	
	CITY COST INDEX MULTIPLIER								
	DIFFICULTY FACTOR								
	CONTINGENCY (15 %)				$18,700		$19,000	$37,700	
	SIOH(5.5%) & DESIGN FEE(6%)			16,000		18,000		$34,000	
	BASE TOTAL COST				**$143,000**		**$146,000**	**$323,000**	

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27-Jun-96

Fuel Savings.
(Natural Gas) The total yearly fuel savings associated with Option B of ECO-1 is $273,000 or $6,000 than the Base Case (with steam boilers).

Savings	Heating (mmBtu/day)	Fuel (mmBtu/day)	Natural Gas (mcf/yr)	Fuel Cost ($/yr)
Totals	27,670	37,525	36,400	$273,000
Percent Reduction	55.1%	57.1%	57.1%	57.1%

Electric Savings. The total yearly electric savings (cost) when compared to ECO-1 (Base Case) is (-$2,989).

Season	Demand (kW)	Off-Peak (kWh/yr)	On-Peak (kWh/yr)	Energy (mmBtu)	Cost ($/yr)
Non-Summer	(67)	(40,212)	(9,373)	(169)	($4,303)
Summer	38	8,562	5,978	50	$1,314
Totals	(29)	(31,650)	(3,395)	(119)	($2,989)
Percent Reduction	-6.3%	-22.7%	-5.5%	-15.8%	-17.5%

Operation/Maintenance Savings. Same as predicted in the Base Case or $190,000.

Discussion. Payback = 3.0 years

SIR = 5.25

The payback associated with this ECO is 3.0 years. The difference in construction costs between the hot water boilers and the steam boilers is relatively small when considering the entire decentralization total. The elimination of steam can in some cases improve the controllability of reheat systems. If considered prudent the changeout to hot water for the reheat of the cleanroom units is recommended.

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID FY95 (92)
INSTALLATION & LOCATION: — REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR — DISCRETE PORTION NAME: ECO#1B
ANALYSIS DATE: 07-03-96 — ECONOMIC LIFE 20 YEARS — PREPARED BY:

1. INVESTMENT

A. CONSTRUCTION COST	$ 1229000.	
B. SIOH	$ 69000.	
C. DESIGN COST	$ 74000.	
D. TOTAL COST (1A+1B+1C)	$ 1372000.	
E. SALVAGE VALUE OF EXISTING EQUIPMENT	$ 0.	
F. PUBLIC UTILITY COMPANY REBATE	$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)		$ 1372000.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ 25.12	-119.	$ -2989.	13.86	$ -41431.
B. DIST	$ .00	0.	$ 0.	16.99	$ 0.
C. RESID	$ .00	0.	$ 0.	17.38	$ 0.
D. NAT G	$ 7.28	37525.	$ 273182.	17.14	$ 4682340.
E. COAL	$ .00	0.	$ 0.	13.56	$ 0.
F. LPG	$ .00	0.	$ 0.	15.12	$ 0.
M. DEMAND SAVINGS			$ 0.	13.47	$ 0.
N. TOTAL		37406.	$ 270193.		$ 4640908.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-)		$ 190000.
(1) DISCOUNT FACTOR (TABLE A)	13.47	
(2) DISCOUNTED SAVING/COST (3A X 3A1)		$ 2559300.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-)(4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)	$ 2559300.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))	$ 460193.
5. SIMPLE PAYBACK PERIOD (1G/4)	2.98 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)	$ 7200208.
7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= (IF < 1 PROJECT DOES NOT QUALIFY)	5.25

ECO-1C
STEAM DECENTRALIZATION - OPTION C
OPERATE CLEANROOMS WITH MCA HOT WATER

Existing. Same existing conditions as the Base Case.

Proposed. No changes proposed.

Savings. No changes.

Construction Cost. No changes.

Discussion. This ECO was not analyzed further because the small loads associated with the cleanroom reheat would not be sufficient to allow the new boilers in Building 2700 to operate properly during the cooling season. A firing turndown ratio ranging between 10 to 1 and 20 to 1 would be required for meeting these reduced summer time loads. Also, the cost estimate to route the dedicated piping from Building 2706 to the cleanroom units on the fourth floor would be comparable to the installation of the new boilers on the fourth floor. Note: The dedicated line would require it's own pump arrangement and the cleanroom units would have to be converted to hot water also (ie: coils, piping and controls).

ECO-1D
STEAM DECENTRALIZATION - OPTION D
ELECTRIC HOT WATER GENERATOR

Existing. Same existing conditions as the Base Case.

Proposed. No changes proposed.

Savings. No changes.

Construction Cost. No changes.

Discussion. Since the construction costs between the proposed gas unit versus the electrical unit would be comparable and the energy costs using electric would be higher, this ECO needs no further investigation. Note: The gas needed in the proposed base case is located in the near vicinity of the existing domestic hot water generators thus minimizing the associated impact of the gas piping.

ECO-1E
STEAM DECENTRALIZATION - OPTION E
DECENTRALIZED DOMESTIC HOT WATER SYSTEM

Existing. Same existing conditions as the Base Case.

Proposed. To install approximately forty (40) light duty electric water heaters at point of use locations such as bathrooms, etc. This change will reduce the losses seen in the central distribution system by approximately 20% and has the benefit of reduced energy because of the elimination of inefficiency in the generator itself. The average size required is a fifty (50) gallon storage capacity with a 4000 watt electric heating element. This new concept would eliminate the need for the large central DHW distribution system.

Proposed Natural Gas Usage and Cost. The average mmBtu/day of 5.6 for DHW would be eliminated from the gas billing. This equates to a reduction in yearly fuel consumption of 2,475 mcf. The total cost of firing natural gas for the decentralized system now becomes $192,490/yr. The totals for the other areas are the same and the summary becomes.

Savings	Heating (mmBtu/day)	Fuel (mmBtu/day)	Natural Gas (mcf/yr)	Fuel Cost ($/yr)
DHW Usage Totals	21,170	26,460	25,665	$192,490

Proposed Electric Total. The proposed electric demand and usage totals associated with this option will rise. The proposed heating load is reduced by about 20% to 4.5 mmBtu. The cost for the electric including the heating of the decentralized water heaters is $36,729.

Season	Demand (kW)	Off-Peak (kWh/yr)	On-Peak (kWh/yr)	Energy (mmBtu/yr)	Cost ($/yr)
Non-Summer	458	254,880	117,392	1,271	$28,216
Summer	90	77,460	39,136	398	$8,513
Totals	548	332,340	156,528	1,669	$36,729

Refer to Table ECO-1E-P on the following page.

HVAC Item	HVAC Airside Equipment - General Information				Cooling Equipment	Total	Winter	Interm
	Design/Site Designation	Equip. Type	Field Data/Reference/(Location)	Area Served	Field Data/Reference/(Location)	Connected Load (kW)	Demand kW/month	Dem: kW/m.
282	HWP-1	Pump	Allis Charmers - Building 2706	MCA Hot Water	N/A	22 4	16 8	
283	HWP-2	Pump	Allis Charmers - Building 2706	MCA Hot Water - Lag	N/A	22 4	16 8	
284	HWP-3	Pump	Allis Charmers - Building 2706	MCA Hot Water - Standby	N/A	22 4	0 0	
296	FWP-1	Pump	Aurora - Building 2700	Boiler Feedwater	N/A (SYSTEM SHUTDOWN)	0 0	0 0	
297	FWP-2	Pump	Worthington - Building 2700	Boiler Feedwater	N/A (SYSTEM SHUTDOWN)	0 0	0 0	
298	FWP-3	Pump	Ingersol Rand - Building 2700	Boiler Feedwater	N/A (SYSTEM SHUTDOWN)	0 0	0 0	
299	CP-1	Pump	Aurora - Building 2700	Condensate	N/A (SYSTEM SHUTDOWN)	0 0	0 0	
300	CP-2	Pump	Aurora - Building 2700	Condensate	N/A (SYSTEM SHUTDOWN)	0 0	0 0	
301	CP-7	Pump	Aurora - Building 2700	Condensate	N/A (SYSTEM SHUTDOWN)	0 0	0 0	
302	CP-8	Pump	Aurora - Building 2700	Condensate	N/A (SYSTEM SHUTDOWN)	0 0	0 0	
303	CP-1 (New)	Pump	unknown - Building 2706	Condensate	N/A (SYSTEM SHUTDOWN)	0 0	0 0	
320	-	F.D Fan	Proposed as New in MR # 43	Building 2700 Cleanrooms	N/A	1 1	0 8	
321	-	F.D Fan	Proposed as New in MR # 43	Building 2700 Cleanrooms	N/A	1 1	0 8	
322	-	Pump	Proposed as New in MR # 43	Building 2700 Cleanrooms	N/A	0 8	0 6	
323	-	Pump	Proposed as New in MR # 43	Building 2700 Cleanrooms	N/A	0 8	0 6	
324	-	F.D Fan	Proposed Building 2704 Boiler Plant	Building 2704 Heating Loads	N/A	0 8	0 6	
325	-	F.D Fan	Proposed Building 2704 Boiler Plant	Building 2704 Heating Loads	N/A	0 8	0 6	
326	-	Pump	Proposed Building 2704 Boiler Plant	Building 2704 Heating Loads	N/A	0 8	0 6	
327	-	Pump	Proposed Building 2704 Boiler Plant	Building 2704 Heating Loads	N/A	0 8	0 6	
328	-	Pump	Proposed Building 2704 Boiler Plant	Building 2704 Lighting	N/A	2 6	2 0	
329	-	F.D Fan	Proposed Building 2705 Boiler Plant	Building 2705 Heat/Reheat	N/A	1 1	0 8	
330	-	F.D Fan	Proposed Building 2705 Boiler Plant	Building 2705 Heat/Reheat	N/A	1 1	0 8	
331	-	Pump	Proposed Building 2705 Boiler Plant	Building 2705 Heat/Reheat	N/A	5 6	4 2	
332	-	Pump	Proposed Building 2705 Boiler Plant	Building 2705 Heat/Reheat	N/A	5 6	4 2	
333	-	Lighting	Proposed Building 2705 Boiler Plant	Building 2704 Lighting	N/A	2 6	2 0	
334	-	DHW Heat	Proposed Building 2700 Decentralized DH	Building 2700 DHW	N/A	160 0	8 0	
				TOTALS		253	61	

(1)

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 ELECTRIC MODEL - PROPOSED DECENTRALIZED HEATING SYSTEM TOTALS (Option E)

TABLE ECO-1E-P

Area Served	Cooling Equipment Field Data/Reference/(Location)	Total Connected Load (kW)	Winter Demand kW/month	Intermed. Demand kW/month	Summer Demand kW/month	Winter Billing Months				Intermediate Billing Months				Summer Billing Months					Nor
						Off-Peak		On-Peak		Off-Peak		On-Peak		Off-Peak		On-Peak			
						hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	Demand kW/Yr	Off-Peak KWH/Yr
Hot Water	N/A	22 4	16 8	13 4	0.0	12	8,064	8	3,584	9	6,048	6	2,688	0	0	0	0	121	56,4
Hot Water - Lag	N/A	22 4	16 8	13 4	0 0	8	5,376	4	1,792	6	4,032	3	1,344	0	0	0	0	121	37,6
Hot Water - Standby	N/A	22 4	0 0	0 0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
r Feedwater	N/A (SYSTEM SHUTDOWN)	0 0	0 0	0 0	0 0	0	0	0	0	0	0	0	0	0	0	0	0	0	
r Feedwater	N/A (SYSTEM SHUTDOWN)	0.0	0.0	0 0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
r Feedwater	N/A (SYSTEM SHUTDOWN)	0 0	0 0	0 0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ensate	N/A (SYSTEM SHUTDOWN)	0 0	0 0	0 0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ensate	N/A (SYSTEM SHUTDOWN)	0 0	0 0	0 0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ensate	N/A (SYSTEM SHUTDOWN)	0 0	0 0	0 0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ensate	N/A (SYSTEM SHUTDOWN)	0 0	0 0	0 0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ensate	N/A (SYSTEM SHUTDOWN)	0 0	0 0	0 0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0	
ng 2700 Cleanrooms	N/A	1 1	0 8	0 8	0.0	12	396	8	176	12	396	8	176	12	396	8	176	7	3,1
ng 2700 Cleanrooms	N/A	1 1	0 8	0 8	0.0	3	99	0	0	3	99	0	0	0	0	0	0	7	7
ng 2700 Cleanrooms	N/A	0 8	0 6	0 6	0 6	12	270	8	120	12	270	8	120	12	270	8	120	5	2,1
ng 2700 Cleanrooms	N/A	0 8	0 6	0 6	0 6	3	68	0	0	3	68	0	0	3	68	0	0	5	5
ng 2704 Heating Loads	N/A	0 8	0 6	0 6	0.0	12	288	8	128	8	192	4	64	0	0	0	0	5	1,9
ng 2704 Heating Loads	N/A	0 8	0 6	0 6	0.0	3	72	0	0	3	72	0	0	0	0	0	0	5	5
ng 2704 Heating Loads	N/A	0 8	0 6	0 6	0 6	12	270	8	120	8	180	4	60	0	0	0	0	5	1,8
ng 2704 Heating Loads	N/A	0 8	0 6	0 6	0 6	3	68	0	0	3	68	0	0	3	68	0	0	5	5
ng 2704 Lighting	N/A	2 6	2 0	2 0	2 0	8	624	4	208	8	624	4	208	8	624	4	208	16	4,9
ng 2705 Heat/Reheat	N/A	1 1	0 8	0 8	0.0	12	396	8	176	12	396	8	176	12	396	8	176	7	3,1
ng 2705 Heat/Reheat	N/A	1 1	0 8	0 8	0.0	3	99	0	0	3	99	0	0	0	0	0	0	7	7
ng 2705 Heat/Reheat	N/A	5 6	4 2	4 2	4 2	12	2,016	8	896	12	2,016	8	896	12	2,016	8	896	34	16,1
ng 2705 Heat/Reheat	N/A	5 6	4 2	4 2	4 2	3	504	0	0	3	504	0	0	3	504	0	0	34	4,0
ng 2704 Lighting	N/A	2 6	2 0	2 0	2 0	8	624	4	208	8	624	4	208	8	624	4	208	16	4,9
ng 2700 DHW	N/A	160 0	8 0	8 0	8 0	3	14,400	3	8,000	3	14,400	3	8,000	3	14,400	3	8,000	64	115,2
TOTALS		253	61	54	23	129	33,633	71	15,408	116	30,087	60	13,940	76	19,365	43	9,784	458	254,8

(2)

THE ARMY
) HEATING SYSTEM TOTALS (Option E)

Intermediate Billing Months				Summer Billing Months				Non-Summer				Summer				Annual	
Off-Peak		On-Peak		Off-Peak		On-Peak											
hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	Demand kW/Yr.	Off-Peak KWH/Yr.	On-Peak KWH/Yr.	Cost $	Demand kW/Yr.	Off-Peak KWH/Yr	On-Peak KWH/Yr	Cost $	Cost $	No.
9	6,048	6	2,688	0	0	0	0	121	56,448	25,088	$6,345	0	0	0	$0	$6,345	282
6	4,032	3	1,344	0	0	0	0	121	37,632	12,544	$4,262	0	0	0	$0	$4,262	283
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	284
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	296
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	297
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	298
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	299
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	300
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	301
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	302
0	0	0	0	0	0	0	0	0	0	0	$0	0	0	0	$0	$0	303
12	396	8	176	12	396	8	176	7	3,168	1,408	$355	0	1,584	704	$150	$505	320
3	99	0	0	0	0	0	0	7	792	0	$104	0	0	0	$0	$104	321
12	270	8	120	12	270	8	120	5	2,160	960	$242	2	1,080	480	$123	$365	322
3	68	0	0	3	68	0	0	5	540	0	$71	2	270	0	$38	$109	323
8	192	4	64	0	0	0	0	5	1,920	768	$215	0	0	0	$0	$215	324
3	72	0	0	0	0	0	0	5	576	0	$76	0	0	0	$0	$76	325
8	180	4	60	0	0	0	0	5	1,800	720	$202	2	0	0	$21	$223	326
3	68	0	0	3	68	0	0	5	540	0	$71	2	270	0	$38	$109	327
8	624	4	208	8	624	4	208	16	4,992	1,664	$562	8	2,496	832	$288	$850	328
12	396	8	176	12	396	8	176	7	3,168	1,408	$355	0	1,584	704	$150	$505	329
3	99	0	0	0	0	0	0	7	792	0	$104	0	0	0	$0	$104	330
12	2,016	8	896	12	2,016	8	896	34	16,128	7,168	$1,805	17	8,064	3,584	$919	$2,724	331
3	504	0	0	3	504	0	0	34	4,032	0	$531	17	2,016	0	$281	$812	332
8	624	4	208	8	624	4	208	16	4,992	1,664	$562	8	2,496	832	$288	$850	333
3	14,400	3	8,000	31	14,400	3	8,000	64	115,200	64,000	$12,355	32	57,600	32,000	$6,217	$18,572	334
116	30,087	60	13,940	76	19,365	43	9,784	458	254,880	117,392	$28,216	90	77,460	39,136	$8,513	$36,729	

Proposed Operating and Maintenance Costs. An increase in maintenance costs of $500 per individual DHW heater system for a total increase of $20,000 above the Base Case proposal.

Total Daily Monitoring	$140,000
Equipment Maintenance	$180,000
Total	$320,000

Construction Cost. The only changes to the cost estimate are associated with the installation of 40 local electric hot water heaters in Building 2700. The cost for this portion of the option is attached and total $97,000. The total cost for ECO-1E is $1,382,000. The cost estimate summary totals for Option E are shown below.

Change	Material	Labor	SIOH	Design	Total
3) Decentralize Domestic Hot Water System	$30,000	$57,000	$5,000	$5,000	$97,000
New Totals	$536,000	$702,000	$69,000	$75,000	$1,382,000

Note: All other totals for ECO-1 with the exception of DHW remain the same.

FORT MONMOUTH
PROJECT COST ESTIMATE

BUILDING 2700 DECENTRALIZATION (EC0-1E - CH #3) - DECENTRALIZE DOMESTIC HOT WATER SYSTEM

NO.	DESCRIPTION	QTY	UNIT	MATERIAL		LABOR		TOTAL BARE COST	COMMENTS
				$/UNIT	COST	$/UNIT	COST		
1	Install a 50 Gallon Storage Tank w/4 kW Coil	40	Each	$250.00	$10,000	$200.00	$8,000	$18,000	
2	Rework Local Hot & Cold Piping	40	Each	$200.00	$8,000	$300.00	$12,000	$20,000	
3	Provide Electrical Power, Wiring, etc.	40	Each	$100.00	$4,000	$200.00	$8,000	$12,000	
4	Provide Drilling, Patching, etc. for Retrofit	40	Each	$50.00	$2,000	$100.00	$4,000	$6,000	
5					$0		$0	$0	
6					$0		$0	$0	
7					$0		$0	$0	
8					$0		$0	$0	
9					$0		$0	$0	
10					$0		$0	$0	
11					$0		$0	$0	
12					$0		$0	$0	
13					$0		$0	$0	
14					$0		$0	$0	
15					$0		$0	$0	
16					$0		$0	$0	
17					$0		$0	$0	
18					$0		$0	$0	
19					$0		$0	$0	
20					$0		$0	$0	
21					$0		$0	$0	
22					$0		$0	$0	
23					$0		$0	$0	
24					$0		$0	$0	
25					$0		$0	$0	
26					$0		$0	$0	
27					$0		$0	$0	
	SUBTOTAL							$56,000	
	OVERHEAD AND PROFIT				$2,400		$17,400	$19,800	
	CITY COST INDEX MULTIPLIER								
	DIFFICULTY FACTOR								
	CONTINGENCY (15 %)				$4,000		$7,400	$11,400	
	SIOH(5.5%) & DESIGN FEE(6%)			5,000		5,000		$10,000	
	BASE TOTAL COST				**$30,000**		**$57,000**	**$97,000**	

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27-Jun-96

Fuel Savings.
(Natural Gas) The total yearly fuel savings associated with Option B of ECO-1 is $285,510 or $18,500 more than the base case.

Savings	Heating (mmBtu/day)	Fuel (mmBtu/day)	Natural Gas (mcf/yr)	Fuel Cost ($/yr)
Totals	29,030	39,235	38,055	$285,510
Percent Reduction	57.8%	59.7%	59.7%	59.7%

Electric Savings. The total yearly savings (cost) when compared to ECO-1 (Base Case) is $2,991.

Season	Demand (kW)	Off-Peak (kWh/yr)	On-Peak (kWh/yr)	Energy (mmBtu/yr)	Cost ($/yr)
Non-Summer	(110)	(149,568)	(71,184)	(753)	($15,403)
Summer	24	(43,620)	(24,096)	(231)	($4,258)
Totals	(86)	(193,188)	(95,280)	(984)	($19,661)
Percent Reduction (Increase)	-18.6%	-121.1%	-157.4%	-131.0%	-108.3%

Operation/Maintenance Savings. The savings are reduced from the Base Case by $20,000 increased costs to a total reduction of $170,000 ($190,000 - $20,000).

Discussion. Payback = 3.2 years

SIR = 5.0

The payback for the entire steam decentralization project including the decentralization of the DHW system itself is 3.2 years. Since it is worse than either ECO-1 (Base Case) and 1B, this ECO is not recommended. Maintaining the existing DHW distribution system appears to be the direction to maintain.

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#1E
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

A. CONSTRUCTION COST	$ 1238000.	
B. SIOH	$ 69000.	
C. DESIGN COST	$ 75000.	
D. TOTAL COST (1A+1B+1C)	$ 1382000.	
E. SALVAGE VALUE OF EXISTING EQUIPMENT	$ 0.	
F. PUBLIC UTILITY COMPANY REBATE	$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)		$ 1382000.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ 19.98	-984.	$ -19660.	13.86	$ -272492.
B. DIST	$ .00	0.	$ 0.	16.99	$ 0.
C. RESID	$ .00	0.	$ 0.	17.38	$ 0.
D. NAT G	$ 7.28	39235.	$ 285631.	17.14	$ 4895712.
E. COAL	$ .00	0.	$ 0.	13.56	$ 0.
F. LPG	$ .00	0.	$ 0.	15.12	$ 0.
M. DEMAND SAVINGS			$ 0.	13.47	$ 0.
N. TOTAL		38251.	$ 265971.		$ 4623220.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-)		$ 170000.
(1) DISCOUNT FACTOR (TABLE A)	13.47	
(2) DISCOUNTED SAVING/COST (3A X 3A1)		$ 2289900.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-) (4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)	$ 2289900.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))	$ 435971.
5. SIMPLE PAYBACK PERIOD (1G/4)	3.17 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)	$ 6913120.
7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)=	5.00

(IF < 1 PROJECT DOES NOT QUALIFY)

ECO-2
OCCUPIED/UNOCCUPIED
(5°F TEMPERATURE SETBACK MCA SYSTEM)

Existing. Currently the spaces served by the MCA chilled and hot water distribution systems are generally kept at constant temperatures during both the heating and cooling seasons. Some air handlers have the capability to shutdown during un-occupied time periods, however, field surveys indicated that these controls were generally not utilized. The MCA DOE simulation was modeled to reflect constant zone set points at 72°F during the heating season and 75°F during the cooling season. The annual heating and cooling costs for the MCA systems as calculated in the DOE simulation are $233,300. DOE simulation output can be found in Attachment 8.12

Component	Demand (kW)	On-Peak (kWh)	Off-Peak (kWh)	Energy (mmBtu)	Cost ($)
Chillers	2,310	301,229	281,018	1,987	$60,700
Tower Fan	246	51,083	89,884	481	$11,600
Condenser Pump	162	33,716	63,615	332	$7,900
Chilled Water Pump	493	92,417	186,048	950	$22,900
Hot Water Pump	120	18,691	33,228	177	$4,400
Air Handlers	1,563	393,918	747,179	3,895	$88,400
Totals	4,894	891,054	1,400,972	7,823	$195,900

Electric Energy = 7,823 mmBtu/yr ((891,054 kWh + 1,400,972 kWh) x 3,413 Btu/kWh ÷ 1,000,000 mmBtu/kWh)

Gas Usage = 4,979 mcf/yr

Gas Energy = 5,128 mmBtu/yr (4,979 mcf/yr x 1.03 mmBtu/mcf)

DOE Simulation, MCA Chilled Water Plant, Existing

	Chiller			Tower Fan			Condenser Pump			Chilled Water Pump			Air Handlers		
Month	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh
January	0	0	0	0	0	0	0	0	0	0	0	0	130	32,827	64,089
February	0	0	0	0	0	0	0	0	0	0	0	0	130	29,700	57,835
March	0	0	0	0	0	0	0	0	0	0	0	0	130	35,952	60,962
April	0	0	0	0	0	0	0	0	0	0	0	0	130	32,827	60,962
May	369	23,982	19,785	41	5,108	8,502	27	3,499	6,680	91	9,638	21,339	130	32,827	64,089
June	442	68,071	59,135	41	10,784	17,499	27	6,998	12,087	94	19,055	34,579	130	34,390	59,399
July	422	66,972	75,300	41	9,870	20,090	27	6,361	13,359	94	17,459	36,150	130	31,263	65,652
August	441	76,939	63,923	41	11,339	18,287	27	7,316	12,405	94	20,086	34,499	130	35,952	60,962
September	365	51,299	48,917	41	10,016	17,281	27	6,680	12,405	91	18,054	37,094	130	32,827	60,962
October	271	13,966	13,958	41	3,966	8,225	27	2,863	6,680	88	8,126	22,386	130	31,263	65,652
November	0	0	0	0	0	0	0	0	0	0	0	0	130	31,263	62,526
December	0	0	0	0	0	0	0	0	0	0	0	0	130	32,827	64,089
Totals	2,310	301,229	281,018	246	51,083	89,884	162	33,717	63,616	493	92,417	186,048	1,563	393,918	747,179

Gas Cost	=	$37,300 (4,979 mcf/yr x $7.50/mcf = $37,343, use $37,300)
Total Energy	=	12,951 mmBtu/yr (7,823 mmBtu/yr + 5,128 mmBtu/yr)
Total Cost	=	$233,300 ($196,000 + $37,300)

Proposed. Install time clocks and programmable thermostats for approximately 19 air handlers. The controls would be set to shutdown the systems for approximately 10 hours on a weekday and all day Saturday and Sunday. The thermostat would be set to override the fan based on a 5°F setback. The MCA DOE model was revised with the following parameters applied.

1. Begin setback at 7:00 pm
2. End setback at 5:00 am
3. Winter occupied temperature remains at 72°F
4. Winter unoccupied temperature set at 67°F
5. Summer occupied temperature set at 75°F
6. Summer unoccupied temperature set 80°F

The revised DOE model provided the following results:

Component	Demand (kW)	On-Peak (kWh)	Off-Peak (kWh)	Energy (mmBtu)	Cost ($)
Chillers	2,310	314,618	249,900	1,927	$59,700
Tower Fan	246	51,301	88,022	476	$11,500
Condenser Pump	162	33,717	63,616	332	$7,900
Chilled Water Pump	493	100,247	178,218	950	$23,000
Hot Water Pump	120	18,691	26,489	154	$4,000
Air Handlers	1,563	393,918	220,549	2,097	$55,700
Totals	4,894	912,492	826,794	5,936	$161,800

DOE Simulation, MCA Chilled Water Plant, Temperature Setback, 5°F in Heating/Cooling

	Chiller			Tower Fan			Condenser Pump			Chilled Water Pump			Air Handlers		
Month	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh
January	0	0	0	0	0	0	0	0	0	0	0	0	130	32,827	12,663
February	0	0	0	0	0	0	0	0	0	0	0	0	130	29,700	10,349
March	0	0	0	0	0	0	0	0	0	0	0	0	130	35,952	10,903
April	0	0	0	0	0	0	0	0	0	0	0	0	130	32,827	20,025
May	369	26,018	19,112	41	5,146	8,451	27	3,499	6,680	91	9,638	21,339	130	32,827	29,071
June	442	74,161	52,459	41	10,814	17,111	27	6,998	12,087	94	19,055	34,579	130	34,390	22,074
July	422	73,015	65,405	41	9,873	19,555	27	6,361	13,359	94	17,459	36,150	130	31,263	26,689
August	441	83,886	54,548	41	11,349	17,713	27	7,316	12,405	94	20,086	34,499	130	35,952	22,669
September	365	56,024	44,042	41	10,101	16,954	27	6,680	12,405	91	18,054	37,094	130	32,827	20,521
October	271	1,514	14,334	41	4,018	8,238	27	2,863	6,680	88	8,126	22,386	130	31,263	19,908
November	0	0	0	0	0	0	0	0	0	0	0	0	130	31,263	13,859
December	0	0	0	0	0	0	0	0	0	0	0	0	130	32,827	11,818
Totals	2,310	314,618	249,900	246	51,301	88,022	162	33,717	63,616	493	92,417	186,048	1,563	393,918	220,549

Electric Energy	=	5,936 mmBtu/yr ((912,492 kWh/yr + 826,794 kWh/yr) x 3,413 Btu/kWh ÷ 1,000,000 Btu/mmBtu)
Gas Usage	=	4,374 mcf/yr
Gas Energy	=	4,505 mmBtu/yr (4,374 mcf/yr x 1.031 mmBtu/mcf)
Gas Cost	=	$32,800 (4,374 mcf/yr x $7.50/mcf)
Total Cost	=	$194,600 ($161,800 + $32,800)

Construction Cost. The expected construction cost is $51,500. (See Attached Cost Breakdown).

Material	$ 21,900
Labor	$ 24,300
SIOH	$ 2,500
Engineering	$ 2,800
Total	$ 51,500

Savings. The annual cost savings resulting from the implementation of this project will be $38,700 ($233,300 - $194,600).

Component	Demand (kW)	On-Peak (kWh)	Off-Peak (kWh)	Energy (mmBtu)	Cost ($)
Totals	0	(21,438)	574,178	1,887	$34,200
Percent Reduction	0.0%	-2.4%	64.4%	24.1%	17.4%

Gas Usage	=	605 mcf/yr (4,979 mcf/yr - 4,374 mcf/yr)
Gas Energy	=	623 mmBtu/yr (5,128 mmBtu/r - 4,505 mmBtu/yr)
Gas Cost	=	$4,500 ($37,300 - $32,800)

Total Savings = $38,700 ($34,200 + $4,500)

Maintenance Savings: There is no additional monetary savings due to reduced maintenance.

Discussion. Payback = 1.3 years

SIR = 10.7

The expected payback resulting from the implementation of this project is 1.3 years. This ECO is recommended for implementation. The controlled MCA system(s) setback scenario described here will have significant savings. The feasibility of utilizing the existing clocks on the MCA units will have to be performed during the design phase of this project.

Other areas (units) that are not strictly MCA 2-pipe systems may be able to incorporate this type of control. Speculation on those areas and units was not made with this study because of the uncertainty of the application. Additional savings maybe realized if such units can be adapted with these controls.

FORT MONMOUTH
PROJECT COST ESTIMATE
5°F Temperature Setback MCA Systems

NO.	DESCRIPTION	QTY	UNIT	MATERIAL		LABOR		TOTAL BARE COST
				$/UNIT	COST	$/UNIT	COST	
1	Electronic Time Clocks	19	Each	$300.00	$5,700	$150.00	$2,850	$8,550
2	Programmable Thermostats	19	Each	$150.00	$2,850	$100.00	$1,900	$4,750
3	Electric, Wiring, Switches	19	Each	$500.00	$9,500	$500.00	$9,500	$19,000
4					$0		$0	$0
5					$0		$0	$0
6					$0		$0	$0
7					$0		$0	$0
8					$0		$0	$0
9					$0		$0	$0
10					$0		$0	$0
11					$0		$0	$0
12					$0		$0	$0
13					$0		$0	$0
14					$0		$0	$0
15					$0		$0	$0
16					$0		$0	$0
17					$0		$0	$0
18					$0		$0	$0
19					$0		$0	$0
20					$0		$0	$0
21					$0		$0	$0
22					$0		$0	$0
23					$0		$0	$0
24					$0		$0	$0
25					$0		$0	$0
26					$0		$0	$0
27					$0		$0	$0
28					$0		$0	$0
29					$0		$0	$0
30					$0		$0	$0
31					$0		$0	$0
32					$0		$0	$0
33					$0		$0	$0
34					$0		$0	$0
35					$0		$0	$0
36					$0		$0	$0
37					$0		$0	$0
38					$0		$0	$0
39					$0		$0	$0
40					$0		$0	$0
41					$0		$0	$0
42					$0		$0	$0
43					$0		$0	$0
44					$0		$0	$0
45					$0		$0	$0
46					$0		$0	$0
47					$0		$0	$0
48					$0		$0	$0
49					$0		$0	$0
50					$0		$0	$0
51					$0		$0	$0
52					$0		$0	$0
53					$0		$0	$0
54					$0		$0	$0
55					$0		$0	$0
56					$0		$0	$0
57					$0		$0	$0
58					$0		$0	$0
59					$0		$0	$0
60					$0		$0	$0
61					$0		$0	$0
62					$0		$0	$0
63					$0		$0	$0
	SUBTOTAL							$32,300
	OVERHEAD AND PROFIT				$1,800		$7,800	$9,600
	CITY COST INDEX MULTIPLIER							
	DIFFICULTY FACTOR							
	CONTINGENCY				$2,000		$2,200	$4,200
	SIOH(5.5%) & DESIGN FEE(6%)			$2,500		$2,800		$5,300
	BASE TOTAL COST				**$21,850**		**$24,250**	**$51,400**

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#2
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

A. CONSTRUCTION COST	$ 46200.		
B. SIOH	$ 2500.		
C. DESIGN COST	$ 2800.		
D. TOTAL COST (1A+1B+1C)	$ 51500.		
E. SALVAGE VALUE OF EXISTING EQUIPMENT		$ 0.	
F. PUBLIC UTILITY COMPANY REBATE		$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)			$ 51500.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ 18.12	1887.	$ 34192.	13.86	$ 473907.
B. DIST	$ .00	0.	$ 0.	16.99	$ 0.
C. RESID	$ .00	0.	$ 0.	17.38	$ 0.
D. NAT G	$ 7.28	623.	$ 4535.	17.14	$ 77737.
E. COAL	$ .00	0.	$ 0.	13.56	$ 0.
F. LPG	$ .00	0.	$ 0.	15.12	$ 0.
M. DEMAND SAVINGS			$ 0.	13.47	$ 0.
N. TOTAL		2510.	$ 38728.		$ 551645.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-)		$ 0.
(1) DISCOUNT FACTOR (TABLE A)	13.47	
(2) DISCOUNTED SAVING/COST (3A X 3A1)		$ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-) (4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)	$ 0.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))	$ 38728.
5. SIMPLE PAYBACK PERIOD (1G/4)	1.33 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)	$ 551645.
7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)=	10.71

(IF < 1 PROJECT DOES NOT QUALIFY)

ECO-3
REDUCE BUILDING INFILTRATION

Existing. Currently Building 2700 is under a negative pressure. Section 5.4.3 established that an estimated 25,000 cfm of outside air is drawn into the building by exhaust fans. This outside air is over and above the 65,000 cfm brought into the building by existing supply fans, totaling 90,000 cfm. This is partly due to the installation of exhaust side equipment without modifications to the supply side. Most of the exhaust fans operate continuously all year. The existing DOE models for both the MCA systems and miscellaneous cooling/heating systems were modeled to reflect this condition. As stated in Section 5, infiltration factors were applied to spaces not receiving outside air from other sources. An infiltration factor of 0.8 air changes per hour was applied. Based on the DOE models, the annual estimated energy cost for the direct heating and cooling (excluding losses) at Building 2700 is $671,200. Individual components are summarized below and shown in detail on the attached table titled "Existing Operation".

Component	Demand kW	On-Peak kWh/yr	Off-Peak kWh/yr	Energy mmBtu	Cost $/yr
Chillers	2,310	301,229	281,018	1,987	$60,700
Tower Fan	246	51,083	89,884	481	$11,600
Condenser Pump	162	33,716	63,615	332	$7,900
Chilled Water Pump	493	92,417	186,048	950	$22,900
Miscellaneous Cooling	8,632	1,924,765	2,947,124	16,628	$406,900
Totals	11,843	2,403,210	3,567,689	20,379	$510,000

Electric Energy = 20,379 mmBtu/yr ((2,403,210 kWh/yr + 3,567,689 kWh/yr) x 3,413 Btu/kWh ÷ 1,000,000 Btu/mmBtu)

Gas Usage = 21,495 mcf/yr

DOE Simulation, MCA Chilled Water Plant, Existing

Month	Chiller			Tower Fan			Condenser Pump			Chilled Water Pump			Air Handlers		
	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh
January	0	0	0	0	0	0	0	0	0	0	0	0	130	32,827	64,089
February	0	0	0	0	0	0	0	0	0	0	0	0	130	29,700	57,835
March	0	0	0	0	0	0	0	0	0	0	0	0	130	35,952	60,962
April	0	0	0	0	0	0	0	0	0	0	0	0	130	32,827	60,962
May	369	23,982	19,785	41	5,108	8,502	27	3,499	6,680	91	9,638	21,339	130	32,827	64,089
June	442	68,071	59,135	41	10,784	17,499	27	6,998	12,087	94	19,055	34,579	130	34,390	59,399
July	422	66,972	75,300	41	9,870	20,090	27	6,361	13,359	94	17,459	36,150	130	31,263	65,652
August	441	76,939	63,923	41	11,339	18,287	27	7,316	12,405	94	20,086	34,499	130	35,952	60,962
September	365	51,299	48,917	41	10,016	17,281	27	6,680	12,405	91	18,054	37,094	130	32,827	60,962
October	271	13,966	13,958	41	3,966	8,225	27	2,863	6,680	88	8,126	22,386	130	31,263	65,652
November	0	0	0	0	0	0	0	0	0	0	0	0	130	31,263	62,526
December	0	0	0	0	0	0	0	0	0	0	0	0	130	32,827	64,089
Totals	2,310	301,229	281,018	246	51,083	89,884	162	33,717	63,616	493	92,417	186,048	1,563	393,918	747,179

DOE Simulation, Miscellaneous Cooling Systems Existing

Month	Compressors		
	Annual kW	On-Peak kWh	Off-Peak kWh
January	625	147,207	215,701
February	629	134,580	197,257
March	661	166,081	226,298
April	706	157,177	240,597
May	763	159,263	263,408
June	822	182,764	257,414
July	789	169,327	291,007
August	812	195,302	267,450
September	755	167,237	258,514
October	706	150,853	264,296
November	718	146,315	239,287
December	646	148,658	225,894
Totals	8,632	1,924,765	2,947,124
Electric Model	11,300	1,769,657	2,471,473
% Variance	24%	-9%	-19%

Season	Demand	On-Peak kWh	Off-Peak kWh
Summer	3,178	714,631	1,074,385
Non-Summer	5,454	1,210,134	1,872,739

Season	Cost
Summer	$151,700
Non-Summer	$255,200

Gas Energy	=	22,140 mmBtu/yr (21,495 mcf/yr x 1.031 mmBtu/mcf)
Gas Cost	=	$161,200 (21,495 mcf/yr x $7.50/mcf = $161,213, use $161,200)
Total Energy	=	42,519 mmBtu/yr (20,379 mmBtu/yr + 22,140 mmBtu/yr)
Total Cost	=	$671,200 ($510,000 + $161,200)

Proposed. Reduce exhaust loads to a level comparable to the supply side. Due to the complexity of the existing systems it is highly unlikely that exhaust loads can be reduced to such a level. Rather it is within reason to estimate that approximately 25% of the additional exhaust load can be removed. This can be accomplished by disconnecting/shutting down fans which are no longer needed or replacing oversized fans with smaller ones. DOE simulation models were adjusted to reflect a 25% decrease in the amount of infiltration experienced. All spaces attributed with an air change factor of 0.8 were changed to 0.6. The above change lowered annual heating and cooling costs to $661,500 as shown in the following table.

Component	Demand kW	On-Peak kWh/yr	Off-Peak kWh/yr	Energy mmBtu	Cost $/yr
Chillers	2,310	300,300	282,521	1,989	$60,700
Tower Fan	246	51,160	89,957	482	$11,600
Condenser Pump	162	33,717	63,616	332	$7,900
Chilled Water Pump	493	92,417	186,048	950	$22,900
Miscellaneous Cooling	8,632	1,924,765	2,947,124	16,628	$406,900
Totals	11,843	2,402,359	3,569,266	20,381	$510,000

DOE Simulation, MCA Chilled Water Plant, Reduced Infiltration

Month	Chiller			Tower Fan			Condenser Pump			Chilled Water Pump			Air Handlers		
	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh
January	0	0	0	0	0	0	0	0	0	0	0	0	130	32,827	64,089
February	0	0	0	0	0	0	0	0	0	0	0	0	130	29,700	57,835
March	0	0	0	0	0	0	0	0	0	0	0	0	130	35,952	60,962
April	0	0	0	0	0	0	0	0	0	0	0	0	130	32,827	60,962
May	361	24,436	20,354	41	5,134	8,528	27	3,499	6,680	91	9,638	21,339	130	32,827	64,089
June	428	67,471	59,318	41	10,787	17,512	27	6,998	12,087	94	19,055	34,579	130	34,390	59,399
July	410	66,337	74,957	41	9,870	20,081	27	6,361	13,359	94	17,459	36,150	130	31,263	65,652
August	426	76,186	63,852	41	11,339	18,285	27	7,316	12,405	94	20,086	34,499	130	35,952	60,962
September	356	51,429	49,593	41	10,034	17,307	27	6,680	12,405	91	18,054	37,094	130	32,827	60,962
October	271	14,441	14,447	41	3,996	8,244	27	2,863	6,680	88	8,126	22,386	130	31,263	65,652
November	0	0	0	0	0	0	0	0	0	0	0	0	130	31,263	62,526
December	0	0	0	0	0	0	0	0	0	0	0	0	130	32,827	64,089
Totals	2,252	300,300	282,521	246	51,160	89,957	162	33,717	63,616	493	92,417	186,048	1,563	393,918	747,179

DOE Simulation, Miscellaneous Cooling Systems Reduced Infiltration

Month	Compressors		
	Annual kW	On-Peak kWh	Off-Peak kWh
January	625	147,207	215,701
February	629	134,580	197,257
March	661	166,081	226,298
April	706	157,177	240,597
May	763	159,263	263,408
June	822	182,764	257,414
July	789	169,327	291,007
August	812	195,302	267,450
September	755	167,237	258,514
October	706	150,853	264,296
November	718	146,315	239,287
December	646	148,658	225,894
Totals	8,632	1,924,765	2,947,124
Electric Model	11,300	1,769,657	2,471,473
% Variance	24%	-9%	-19%

Season	Demand	On-Peak kWh	Off-Peak kWh
Summer	3,178	714,631	1,074,385
Non-Summer	5,454	1,210,134	1,872,739

Season	Cost
Summer	$151,700
Non-Summer	$255,200

Electric Energy	=	20,381 mmBtu/yr ((2,402,359 kWh/yr + 3,569,266 kWh/yr) x 3,413 Btu/kWh ÷ 1,000,000 Btu/mmBtu)
Gas Usage	=	20,205 mcf/yr
Gas Energy	=	20,811 mmBtu/yr (20,205 mcf/yr x 1.03 mmBtu/mcf)
Gas Cost	=	$151,500 (20,205 mcf/yr x $7.50/mcf = $151,538, use $151,500)
Total Energy	=	41,192 mmBtu/yr (20,381 mmBtu/yr + 20,811 mmBtu/yr)
Total Cost	=	$661,500 ($510,000 + $151,500)

Construction Cost. Estimating the costs associated with realizing these changes are difficult to predict without performing a detailed design analysis. In order to qualify for ECIP funding, this ECO would need to be at a 9.9 year payback period. In order to achieve this, the construction cost associated with obtaining a 9.9 year payback period is $96,000.

Material	$ 43,000
Labor	$ 43,000
SIOH	$ 4,700
Engineering	$ 5,300
Total	$ 96,000

Savings. The annual cost savings resulting from the implementation of this project will be $9,700 ($671,200 - $661,500). These savings in dollars were for the most part realized by the fuel (natural gas) savings only.

Demand kW	=	0 kW/yr (11,843 kW/yr - 11,843 kW/yr)

On-Peak kWh = 851 kWh/yr (2,403,210 kWh/yr - 2,402,359 kWh/yr)

Off-Peak kWh = -1,577 kWh/yr (3,567,689 kWh/yr - 3,569,266 kWh/yr)

Gas Usage = 1,290 mcf/yr (21,495 mcf/yr - 20,205 mcf/yr)

Energy Usage = 1,326 mmBtu [(851 kWh/y - 1,577 kWh/yr) x 3,413 Btu/kWh) + (1,290 mcf/yr x 1,031,000 Btu/mcf) ÷ 1,000,000 Btu/mmBtu]

Component	Demand kW	On-Peak kWh/yr	Off-Peak kWh/yr	Energy mmbtu	Cost $/yr
Chillers	0	929	(1,503)	(2)	$0
Tower Fan	0	(77)	(73)	(1)	$0
Condenser Pump	0	(1)	(1)	0	$0
Chilled Water Pump	0	0	0	0	$0
Miscellaneous Cooling	0	0	0	0	$0
Totals	0	851	(1,577)	(2)	$0

Maintenance Savings. There is no additional monetary savings due to reduced maintenance.

Discussion. Payback = 9.9 years

SIR = 1.7

The payback for this model is 9.9 years. Survey work is required to resolve issues surrounding exhaust minimization in this building. Efforts to reduce the negative pressure will result in cost savings.

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: MON1

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID FY95 (92)

INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1

PROJECT NO. & TITLE:

FISCAL YEAR — DISCRETE PORTION NAME: ECO#3

ANALYSIS DATE: 07-03-96 — ECONOMIC LIFE 20 YEARS — PREPARED BY:

1. INVESTMENT

A. CONSTRUCTION COST	$ 86000.	
B. SIOH	$ 4700.	
C. DESIGN COST	$ 5300.	
D. TOTAL COST (1A+1B+1C)	$ 96000.	
E. SALVAGE VALUE OF EXISTING EQUIPMENT	$ 0.	
F. PUBLIC UTILITY COMPANY REBATE	$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)		$ 96000.

2. ENERGY SAVINGS (+) / COST (-)

DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ .00	0.	$ 0.	13.86	$ 0.
B. DIST	$ .00	0.	$ 0.	16.99	$ 0.
C. RESID	$ .00	0.	$ 0.	17.38	$ 0.
D. NAT G	$ 7.28	1329.	$ 9675.	17.14	$ 165832.
E. COAL	$ .00	0.	$ 0.	13.56	$ 0.
F. LPG	$ .00	0.	$ 0.	15.12	$ 0.
M. DEMAND SAVINGS			$ 0.	13.47	$ 0.
N. TOTAL		1329.	$ 9675.		$ 165832.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-) — $ 0.

(1) DISCOUNT FACTOR (TABLE A) — 13.47

(2) DISCOUNTED SAVING/COST (3A X 3A1) — $ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-) (4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) $ 0.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) $ 9675.

5. SIMPLE PAYBACK PERIOD (1G/4) — 9.92 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) — $ 165832.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= — 1.73

(IF < 1 PROJECT DOES NOT QUALIFY)

ECO-4
REPLACE EXISTING CENTRAL CHILLER(S)

Existing.

Presently, the MCA-CHW system is supported by two 690 ton centrifugal chillers installed in Building 2706. They are operated from May 15 to October 15, alternating from month to month during that period. The chillers were installed as part of the Major Construction Activities (MCA) project in 1982.

These units were rated at 0.78 kW/ton at the time of the installation. The electric model simulates one unit with a connected kW of 538, operating the entire period. The units' estimated yearly demand and usage totals were calculated to be 1,937 kW and 1,011,440 kWh respectively.

The yearly (7-month) costs to operate one chiller is estimated to be $85,082.

Season	Demand (kW)	Off-Peak (kWh/yr)	On-Peak (kWh/yr)	Energy (mmBtu/yr)	Cost ($/yr)
Non-Summer	323	64,560	86,080	514	$12,941
Summer	1,614	516,480	344,320	2,938	$72,141
Totals	1,937	581,040	430,400	3,452	$85,082

Proposed.

The proposed change is to replace one of the chillers with a newer more efficient chiller of the same capacity. The typical kW/ton rating for present day chillers of this size is around 0.5 to 0.55. Entech will use 0.55 kW/ton which equates to a connected load of 380 kW.

Re-calculating the electric model using the linear difference between units operation rating yields demand and usage total of 1,367 kW and 713,460 kWh. The cost are expected to be reduced to about $60,016/yr.

Season	Demand (kW)	Off-Peak (kWh/yr)	On-Peak (kWh/yr)	Energy (mmBtu)	Cost ($/yr)
Non-Summer	228	45,540	60,720	363	$9,128
Summer	1,139	364,320	242,880	2,072	$50,888
Totals	1,367	409,860	303,600	2,435	$60,016

Construction Cost. The estimated costs for replacing one of the two chillers in Building 2706 is $288,900.

Material	$195,800
Labor	63,100
SIOH	14,000
Engineering	16,000
Total	$288,900

Savings. The total yearly savings associated with this ECO is $25,066.

Season	Demand (kW)	Off-Peak (kWh/yr)	On-Peak (kWh/yr)	Energy (mmBtu)	Cost ($/yr)
Non-Summer	95	19,020	25,360	151	$3,813
Summer	475	152,320	101,440	866	$21,253
Totals	570	171,340	126,800	1,017	$25,066
Percent Reduction	29.5%	29.5%	29.5%	29.5%	29.5%

Maintenance Savings. There are no significant maintenance savings associated with this ECO.

Discussion. Payback = 11.5 years

SIR = 1.20

These are the results of the ECOs Life Cycle Analysis and a copy of it can be found attached.

This ECO is not recommended. If the chiller experienced significant year round loads, then the results might have been more attractive.

FORT MONMOUTH
PROJECT COST ESTIMATE
REPLACE MCA CHILLER (EC0-4)

NO.	DESCRIPTION	QTY	UNIT	MATERIAL		LABOR		TOTAL BARE COST
				$/UNIT	COST	$/UNIT	COST	
1	Remove existing chiller	1	Each	$5,000.00	$5,000	$10,000.00	$10,000	$15,000
2	Install replacement chiller	1	Each	$151,800.00	$151,800	$20,000.00	$20,000	$171,800
3	Piping, foundation, etc. rework	1	Lot	$2,000.00	$2,000	$5,000.00	$5,000	$7,000
4	Electrical wiring, connections, etc.	1	Lot	$3,000.00	$3,000	$2,000.00	$2,000	$5,000
5					$0		$0	$0
6					$0		$0	$0
7					$0		$0	$0
8					$0		$0	$0
9					$0		$0	$0
10					$0		$0	$0
11					$0		$0	$0
12					$0		$0	$0
13					$0		$0	$0
14					$0		$0	$0
15					$0		$0	$0
16					$0		$0	$0
17					$0		$0	$0
18					$0		$0	$0
19					$0		$0	$0
20					$0		$0	$0
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23					$0		$0	$0
24					$0		$0	$0
25					$0		$0	$0
26					$0		$0	$0
27					$0		$0	$0
28					$0		$0	$0
29					$0		$0	$0
30					$0		$0	$0
31					$0		$0	$0
32					$0		$0	$0
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35					$0		$0	$0
36					$0		$0	$0
37					$0		$0	$0
38					$0		$0	$0
39					$0		$0	$0
40					$0		$0	$0
41					$0		$0	$0
42					$0		$0	$0
43					$0		$0	$0
44					$0		$0	$0
45					$0		$0	$0
46					$0		$0	$0
47					$0		$0	$0
48					$0		$0	$0
49					$0		$0	$0
50					$0		$0	$0
51					$0		$0	$0
	SUBTOTAL							$198,800
	OVERHEAD AND PROFIT				$16,200		$20,400	$36,600
	CITY COST INDEX MULTIPLIER							
	DIFFICULTY FACTOR							
	CONTINGENCY				$17,800		$5,700	$23,500
	SIOH(5.5%) & DESIGN FEE(6%)			14,000		16,000		$30,000
	BASE TOTAL COST				**$195,800**		**$63,100**	**$288,900**

G:\4130.05\SS\ECOS\ECO-4CE.WK4 28-Jun-96

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#4
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

A. CONSTRUCTION COST	$ 259000.	
B. SIOH	$ 14000.	
C. DESIGN COST	$ 16000.	
D. TOTAL COST (1A+1B+1C)	$ 289000.	
E. SALVAGE VALUE OF EXISTING EQUIPMENT	$ 0.	
F. PUBLIC UTILITY COMPANY REBATE	$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)		$ 289000.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ 24.62	1018.	$ 25063.	13.86	$ 347375.
B. DIST	$ .00	0.	$ 0.	16.99	$ 0.
C. RESID	$ .00	0.	$ 0.	17.38	$ 0.
D. NAT G	$ 7.28	0.	$ 0.	17.14	$ 0.
E. COAL	$ .00	0.	$ 0.	13.56	$ 0.
F. LPG	$ .00	0.	$ 0.	15.12	$ 0.
M. DEMAND SAVINGS			$ 0.	13.47	$ 0.
N. TOTAL		1018.	$ 25063.		$ 347375.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-)		$ 0.
(1) DISCOUNT FACTOR (TABLE A)	13.47	
(2) DISCOUNTED SAVING/COST (3A X 3A1)		$ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-) (4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-) (3A2+3Bd4)	$ 0.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))	$ 25063.
5. SIMPLE PAYBACK PERIOD (1G/4)	11.53 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)	$ 347375.
7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)=	1.20

(IF < 1 PROJECT DOES NOT QUALIFY)

ECO-5
CONVERT SPECIFIC AIR COOLED CHILLERS TO WATER COOLED CHILLERS

Existing. Building 2700 utilized a variety of cooling equipment. Included in that equipment are five (5) air cooled water chillers excluding the large chiller supporting the three cleanrooms on the fourth floor.

The existing electric costs for these five (5) are estimated to be near $49,100. Refer to Table ECO-5-E for the existing analysis.

Season	Demand (kW)	Off-Peak (kWh/yr)	On-Peak (kWh/yr)	Energy (mmBtu/yr)	Cost ($/yr)
Non-Summer	812	110,377	186,937	1,015	$27,161
Summer	620	99,132	138,522	811	$21,952
Totals	1,432	209,509	325,459	1,826	$49,113

Proposed. To replace the existing air cooled chillers with water cooled chillers with better kW/ton efficiency utilizing the existing cooling towers on the roof.

Water cooled versus air cooled in the size range (20-100 tons) being evaluated will reduce the overall energy consumption of each by about 15%. Applying that figure directly to the connected kW will yield the savings expected. For simplification we will assume the new loads on the towers can be accommodated and that the new loads/flows will not effect the tower energy.

The electric costs associated with operating these five (5) systems with water cooled chillers is estimated to be near $41,750. Refer to table ECO-5-P for the proposed analysis.

Season	Demand (kW)	Off-Peak (kWh/yr)	On-Peak (kWh/yr)	Energy (mmBtu/yr)	Cost ($/yr)
Non-Summer	690	93,821	158,897	863	$23,087
Summer	527	84,263	117,744	689	$18,659
Totals	1,217	178,084	276,641	1,552	$41,746

Construction Cost. The construction costs to implement this ECO are estimated to be near $278,500. Refer to the estimate attached.

Material	$154,900
Labor	94,600
SIOH	14,000
Engineering	15,000
Total	$278,500

Savings. The electric energy cost savings associated with implementing this ECO is approximately $7,370.

Season	Demand (kW)	Off-Peak (kWh/yr)	On-Peak (kWh/yr)	Energy (mmBtu/yr)	Cost ($/yr)
Non-Summer	122	16,556	28,040	152	$4,074
Summer	93	14,869	20,778	122	$3,293
Totals	215	31,425	48,818	274	$7,367
Percent Reduction	15.0%	15.0%	15.0%	15.0%	15.0%

Maintenance Savings. There are no significant maintenance savings associated with this ECO.

Discussion. Payback = 37.8 years

SIR = 0.4

This ECO is not recommended because the savings do not justify the cost for equipment replacement.

HVAC Item	HVAC Airside Equipment - General Information: Design/Site Designation	Equip. Type	Field Data/Reference/(Location)	Area Served	Cooling Equipment Field Data/Reference/(Location)	Total Connected Load (kW)	Winter Demand kW/month	Int D kW
89	-	AHU	McQuay LSL(Auditonum M-Area)	Auditonum	McQuay AHR(Common - out on grade)	27.0	6.8	
90	-	AHU	McQuay LSL(Auditonum M-Area)	Auditonum	McQuay AHR(Common - out on grade)	27.0	6.8	
107	-	AHU	unknown(2D310 Cleanroom)	2D310 Cleanroom	Pack. Carrier Air Cooled Chiller on roof	22.4	11.2	
131	-	(2)AHU	York(MR - 33 East 3C/D200 Area)	3D306-3C321 lab area	York Comp. in MR-33 & condenser on ro	56.4	14.1	
135	-	AHU	Climatrol(MR-34 South 3C/D300 Area)	3D330 Cleanroom	Climatrol Chiller in MR34 & cond. on roo	73.0	36.8	
				TOTALS		207	76	

FT. M
BUILDING 2700 ELECTRIC MODEL - C(

HVAC Item	HVAC Airside Equipment - General Information: Design/Site Designation	Equip. Type	Field Data/Reference/(Location)	Area Served	Cooling Equipment Field Data/Reference/(Location)	Total Connected Load (kW)	Winter Demand kW/month	Int D kW
89	-	AHU	McQuay LSL(Auditonum M-Area)	Auditonum	McQuay AHR(Common - out on grade)	23.0	5.7	
90	-	AHU	McQuay LSL(Auditonum M-Area)	Auditonum	McQuay AHR(Common - out on grade)	23.0	5.7	
107	-	AHU	unknown(2D310 Cleanroom)	2D310 Cleanroom	Pack. Carrier Air Cooled Chiller on roof	19.1	9.5	
131	-	(2)AHU	York(MR - 33 East 3C/D200 Area)	3D306-3C321 lab area	York Comp. in MR-33 & condenser on ro	47.9	12.0	
135	-	AHU	Climatrol(MR-34 South 3C/D300 Area)	3D330 Cleanroom	Climatrol Chiller in MR34 & cond. on roo	62.6	31.3	
				TOTALS		176	64	

(1)

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 ELECTRIC MODEL - CONVERT SPECIFIC AIR COOLED CHILLERS TO WATER COOLED CHILLE

TABLE ECO-5-E

al Information		Cooling Equipment	Total	Winter	Intermed.	Summer	Winter Billing Months				Intermediate Billing Months				Summer Billing Months				
							Off-Peak		On-Peak		Off-Peak		On-Peak		Off-Peak		On-Peak		
	Area	Field	Connected	Demand	Demand	Demand	hrs/		hrs/		hrs/		hrs/		hrs/		hrs/		Dem
n)	Served	Data/Reference/(Location)	Load (kW)	kW/month	kW/month	kW/month	day	kWh/Mo	day	kWh/Mo	day	kWh/Mo	day	kWh/Mo	day	kWh/Mo	day	kWh/Mo	kW/
	Auditonum	McQuay AHR(Common - out on grade)	27.0	6.8	13.5	20.3	2	1,621	4	2,162	3	2,432	6	3,243	4	3,243	8	4,324	
	Auditonum	McQuay AHR(Common - out on grade)	27.0	6.8	13.5	20.3	2	1,621	4	2,162	3	2,432	6	3,243	4	3,243	8	4,324	
	2D310 Cleanroom	Pack. Carrier Air Cooled Chiller on roof	22.4	11.2	16.8	16.8	2	1,347	6	2,693	3	2,020	8	3,591	4	2,693	10	4,489	
	3D306-3C321 lab area	York Comp. in MR-33 & condenser on ro	56.4	14.1	28.2	42.3	1	1,692	4	4,513	2	3,385	4	4,513	4	6,769	6	6,769	
rea)	3D330 Cleanroom	Climatrol Chiller in MR34 & cond. on roo	73.6	36.8	55.2	55.2	2	4,418	6	8,835	3	6,626	8	11,780	4	8,835	10	14,725	
	TOTALS		207	76	127	155	9	10,699	24	20,365	14	16,895	32	26,370	20	24,783	42	34,631	

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 ELECTRIC MODEL - CONVERT SPECIFIC AIR COOLED CHILLERS TO WATER COOLED CHILLE

TABLE ECO-5-P

al Information		Cooling Equipment	Total	Winter	Intermed.	Summer	Winter Billing Months				Intermediate Billing Months				Summer Billing Months				
							Off-Peak		On-Peak		Off-Peak		On-Peak		Off-Peak		On-Peak		
	Area	Field	Connected	Demand	Demand	Demand	hrs/		hrs/		hrs/		hrs/		hrs/		hrs/		Dem
n)	Served	Data/Reference/(Location)	Load (kW)	kW/month	kW/month	kW/month	day	kWh/Mo	day	kWh/Mo	day	kWh/Mo	day	kWh/Mo	day	kWh/Mo	day	kWh/Mo	kW
	Auditonum	McQuay AHR(Common - out on grade)	23.0	5.7	11.5	17.2	2	1,378	4	1,838	3	2,067	6	2,756	4	2,756	8	3,675	
	Auditonum	McQuay AHR(Common - out on grade)	23.0	5.7	11.5	17.2	2	1,378	4	1,838	3	2,067	6	2,756	4	2,756	8	3,675	
	2D310 Cleanroom	Pack. Carrier Air Cooled Chiller on roof	19.1	9.5	14.3	14.3	2	1,145	6	2,289	3	1,717	8	3,052	4	2,289	10	3,815	
	3D306-3C321 lab area	York Comp. in MR-33 & condenser on ro	47.9	12.0	24.0	36.0	1	1,438	4	3,836	2	2,877	4	3,836	4	5,754	6	5,754	
rea)	3D330 Cleanroom	Climatrol Chiller in MR34 & cond. on roo	62.6	31.3	46.9	46.9	2	3,755	6	7,510	3	5,632	8	10,013	4	7,510	10	12,516	
	TOTALS		176	64	108	132	9	9,094	24	17,310	14	14,361	32	22,414	20	21,066	42	29,436	

(2)

RTMENT OF THE ARMY
AIR COOLED CHILLERS TO WATER COOLED CHILLERS

ECO-5-E

Billing Months			Intermediate Billing Months			Summer Billing Months				Non-Summer				Summer				Annual	
	On-Peak		Off-Peak		On-Peak	Off-Peak		On-Peak											
Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	Demand kW/Yr	Off-Peak KWH/Yr	On-Peak KWH/Yr	Cost $	Demand kW/Yr	Off-Peak KWH/Yr	On-Peak KWH/Yr	Cost $	Cost $	No.
21	4	2,162	3	2,432	6	3,243	4	3,243	8	4,324	81	16,214	21,619	$3,250	81	12,972	17,295	$2,812	$6,062	89
21	4	2,162	3	2,432	6	3,243	4	3,243	8	4,324	81	16,214	21,619	$3,250	81	12,972	17,295	$2,812	$6,062	90
47	6	2,693	3	2,020	8	3,591	4	2,693	10	4,489	112	13,466	25,137	$3,592	67	10,773	17,955	$2,596	$6,188	107
92	4	4,513	2	3,385	4	4,513	4	6,769	6	6,769	169	20,307	38,102	$5,286	169	27,076	27,076	$5,216	$10,502	131
18	6	8,835	3	6,626	8	11,780	4	8,835	10	14,725	368	44,175	82,460	$11,783	221	35,340	58,900	$8,515	$20,298	135
99	24	20,365	14	16,895	32	26,370	20	24,783	42	34,631	812	110,377	186,937	$27,161	620	99,132	138,522	$21,952	$49,112	

RTMENT OF THE ARMY
AIR COOLED CHILLERS TO WATER COOLED CHILLERS

ECO-5-P

Billing Months			Intermediate Billing Months			Summer Billing Months				Non-Summer				Summer				Annual	
	On-Peak		Off-Peak		On-Peak	Off-Peak		On-Peak											
Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	Demand kW/Yr	Off-Peak KWH/Yr	On-Peak KWH/Yr	Cost $	Demand kW/Yr	Off-Peak KWH/Yr	On-Peak KWH/Yr	Cost $	Cost $	No.
76	4	1,838	3	2,067	6	2,756	4	2,756	8	3,675	69	13,782	18,376	$2,763	69	11,026	14,701	$2,390	$5,153	89
78	4	1,838	3	2,067	6	2,756	4	2,756	8	3,675	69	13,782	18,376	$2,763	69	11,026	14,701	$2,390	$5,153	90
45	6	2,289	3	1,717	8	3,052	4	2,289	10	3,815	95	11,446	21,366	$3,053	57	9,157	15,262	$2,206	$5,259	107
38	4	3,836	2	2,877	4	3,836	4	5,754	6	5,754	144	17,261	30,687	$4,493	144	23,015	23,015	$4,434	$8,927	131
55	6	7,510	3	5,632	8	10,013	4	7,510	10	12,516	313	37,549	70,091	$10,015	188	30,039	50,065	$7,238	$17,253	135
94	24	17,310	14	14,361	32	22,414	20	21,066	42	29,436	690	93,821	158,897	$23,087	527	84,263	117,744	$18,659	$41,745	

(3)

FORT MONMOUTH
PROJECT COST ESTIMATE
COVERT SPECIFIC AIR COOLED CHILLERS WITH WATER COOLED CHILLERS (EC0-5)

NO.	DESCRIPTION	QTY	UNIT	MATERIAL		LABOR		TOTAL BARE COST
				$/UNIT	COST	$/UNIT	COST	
1	Remove existing Air Cooled Chiller	1	Each	$2,000.00	$2,000	$2,000.00	$2,000	$4,000
2	Install Water Cooled Chiller (#89)	1	Each	$15,000.00	$15,000	$4,000.00	$4,000	$19,000
3	Piping, foundation, etc. rework	1	Each	$2,000.00	$2,000	$2,000.00	$2,000	$4,000
4	Electrical wiring, connections, etc.	1	Each	$1,000.00	$1,000	$2,000.00	$2,000	$3,000
5					$0		$0	$0
6	Remove existing Air Cooled Chiller	1	Each	$2,000.00	$2,000	$2,000.00	$2,000	$4,000
7	Install Water Cooled Chiller (#90)	1	Each	$15,000.00	$15,000	$4,000.00	$4,000	$19,000
8	Piping, foundation, etc. rework	1	Each	$2,000.00	$2,000	$2,000.00	$2,000	$4,000
9	Electrical wiring, connections, etc.	1	Each	$1,000.00	$1,000	$2,000.00	$2,000	$3,000
10					$0		$0	$0
11	Remove existing Air Cooled Chiller	1	Each	$2,000.00	$2,000	$2,000.00	$2,000	$4,000
12	Install Water Cooled Chiller (#107)	1	Each	$12,000.00	$12,000	$3,500.00	$3,500	$15,500
13	Piping, foundation, etc. rework	1	Each	$2,000.00	$2,000	$2,000.00	$2,000	$4,000
14	Electrical wiring, connections, etc.	1	Each	$1,000.00	$1,000	$2,000.00	$2,000	$3,000
15					$0		$0	$0
16	Remove existing Air Cooled Chiller	1	Each	$2,000.00	$2,000	$2,000.00	$2,000	$4,000
17	Install Water Cooled Chiller (#131)	1	Each	$25,000.00	$25,000	$5,000.00	$5,000	$30,000
18	Piping, foundation, etc. rework	1	Each	$2,000.00	$2,000	$3,000.00	$3,000	$5,000
19	Electrical wiring, connections, etc.	1	Each	$1,500.00	$1,500	$2,500.00	$2,500	$4,000
20					$0		$0	$0
21	Remove existing Air Cooled Chiller	1	Each	$2,000.00	$2,000	$2,000.00	$2,000	$4,000
22	Install Water Cooled Chiller (#135)	1	Each	$35,000.00	$35,000	$6,000.00	$6,000	$41,000
23	Piping, foundation, etc. rework	1	Each	$2,000.00	$2,000	$3,000.00	$3,000	$5,000
24	Electrical wiring, connections, etc.	1	Each	$1,500.00	$1,500	$2,500.00	$2,500	$4,000
25					$0		$0	$0
26					$0		$0	$0
27					$0		$0	$0
28					$0		$0	$0
29					$0		$0	$0
30					$0		$0	$0
31					$0		$0	$0
32					$0		$0	$0
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42					$0		$0	$0
43					$0		$0	$0
44					$0		$0	$0
45					$0		$0	$0
46					$0		$0	$0
47					$0		$0	$0
48					$0		$0	$0
49					$0		$0	$0
50					$0		$0	$0
51					$0		$0	$0
	SUBTOTAL							$183,500
	OVERHEAD AND PROFIT				$12,800		$30,500	$43,300
	CITY COST INDEX MULTIPLIER							
	DIFFICULTY FACTOR							
	CONTINGENCY				$14,100		$8,600	$22,700
	SIOH(5.5%) & DESIGN FEE(6%)			14,000		15,000		$29,000
	BASE TOTAL COST				**$154,900**		**$94,600**	**$278,500**

G:\4130.05\SS\ECOS\ECO-5CE.WK4 28-Jun-96

LIFE CYCLE COST ANALYSIS SUMMARY STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#5
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

A. CONSTRUCTION COST	$ 249500.		
B. SIOH	$ 14000.		
C. DESIGN COST	$ 15000.		
D. TOTAL COST (1A+1B+1C)	$ 278500.		
E. SALVAGE VALUE OF EXISTING EQUIPMENT		$ 0.	
F. PUBLIC UTILITY COMPANY REBATE		$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)			$ 278500.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ 26.89	274.	$ 7368.	13.86	$ 102119.
B. DIST	$ .00	0.	$ 0.	16.99	$ 0.
C. RESID	$ .00	0.	$ 0.	17.38	$ 0.
D. NAT G	$ 7.28	0.	$ 0.	17.14	$ 0.
E. COAL	$ .00	0.	$ 0.	13.56	$ 0.
F. LPG	$ .00	0.	$ 0.	15.12	$ 0.
M. DEMAND SAVINGS			$ 0.	13.47	$ 0.
N. TOTAL		274.	$ 7368.		$ 102119.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-)		$ 0.
(1) DISCOUNT FACTOR (TABLE A)	13.47	
(2) DISCOUNTED SAVING/COST (3A X 3A1)		$ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-) (4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)	$ 0.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))	$ 7368.
5. SIMPLE PAYBACK PERIOD (1G/4)	37.80 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)	$ 102119.
7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)=	.37

(IF < 1 PROJECT DOES NOT QUALIFY)

ECO-6
FREE COOLING

Existing. Building 2700 utilizes a variety of cooling equipment. Included in that equipment are three (3) water cooled chillers.

The existing electric costs for these three (3) chillers are estimated to be $23,400. Refer to Table ECO-6-E for the existing analysis.

Season	Demand (kW)	Off-Peak (kWh/yr)	On-Peak (kWh/yr)	Energy (mmBtu/yr)	Cost ($/yr)
Non-Summer	399	47,863	87,155	461	$12,609
Summer	321	51,433	63,818	393	$10,806
Totals	720	99,296	150,973	854	$23,415

Proposed. To install plate and frame heat exchangers in close proximity to the existing chillers utilizing tower water for free cooling during the colder seasons. For this analysis we will assume that free cooling is available during the winter months. The only system energy considered during this period will be the air handlers and the chilled water pumps. Tower, pumps, and fans will be considered to be uneffected. Pumping is constant and the impact on the towers will be insignificant.

The yearly electric costs associated with operating these systems with free cooling during the winter months is approximately $19,000. Refer to Table ECO-6-P.

Season	Demand (kW)	Off-Peak (kWh/yr)	On-Peak (kWh/yr)	Energy (mmBtu/yr)	Cost ($/yr)
Non-Summer	315	30,361	50,960	278	$8,201
Summer	321	51,433	63,818	393	$10,806
Totals	636	81,794	114,778	671	$19,007

Construction Cost. The construction costs to implement this ECO are estimated to be near $89,400. Refer to the estimate attached.

Material	$47,200
Labor	33,200
SIOH	4,000
Engineering	5,000
Total	$89,400

Savings. The electric energy cost savings associated with implementing this ECO is approximately $4,400.

Season	Demand (kW)	Off-Peak (kWh/yr)	On-Peak (kWh/yr)	Energy (mmBtu/yr)	Cost ($/yr)
Non-Summer	84	17,502	36,195	183	$4,408
Summer	0	0	0	0	$0
Totals	84	17,502	36,195	183	$4,408
Percent Reduction	11.7%	17.6%	24.0%	21.4%	18.8%

Maintenance Savings. There are no significant maintenance savings associated with this ECO.

Discussion. Payback = 20.3 years

SIR = 0.7

This ECO is not recommended because the savings do not justify the cost for equipment replacement.

FT. MC
BUILDINC

HVAC Item	HVAC Airside Equipment - General Information				Cooling Equipment	Total	Winter	Interm
	Design/Site Designation	Equip. Type	Field Data/Reference/(Location)	Area Served	Field Data/Reference/(Location)	Connected Load (kW)	Demand kW/month	Dema kW/m
97	AC-3	AHU	unknown(MR - 22 North 2C/D100 Area)	2D130 electronics lab	Compressor in MR-21 & tower on roof	28.2	7.1	
106	AC-14	AHU	unknown(MR - 23 East 2C/D200 Area)	2D306 lab area	Compressor in MR-23 & tower on roof	38.7	19.4	
152	AC-7	AHU	unknown(MR - 41 South 4C/D100 Area)	4D110 lab/offices	Compressor in MR-41 & tower on roof	40.2	10.1	
				TOTALS		107	36	

FT. MC
BUILDINC

HVAC Item	HVAC Airside Equipment - General Information				Cooling Equipment	Total	Winter	Interm
	Design/Site Designation	Equip. Type	Field Data/Reference/(Location)	Area Served	Field Data/Reference/(Location)	Connected Load (kW)	Demand kW/month	Dem kW/m
97	AC-3	AHU	unknown(MR - 22 North 2C/D100 Area)	2D130 electronics lab	Compressor in MR-21 & tower on roof	28.2	5.0	
106	AC-14	AHU	unknown(MR - 23 East 2C/D200 Area)	2D306 lab area	Compressor in MR-23 & tower on roof	38.7	7.5	
152	AC-7	AHU	unknown(MR - 41 South 4C/D100 Area)	4D110 lab/offices	Compressor in MR-41 & tower on roof	40.2	3.0	
				TOTALS		107	16	

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 ELECTRIC MODEL - FREE COOLING

TABLE ECO-6-E

mation						Winter Billing Months				Intermediate Billing Months				Summer Billing Months					
						Off-Peak		On-Peak		Off-Peak		On-Peak		Off-Peak		On-Peak			
Area Served	Cooling Equipment Field Data/Reference/(Location)	Total Connected Load (kW)	Winter Demand kW/month	Intermed. Demand kW/month	Summer Demand kW/month	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	Demand kW/Yr	C K
2D130 electronics lab	Compressor in MR-21 & tower on roof	28.2	7.1	14.1	21.2	1	846	4	2,257	2	1,693	4	2,257	4	3,386	6	3,386	85	
2D306 lab area	Compressor in MR-23 & tower on roof	38.7	19.4	29.0	29.0	2	2,322	6	4,645	3	3,483	8	6,193	4	4,645	10	7,741	194	
4D110 lab/offices	Compressor in MR-41 & tower on roof	40.2	10.1	20.1	30.2	1	1,207	4	3,219	2	2,414	4	3,219	4	4,828	6	4,828	121	
TOTALS		107	36	63	80	4	4,376	14	10,120	7	7,590	16	11,668	12	12,858	22	15,954	399	

FT. MONMOUTH, DEPARTMENT OF THE ARMY
BUILDING 2700 ELECTRIC MODEL - FREE COOLING

TABLE ECO-6-P

mation						Winter Billing Months				Intermediate Billing Months				Summer Billing Months					
						Off-Peak		On-Peak		Off-Peak		On-Peak		Off-Peak		On-Peak			
Area Served	Cooling Equipment Field Data/Reference/(Location)	Total Connected Load (kW)	Winter Demand kW/month	Intermed. Demand kW/month	Summer Demand kW/month	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	Demand kW/Yr	C K
2D130 electronics lab	Compressor in MR-21 & tower on roof	28.2	5.0	14.1	21.2	0	0	0.5	282	2	1,693	4	2,257	4	3,386	6	3,386	76	
2D306 lab area	Compressor in MR-23 & tower on roof	38.7	7.5	29.0	29.0	0	0	0.5	387	3	3,483	8	6,193	4	4,645	10	7,741	146	
4D110 lab/offices	Compressor in MR-41 & tower on roof	40.2	3.0	20.1	30.2	0	0	0.5	402	2	2,414	4	3,219	4	4,828	6	4,828	92	
TOTALS		107	16	63	80	0	0	1.5	1,072	7	7,590	16	11,668	12	12,858	22	15,954	315	

(2)

MENT OF THE ARMY
ODEL - FREE COOLING

-6-E

Months		Intermediate Billing Months				Summer Billing Months				Non-Summer				Summer				Annual	
On-Peak		Off-Peak		On-Peak		Off-Peak		On-Peak										Cost	
hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	Demand kW/Yr	Off-Peak KWH/Yr	On-Peak KWH/Yr	Cost $	Demand kW/Yr	Off-Peak KWH/Yr	On-Peak KWH/Yr	Cost $	$	No.
4	2,257	2	1,693	4	2,257	4	3,386	6	3,386	85	10,157	18,057	$2,644	85	13,543	13,543	$2,609	$5,253	97
6	4,645	3	3,483	8	6,193	4	4,645	10	7,741	194	23,223	43,349	$6,194	116	18,578	30,963	$4,476	$10,670	106
4	3,219	2	2,414	4	3,219	4	4,828	6	4,828	121	14,484	25,749	$3,770	121	19,312	19,312	$3,720	$7,490	152
14	10,120	7	7,590	16	11,668	12	12,858	22	15,954	399	47,863	87,155	$12,609	321	51,433	63,818	$10,806	$23,414	

MENT OF THE ARMY
ODEL - FREE COOLING

-6-P

Months		Intermediate Billing Months				Summer Billing Months				Non-Summer				Summer				Annual	
On-Peak		Off-Peak		On-Peak		Off-Peak		On-Peak										Cost	
hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	hrs/ day	kWh/Mo	Demand kW/Yr	Off-Peak KWH/Yr	On-Peak KWH/Yr	Cost $	Demand kW/Yr	Off-Peak KWH/Yr	On-Peak KWH/Yr	Cost $	$	No.
0.5	282	2	1,693	4	2,257	4	3,386	6	3,386	76	6,771	10,157	$1,793	85	13,543	13,543	$2,609	$4,402	97
0.5	387	3	3,483	8	6,193	4	4,645	10	7,741	146	13,934	26,319	$3,988	116	18,578	30,963	$4,476	$8,465	106
0.5	402	2	2,414	4	3,219	4	4,828	6	4,828	92	9,656	14,484	$2,419	121	19,312	19,312	$3,720	$6,139	152
1.5	1,072	7	7,590	16	11,668	12	12,858	22	15,954	315	30,361	50,960	$8,201	321	51,433	63,818	$10,806	$19,006	

FORT MONMOUTH
PROJECT COST ESTIMATE
FREE COOLING (EC0-6)

NO.	DESCRIPTION	QTY	UNIT	MATERIAL		LABOR		TOTAL BARE COST
				$/UNIT	COST	$/UNIT	COST	
1	Install P & F Heat Exchanger (#97)	1	Each	$8,000.00	$8,000	$3,000.00	$3,000	$11,000
2	Misc. Controls, Valves, etc.	1	Lot	$4,000.00	$4,000	$2,000.00	$2,000	$6,000
3	Piping, foundation, etc.	1	Each	$1,000.00	$1,000	$1,500.00	$1,500	$2,500
4					$0		$0	$0
5	Install P & F Heat Exchanger (#106)	1	Each	$8,000.00	$8,000	$3,000.00	$3,000	$11,000
6	Misc. Controls, Valves, etc.	1	Lot	$4,000.00	$4,000	$2,000.00	$2,000	$6,000
7	Piping, foundation, etc.	1	Each	$1,000.00	$1,000	$1,500.00	$1,500	$2,500
8					$0		$0	$0
9	Install P & F Heat Exchanger (#152	1	Each	$8,000.00	$8,000	$3,000.00	$3,000	$11,000
10	Misc. Controls, Valves, etc.	1	Lot	$4,000.00	$4,000	$2,000.00	$2,000	$6,000
11	Piping, foundation, etc.	1	Each	$1,000.00	$1,000	$1,500.00	$1,500	$2,500
12					$0		$0	$0
13					$0		$0	$0
14					$0		$0	$0
15					$0		$0	$0
16					$0		$0	$0
17					$0		$0	$0
18					$0		$0	$0
19					$0		$0	$0
20					$0		$0	$0
21					$0		$0	$0
22					$0		$0	$0
23					$0		$0	$0
24					$0		$0	$0
25					$0		$0	$0
26					$0		$0	$0
27					$0		$0	$0
28					$0		$0	$0
29					$0		$0	$0
30					$0		$0	$0
31					$0		$0	$0
32					$0		$0	$0
33					$0		$0	$0
34					$0		$0	$0
35					$0		$0	$0
36					$0		$0	$0
37					$0		$0	$0
38					$0		$0	$0
39					$0		$0	$0
40					$0		$0	$0
41					$0		$0	$0
42					$0		$0	$0
43					$0		$0	$0
44					$0		$0	$0
45					$0		$0	$0
46					$0		$0	$0
47					$0		$0	$0
48					$0		$0	$0
49					$0		$0	$0
50					$0		$0	$0
51					$0		$0	$0
	SUBTOTAL							$58,500
	OVERHEAD AND PROFIT				$3,900		$10,700	$14,600
	CITY COST INDEX MULTIPLIER							
	DIFFICULTY FACTOR							
	CONTINGENCY				$4,300		$3,000	$7,300
	SIOH(5.5%) & DESIGN FEE(6%)			4,000		5,000		$9,000
	BASE TOTAL COST				**$47,200**		**$33,200**	**$89,400**

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LIFE CYCLE COST ANALYSIS SUMMARY STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#6
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

A. CONSTRUCTION COST	$ 80400.	
B. SIOH	$ 4000.	
C. DESIGN COST	$ 5000.	
D. TOTAL COST (1A+1B+1C)	$ 89400.	
E. SALVAGE VALUE OF EXISTING EQUIPMENT	$ 0.	
F. PUBLIC UTILITY COMPANY REBATE	$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)		$ 89400.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ 24.09	183.	$ 4408.	13.86	$ 61101.
B. DIST	$ .00	0.	$ 0.	16.99	$ 0.
C. RESID	$ .00	0.	$ 0.	17.38	$ 0.
D. NAT G	$ 7.28	0.	$ 0.	17.14	$ 0.
E. COAL	$ .00	0.	$ 0.	13.56	$ 0.
F. LPG	$ .00	0.	$ 0.	15.12	$ 0.
M. DEMAND SAVINGS			$ 0.	13.47	$ 0.
N. TOTAL		183.	$ 4408.		$ 61101.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-) $ 0.
(1) DISCOUNT FACTOR (TABLE A) 13.47
(2) DISCOUNTED SAVING/COST (3A X 3A1) $ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-) (4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) $ 0.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) $ 4408.

5. SIMPLE PAYBACK PERIOD (1G/4) 20.28 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) $ 61101.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= .68
(IF < 1 PROJECT DOES NOT QUALIFY)

ECO-7
2-SPEED TOWER FAN OPERATION

Existing. Currently the MCA Chilled Water System uses a single, 4 cell - 1,380 ton cooling tower. The tower contains four single speed, 20 hp fans. The tower was installed during the 1983 renovation under the Major Construction Activities Program (MCA). The cooling system is presently operated from mid May through mid October. As indicated in Section 5, a DOE hourly simulation was performed. The annual electric energy demand and usage for the tower as calculated in DOE is 246 kW and 140,967 kWh. These quantities yield an annual energy cost of $11,600. DOE simulation output can be found in Attachment 8.12

Component	Demand (kW)	On-Peak (kWh/yr)	Off-Peak (kWh/yr)	Energy (mmBtu/yr)	Cost ($/yr)
Tower Fan	246	51,083	89,884	481	$11,600
Totals	246	51,083	89,884	481	$11,600

Proposed. Replace existing single speed motors with two speed motors and install a programmable logic controller (PLC) to control the operation of each fan. Fan operation would be adjusted by monitoring the temperature in the return line to the chillers. A DOE simulation model was performed with tower fan selection changed to "Two Speed". The summarized results are shown in the following table. A detailed two day DOE hourly report for the tower fan can be seen on the following page titled "2 Speed Tower Fan Hourly Profile".

The new fans and controls will have an annual electric demand and usage of 246 kW and 99,790 kWh. The annual energy cost for the Tower will be $9,000.

Component	Demand (kW)	On-Peak (kWh/yr)	Off-Peak (kWh/yr)	Energy (mmBtu/yr)	Cost ($/yr)
Tower Fan	246	45,475	54,315	341	$9,000
Totals	246	45,475	54,315	341	$9,000

Construction Cost. The expected construction cost is $29,700. (See Attached Cost Breakdown).

Material	$ 10,800
Labor	$ 15,800
SIOH	$ 1,500
Engineering	$ 1,600
Total	$ 29,700

Savings. The annual cost savings resulting from the implementation of this project will be $2,600 ($11,600 - $9,000).

Component	Demand (kW)	On-Peak (kWh/yr)	Off-Peak (kWh/yr)	Energy (mmBtu/yr)	Cost ($/yr)
Totals	0	35,569	5,608	141	$2,600
Percent Reduction	0.0%	69.6%	6.2%	29.3%	22.4%

Maintenance Savings: There is no additional monetary savings due to reduced maintenance.

Discussion.

Payback = 11.4 years

SIR = 1.2

The expected payback resulting from the implementation of this project is 11.4 years ($29,700 ÷ $2,600). This ECO is not recommended. If the tower operated with a year round load, the savings would then suggest implementation.

DOE Output
Single Speed Fans vs 2 Speed Fans Hourly Profile

Day	Time	Tower Temperature	Maximum kWh	Single Speed Fan kWh	Percent Of Full	Two Speed Fan kWh	Percent Of Full
May, 25th	1 am	65	41	33	80%	5	11%
	2	65	41	32	77%	5	11%
	3	65	41	32	78%	5	11%
	4	65	41	32	78%	5	11%
	5	65	41	32	77%	5	11%
	6	65	41	33	80%	5	11%
	7	65	41	37	89%	11	26%
	8	65	41	40	95%	28	68%
	9	65	41	41	100%	41	98%
	10	65	41	41	100%	41	100%
	11	66	41	41	100%	41	100%
	12 pm	66	41	41	100%	41	100%
	1	69	41	41	100%	41	100%
	2	67	41	41	100%	41	100%
	3	65	41	41	100%	41	100%
	4	65	41	41	99%	38	91%
	5	65	41	41	98%	36	87%
	6	65	41	41	98%	36	86%
	7	65	41	39	94%	24	58%
	8	65	41	38	93%	21	50%
	9	65	41	37	89%	10	25%
	10	65	41	37	88%	7	17%
	11	65	41	36	87%	5	12%
	12	65	41	33	81%	5	12%
May 26th	1 am	65	41	33	80%	5	11%
	2	65	41	33	80%	5	11%
	3	65	41	32	78%	5	11%
	4	65	41	32	77%	5	11%
	5	65	41	32	78%	5	11%
	6	65	41	36	88%	7	16%
	7	69	41	41	100%	41	100%
	8	72	41	41	100%	41	100%
	9	75	41	41	100%	41	100%
	10	76	41	41	100%	41	100%
	11	77	41	41	100%	41	100%
	12 pm	78	41	41	100%	41	100%
	1	80	41	41	100%	41	100%
	2	80	41	41	100%	41	100%
	3	80	41	41	100%	41	100%
	4	79	41	41	100%	41	100%
	5	78	41	41	100%	41	100%
	6	77	41	41	100%	41	100%
	7	76	41	41	100%	41	100%
	8	76	41	41	100%	40	97%
	9	75	41	41	99%	39	94%
	10	75	41	41	99%	38	91%
	11	74	41	41	98%	36	86%
	12	74	41	40	97%	34	81%

2 Speed Tower Fans

Proposed Operation, 2 Speed Tower Fan, DOE Simulation Output

Month	Chiller			Tower Fan			Condenser Pump			Chilled Water Pump	
	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	Annual kWh
January	0	0	0	0	0	0	0	0	0		
February	0	0	0	0	0	0	0	0	0		
March	0	0	0	0	0	0	0	0	0		
April	0	0	0	0	0	0	0	0	0		
May	369	23,978	19,785	41	3,725	2,473	27	3,499	6,680		
June	442	68,049	59,131	41	10,410	12,031	27	6,998	12,087		
July	422	66,947	75,296	41	9,917	16,297	27	6,361	13,359		
August	440	76,910	63,920	41	11,320	13,069	27	7,316	12,405		
September	364	51,288	48,917	41	8,265	8,729	27	6,680	12,405		
October	271	13,965	13,958	41	1,838	1,716	27	2,863	6,680		
November	0	0	0	0	0	0	0	0	0		
December	0	0	0	0	0	0	0	0	0		
Totals	2,308	301,137	281,007	246	45,475	54,315	162	33,717	63,616	493	278,465

DOE Simulation, MCA Chilled Water Plant, Existing

Month	Chiller			Tower Fan			Condenser Pump			Chilled Water Pump	
	Annual kW	Off-Peak kWh	On-Peak kWh	Annual kW	Off-Peak kWh	On-Peak kWh	Annual kW	Off-Peak kWh	On-Peak kWh	Annual kW	Annual kWh
January	0	0	0	0	0	0	0	0	0		
February	0	0	0	0	0	0	0	0	0		
March	0	0	0	0	0	0	0	0	0		
April	0	0	0	0	0	0	0	0	0		
May	369	23,982	19,785	41	5,108	8,502	27	3,499	6,680		
June	442	68,071	59,135	41	10,784	17,499	27	6,998	12,087		
July	422	66,972	75,300	41	9,870	20,090	27	6,361	13,359		
August	441	76,939	63,923	41	11,339	18,287	27	7,316	12,405		
September	365	51,299	48,917	41	10,016	17,281	27	6,680	12,405		
October	271	13,966	13,958	41	3,966	8,225	27	2,863	6,680		
November	0	0	0	0	0	0	0	0	0		
December	0	0	0	0	0	0	0	0	0		
Totals	2,310	301,229	281,018	246	51,083	89,884	162	33,717	63,616	493	278,465

Note: DOE does not provide monthly energy usage quantities for chilled water pumps, only annual, demand # is from Electric Model

FORT MONMOUTH
PROJECT COST ESTIMATE
Two Speed Tower Fans

NO.	DESCRIPTION	QTY	UNIT	MATERIAL		LABOR		TOTAL BARE COST
				$/UNIT	COST	$/UNIT	COST	
1	Programmable Logic Controller	1	Each	$3,000.00	$3,000	$1,500.00	$1,500	$4,500
2	Fan Switch	4	Each	$100.00	$400	$200.00	$800	$1,200
3	Temperature Transmitter	1	Lot	$500.00	$500	$1,000.00	$1,000	$1,500
4	Control Integration	1	Lot	$500.00	$500	$1,500.00	$1,500	$2,000
5	Control Wiring	1	Lot	$500.00	$500	$500.00	$500	$1,000
6	Two Speed Motors, 20 hp	4	ea	$1,000.00	$4,000	$1,000.00	$4,000	$8,000
7					$0		$0	$0
8					$0		$0	$0
9					$0		$0	$0
10					$0		$0	$0
11					$0		$0	$0
12					$0		$0	$0
13					$0		$0	$0
14					$0		$0	$0
15					$0		$0	$0
16					$0		$0	$0
17					$0		$0	$0
18					$0		$0	$0
19					$0		$0	$0
20					$0		$0	$0
21					$0		$0	$0
22					$0		$0	$0
23					$0		$0	$0
24					$0		$0	$0
25					$0		$0	$0
26					$0		$0	$0
27					$0		$0	$0
28					$0		$0	$0
29					$0		$0	$0
30					$0		$0	$0
31					$0		$0	$0
32					$0		$0	$0
33					$0		$0	$0
34					$0		$0	$0
35					$0		$0	$0
36					$0		$0	$0
37					$0		$0	$0
38					$0		$0	$0
39					$0		$0	$0
40					$0		$0	$0
41					$0		$0	$0
42					$0		$0	$0
43					$0		$0	$0
44					$0		$0	$0
45					$0		$0	$0
46					$0		$0	$0
47					$0		$0	$0
48					$0		$0	$0
49					$0		$0	$0
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51					$0		$0	$0
52					$0		$0	$0
53					$0		$0	$0
54					$0		$0	$0
55					$0		$0	$0
56					$0		$0	$0
57					$0		$0	$0
58					$0		$0	$0
59					$0		$0	$0
60					$0		$0	$0
61					$0		$0	$0
62					$0		$0	$0
63					$0		$0	$0
	SUBTOTAL							$18,200
	OVERHEAD AND PROFIT				$900		$5,100	$6,000
	CITY COST INDEX MULTIPLIER							
	DIFFICULTY FACTOR							
	CONTINGENCY				$1,000		$1,400	$2,400
	SIOH(5.5%) & DESIGN FEE(6%)			$1,500		$1,600		$3,100
	BASE TOTAL COST				**$10,800**		**$15,800**	**$29,700**

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LIFE CYCLE COST ANALYSIS SUMMARY STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#7
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

A. CONSTRUCTION COST	$ 26600.		
B. SIOH	$ 1500.		
C. DESIGN COST	$ 1600.		
D. TOTAL COST (1A+1B+1C)	$ 29700.		
E. SALVAGE VALUE OF EXISTING EQUIPMENT		$ 0.	
F. PUBLIC UTILITY COMPANY REBATE		$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)			$ 29700.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ 18.44	141.	$ 2600.	13.86	$ 36037.
B. DIST	$ .00	0.	$ 0.	16.99	$ 0.
C. RESID	$ .00	0.	$ 0.	17.38	$ 0.
D. NAT G	$ 7.28	0.	$ 0.	17.14	$ 0.
E. COAL	$ .00	0.	$ 0.	13.56	$ 0.
F. LPG	$ .00	0.	$ 0.	15.12	$ 0.
M. DEMAND SAVINGS			$ 0.	13.47	$ 0.
N. TOTAL		141.	$ 2600.		$ 36037.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-)		$ 0.
(1) DISCOUNT FACTOR (TABLE A)	13.47	
(2) DISCOUNTED SAVING/COST (3A X 3A1)		$ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-)(4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)	$ 0.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))	$ 2600.
5. SIMPLE PAYBACK PERIOD (1G/4)	11.42 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)	$ 36037.
7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)=	1.21

(IF < 1 PROJECT DOES NOT QUALIFY)

ECO-8
REPLACE DHW RECIRCULATION PUMPS

Existing. Same existing conditions as the Base Case in ECO-1.

Proposed. No changes.

Construction Cost. No changes.

Savings. No changes.

Discussion. This ECO was not analyzed because the basis for ECO-1 assumed that the pumps that were determined to be out of service will be repaired/replaced as part of the buildings' general maintenance program.

ECO-9
AUTOMATED HW TEMPERATURE RESET BASED ON OUTSIDE AIR TEMPERATURE

Existing. Currently several areas throughout Building 2700 receive heat from the MCA hot water system. This system is generally operated for seven (7) months out of a year. For the most part circulated water temperature is manually adjusted with the bulk of the heating season being kept at 180 °F regardless of outside conditions. Maintaining a relatively constant temperature in the fluid has caused overheating conditions throughout the building during periods of milder outside air temperature. Note: For this ECO we assumed that the controls with the new boiler installations in Building 2706 do not include temperature reset for the hot water boilers.

The existing MCA DOE model was simulated with a 4°F throttling range to simulate inadequacies in temperature control. The DOE model calculated an annual gas consumption for space heating only (no losses) at 4,979 mcf/yr. In addition, there are losses occurring through the wall of the supply and return pipe while the temperature of the fluid is maintained at 180°F. The attached calculation sheet indicates that an additional 809 mcf/yr is required to offset losses in approximately 3,500 feet of 8" pipe. The total gas usage for the MCA system (Heating, Pipe Losses) has an annual energy cost of $43,400.

Gas Usage (heat)	=	4,979 mcf/yr
Gas Usage (loss)	=	809 mcf/yr
Total Gas Usage	=	5,788 mcf/yr (4,979 mcf/yr + 809 mcf/yr)
Gas Energy	=	5,962 mmBtu/yr (5,788 mcf/yr x 1.031 mmBtu/mcf)
Gas Cost	=	$43,400 (5,788 mcf/yr x $7.50/mcf = $43,410, use $43,400)

Proposed.

Install outside air temperature sensor and controller to allow the boiler water supply temperature to be reset. The new controls would allow the temperature of the fluid to reach 180°F when the outside air temperature is 0°F and adjust on a linear curve to a temperature of 130°F at 60°F. The control would reduce overheating in spaces and losses in the pipe due to lower fluid temperatures. The DOE model was revised and recalculated with the throttling range lowered to 2°F. In addition, the pipe losses were recalculated at an average fluid temperature of 160°F. The annual gas usage for the MCA system (heat and losses) would be lowered to 5,447 with an annual cost of $40,900.

Gas Usage (heat)	=	4,785 mcf/yr
Gas Usage (loss)	=	662 mcf/yr
Total Gas Usage	=	5,447 mcf/yr (4,785 mcf/yr + 662 mcf/yr)
Gas Energy	=	5,610 mmBtu/yr (5,447 mcf/yr x 1.031 mmBtu/mcf)
Gas Cost	=	$40,900 (5,447 mcf/yr x $7.50/mcf = $40,853, use $40,900)

Construction Cost.

The expected construction cost for this ECO is $14,000. (Reference attached cost estimate).

Material	$ 7,300
Labor	$ 5,200
SIOH	$ 700
Engineering	$ 800
Total	$ 14,000

Savings. The annual cost savings resulting from the implementation of this project will be $2,500 ($43,400 - $40,900).

Gas Usage = 341 mcf/yr (5,788 mcf/yr - 5,447 mcf/yr)

Energy Usage = 351 mmBtu [341 mcf/yr x 1,030,000 Btu/mcf) ÷ 1,000,000 Btu/mmBtu]

Maintenance Savings. There is no additional monetary savings due to reduced maintenance.

Discussion. Payback = 5.6 years

SIR = 3.1

The payback for this ECO is 5.6 years. It is possible that the new boilers have this feature, or at least the feature on the boiler to vary the outlet temperature. For the cost estimate, we have assumed that the installation does not include these features.

We recommend that this ECO be adopted for energy savings and better temperature control.

Estimated Energy Loss for Supply/Return Piping, MCA Heating System

Existing: 3,500 ft of supply and return piping with an average size of 8" and 2" insulation

U Factor = 0.15 Btu/sf/°F
Pipe Area = 3,500 ft x 2.26 ft (circ of 8") = 7,910 sf
Average Fluid Temperature = 180°F
Average Surrounding Air Temperature = 70°F

Energy Loss (Q) = U x A x Delta T
Q = 0.15 Btuh/sf/°F x 7,910 sf x (180°F - 70°F)
Q = 130,515 Btuh

Annual Energy Loss = Btuh x 8,760 hrs/yr x 7 mo/12 mo/1,030,000 Btu/mcf/eff
Loss = 130,515 Btuh x 8,760 hrs/yr x 7 mo/12 mo/1,030,000 Btu/mcf/.80
Loss = 809 mcf/yr
Cost = $6,100 (809 mcf/yr x $7.50/mcf)

Proposed: 3,500 ft of supply and return piping with an average size of 8" and 2" insulation

U Factor = 0.15 Btu/sf/°F
Pipe Area = 3,500 ft x 2.26 ft (circ of 8") = 7,910 sf
Average Fluid Temperature = 160°F
Average Surrounding Air Temperature = 70°F

Energy Loss (Q) = U x A x Delta T
Q = 0.15 Btuh/sf/°F x 7,910 sf x (160°F - 70°F)
Q = 106,785 Btuh

Annual Energy Loss = Btuh x 8,760 hrs/yr x 7 mo/12 mo/1,030,000 Btu/mcf/eff
Loss = 106,785 Btuh x 8,760 hrs/yr x 7 mo/12 mo/1,030,000 Btu/mcf/.80
Loss = 662 mcf/yr
Cost = $5,000 (662 mcf/yr x $7.50/mcf)

FORT MONMOUTH
PROJECT COST ESTIMATE
Automated HW Temperature Reset

NO.	DESCRIPTION	QTY	UNIT	MATERIAL		LABOR		TOTAL BARE COST
				$/UNIT	COST	$/UNIT	COST	
1	Boiler Reset Controller	1	Each	$5,000.00	$5,000	$1,500.00	$1,500	$6,500
2	Outdoor Sensor w/thermowell	1	Each	$500.00	$500	$1,000.00	$1,000	$1,500
3	Electric, Wiring, etc.	1	Lot	$500.00	$500	$500.00	$500	$1,000
4					$0		$0	$0
5					$0		$0	$0
6					$0		$0	$0
7					$0		$0	$0
8					$0		$0	$0
9					$0		$0	$0
10					$0		$0	$0
11					$0		$0	$0
12					$0		$0	$0
13					$0		$0	$0
14					$0		$0	$0
15					$0		$0	$0
16					$0		$0	$0
17					$0		$0	$0
18					$0		$0	$0
19					$0		$0	$0
20					$0		$0	$0
21					$0		$0	$0
22					$0		$0	$0
23					$0		$0	$0
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25					$0		$0	$0
26					$0		$0	$0
27					$0		$0	$0
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30					$0		$0	$0
31					$0		$0	$0
32					$0		$0	$0
33					$0		$0	$0
34					$0		$0	$0
35					$0		$0	$0
36					$0		$0	$0
37					$0		$0	$0
38					$0		$0	$0
39					$0		$0	$0
40					$0		$0	$0
41					$0		$0	$0
42					$0		$0	$0
43					$0		$0	$0
44					$0		$0	$0
45					$0		$0	$0
46					$0		$0	$0
47					$0		$0	$0
48					$0		$0	$0
49					$0		$0	$0
50					$0		$0	$0
51					$0		$0	$0
52					$0		$0	$0
53					$0		$0	$0
54					$0		$0	$0
55					$0		$0	$0
56					$0		$0	$0
57					$0		$0	$0
58					$0		$0	$0
59					$0		$0	$0
60					$0		$0	$0
61					$0		$0	$0
62					$0		$0	$0
63					$0		$0	$0
	SUBTOTAL							$9,000
	OVERHEAD AND PROFIT				$600		$1,700	$2,300
	CITY COST INDEX MULTIPLIER							
	DIFFICULTY FACTOR							
	CONTINGENCY				$700		$500	$1,200
	SIOH(5.5%) & DESIGN FEE(6%)			$700		$800		$1,500
	BASE TOTAL COST				**$7,300**		**$5,200**	**$14,000**

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#9
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

A. CONSTRUCTION COST	$ 12500.	
B. SIOH	$ 700.	
C. DESIGN COST	$ 800.	
D. TOTAL COST (1A+1B+1C)	$ 14000.	
E. SALVAGE VALUE OF EXISTING EQUIPMENT	$ 0.	
F. PUBLIC UTILITY COMPANY REBATE	$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)		$ 14000.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ 86.19	0.	$ 0.	13.86	$ 0.
B. DIST	$ .00	0.	$ 0.	16.99	$ 0.
C. RESID	$ .00	0.	$ 0.	17.38	$ 0.
D. NAT G	$ 7.28	351.	$ 2555.	17.14	$ 43798.
E. COAL	$ .00	0.	$ 0.	13.56	$ 0.
F. LPG	$ .00	0.	$ 0.	15.12	$ 0.
M. DEMAND SAVINGS			$ 0.	13.47	$ 0.
N. TOTAL		351.	$ 2555.		$ 43798.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-)		$ 0.
(1) DISCOUNT FACTOR (TABLE A)	13.47	
(2) DISCOUNTED SAVING/COST (3A X 3A1)		$ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-)(4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)	$ 0.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))	$ 2555.
5. SIMPLE PAYBACK PERIOD (1G/4)	5.48 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)	$ 43798.
7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)=	3.13

(IF < 1 PROJECT DOES NOT QUALIFY)

ECO-10
FULL CHILLED WATER STORAGE

Existing. Currently Building 2700 utilizes a central chilled water system for a portion of its cooling needs. This system was installed during the 1983 renovation under the Major Construction Activities Program (MCA). This system has been referred to as "MCA Chilled Water Plant". As shown in Section 3 of this report the current system consists of the following equipment:

Description	Quantity, Size, Load
Centrifugal Chillers	2 - 690 tons - 538 kW/ea
Cooling Tower	1 - 1,380 Tons - 56 kW
Condenser Pumps	2 - 19 kW/ea
Chilled Water Pumps	2 - 75 kW/ea

The system is presently operated from mid May through mid October. As indicated in Section 5, a DOE hourly simulation was performed. DOE calculated a peak cooling load of 608 tons at 2:00 p.m. on August 18th. In addition, the highest total cooling load for the 12 hour on-peak period also occurred on August 18th. The following table shows the 24 hour profile for the peak day. The following table of on-peak cooling demands for the chilled water storage results in a total of 6,103 ton/hr. DOE simulation output for this ECO can be found in Attachment 8.12

Peak Cooling Day Profile

Hour	Load (Tons)	Hour	Load (Tons)
1 AM	211	1	590
2	195	2	607
3	186	3	579
4	172	4	495
5	156	5	473
6	231	6	430
7	361	7	382
8	438	8	354
9	484	9	336
10	518	10	318
11	550	11	301
12 PM	557	12 AM	284

The annual energy cost for the MCA chilled water system cooling system as based on DOE simulation results is $103,200. Individual components are summarized below and shown in detail on the attached table titled "Existing Operation".

Component	Demand kW	On-Peak kWh/yr	Off-Peak kWh/yr	Energy mmBtu	Cost $/yr
Chillers	2,310	301,229	281,018	1,987	$60,700
Tower Fan	246	51,083	89,884	481	$11,600
Condenser Pump	162	33,716	63,615	332	$7,900
Chilled Water Pump	493	92,417	186,048	950	$22,900
Totals	3,211	478,445	620,565	3,751	$103,100

DOE Simulation, MCA Chilled Water Plant, Existing

Month	Chiller			Tower Fan			Condenser Pump			Chilled Water Pump	
	Annual kW	Off-Peak kWh	On-Peak kWh	Annual kW	Off-Peak kWh	On-Peak kWh	Annual kW	Off-Peak kWh	On-Peak kWh	Annual kW	Annual kWh
January	0	0	0	0	0	0	0	0	0		
February	0	0	0	0	0	0	0	0	0		
March	0	0	0	0	0	0	0	0	0		
April	0	0	0	0	0	0	0	0	0		
May	369	23,982	19,785	41	5,108	8,502	27	3,499	6,680		
June	442	68,071	59,135	41	10,784	17,499	27	6,998	12,087		
July	422	66,972	75,300	41	9,870	20,090	27	6,361	13,359		
August	441	76,939	63,923	41	11,339	18,287	27	7,316	12,405		
September	365	51,299	48,917	41	10,016	17,281	27	6,680	12,405		
October	271	13,966	13,958	41	3,966	8,225	27	2,863	6,680		
November	0	0	0	0	0	0	0	0	0		
December	0	0	0	0	0	0	0	0	0		
Totals	2,310	301,229	281,018	246	51,083	89,884	162	33,717	63,616	493	278,465

Note: DOE does not provide monthly energy usage quantities for chilled water pumps, only annual, demand # is from Electric Model

Proposed. Utilize both existing 690 ton chillers to produce and store chilled water during utility off-peak periods when the cost for electricity is lower. Install equipment to store 6,200 ton-hour of chilled water for use during on-peak periods (Table above adds to 6,103 ton/hrs). This amount of storage is equivalent to approximately 750,000 gallons of chilled water storage.

During the on-peak period (8:00 a.m. to 8:00 p.m.), the stored chilled water will be utilized to meet 100% of the cooling load. The existing chiller, tower, and condenser pump chiller will not operate during the on-peak period. The operation of the chilled water pump will remain unchanged. During the off-peak (8:00 pm to 8:00 am) the 690 ton chiller will operate to meet both the building cooling load and chilled water tank charging. The storage system will be used from June to October during the summer electric rate period.

For this analysis, 100% storage was assumed. Therefore, the storage was sized so that during the on-peak period 100% of the cooling will be provided by the stored chilled water. On cooler days, a portion of the stored chilled water may be used to satisfy loads during the off-peak period. Use of the chilled water storage system will reduce demand charges. Generating cooling at night also takes advantages of the lower off-peak cost of energy (kWh). A DOE simulation model was performed based upon the above parameters with summarized results shown on the following table. With the new chilled water storage system the on-peak kWh will be shifted to off-peak hours. The table on the following page titles "Full Chilled Water Storage Hourly Profile" demonstrates the operation of the new system.

The new storage system will be buried on the grounds adjacent to the chilled water building. The existing chiller will be retained and will not require modifications. New piping and controls will need to be added. The annual energy cost for the MCA system will be $67,000.

Component	Demand kW	On-Peak kWh/yr	Off-Peak kWh/yr	Energy mmBtu	Cost $/yr
Chillers	0	0	534,529	1,824	$33,700
Tower Fan	0	0	111,018	379	$7,000
Condenser Pump	0	0	51,784	177	$3,300
Chilled Water Pump	493	92,417	186,048	950	$22,900
Totals	493	92,417	883,379	3,330	$66,900

Construction Cost. The expected construction cost is $892,000, use $890,000. Based on experience for this type of energy storage, the average construction cost to implement is $130 ton/hr. If the related payback is attractive we would then proceed with a more detailed estimate.

Material	$ 500,000
Labor	$ 300,000
SIOH	$ 44,000
Engineering	$ 48,000
Total	$ 892,000

Savings. The annual cost savings resulting from the implementation of this project will be $36,200 ($103,100 - $66,900).

Demand kW = 2,718 kW/yr (3,211 kW/yr - 493 kW/yr)

On-Peak kWh = 386,028 kWh/yr (486,275 kWh/yr - 100,247 kWh/yr)

Off-Peak kWh = -262,814 kWh/yr (612,735 kWh/yr - 875,549 kWh)

Energy Usage = 420 mmBtu (((386,028 kWh/yr - 262,814 kWh/yr) x 3,413 Btu/kWh) ÷ 1,000,000 Btu/mmBtu]

Component	Demand kW	On-Peak kWh/yr	Off-Peak kWh/yr	Energy mmBtu	Cost $/yr
Chillers	2,310	301,229	(253,511)	163	$27,000
Tower Fan	246	51,083	(21,134)	102	$4,600
Condenser Pump	162	33,716	11,831	155	$4,600
Chilled Water Pump	0	0	0	0	$0
Totals	2,718	386,028	(262,814)	421	$36,200

Maintenance Savings. There is no additional monetary savings due to reduced maintenance. In reality the maintenance costs would probably go up to some degree. For analysis purposes we have assumed no impact.

Discussion. Payback = 24.6 years

SIR = 0.6

The expected payback resulting from the implementation of this project is 24.6 years ($890,000 ÷ $36,200). This ECO is not recommended because the savings do not justify the cost for equipment replacement.

DOE Output
Full Chilled Water Storage Hourly Profile

Day	Time	Building Load Tons	Chiller Load Tons	Tank Release Tons	Tank Charge Tons	Losses Tons
Aug 17th	1 am	184	717	0	508	25
	2	161	695	0	508	25
	3	152	685	0	508	25
	4	138	672	0	508	25
	5	133	666	0	508	25
	6	201	501	0	275	25
	7	340	365	0	0	25
	8	410	0	435	0	25
	9	457	0	482	0	25
	10	475	0	500	0	25
	11	508	0	534	0	25
	12 pm	530	0	555	0	25
	1	538	0	564	0	25
	2	538	0	563	0	25
	3	507	0	532	0	25
	4	427	0	453	0	25
	5	410	0	435	0	25
	6	374	0	400	0	25
	7	299	0	324	0	25
	8	276	810	0	508	25
	9	251	785	0	508	25
	10	228	762	0	508	25
	11	212	746	0	508	25
	12	197	731	0	508	25
Aug 18th	1 am	186	720	0	508	25
	2	169	703	0	508	25
	3	161	695	0	508	25
	4	147	680	0	508	25
	5	131	665	0	508	25
	6	206	739	0	508	25
	7	336	549	0	188	25
	8	413	0	438	0	25
	9	459	0	484	0	25
	10	493	0	518	0	25
	11	525	0	550	0	25
	12 pm	531	0	557	0	25
	1	565	0	590	0	25
	2	582	0	607	0	25
	3	554	0	579	0	25
	4	470	0	495	0	25
	5	448	0	473	0	25
	6	405	0	430	0	25
	7	357	0	377	0	21
	8	329	823	0	464	30
	9	311	825	0	489	25
	10	293	825	0	507	25
	11	276	810	0	508	25
	12	259	793	0	508	25

Full Chilled Water Storage

Proposed Operation, Full Chilled Water Storage2, DOE Simulation Output

Month	Chiller			Tower Fan			Condenser Pump			Chilled Water Pump	
	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	Annual kWh
January	0	0	0	0	0	0	0	0	0		
February	0	0	0	0	0	0	0	0	0		
March	0	0	0	0	0	0	0	0	0		
April	0	0	0	0	0	0	0	0	0		
May	0	0	39,911	0	0	9,852	0	0	5,415		
June	0	0	117,067	0	0	23,119	0	0	10,154		
July	0	0	137,542	0	0	25,544	0	0	10,492		
August	0	0	131,810	0	0	24,806	0	0	10,492		
September	0	0	87,862	0	0	20,391	0	0	10,154		
October	0	0	20,337	0	0	7,306	0	0	5,077		
November	0	0	0	0	0	0	0	0	0		
December	0	0	0	0	0	0	0	0	0		
Totals	0	0	534,529	0	0	111,018	0	0	51,784	493	278,465

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: MON1

ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID FY95 (92)

INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1

PROJECT NO. & TITLE:

FISCAL YEAR — DISCRETE PORTION NAME: ECO#10

ANALYSIS DATE: 07-03-96 — ECONOMIC LIFE 20 YEARS — PREPARED BY:

1. INVESTMENT

A. CONSTRUCTION COST	$ 800000.	
B. SIOH	$ 44000.	
C. DESIGN COST	$ 48000.	
D. TOTAL COST (1A+1B+1C)	$ 892000.	
E. SALVAGE VALUE OF EXISTING EQUIPMENT	$ 0.	
F. PUBLIC UTILITY COMPANY REBATE	$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)		$ 892000.

2. ENERGY SAVINGS (+) / COST (-)

DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ 86.19	420.	$ 36200.	13.86	$ 501729.
B. DIST	$ .00	0.	$ 0.	16.99	$ 0.
C. RESID	$ .00	0.	$ 0.	17.38	$ 0.
D. NAT G	$ 7.28	0.	$ 0.	17.14	$ 0.
E. COAL	$ .00	0.	$ 0.	13.56	$ 0.
F. LPG	$ .00	0.	$ 0.	15.12	$ 0.
M. DEMAND SAVINGS			$ 0.	13.47	$ 0.
N. TOTAL		420.	$ 36200.		$ 501729.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-) — $ 0.

(1) DISCOUNT FACTOR (TABLE A) — 13.47

(2) DISCOUNTED SAVING/COST (3A X 3A1) — $ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-)(4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) — $ 0.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) — $ 36200.

5. SIMPLE PAYBACK PERIOD (1G/4) — 24.64 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) — $ 501729.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= .56
(IF < 1 PROJECT DOES NOT QUALIFY)

FORT MONMOUTH
PROJECT COST ESTIMATE
FULL CHILLED WATER STORAGE (EC0-10)

NO.	DESCRIPTION	QTY	UNIT	MATERIAL		LABOR		TOTAL BARE COST
				$/UNIT	COST	$/UNIT	COST	
1	Storage Tank 750,000 Gallons	1	Each	$250,000.00	$265,000	$80,000.00	$80,000	$345,000
2	Storage Tank Diffuser	1	Each	$35,000.00	$35,000	$4,000.00	$4,000	$39,000
3	Excavation abd Backfill	1	Lot	$10,000.00	$10,000	$30,000.00	$30,000	$40,000
4	Insulation	1	Lot	$30,000.00	$30,000	$10,000.00	$10,000	$40,000
5	Piping 12"	750	Each	$58.00	$43,500	$49.00	$36,750	$80,250
6	Control Valve	2	Each	$5,000.00	$10,000	$1,500.00	$3,000	$13,000
7	Controls	1	Lot	$10,000.00	$10,000	$10,000.00	$10,000	$20,000
8	Pump, 50 HP	2	Each	$4,900.00	$9,800	$1,100.00	$2,200	$12,000
9					$0		$0	$0
10					$0		$0	$0
11					$0		$0	$0
12					$0		$0	$0
13					$0		$0	$0
14					$0		$0	$0
15					$0		$0	$0
16					$0		$0	$0
17					$0		$0	$0
18					$0		$0	$0
19					$0		$0	$0
20					$0		$0	$0
21					$0		$0	$0
22					$0		$0	$0
23					$0		$0	$0
24					$0		$0	$0
25					$0		$0	$0
26					$0		$0	$0
27					$0		$0	$0
28					$0		$0	$0
29					$0		$0	$0
30					$0		$0	$0
31					$0		$0	$0
32					$0		$0	$0
33					$0		$0	$0
34					$0		$0	$0
35					$0		$0	$0
36					$0		$0	$0
37					$0		$0	$0
38					$0		$0	$0
39					$0		$0	$0
40					$0		$0	$0
41					$0		$0	$0
42					$0		$0	$0
43					$0		$0	$0
44					$0		$0	$0
45					$0		$0	$0
46					$0		$0	$0
47					$0		$0	$0
48					$0		$0	$0
49					$0		$0	$0
50					$0		$0	$0
51					$0		$0	$0
	SUBTOTAL							$589,300
	OVERHEAD AND PROFIT				$41,300		$96,800	$138,100
	CITY COST INDEX MULTIPLIER							
	DIFFICULTY FACTOR							
	CONTINGENCY				$45,500		$27,300	$72,800
	SIOH(5.5%) & DESIGN FEE(6%)			44,000		48,000		$92,000
	BASE TOTAL COST				**$500,000**		**$300,000**	**$892,000**

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ECO-11
PARTIAL CHILLED WATER STORAGE

Existing. Currently Building 2700 utilizes a central chilled water system for a portion of its cooling needs. This system was installed during the 1983 renovation under the Major Construction Activities Program (MCA). This system has been referred to as "MCA Chilled Water Plant". As shown in Section 3 of this report the current system consists of the following equipment:

Description	Quantity, Size, Load
Centrifugal Chillers	2 - 690 tons - 538 kW/ea
Cooling Tower	1 - 1,380 Tons - 56 kW
Condenser Pumps	2 - 19 kW/ea
Chilled Water Pumps	2 - 75 kW/ea

The system is presently operated from mid May through mid October. As indicated in Section 5, a DOE hourly simulation was performed. DOE calculated a peak cooling load of 608 tons at 2:00 p.m. on August 18th. In addition, the highest total cooling load for the 12 hour on-peak period also occurred on August 18th. The following table shows the 24 hour profile for the peak day. The following table of on-peak cooling demands for the chilled water storage results in a total of 6,103 ton/hr. DOE simulation output can be found in Attachment 8.12

Peak Cooling Day Profile

Hour	Load (Tons)	Hour	Load (Tons)
1 AM	211	1	590
2	195	2	607
3	186	3	579
4	172	4	495
5	156	5	473
6	231	6	430
7	361	7	382
8	438	8	354
9	484	9	336
10	518	10	318
11	550	11	301
12 PM	557	12 AM	284

The annual energy cost for the MCA chilled water system cooling system as based on DOE simulation results is $103,200. Individual components are summarized below and shown in detail on the attached table titled "Existing Operation".

Component	Demand kW	On-Peak kWh/yr	Off-Peak kWh/yr	Energy mmBtu	Cost $/yr
Chillers	2,310	301,229	281,018	1,987	$60,700
Tower Fan	246	51,083	89,884	481	$11,600
Condenser Pump	162	33,716	63,615	332	$7,900
Chilled Water Pump	493	92,417	186,049	950	$22,900
Totals	3,211	478,445	620,566	3,751	$103,100

DOE Simulation, MCA Chilled Water Plant, Existing

Month	Chiller			Tower Fan			Condenser Pump			Chilled Water Pump	
	Annual kW	Off-Peak kWh	On-Peak kWh	Annual kW	Off-Peak kWh	On-Peak kWh	Annual kW	Off-Peak kWh	On-Peak kWh	Annual kW	Annual kWh
January	0	0	0	0	0	0	0	0	0		
February	0	0	0	0	0	0	0	0	0		
March	0	0	0	0	0	0	0	0	0		
April	0	0	0	0	0	0	0	0	0		
May	369	23,982	19,785	41	5,108	8,502	27	3,499	6,680		
June	442	68,071	59,135	41	10,784	17,499	27	6,998	12,087		
July	422	66,972	75,300	41	9,870	20,090	27	6,361	13,359		
August	441	76,939	63,923	41	11,339	18,287	27	7,316	12,405		
September	365	51,299	48,917	41	10,016	17,281	27	6,680	12,405		
October	271	13,966	13,958	41	3,966	8,225	27	2,863	6,680		
November	0	0	0	0	0	0	0	0	0		
December	0	0	0	0	0	0	0	0	0		
Totals	2,310	301,229	281,018	246	51,083	89,884	162	33,717	63,616	493	278,465

Note: DOE does not provide monthly energy usage quantities for chilled water pumps, only annual, demand # is from Electric Model

FORT MONMOUTH
PROJECT COST ESTIMATE
PARTIAL FULL CHILLED WATER STORAGE (EC0-11)

NO.	DESCRIPTION	QTY	UNIT	MATERIAL		LABOR		TOTAL BARE COST
				$/UNIT	COST	$/UNIT	COST	
1	Storage Tank 450,000 Gallons	1	Each	$125,000.00	$140,000	$42,000.00	$42,000	$182,000
2	Storage Tank Diffuser	1	Each	$23,000.00	$25,000	$3,500.00	$3,500	$28,500
3	Excavation abd Backfill	1	Lot	$6,000.00	$6,000	$18,000.00	$18,000	$24,000
4	Insulation	1	Lot	$15,000.00	$15,000	$7,000.00	$7,000	$22,000
5	Piping 10"	750	Each	$48.00	$36,000	$38.00	$28,500	$64,500
6	Control Valve	2	Each	$5,000.00	$10,000	$1,400.00	$2,800	$12,800
7	Controls	1	Lot	$8,000.00	$8,000	$8,000.00	$8,000	$16,000
8	Pump, 40 HP	2	Each	$4,000.00	$8,000	$800.00	$1,600	$9,600
9					$0		$0	$0
10					$0		$0	$0
11					$0		$0	$0
12					$0		$0	$0
13					$0		$0	$0
14					$0		$0	$0
15					$0		$0	$0
16					$0		$0	$0
17					$0		$0	$0
18					$0		$0	$0
19					$0		$0	$0
20					$0		$0	$0
21					$0		$0	$0
22					$0		$0	$0
23					$0		$0	$0
24					$0		$0	$0
25					$0		$0	$0
26					$0		$0	$0
27					$0		$0	$0
28					$0		$0	$0
29					$0		$0	$0
30					$0		$0	$0
31					$0		$0	$0
32					$0		$0	$0
33					$0		$0	$0
34					$0		$0	$0
35					$0		$0	$0
36					$0		$0	$0
37					$0		$0	$0
38					$0		$0	$0
39					$0		$0	$0
40					$0		$0	$0
41					$0		$0	$0
42					$0		$0	$0
43					$0		$0	$0
44					$0		$0	$0
45					$0		$0	$0
46					$0		$0	$0
47					$0		$0	$0
48					$0		$0	$0
49					$0		$0	$0
50					$0		$0	$0
51					$0		$0	$0
	SUBTOTAL							$359,400
	OVERHEAD AND PROFIT				$24,800		$61,300	$86,100
	CITY COST INDEX MULTIPLIER							
	DIFFICULTY FACTOR							
	CONTINGENCY				$27,300		$17,300	$44,600
	SIOH(5.5%) & DESIGN FEE(6%)			27,000		29,000		$56,000
	BASE TOTAL COST				**$300,000**		**$190,000**	**$546,000**

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Proposed. Utilize both existing 690 ton chillers to produce and store chilled water during utility off-peak periods when the cost for electricity is lower. Install equipment to store 3,700 ton-hour of chilled water for use during on-peak periods (Table above adds to 6,103 ton/hrs). The storage system will be capable of providing sufficient cooling to reduce the existing cooling peak by 50% (approximately 300 tons (608 tons x 50%). This amount of storage is equivalent to approximately 450,000 gallons of chilled water storage.

During the on-peak period (8:00 a.m. to 8:00 p.m.), the stored chilled water will be utilized to meet a minimum of 50% of the cooling load. The existing chillers, tower, and condenser pump chiller will operate during the on-peak period to meet any additional load above 300 tons. The operation of the chilled water pump will remain unchanged. During the off-peak (8:00 pm to 8:00 am) the 690 ton chillers will operate to meet both building load and chilled water tank charging. The storage system will be used from June to October during the summer electric rate period.

For this analysis, 50% storage was assumed. Therefore, the storage was sized so that during the on-peak period 50% of the peak cooling hour will be provided by the stored chilled water. On cooler days, stored chilled will be capable of providing higher percentages. Use of the chilled water storage system will reduce demand charges. Generating cooling at night also takes advantages of the lower off-peak cost of energy (kWh). A DOE simulation model was performed based upon the above parameters with summarized results shown on the following table. With the new chilled water storage system the on-peak kWh will be shifted to off-peak hours. The table on the following page titled "Partial Chilled Water Storage Hourly Profile" demonstrates the operation of the new system.

The new storage system will be buried on the grounds adjacent to the chilled water building. The existing chillers will be retained and will not require modifications. New piping and controls will need to be added. The annual energy cost for the MCA system will be $88,300.

DOE Output
Partial Chilled Water Storage Hourly Profile

Day	Time	Building Load Tons	Chiller Load Tons	Tank Release Tons	Tank Charge Tons	Losses Tons
Aug 17th	1 am	184	717	0	508	25
	2	161	695	0	508	25
	3	152	286	0	109	25
	4	138	164	0	0	25
	5	133	158	0	0	25
	6	201	226	0	0	25
	7	340	365	0	0	25
	8	410	127	308	0	25
	9	457	174	308	0	25
	10	475	192	308	0	25
	11	508	225	308	0	25
	12 pm	530	247	308	0	25
	1	538	255	308	0	25
	2	538	255	308	0	25
	3	507	224	308	0	25
	4	427	144	308	0	25
	5	410	126	308	0	25
	6	374	91	308	0	25
	7	299	51	273	0	25
	8	276	810	0	508	25
	9	251	785	0	508	25
	10	228	762	0	508	25
	11	212	746	0	508	25
	12	197	731	0	508	25
Aug 18th	1 am	186	720	0	508	25
	2	169	703	0	508	25
	3	161	296	0	109	25
	4	147	172	0	0	25
	5	131	156	0	0	25
	6	206	231	0	0	25
	7	336	361	0	0	25
	8	413	130	308	0	25
	9	459	176	308	0	25
	10	493	210	308	0	25
	11	525	242	308	0	25
	12 pm	531	248	308	0	25
	1	565	282	308	0	25
	2	582	298	308	0	25
	3	554	271	308	0	25
	4	470	187	308	0	25
	5	448	164	308	0	25
	6	405	122	308	0	25
	7	357	109	273	0	25
	8	329	862	0	508	25
	9	311	844	0	508	25
	10	293	826	0	508	25
	11	276	810	0	508	25
	12	259	793	0	508	25

Partial Chilled Water Storage

Proposed Operation, Partial Chilled Water Storage2, DOE Simulation Output

	Chiller			Tower Fan			Condenser Pump			Chilled Water Pump	
Month	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	Annual kWh
January	0	0	0	0	0	0	0	0	0		
February	0	0	0	0	0	0	0	0	0		
March	0	0	0	0	0	0	0	0	0		
April	0	0	0	0	0	0	0	0	0		
May	181	5,384	35,734	40	1,864	9,264	28	1,467	5,472		
June	220	25,445	103,808	39	7,131	21,301	28	5,500	10,182		
July	210	28,538	120,430	40	8,174	23,108	28	6,233	10,492		
August	219	32,140	113,563	40	9,003	22,381	28	6,882	10,577		
September	179	12,257	81,127	39	4,257	19,394	28	3,356	10,154		
October	131	559	19,991	39	253	7,240	28	197	5,077		
November	0	0	0	0	0	0	0	0	0		
December	0	0	0	0	0	0	0	0	0		
Totals	1,140	104,323	474,653	237	30,682	102,688	168	23,635	51,954	493	278,465

Component	Demand kW	On-Peak kWh/yr	Off-Peak kWh/yr	Energy mmBtu	Cost $/yr
Chillers	1,140	104,323	474,653	1,976	$47,900
Tower Fan	237	30,682	102,668	455	$10,900
Condenser Pump	168	23,635	51,954	258	$6,500
Chilled Water Pump	493	92,417	186,048	950	$22,900
Totals	2,038	251,057	815,323	3,640	$88,200

Construction Cost. The expected construction cost is $546,000. (See Attached Cost Breakdown).

Material	$ 300,000
Labor	$ 190,000
SIOH	$ 27,000
Engineering	$ 29,000
Total	$ 546,000

Savings. The annual cost savings resulting from the implementation of this project will be $14,900 ($103,100 - $88,200).

Demand kW = 2,718 kW/yr (3,211 kW/yr - 2,038 kW/yr)

On-Peak kWh = 227,388 kWh/yr (486,275 kWh/yr - 258,887 kWh/yr)

Off-Peak kWh = -194,758 kWh/yr (612,735 kWh/yr - 807,493 kWh)

Energy Usage = 111 mmBtu (((227,388 kWh/y - 194,758 kWh/yr) x 3,413 Btu/kWh) ÷ 1,000,000 Btu/mmBtu]

Component	Demand kW	On-Peak kWh/yr	Off-Peak kWh/yr	Energy mmBtu	Cost $/yr
Chillers	1,170	196,906	(193,635)	11	$12,800
Tower Fan	9	20,401	(12,784)	26	$700
Condenser Pump	(6)	10,081	11,661	74	$1,400
Chilled Water Pump	0	0	0	0	$0
Totals	1,173	227,388	(194,758)	111	$14,900

Maintenance Savings. There is no additional monetary savings due to reduced maintenance. In reality the maintenance cost would probably go up to some degree, for analysis purposes we have assumed no impact.

Discussion. Payback = 37 years

SIR = 0.4

The expected payback resulting from the implementation of this project is 37 years ($550,000 ÷ $14,900). This ECO is not recommended because the savings do not justify the cost for equipment replacement.

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#11
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

A. CONSTRUCTION COST	$ 490000.	
B. SIOH	$ 27000.	
C. DESIGN COST	$ 29000.	
D. TOTAL COST (1A+1B+1C)	$ 546000.	
E. SALVAGE VALUE OF EXISTING EQUIPMENT	$ 0.	
F. PUBLIC UTILITY COMPANY REBATE	$ 0.	
G. TOTAL INVESTMENT (1D - 1E - 1F)		$ 546000.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$134.23	111.	$ 14900.	13.86	$ 206507.
B. DIST	$ .00	0.	$ 0.	16.99	$ 0.
C. RESID	$ .00	0.	$ 0.	17.38	$ 0.
D. NAT G	$ 7.28	0.	$ 0.	17.14	$ 0.
E. COAL	$ .00	0.	$ 0.	13.56	$ 0.
F. LPG	$ .00	0.	$ 0.	15.12	$ 0.
M. DEMAND SAVINGS			$ 0.	13.47	$ 0.
N. TOTAL		111.	$ 14900.		$ 206507.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-)		$ 0.
(1) DISCOUNT FACTOR (TABLE A)	13.47	
(2) DISCOUNTED SAVING/COST (3A X 3A1)		$ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-) (4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4) $ 0.

4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE)) $ 14900.

5. SIMPLE PAYBACK PERIOD (1G/4) 36.65 YEARS

6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C) $ 206507.

7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)= .38
(IF < 1 PROJECT DOES NOT QUALIFY)

ECO-12
VARIABLE FLOW PRIMARY-SECONDARY CHILLED WATER DISTRIBUTION

Existing. Currently Building 2700 utilizes a central chilled water system for a portion of its cooling needs. This system was installed during the 1983 renovation under the Major Construction Activities Program (MCA). This system has been referred to as "MCA Chilled Water Plant". As shown in Section 3 of this report the current system consists of the following equipment:

Description	Quantity, Size, Load
Centrifugal Chillers	2 - 690 tons - 538 kW/ea
Cooling Tower	1 - 1,380 Tons - 56 kW
Condenser Pumps	2 - 19 kW/ea
Chilled Water Pumps	2 - 75 kW/ea

The system is presently operated from mid May through mid October. As indicated in Section 5, a DOE hourly simulation was performed. DOE calculated a peak cooling load of 608 tons at 2:00 p.m. on August 18. DOE simulation output can be found in Attachment 8.12. The annual energy cost for the MCA chilled water system cooling system as based on DOE simulation results is $103,100. Individual components are summarized below and shown in detail on the attached table titled "Existing Operation".

Component	Demand kW	On-Peak kWh/yr	Off-Peak kWh/yr	Energy mmBtu	Cost $/yr
Chillers	2,310	301,229	281,018	1,987	$60,700
Tower Fan	246	51,083	89,884	481	$11,600
Condenser Pump	162	33,716	63,615	332	$7,900
Chilled Water Pump	493	92,417	186,048	950	$22,900
Totals	3,211	478,445	620,565	3,751	$103,100

DOE Simulation, MCA Chilled Water Plant, Existing

Month	Chiller			Tower Fan			Condenser Pump			Chilled Water Pump		
	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh
January	0	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	0	0	0
March	0	0	0	0	0	0	0	0	0	0	0	0
April	0	0	0	0	0	0	0	0	0	0	0	0
May	369	23,978	19,785	41	5,108	8,502	27	3,499	6,680	91	9,638	21,339
June	442	68,049	59,131	41	10,784	17,499	27	6,998	12,087	94	19,055	34,579
July	422	66,947	75,296	41	9,870	20,090	27	6,361	13,359	94	17,459	36,150
August	440	76,910	63,920	41	11,339	18,287	27	7,316	12,405	94	20,086	34,499
September	364	51,288	48,917	41	10,016	17,281	27	6,680	12,405	91	18,054	37,094
October	271	13,965	13,958	41	3,966	8,225	27	2,863	6,680	88	8,126	22,386
November	0	0	0	0	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0	0	0	0	0	0
Totals	2,308	301,137	281,007	246	51,083	89,884	162	33,717	63,616	552	92,417	186,048

Variable Speed Pumping

Proposed Operation, Variable Speed Pumping, DOE Simulation Output

Month	Chiller			Tower Fan			Condenser Pump			Chilled Water Pump		
	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh	Annual kW	On-Peak kWh	Off-Peak kWh
January	0	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	0	0	0
March	0	0	0	0	0	0	0	0	0	0	0	0
April	0	0	0	0	0	0	0	0	0	0	0	0
May	369	23,978	19,785	41	5,108	8,502	27	3,499	6,680	76	3,835	11,798
June	442	68,049	59,131	41	10,784	17,499	27	6,998	12,087	90	7,582	19,118
July	422	66,947	75,296	41	9,870	20,090	27	6,361	13,359	90	6,947	19,986
August	440	76,910	63,920	41	11,339	18,287	27	7,316	12,405	91	7,993	19,073
September	364	51,288	48,917	41	10,016	17,281	27	6,680	12,405	77	7,184	20,508
October	271	13,965	13,958	41	3,966	8,225	27	2,863	6,680	58	3,233	12,377
November	0	0	0	0	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0	0	0	0	0	0
Totals	2,308	301,137	281,007	246	51,083	89,884	162	33,717	63,616	482	36,776	102,859

Proposed. Convert the existing constant flow chilled water system to a variable flow system. This would require the existing system to be converted to a primary/secondary pumping arrangement. The existing 100 hp pumps will be retained and used as secondary pumps with the addition of variable speed controls. Two new pumps and piping would be added in the mechanical room to maintain a constant flow through the chillers. Because of the low head, the new pumps are estimated to be only 15 hp. Using DOE, the above modification was simulated by changing the "Pump Type" from fixed speed to variable speed. The indicated the annual cooling cost for this system would be $93,900 as shown in the following table.

Component	Demand kW	On-Peak kWh/yr	Off-Peak kWh/yr	Energy mmBtu	Cost $/yr
Chillers	2,310	301,229	281,018	1,987	$60,700
Tower Fan	246	51,083	89,884	481	$11,600
Condenser Pump	162	33,716	63,615	332	$7,900
Chilled Water Pump	493	36,776	102,859	477	$13,700
Totals	3,211	422,804	537,376	3,277	$93,900

Construction Cost. The expected construction cost is $176,900 (See Attached Cost Breakdown).

Material	$ 104,100
Labor	$ 54,600
SIOH	$ 8,700
Engineering	$ 9,500
Total	$ 176,900

Savings. The annual cost savings resulting from the implementation of this project will be $9,200 ($103,100 - $93,900).

Demand kW = 0 kW/yr (3,211 kW/yr - 3,211 kW/yr)

On-Peak kWh = 55,641 kWh/yr (478,445 kWh/yr - 422,804 kWh/yr)

Off-Peak kWh = 83,189 kWh/yr (620,565 kWh/yr - 537,376 kWh)

Energy Usage = 474 mmBtu (((55,641 kWh/y + 83,189 kWh/yr) x 3,413 Btu/kWh) ÷ 1,000,000 Btu/mmBtu]

Component	Demand kW	On-Peak kWh/yr	Off-Peak kWh/yr	Energy mmBtu	Cost $/yr
Chillers	0	0	0	0	$0
Tower Fan	0	0	0	0	$0
Condenser Pump	0	0	0	0	$0
Chilled Water Pump	0	55,641	83,189	474	$9,200
Totals	0	55,641	83,189	474	$9,200

Maintenance Savings. There is no additional monetary savings due to reduced maintenance.

Discussion. Payback = 19.2 years

SIR = 0.7

The expected payback resulting from the implementation of this project is 19.2 years ($176,900 ÷ $9,200). This ECO is not recommended because the savings do not justify the cost for equipment replacement.

FORT MONMOUTH
PROJECT COST ESTIMATE
Variable Flow Primary-Secondary Chilled Water Distribution (ECO-12)

NO.	DESCRIPTION	QTY	UNIT	MATERIAL		LABOR		TOTAL BARE COST
				$/UNIT	COST	$/UNIT	COST	
1	Primary Pump, 15hp	3	Each	$2,000.00	$6,000	$1,000.00	$3,000	$9,000
2	Primary Piping	100	lf	$50.00	$5,000	$50.00	$5,000	$10,000
3	Secondary Piping	100	lf	$50.00	$5,000	$50.00	$5,000	$10,000
4	Variable Frequency Drives	2	Each	$25,000.00	$50,000	$2,000.00	$4,000	$54,000
5	Relocate Existing Pumps w/ Pads	3	Each	$1,000.00	$3,000	$2,000.00	$6,000	$9,000
6	Controls, Tubing, Valves	1	Lot	$10,000.00	$10,000	$5,000.00	$5,000	$15,000
7	Transformers	1	Each	$5,000.00	$5,000	$1,000.00	$1,000	$6,000
8	Misc. Electrical	1	Lot	$2,000.00	$2,000	$3,000.00	$3,000	$5,000
9					$0		$0	$0
10					$0		$0	$0
11					$0		$0	$0
12					$0		$0	$0
13					$0		$0	$0
14					$0		$0	$0
15					$0		$0	$0
16					$0		$0	$0
17					$0		$0	$0
18					$0		$0	$0
19					$0		$0	$0
20					$0		$0	$0
21					$0		$0	$0
22					$0		$0	$0
23					$0		$0	$0
24					$0		$0	$0
25					$0		$0	$0
26					$0		$0	$0
27					$0		$0	$0
28					$0		$0	$0
29					$0		$0	$0
30					$0		$0	$0
31					$0		$0	$0
32					$0		$0	$0
33					$0		$0	$0
34					$0		$0	$0
35					$0		$0	$0
36					$0		$0	$0
37					$0		$0	$0
38					$0		$0	$0
39					$0		$0	$0
40					$0		$0	$0
41					$0		$0	$0
42					$0		$0	$0
43					$0		$0	$0
44					$0		$0	$0
45					$0		$0	$0
46					$0		$0	$0
47					$0		$0	$0
48					$0		$0	$0
49					$0		$0	$0
50					$0		$0	$0
51					$0		$0	$0
52					$0		$0	$0
53					$0		$0	$0
54					$0		$0	$0
55					$0		$0	$0
56					$0		$0	$0
57					$0		$0	$0
58					$0		$0	$0
59					$0		$0	$0
60					$0		$0	$0
61					$0		$0	$0
62					$0		$0	$0
63					$0		$0	$0
	SUBTOTAL							$118,000
	OVERHEAD AND PROFIT				$8,600		$17,600	$26,200
	CITY COST INDEX MULTIPLIER							
	DIFFICULTY FACTOR							
	CONTINGENCY				$9,500		$5,000	$14,500
	SIOH(5.5%) & DESIGN FEE(6%)			$8,700		$9,500		$18,200
	BASE TOTAL COST				**$104,100**		**$54,600**	**$176,900**

LIFE CYCLE COST ANALYSIS SUMMARY — STUDY: MON1
ENERGY CONSERVATION INVESTMENT PROGRAM (ECIP) — LCCID FY95 (92)
INSTALLATION & LOCATION: REGION NOS. 2 CENSUS: 1
PROJECT NO. & TITLE:
FISCAL YEAR DISCRETE PORTION NAME: ECO#12
ANALYSIS DATE: 07-03-96 ECONOMIC LIFE 20 YEARS PREPARED BY:

1. INVESTMENT

A. CONSTRUCTION COST	$ 158700.		
B. SIOH	$ 8700.		
C. DESIGN COST	$ 9500.		
D. TOTAL COST (1A+1B+1C)	$ 176900.		
E. SALVAGE VALUE OF EXISTING EQUIPMENT	$ 0.		
F. PUBLIC UTILITY COMPANY REBATE	$ 0.		
G. TOTAL INVESTMENT (1D - 1E - 1F)		$	176900.

2. ENERGY SAVINGS (+) / COST (-)
DATE OF NISTIR 85-3273-X USED FOR DISCOUNT FACTORS OCT 1995

FUEL	UNIT COST $/MBTU(1)	SAVINGS MBTU/YR(2)	ANNUAL $ SAVINGS(3)	DISCOUNT FACTOR(4)	DISCOUNTED SAVINGS(5)
A. ELECT	$ 19.41	474.	$ 9200.	13.86	$ 127517.
B. DIST	$ .00	0.	$ 0.	16.99	$ 0.
C. RESID	$ .00	0.	$ 0.	17.38	$ 0.
D. NAT G	$ 7.28	0.	$ 0.	17.14	$ 0.
E. COAL	$ .00	0.	$ 0.	13.56	$ 0.
F. LPG	$ .00	0.	$ 0.	15.12	$ 0.
M. DEMAND SAVINGS			$ 0.	13.47	$ 0.
N. TOTAL		474.	$ 9200.		$ 127517.

3. NON ENERGY SAVINGS(+) / COST(-)

A. ANNUAL RECURRING (+/-)		$ 0.
(1) DISCOUNT FACTOR (TABLE A)	13.47	
(2) DISCOUNTED SAVING/COST (3A X 3A1)		$ 0.

B. NON RECURRING SAVINGS(+) / COSTS(-)

ITEM	SAVINGS(+) COST(-) (1)	YR OC (2)	DISCNT FACTR (3)	DISCOUNTED SAVINGS(+)/ COST(-)(4)
d. TOTAL	$ 0.			0.

C. TOTAL NON ENERGY DISCOUNTED SAVINGS(+)/COST(-)(3A2+3Bd4)	$ 0.
4. FIRST YEAR DOLLAR SAVINGS 2N3+3A+(3Bd1/(YRS ECONOMIC LIFE))	$ 9200.
5. SIMPLE PAYBACK PERIOD (1G/4)	19.23 YEARS
6. TOTAL NET DISCOUNTED SAVINGS (2N5+3C)	$ 127517.
7. SAVINGS TO INVESTMENT RATIO (SIR)=(6 / 1G)=	.72

(IF < 1 PROJECT DOES NOT QUALIFY)

7.0 CONCLUSION

7.1 General

Seventeen (17) ECOs or Options to ECOs were evaluated in this report. Of these ECOs, the first one and it's five options relate directly to the decentralization of Building 2700 Central Boiler Plant. The remaining eleven ECOs cover various HVAC type opportunities involving heating and/or cooling.

A summary of ECOs in the order presented in Section 6 is shown in Table 7.1.1. Included with each ECO listed are the construction costs, the annual energy savings, the annual maintenance savings, the LCCID payback periods and SIR.

ECO #	ECO Description	Implementation Costs		
		Construction Cost	SIOH Cost	Design Cost
1	Steam Decentralization, Base Case	$1,199,000	$67,000	$73,000
1A	New Steam Boilers in Building 2700			
1B	New Hot Water Boilers for Cleanroom	$1,229,000	$69,000	$74,000
1C	Operate Cleanrooms with MCA Hot Water			
1D	Electric Domestic Hot Water Generator			
1E	Decentralize Domestic Hot Water	$1,238,000	$69,000	$75,000
2	Building 2700 MCA System ±5°F Temp. Setback Control	$46,200	$2,500	$2,800
3	Reduce Building Infiltration	$86,000	$4,700	$5,300
4	Replace Existing Central Chillers	$258,900	$14,000	$16,000
5	Convert Specific Air Cooled Chillers to Water Cooled	$249,500	$14,000	$15,000
6	Free Cooling	$80,400	$4,000	$5,000
7	2-Speed Fan Operation	$26,600	$1,500	$1,600
8	Replace DHW Recirculation Pumps			
9	Automated MCA HW Temperature Reset	$12,500	$700	$800
10	Full Chilled Water Storage	$800,000	$44,000	$48,000
11	Partial Chilled Water Storage	$490,000	$27,000	$29,000
12	Variable Flow Primary-Secondary Chilled Water Dist.	$158,700	$8,700	$9,500

(1)

mmary for Fort Monmouth
Table 7.1.1

Costs		Annual Savings						LCCID Payback	LCCID SIR
ign st	Total Cost	Gas mmBtu	Gas Cost	Electric mmBtu	Electric Cost	$/mmBtu	Recurring Maintenance		
,000	$1,339,000	36,685	$267,000	(67)	($1,089)	$16.25	$190,000	2.9	5.32
	$0								
.000	$1,372,000	37,525	$273,000	(119)	($2,989)	$25.12	$190,000	3.0	5.25
	$0								
	$0								
000	$1,382,000	39,235	$285,510	(984)	($19,661)	$19.98	$170,000	3.2	5.00
800	$51,500	623	$4,500	1,887	$34,200	$18.12		1.3	10.7
300	$96,000	1,329	$9,700	(2)	$0	$0.00		9.9	1.7
000	$288,900			1,018	$25,066	$24.62		11.5	1.2
000	$278,500			274	$7,367	$26.89		37.8	0.4
000	$89,400			183	$4,408	$24.09		20.3	0.7
500	$29,700			141	$2,600	$18.44		11.4	1.2
	$0								
300	$14,000	351	$2,500					5.5	3.1
)00	$892,000			420	$36,200	$86.19		24.6	0.6
)00	$546,000			111	$14,900	$134.23		36.7	0.4
500	$176,900			474	$9,200	$19.41		19.2	0.7

The lists of the recommended or non recommended ECOs are shown in the following sections. In addition to the summary information for each ECO a comment is added to each ECO in the two lists which relates to Entech's opinion on which category the project falls under. Below is the criteria that is used to categorize the report's findings (ie. ECIP, Non-ECIP etc.). Qualifying for ECIP requires a project to have a low limit for construction, and an acceptable payback and investment ratio. In addition it cannot be an operation and maintenance project which is defined as:

> **O & M Energy Projects:** An O & M Energy Project is one that results in needed maintenance and repair to an existing facility, or replaces a failed or failing existing facility, and also results in energy savings.

The following criteria is the basis to recommend or not-recommend ECOs for this report. The criteria is from the scope for this project which is included in Appendix 8.13

Qualifications for Project Recommendation:

1. **ECIP:** Projects that have $300,000 construction cost, SIR > 1.25, payback < 10 years.

   Non-ECIP: Projects that do not meet 1, or they fall under 2 or 3. (If an ECO is recommended and does not fall under 2 or 3, then it will be considered Non-ECIP General)

2. **O & M Projects (by definition):** $300,000 construction cost, SIR > 1.25, payback < 10 years.

3. **Low Cost/No Cost Projects:** Fort Monmouth can implement with their own resources

4. **Non-feasible:** ECOs that are not recommended based on findings for 1, 2, and 3, or because of reasons stated in the individual ECO discussion section and/or the not recommended table.

7.2 Recommended ECOs

Of the seventeen (17) ECOs addressed, four (4) have been found to be acceptable, and they are listed in Table 7.2.1. They are listed from highest to lowest savings to investment ratio.

Recommend ECO List for Fort Monmouth
Table 7.2.1

	ECO #	Description	Total Cost	Annual Energy Savings	Annual Maint. Savings	LCCID Payback	LCCID SIR	Comment
1	2	Bldg 2700 MCA System ±5° Temp. Setback Control	$51,500	$38,700	$0	1.3	10.70	Non-ECIP (LC/NC)
2	1	Steam Decentralization	$1,339,000	$265,911	$190,000	2.9	5.32	ECIP
3	9	Automated MCA HW Temp. Reset	$14,000	$2,500	$0	5.5	3.10	Non-ECIP (LC/NC)
4	3	Reduce Building Infiltration	$96,000	$9,700	$0	9.9	1.7	Non-ECIP (LC/NC)
		Total	**$1,500,500**	**$316,811**	**$190,000**	**4.9**		

7.3 Non-Recommended ECOs

Thirteen (13) ECOs out of the original seventeen (17) are not-recommended for implementation. Those ECOs were not recommended ECOs for various reasons including the criteria in Section 6.1. The not-recommended are listed in Table 7.3.1. They are categorized in the same order as they were presented in Section 6. Omitted from that list are the recommended ECOs found in Section 7.2. Included in the table are ECO descriptions, savings, maintenance savings (costs), LCCID payback periods and SIRs and a general comment about the ECO.

Not Recommended ECO List for Fort Monmouth
Table 7.3.1

No.	Description	Total Cost	Annual Energy Savings	Annual Maint. Savings	LCCID Payback	LCCID SIR	Comments
1A	New Steam Boilers in Bldg. 2700	$0	$0	$0	0	0	Not required.
1B	New Hot Water Boiler for Cleanroom	$1,372,000	$270,011	$190,000	3.0	5.25	Could replace the base case if hot water is desired.
1C	Operate Cleanrooms w/MCA Hot Water	$0	$0	$0	0	0	Not Feasible.
1D	Electric DHW Generator	$0	$0	$0	0	0	Higher energy cost for same application.
1E	Decentralize DHW	$1,382,000	$265,849	$170,000	3.2	5.00	Payback/SIR not as good as ECO-1
4	Replace Existing Central Chillers	$288,900	$25,066	$0	11.5	1.2	Savings can not justify equipment.
5	Convert Specific Air Cooled Chillers to Water Cooled	$278,500	$7,367	$0	37.8	0.40	Savings can not justify equipment.
6	Free Cooling	$89,400	$4,408	$0	20.3	0.70	Savings can not justify equipment.
7	2-Speed Fan Operation	$29,700	$2,600	$0	11.4	1.2	Savings can not justify equipment.
8	Replace DHW Recirculation Pumps	$0	$0	$0	0	0	Not required.
10	Full Chilled Water Storage	$892,000	$36,200	$0	24.6	0.60	Savings can not justify equipment.
11	Partial Chilled Water Storage	$546,000	$14,900	$0	36.7	0.40	Savings can not justify equipment.
12	Variable Flow, Primary/Secondary Chilled Water Dist.	$176,900	$9,200	$0	19.2	0.70	Savings can not justify equipment.

Attachment 8.1

Maintenance Equipment List for Building 2700

16-Jun-93 RECURRING WORKLOAD

MYER CENTER AIR CONDITIONING

LOCATION	MAKE	MODEL	SERIAL NUMBER	SIZE	CORROSION CONTROL
OA LEVEL:					
OA RM 400 (C6) Cond on ground-eastside of bldg (Air handler in MR OA 400)	NA	NA	NA	25	
SIDE OF BLDG	McQUAY	ALP045C	5RD0700400	25	0
FOR CAFETERIA	McQUAY	LML 122 DH	3RC00 525-04		
OA418/CAFETERIA	AIR HANDLER COND				
CAFETERIA OFC	CARRIER	38GS036350	U121639	3	
CAFETERIA OFC	CARRIER	38GS036350	U121648	3	
1ST FLOOR:					
1B 110	CEILING MATE	CMW180-1	1330	2	
1E 124	McQUAY	VSC040E	57D3505851	40	0
1B 136	COMFORT AIR PKG UNIT	51016-13A	18007199541	10	
1E 141-A	CHRYSLER	1005	NA	5	
1B 202	CARRIER	50BA006510	418G29457	5	
1E 205A	TRANE COND	SAHE B306-B	C92M-06250	6	
MEZZANINE:					
AUDITORIUM	McQUAY	AHR 046CD	E300531	46	C,L,C,T
AUDITORIUM	McQUAY AIR HANDLER (1)	LSL 214CV-1	996284020		
	McQUAY AIR HANDLER (2)	LSL 214CV-2	996254		
2D FLOOR:					
2C 331	CHRYSLER	3725-01R	52A7307	25	0
2C 325,TOWER 3	TRANE	SWUB-3756-8	J89E12337	7.5	
2D 337	HIDEAWAY PKG UNIT	MDXW/CZ(PN 531901)	68979-371	2	
3DR FLOOR:					
3D 114	COPELAND	WZW H-500 TFC-011	08J81	5	
(COOLING TOWER 1)	COPELAND	W2WH-1500 THC-001	19J91	15	0
4TH FLOOR:					
4C 333 (Condenser on roof)	CHRYSLER	3711-01R	7E00229	12	
4C 336 (Condenser on roof)	CHRYSLER	1209-03R	E223952	10	
MACHINE ROOMS:					
MR 12 REPRO	AC #1 COMPRESSOR & AIR HANDLING UNIT			12	3

RECURRING WORKLOAD

AIR COMPRESSOR UNITS

LEDGEND: EH = ELECTRIC HEAT
NEH = NO ELECTRIC HEAT

BLDG NUMBER	LOCATION	MANUFACTURER	SERIAL NUMBER	MODEL NUMBER	TAG NO.	
906		QUINCY	I2-100-516391	N/A		DRY SPRINKLER SYSTEM (EH)
975		QUINCY	I8-4-207668	N/A	397	DRY SPRINKLER SYSTEM (EH)
975		QUINCY	I8-4-178486	N/A	396	DRY SPRINKLER SYSTEM (EH)
1000		SPEED AIR	06051	463449	410	DRY SPRINKLER SYSTEM (EH)
1076		SPEED AIR	021187L-034173	32419F		
1103		SPEED AIR	040187L	092981		DRY SPRINKLER SYSTEM (NEH)
1105		GENERAL	4776	45K82-1T		DRY SPRINKLER SYSTEM (NEH)
1120		GE EQUIPMENT	56979WL	10825	408	
1122		NAPA	4313	82-278-EHAT		
1122		NAPA	4307	82-278-HAT		
1150		GENERAL CABLE	RE-5023	3100 C.S.	431	
1150		PURE GAS	D239	1500	432	
1206		A.C.F	1185-4443	ACF-COS-036D3	434	
1209		INGERSOLL RAND	30T-590769	2-23401		
1210		QUINCY	5015943	FF102AD		
1220		AIR STREAM	896540	20IT	435	
1220		QUINCY			408	
2000		DAYTON	RG00336A	9K456A	443	DRY SPRINKLER SYSTEM (NEH)
2000		CRAFTSMAN	1.5 HP 12 GAL	02M86		DRY SPRINKLER SYSTEM (NEH)
2000		JOHNSON SYSTEM		I2-15-650990	442	
2502		DAYTON	15924 K82	3Z781	436	DRY SPRINKLER SYSTEM (EH)
2503		DAYTON	15924 J34	3Z781	437	DRY SPRINKLER SYSTEM (EH)
2504		DAYTON	15924 K82	3Z781	438	DRY SPRINKLER SYSTEM (EH)
2506		ITT PNEUMOTIVE	160639P	GH-610		
2506		MAGNA FORCE	287243	64A100-14		
2506		DAYTON	15924 D84	32781	439	DRY SPRINKLER SYSTEM (EH)
2507		AMERICAN AIR COMP	28462	3A114	440	DRY SPRINKLER SYSTEM (EH)
2525		SPEED AIR		3Z495A-2		
2564		INGERSOLL RAND	30T287187	242D7.5		
2700	MR 21	PURE GAS AIR DRYER	2009	1500		
2700	BLR RM	INDUSTRIAL AIR	6085	C1023E120H		
2700	BLR RM	INDUSTRIAL AIR	6095	C1023E120H		
2700	BLR RM	DEVILBISS	E1582	BDP5006		
2700	1E 124	QUINCY	216-33-294317	216-36	387	
2700	1E 124	GEAIR CO.	621640		398	
2704		WORTHINGTON	AJ644	ZT1	446	
2705		ROBERTSHAW	718875L	136	444	

RECURRING WORKLOAD

EXHAUST VENTILATORS (MYER CENTER, BLDG 2700)

KIN FACTOR KINETIE SCRUBBER NEAR PLATFORM #4 AND TOWER #2
SIZE F SER-T-69042 - MOTOR PACEMAKER MOD 193 56L-1 TYPE CE 48

PASSENGER ELEVATOR #2 - EV CENTRI VENT MOD - MISSING; SER - MISSING

EV PLATFORM WEST 17 DUALL INDUSTREIES INC, OWOSSO, MICHIGAN SERIAL #5228

TOTAL NUMBER OF EXHAUST VENTILATORS AT MYER CENTER: 132

RECURRING WORKLOAD

EXHAUST VENTILATORS (MYER CENTER, BLDG 2700)

UNIT	SWITCH LOCATION	FAN LOCATION	MOTOR HP
EV #124	4D 304	STATION #9	0.25
EV #125	4D 336	STRAGLER	1.25
EV #126	MR #43	STATION #7	0.75
EV #127	MR #43	STATION #8	0.75
EV #129	MR #44	STATION #11	0.75
EV #129	MR #44	STATION #12	0.75
EV #130	MR #45	STATION #15	0.75
EV #131	MR #45	STATION #16	0.75
EV #132			

EV - GENERAL RESOUCRE MOD E1E245N - SER #208443 EXHAUST CANOPY #9

AIR SHAFT NEAR EXHAUST CANOPY 9 & 7 GREEN HECK MOD SWB 16-20 - SER 36007507

EXHAUST CANOPY #2 - GENERAL RESOURCE MOD E1E132M - SER 208446 - ID #6

EXHAUST CANOPY #2 - GENERAL RESOURCE MOD E1E122J - SER 208447
CENTRI VENT - MOD QE 17K - SER TH3 29S213

EXHAUST CANOPY #8 - GENERAL RESOURCE MOD E1E122L - SER 208445

CANOPY #8 - AIR SHAFT NEAR EXHAUST GREEN HECK MOD SWB-16015 - SER 36C07505

EXHAUST CANOPY #6 - CENTRI VENT MOD QE 245K - SER THA299220 ID 15
CENTRI VENT MOD QEL 000 - SER SHA 295251
GREEN HECK MARKER-4 MOD SUE-16-20 - SER 36007504

RECURRING WORKLOAD

EXHAUST VENTILATORS (MYER CENTER, BLDG 2700)

UNIT	SWITCH LOCATION	FAN LOCATION	MOTOR HP
EV #90	1E 308	STATION #9	3
EV #91	1B 308	STATION #9	2
EV #92	1E 308	STATION #9	0.75
EV #93	1E 307	STATION #9	2
EV #94	SUB-STATION	1ST FLOOR	
EV #95	1E 312	1E 312	
EV #96	1E 316	STATION #9	0.5
EV #97	1E 400	STATION 12	0.5
EV #98	SUB-STATION	BASEMENT	1.5
EV #99			
EV #100			
EV #101	1B 504	STATION #16	0.5
EV #102	2D 210	STATION #6	0.25
EV #103	2D 210	STATION #6	0.5
EV #104	2D 209	STATION #6	0.5
EV #105	2C 215	STATION #7	0.25
EV #106	2C 305	STATION #8	0.166666
EV #107	2D 306	STATION #9	0.25
EV #108	2D 310	STATION #9	0.5
EV #109	2D 310	STATION #9	0.166666
EV #110	2D 310	STATION #9	0.166666
EV #111	2D 309	STATION #9	0.75
EV #112	2D 309	STATION #9	0.25
EV #113	2D 309	STATION #9	0.5
EV #114	2C 321 D.R.	2C 321 D.R.	
EV #115	3D 309	3D 309	
EV #116			
EV #117	3D 326	STATION #10	0.5
EV #118	3D 416E	STATION #15	0.25
EV #119	3D 416A	STATION #14	0.25
EV #120	4D 209	STRAGLER	3.75
EV #121	4D 211	STATION #6	0.25
EV #122	4D 213	STRAGLER	
EV #123	4D 301	STATION #8	0.333333

RECURRING WORKLOAD

EXHAUST VENTILATORS (MTER CENTER, BLDG 2700)

UNIT	SWITCH LOCATION	FAN LOCATION	MOTOR HP
EV #50	4C 139	STATION #1	1
EV #51	4D 103D	STATION #1	0.333333
EV #52	4D 124	STATION #4	0.75
EV #53	MR #41	STATION #1	2.5
EV #54	MR #42	STATION #4	2.5
EV #56	BR LATRINE	STATION #10	0.25
EV #57	MR #12	MR #12	0.05
EV #58	MR #12	MR #12	5
EV #59	1E 208	STATION #6	5
EV #60	1B 205	STATION #6	5
EV #61	1B 206	STATION #6	5
EV #62	1E 205	STATION #6	0.333333
EV #63	1E 207	STATION #6	0.04
EV #64	4D 205	STATION #2	2.5
EV #65	1E 112	STATION #2	1.5
EV #66	2C 141	STATION #5	3
EV #67	2C 143	STATION #5	0.5
EV #68	SUB-STATION		0.25
EV #69	MENS LATRINE (4D 301)	STATION #8	1.5
EV #71	MENS LATRINE (4D 501)	STATION #16	1.5
EV #72	MENS LATRINE (1E 318)	STATION #9	0.75
EV #73	MENS LATRINE (OA 411)	STATION #14	0.75
EV #75	OA 330	STATION #11	2
EV #76	OA 330	STATION #11	0.75
EV #77	OA330E	STATION #11	0.5
EV #78	OA330E	STATION #11	0.75
EV #79	KITCHEN E.S.	STATION #13	7.5
EV #82	SUB-STATION	BASEMENT	1.5
EV #83	1E 211	1E 211	
EV #84	1E 211	STATION #7	3
EV #85	1E 211	STATION #7	0.333333
EV #86	1E 302	STATION #7	2
EV #87	1E 302	STATION #7	3
EV #88	1E 302	STATION #8	1
EV #89	1E 302	STATION #9	2

RECURRING WORKLOAD

EXHAUST VENTILATORS (MYER CENTER, BLDG 2700)

UNIT	SWITCH LOCATION	FAN LOCATION	MOTOR HP
EV #1	MENS LATRINE (4TH FLOOR)	STRAGLER	2
EV #2	MENS LATRINE (4TH FLOOR)	STATION #4	1
EV #7	REPRODUCTION	STRAGLER	
EV #9	3C 207	STATION #5	0.5
EV #10	2C 135	STATION #4	0.333333
EV #11	2C 133	STATION #3	0.5
EV #12	2D 129E	STATION #3	0.333333
EV #13	2D 129A	STATION #3	0.333333
EV #14	2D 127	STATION #3	0.333333
EV #15	2D 125	STATION #3	0.333333
EV #16	2D 123E	STATION #3	2
EV #17	2D 135A	STATION #3	0.333333
EV #18	3C 203	STATION #5	0.333333
EV #19	3C 201	STATION #5	0.333333
EV #20	3D 200	STATION #5	0.333333
EV #21	2C 141	STATION #4	2
EV #22	2C 207	STATION #6	2
EV #23	2D 205	STATION #6	0.333333
EV #24	2D 207	STATION #6	
EV #25	2D 207	STATION #6	3
EV #26	2C 143	STATION #5	1.5
EV #27	4C 203	STATION #5	1.5
EV #28	4C 203	STATION #5	1.5
EV #29	4C 201	STATION #5	0.333333
EV #30	4C 203	STATION #5	0.333333
EV #31	4D 202	STATION #5	0.333333
EV #32	4D 202	STATION #5	0.333333
EV #33	4D 202	STATION #5	1
EV #35	4C 143	STATION #4	1.5
EV #37	4D 139E	STATION #5	1
EV #38	4D 201	STATION #5	1
EV #39	4D 132	STATION #4	0.5
EV #40	4C 139	STATION #4	1.5
EV #41	4D 132	STATION #4	0.333333
EV #42	4D 134	STATION #4	0.333333
EV #43	4D 130	STATION #3	1
EV #44	4C 129	STATION #3	1
EV #45	4C 131	STATION #3	0.333333
EV #46	4C 113	STATION #2	0.333333
EV #47	4C 110	STATION #2	0.333333
EV #48	4C 109E	STATION #1	0.333333
EV #49	4D 103	STATION #1	2

RECURRING WORKLOAD

SUPPLY VENTILATORS (MYER CENTER, BLDG 2700)

UNIT	CONTROL LOCATION	FAN LOCATION	HP FAN MOTOR
SV #1	RM 1E 114	RM 1E 114	1
SV #2	RM 1E 108	RM 1E 108	2
SV #3	RM 1E	RM 1E 129	3
SV #13	BOILER ROOM	BOILER ROOM	1.5
SV #14	BOILER ROOM	BOILER ROOM	1.5
SV #15	BOILER ROOM	BOILER ROOM	1.5
SV #16	BOILER ROOM	BOILER ROOM	1.5
SV #18	RM 1E 206	RM 1E 206	3
SV #19	RM 1E 206	RM 1E 206	1
SV #23	RM 0A 330	RM 0A 330	1
SV 25	RM 1E 211	RM 1E 211	1
SV #26	RM 1E 302	RM 1E 302	1
SV #27	RM 1E 306	RM 1E 306	1
SV #29	MEN'S LATRINE	MEN'S LATRINE	1
SV #33	RM 2C 317	MR #23	1.5
SV #37	RM 3C 307	MR #33	5
SV #41	RM 4C 331A	RM 4C 331A	5
SV #42	RM 4C 403A	RM 4C 403A	5

TOTAL NUMBER OF SUPPLY VENTILATORS AT MYER CENTER: 18

RECURRING WORKLOAD

COOLING TOWER LOCATIONS

BLDG NUMBER	LOCATION	MAKE	SERIAL NUMBER	MODEL NUMBER	TONNAGE	UNITS
283		MARLEY	4415	4777	7.5	
291		MARLEY	N/A	46752022	30	
500		BARTIMORE AIR COIL	FXT133	323605-D	60	
552		MARLEY	N/A	4715-338	15	
814		MARLEY		47201228	20	
1207		EVAPCO	867527	LST-10-181	450	
1207 N		MARLEY	N/A	4765-930	30	
1207 S		MARLEY	N/A	4725-611	30	
1212		HALSTEAD & MITCHELL			25	
1215		RECOLD	QDE2520	103429	25	
2700	ROOF COIL 600 GPH	THERMAL CARE/MAYER 8000 SERIES			200	COOLING TOWER
2700	ROOF COIL 600 GPH	THERMAL CARE/MAYER 8000 SERIES			200	COOLING TOWER
2700	ROOF COIL 633 GPH	BACTIMORE AIR			211	COOLING TOWER
2700	ROOF COIL 633 GPH	BACTIMORE AIR	2416C	791560D	211	COOLING TOWER
2706		BALCCTIMORE AIR COIL (4 CELLS)	4-2419C	8242-10-D	200	
2708		BALTIMORE AIR COIL	85-6992D	FXT-250	240	
2713		BALTIMORE AIR COIL (3 CELLS)	89400765	3268 30MS	1950	
9040		MARLEY	2413	4429	50	
9042		ACQUA TOWER COOLING TOWER		4842 1079C	50	

TOTAL NUMBER OF COOLING WATER TOWERS: 19
TOTAL TONNAGE FOR COOLING WATER TOWERS: 4,004.50

RECURRING WORKLOAD
MYER CENTER
AIR CONDITIONING
FOR
COMPUTER ROOM FACILITIES
(MONTHLY VISITS)

ROOM/LOCATION		MANUFACTURER	SERIAL NUMBER	SIZE	MODEL NUMBER	ID	# PUMPS
4C 405	AIR SHAFT NEAR EH CANOPY #8	LIEBERT VOLTAGE 460, PH3	104472D	13	FE 192GA00	AC-14	
4C 405	EH CANOPY #2	LIEBERT VOLTAGE 460, PH3	104472L	7	FE 110G-A00	AC-19	
4C 405	EH CANOPY #2	LIEBERT VOLTAGE 460, PH3	104472E	13	FE 192G-A00	AC-15	
4C 405	EH CANOPY #2	LIEBERT DRY COOLER	85090066		DSO 174A	DC #19	
4C 405	EH CANOPY #2	LIEBERT DRY COOLER	85090071		DSO 260A	DC #15	
4C 417	AIR SHAFT NEAR EH CANOPY #9	LIEBERT VOLTAGE 460, PH3	104472F	13	FE192G-A00	AC17	
4C 417	AIR SHAFT NEAR EH CANOPY #9	LIEBERT VOLTAGE 460, PH3	1044726	13	FE 192G-A00	AC18	
4C 417	AIR SHAFT NEAR EH CANOPY #9	LIEBERT VOLTAGE 460, PH3	104472M	5	FE 72G-A00	AC16	
4C 417	AIR SHAFT NEAR EH CANOPY #9 &	LIEBERT DRY COOLER	85090063		DDO 112A	#16	1
4C 417	AIR SHAFT NEAR EH CANOPY #9 &	LIEBERT DRY COOLER	85090537		DDO 260A	#18	1
4C 417	AIR SHAFT NEAR EH CANOPY #9 &	LIEBERT DRY COOLER	85090077		DDO 260A	DC #17	1
4D 204		EDPAC	66000-001A	9	CDIW-09		
4D 204		EDPAC	65907-001A				
4D 208#		DATA AIRE	91-1295A	16	DAGD-2034		
4D 210#		DATA AIRE	91-0236A	5	DAGD-0634		
4D 214#		DATA AIRE	91-0235A	5	DAGD-1034		
# DRY COOLER	PLATFROM NO. 7	BGNH	TRC 1820		DFS0403G		
4D 308	COOL TOWER #4	LIEBERT	P-13522 LR-253122	9	CUU9W		
4D 324	EH CANOPY #8	LIEBERT DRY COOLER	85090070		DDO 260A	DC#10	1
4D 324	EH CANOPY #8	LIEBERT VOLTAGE 460, PH3	104472B	13	FE 192G-A00	AC-10	
4D 326	EH CANOPY #8	LIEBERT VOLTAGE 460, PH3	1044721	7	FE 11GG-A00	AC-9	
4D 326	EH CANOPY #8	LIEBERT DRY COOLER	85090068		DSO 174A	DC 9	1
4D 329	EH CANOPY #8	LIEBERT DRY COOLER	85090067		DSO 174A	DC#11	1
4D 333	EH CANOPY #8	LIEBERT	104472H	7	FE 11GG-A00	AC-11	
4D 330		LIEBERT	1044 72K		7FE 110G-A00	AC-12	
4D 330	EH CANOPY #8	LIEBERT DRY COOLER	85090064		DSO 174A	DC#12	1
MR 33		YORK	50199161	60	LCH360A23PA		

(2 Air handlers - one in Rm 3C 321; one A/H/U in MR 33)

TOTAL NUMBER OF	31
TOTAL TONNAGE:	410
TOTAL NUMBER OF	16

RECURRING WORKLOAD

TRANE CENTRAVAC UNITS, BLDG 2706
AND AIR HANDLERS, BLDG 2700 (MYER CENTER)

LOCATION	MAKE	MODEL NUMBER	SERIAL NUMBER	UNITS
THIRD FLOOR:				
MR-31	TRANE CLIMATE	S2B000014	K83C86109	AHC-1A
	TRANE CLIMATE	S2B000014	K83686108	AH3-1
	CENTURI MASTER	NA	NA	AH3-1
	CENTURI MASTER	NA	NA	AHC-1A
MR-32	TRANE CLIMATE	S20148	K83C86110	AHU-3-2
	TRANE CLIMATE	S20148	K83C86111	AHU-3-2-A
	CENTURI MASTER	XE137K	NA	RF-3-2
	CENTURI MASTER	XE137K	NA	RF-3-2-A
MR-33	TRANE CLIMATE	S2B000014	K8328112	AH-3-3
	CENTURI MASTER	XB137K		RF-3-3
MR-35	TRANE CLIMATE	S2014B0	K83C86114	AHU-3-5
	CENTURI MASTER	XB137K		RF-3-5
	TRANE CLIMATE	S2014B0	K83C86115	AHU-3-5-A
	CENTURI MASTER	XB137K		RF-R-3-5-A
ROOF:				
ROOF	TRANE CLIMATE	S1014B	K83C86116	AHU-R-1
ROOF	CHANGER	QB245L	TH298222	RF-R-1
ROOF	TRANE CLIMATE	S2J014B	K832C86117	AHU-R-2
ROOF	CHANGER	QB200L	TH223217	RF-R-2
ROOF	TRANE CLIMATE	S2025E	K83C86118	AHU-R-3
ROOF	CHANGER	QB245M	THA298223	RF-R-3
ROOF	TRANE CLIMATE	S2025B	K83C86119	AHU-R-4
ROOF	CHANGER	SQB200K	THA298218	RF-R-4
ROOF	TRANE CLIMATE	S2024D	K836120	AHU-R-5
ROOF	CHANGER	COVERED	THA298219	RF-R-5
ROOF	TRANE CLIMATE	S2014B	K83C121	AHU-R-6
ROOF	CHANGER	QB245M	THA298224	RF-R-6

RECURRING WORKLOAD
MYER CENTER
AIR CONDITIONING
FOR
COMPUTER ROOM FACILITIES
(MONTHLY VISITS)

ROOM/LOCATION		MANUFACTURER	SERIAL NUMBER	SIZE	MODEL NUMBER	ID	# PUMPS
C4 (East side of 2700) (Air handler Rm 1B 322 ceiling)		N/A	N/A	15	N/A		
OA334 (FRONT)		LEIBERT DRY COOLER	85090073		DSO 174A	DC 1	
OA334 (FRONT)		LIEBERT DRY COOLER	104472A	13	FE 192G-A00	AC 1	
OA336 (FRONT)		LEIBERT DRY COOLER	85090149		DSO 260A	DC 2	
OA336 (FRONT)		LIEBERT DRY COOLER	104472J	7	FE 1105-A00	AC 2	
2C 106		DATAC	025PD009	5	CCT-06WH		
2C 235	TOWER #4	LIEBERT	P03660	5	CU 69W		
2C 405	TOWER #4	DATAC	3601D006	20	CCT-20W2		
2C 407	TOWER #5	DATAC	3601D005	20	CCT-20W2		
3C 141	(Condenser on roof)	TRANE	C81C29883	6	RAVC-B626A		
3C 143	COOL TOWER #2	LIEBERT	108567A	7	FH86W-C00		
3D 402	EH CANOPY #8	LIEBERT DRY COOLER	85050742		DSO 174A	#4	1
3D 402	EH CANOPY #8	LIEBERT DRY COOLER	85050741		DSO 174A	#5	1
3D 402	EH CANOPY #8	LIEBERT VOLTAGE 460, PH3	103881A	7	FE 11060-A00	#4	
3D 402	EH CANOPY #8	LIEBERT VOLTAGE 460, PH3	103881B	7	FE 11060-A00	#5	
3D 404	EH CANOPY #2	LIEBERT DRY COOLER	85050771		DSO 260A	RF-3-3	1
3D 404	EH CANOPY #2	LIEBERT VOLTAGE 460, PH3	103881F	13	FE 192G-A00	3	
3D 406	EH CANOPY #10	LIEBERT VOLTAGE 460, PH3	103881D	7	FE 11GG-A00	2	
3D 406	EH CANOPY #10	LIEBERT DRY COOLER	85050740		DSO 174A	#RF-2-2	
3D 406	EH CANOPY #2	LIEBERT DRY COOLER	85050632		DSO 174A	#RF-1-1	1
3D 406	EH CANOPY #2	LIEBERT VOLTAGE 460, PH3	103881C	7	FE 11GG-A00	#1	
3D 409		LIEBERT	103881	7	FE116G	10	1
3D 410	EH CANOPY #2	LIEBERT VOLTAGE 460,PH3	103881G	13	FE192G-A00	9	
3D 410	EH CANOPY #2	LIEBERT DRY COOLER	85050772		DSO 260A	#9	1
3D 412	EH CANOPY #10	LIEBERT DRY COOLER	85050775		DSO 310A	#8	1
3D 412	EH CANOPY #10	DATAC VOLTAGE 460, PH3	103881J	17	FE240G-A00		
3D 412	EH CANOPY #9	DATAC VOLTAGE 460, PH3	1038814	17	FE204G-A00	9	
3D 412	EH CANOPY #9	LIEBERT DRY COOLER	85050778		DSO 310A	#6	
4C 205*		DATA AIR	91-1296-A	9	DAGA 1032		
4C 209*		DATA AIR					
4C 211*							
4C 213*							
* DRY COOLER	PLATFORM #7	BOHN DRY COOLER	TRC 1819		DFS0403G		
4C 405	AIR SHAFT NEAR EH CANOPY #8	LIEBERT DRY COOLER	85090093		DDO 260A	#14	1
4C 405	AIR SHAFT NEAR EH CANOPY #8	DATAC VOLTAGE 460, PH3	104U72C	13	FE 192GA00	AC-13	
4C 405	AIR SHAFT NEAR EH CANOPY #8	LIEBERT DRY COOLER	85090120		DDO 260A	DC#13	1

16-Jun-93

RECURRING WORKLOAD

RECURRING WORKLOAD

MYER CENTER AIR CONDITIONING
FOR
COMPUTER ROOM FACILITIES

C4	SEE COMPUTER ROOM FACILITY LIST
OA334	SEE COMPUTER ROOM FACILITY LIST
OA336	SEE COMPUTER ROOM FACILITY LIST
MR 33	SEE COMPUTER ROOM FACILITY LIST
2C 405	SEE COMPUTER ROOM FACILITY LIST
2C 407	SEE COMPUTER ROOM FACILITY LIST
3C 141	SEE COMPUTER ROOM FACILITY LIST
3C 141	SEE COMPUTER ROOM FACILITY LIST
3D 402	SEE COMPUTER ROOM FACILITY LIST
3D 402	SEE COMPUTER ROOM FACILITY LIST
3D 404	SEE COMPUTER ROOM FACILITY LIST
3D 406	SEE COMPUTER ROOM FACILITY LIST
3D 406	SEE COMPUTER ROOM FACILITY LIST
3D 409	SEE COMPUTER ROOM FACILITY LIST
3D 410	SEE COMPUTER ROOM FACILITY LIST
3D 412	SEE COMPUTER ROOM FACILITY LIST
3D 412	SEE COMPUTER ROOM FACILITY LIST
3D 412	SEE COMPUTER ROOM FACILITY LIST
4C 205	SEE COMPUTER ROOM FACILITY LIST
4C 209	SEE COMPUTER ROOM FACILITY LIST
4C 211	SEE COMPUTER ROOM FACILITY LIST
4C 213	SEE COMPUTER ROOM FACILITY LIST
4C 405	SEE COMPUTER ROOM FACILITY LIST
4C 405	SEE COMPUTER ROOM FACILITY LIST
4C 405	SEE COMPUTER ROOM FACILITY LIST
4C 405	SEE COMPUTER ROOM FACILITY LIST
4C 417	SEE COMPUTER ROOM FACILITY LIST
4C 417	SEE COMPUTER ROOM FACILITY LIST
4C 417	SEE COMPUTER ROOM FACILITY LIST
4D 204	SEE COMPUTER ROOM FACILITY LIST
4D 208	SEE COMPUTER ROOM FACILITY LIST
4D 210	SEE COMPUTER ROOM FACILITY LIST
4D 214	SEE COMPUTER ROOM FACILITY LIST
4D 308	SEE COMPUTER ROOM FACILITY LIST
4D 324	SEE COMPUTER ROOM FACILITY LIST
4D 326	SEE COMPUTER ROOM FACILITY LIST
4D 328	SEE COMPUTER ROOM FACILITY LIST

PWS 2: AIR CONDITIONING

16-Jun-93 RECURRING WORKLOAD

MR 15	AC #11 COMPRESSOR & AIR HANDLING UNIT				30	0 → ITO 91-0268
MR 21,TOWER 1	TRANE (WATER COOLED)	RWUD020GCCOHNT1RQFBUG		U90G02687	20	
MR 22,TOWER 2	CARRIER (WATER COOLED)	50BJ028-500		B695710	25	0
	(RM 2D 134 TO 126 & 2C 135 TO 125)					
MR 22,TOWER 3	CARRIER (WATER COOLED)	30 HK 040 530		P630537	20	0,L
MR 22	AIR HANDLER (CHILLER)	AV-19		8714748		
	(RM 2D 140 TO 208 & 2C 141 TO 205)					
MR 23	TRANE	CCUA0156MB51CP5C5B361C		L78M16845	15	0,L
	(FAN COIL IN RMS 2C 319-317-315; 2D 320-318-316-314 & 321)					
MR 23	AC #13 COMPRESSOR & AIR HANDLING UNIT			2291J02584	20	0
		07EA022-520				
MR 23	AC #14 COMPRESSOR & AIR HANDLING UNIT				40	0 → ITO 91-0268
MR 34	CLIMATROL	LLD-7532-13-U	67A72-H-54		75	
MR 34	TRANE CLIMATE	S2B0000 14 A/H	HA			
MR 34	CENTURI MASTER	XE137KRF3-4				
MR 41	AC #7 COMPRESSOR & AIR HANDLING UNIT				40	0 → ITO-91-0268
MR 43	TRANE	TTA120B400AB		F16196175	10	
MR 43	AIR HANDLER UNIT TO TRANE UNIT - (CONDESNER NEAR PLATFORM #7; AIR HANDLER IN MR #43)					

TOTAL NUMBER OF AIR CONDITIONING UNITS (MYER CENTER): 27

TOTAL AIR CONDITIONING TONNAGE (MYER CENTER): ERR

RECURRING WORKLOAD

TRANE CENTRAVAC UNITS, BLDG 2706
AND AIR HANDLERS, BLDG 2700 (MYER CENTER)

LOCATION	MAKE	MODEL NUMBER	SERIAL NUMBER	UNITS
OA LEVEL:				
OA 418	5 AIR HANDLERS			
FIRST FLOOR:				
BREEZEWAY (OVER ENTRY DOOR) - 2 UNITS				CUH-1
1E 204	MINI AUDITORIUM			AHU-2
1E 204	MINI AUDITORIUM			RF-R-2
1E 322	TRANE CLIMATE (SUSPENDED)		K836809	AHU-3
	CENTURI MASTER	XE137K		RF-3
1E 405	TRANE CLIMATE			AHU-4
1E 405	CENTURI MASTER			RF-R-4
1E 504	2 AIR HANDLERS (OVER STAIRWELL #10)			
AIR HANDLERS:				
1E 302	CARRIER	39BA060E12	861730094	
1E 302	CARRIER	39BA060E12	861730096	
1E 306	CARRIER	39BA060E12	861730098	
1E 306	CARRIER	39BA060E12	861730097	
1E 401	CARRIER	39BA060E12	861730095	
SECOND FLOOR:				
MR-21-A	TRANE CLIMATE	S28000014	K83C8101	AHU-2-1
	CENTURI MASTER	XE137K		AHU-2-1
MR-22-A	TRANE CLIMATE	S28000014	K8328102	AHU-2-2
	CENTURI MASTER	XE137K		AHU-2-2
MR-23	TRANE CLIMATE			AHU-2-3
	CENTURI MASTER			RF-2-3
MR-24	TRANE CLIMATE	S2014B0	K83C86104	AHU-2-4
	CENTURI MASTER	XE137K		RF-RF-2-4
	TRANE CLIMATE	S2014C0	K83C86104	AHU-2-4-A
	CENTURI MASTER	XE137K		RF-R-2-4-A
MR-25	TRANE CLIMATE	S2025B0	K83C86106	AHU-2-5
	CENTURI MASTER	XE137K		RF-R-2-5
	TRANE CLIMATE	S2014B0		RF-R-2-5-A
	CENTURI MASTER	XE137K		AHU-2-5-A

Attachment 8.2

Hope Road/Charles Wood Electric Bills

13

MAY 94

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

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US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ACTUAL METER READING

THIS IS YOUR CURRENT BILL CALCULATION

BASE CHARGE	ON PEAK	$ 114,451.63
	OFF PEAK	82,203.84
ENERGY ADJ CHG @ $.002160- PER KWH		4,976.64CR
CURRENT PERIOD CHARGES		$ 191,678.83
05/03/94 TO 06/01/94		
FOR 29 DAYS		

PAYMENTS/CHARGES SINCE LAST BILL

PREVIOUS BALANCE	$ .00
BALANCE AT BILLING	$ .00
CURRENT PERIOD CHARGES	191,678.83
TRANSFER TO 635100000911	191,678.83CR
AMOUNT DUE	.00

METER NUMBER	METER READING CURRENT	METER READING PREVIOUS	MULTIPLIER	KILOWATT HOURS USED	REGISTERED KW / KVAR	BILLING KW / KVAR
50693195 G	714	604	9000	990,000 ONPK	4,957.2	4,957.2
50693195 G	977	831	9000	1,314,000 OFFPK	4,147.2	0.0
62018313 G	1060	876	9000	1,656,000 RVAH	2,991.6	2,991.6

2,304,000

PLEASE CONSERVE-HIGHER SUMMER RATES ARE IN EFFECT.

1-800-662-3115 1-908-531-3277 06/13/94 NO PAYMENT DUE

2

JUN94

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

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HOPE RD
EATONTOHN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ACTUAL METER READING

THIS IS YOUR CURRENT BILL CALCULATION

BASE CHARGE	ON PEAK	$ 165,355.64
	OFF PEAK	115,423.20
OUTDOOR LIGHT		12.37
ENERGY ADJ CHG @ $.002160- PER KWH		6,940.23CR
CURRENT PERIOD CHARGES		$ 273,850.98

06/01/94 TO 06/30/94
FOR 29 DAYS

PAYMENTS/CHARGES SINCE LAST BILL

PREVIOUS BALANCE	$ .00
BALANCE AT BILLING	$ .00
CURRENT PERIOD CHARGES	273,850.98
TRANSFER TO 635100000911	273,850.98CR
AMOUNT DUE	.00

METER NUMBER	METER READING CURRENT	METER READING PREVIOUS	MULTIPLIER	KILOWATT HOURS USED	REGISTERED KW / KVAR	BILLING KW / KVAR
50693195 G	866	714	9000	1,368,000 ONPK	6,976.8	6,976.8
50693195 G	1182	977	9000	1,845,000 OFFPK	5,925.6	0.0
62018313 G	1283	1060	9000	2,007,000 RVAH	3,880.8	3,880.8
OUTDOOR LIGHT				65		

3,213.60

PLEASE CONSERVE-HIGHER SUMMER RATES ARE IN EFFECT.

1-800-662-3115 1-908-531-3277 07/18/94 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

DATE 12 JULY 1994

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 06-01 TO 06-30 RATE 510

MEASURED DEMAND		DEMAND CHARGE			
	6976.80 KW		KW @	$	
ON PEAK	6976.80 KW	6976.80	KW @ 9.22	64326.10	
			KW @		
			KW @		$ 64326.10
OFF PEAK	5925.60 KW	RKVAH USE 2007000		PF .87	
		KVAR 3880.8 @ .43			1668.74

KWH METER			ENERGY CHARGE			
	ON PEAK	OFF PEAK				
PRESENT	866	1182	0	KWH @	$ 235.52	
PREVIOUS	714	977	1368000	KWH @ .072460	99125.28	ON PEAK
DIFFERENCE	152	205	1845000	KWH @ .062560	115423.20	OFF PEAK
MULTIPLIER	9000	9000		KWH @		
USE	1368000	1845000		KWH @		
				KWH @		
				KWH @		
				KWH @		
				KWH @		214784.00

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 6940.08-

SUB TOTAL $

SUB TOTAL $ 273838.76

OUTDOOR AREA LIGHTING 12.22

TOTAL AMOUNT DUE $ 273850.98

1-4 13/ JUL94

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

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US ARMY FORT MONMOUTH 501 GRAND AVENUE
ASBURY PARK, NJ 07712
HOPE RD
EATONTOWN NJ 07724

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ACTUAL METER READING

THIS IS YOUR CURRENT BILL CALCULATION

BASE CHARGE	ON PEAK	$	164,700.06
	OFF PEAK		150,331.68
OUTDOOR LIGHT			13.75
ENERGY ADJ CHG @ $.002160- PER KWH			8,709.29CR
CURRENT PERIOD CHARGES		$	326,336.20

06/30/94 TO 08/02/94
FOR 33 DAYS

PAYMENTS/CHARGES SINCE LAST BILL

PREVIOUS BALANCE	$	.00
BALANCE AT BILLING	$	.00
CURRENT PERIOD CHARGES		326,336.20
TRANSFER TO 635100000911		326,336.20CR
AMOUNT DUE		.00

METER NUMBER	METER READING CURRENT	PREVIOUS	MULTIPLIER	KILOWATT HOURS USED	REGISTERED KW / KVAR	BILLING KW / KVAR
50693195 G	1047	866	9000	1,629,000 ONPK	7,020.0	7,020.0
50693195 G	1449	1182	9000	2,403,000 OFFPK	5,929.2	0.0
62018313 G	1564	1283	9000	2,529,000 RVAH	3,960.0	3,960.0
OUTDOOR LIGHT				75		

4,032,000

PLEASE CONSERVE-HIGHER SUMMER RATES ARE IN EFFECT.

****

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NORTHERN REGIONAL MARKETING OFFICE 201-455-8942
SOUTHERN REGIONAL MARKETING OFFICE 908-502-4657

****

1-800-662-3115 1-908-531-3277 08/18/94 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

13

DATE AUGUST 1994

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 06-30 TO 08-02 RATE 510

MEASURED DEMAND		DEMAND CHARGE			
	7020.00 KW		KW @	$	
ON PEAK	7020.00 KW	7020.00	KW @ 9.22	64724.40	
			KW @		
			KW @		$ 64724.40
OFF PEAK	5929.20 KW	RKVAH USE 2529000		PF .87	
		KVAR 3960.0 @ .43			1702.80

KWH METER	ON PEAK	OFF PEAK	ENERGY CHARGE			
PRESENT	1047	1449	0	KWH @	$ 235.52	
PREVIOUS	866	1182	1629000	KWH @ .072460	118037.34	ON PEAK
DIFFERENCE	181	267	2403000	KWH @ .062560	150331.68	OFF PEAK
MULTIPLIER	9000	9000		KWH @		
USE	1629000	2403000		KWH @		
				KWH @		
				KWH @		
				KWH @		
				KWH @		268604.54

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 8709.12-

SUB TOTAL $

SUB TOTAL $ 326322.62

OUTDOOR AREA LIGHTING 13.58

TOTAL AMOUNT DUE $ 326336.20

AUG 94

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

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HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ACTUAL METER READING

THIS IS YOUR CURRENT BILL CALCULATION

BASE CHARGE	ON PEAK	$ 158,741.17
	OFF PEAK	115,986.24
OUTDOOR LIGHT		13.75
ENERGY ADJ CHG @ $.002160- PER KWH		6,823.61CR
CURRENT PERIOD CHARGES		$ 267,917.55

08/02/94 TO 08/31/94
FOR 29 DAYS

PAYMENTS/CHARGES SINCE LAST BILL

PREVIOUS BALANCE	$ .00
BALANCE AT BILLING	$ .00
CURRENT PERIOD CHARGES	267,917.55
TRANSFER TO 6351000000911	267,917.55CR
AMOUNT DUE	.00

METER NUMBER	METER READING CURRENT	METER READING PREVIOUS	MULTIPLIER	KILOWATT HOURS USED	REGISTERED KW / KVAR	BILLING KW / KVAR
50693195 G	1192	1047	9000	1,305,000 ONPK	6,757.2	6,757.2
50693195 G	1655	1449	9000	1,854,000 OFFPK	5,598.0	0.0
62018313 G	1787	1564	9000	2,007,000 RVAH	3,823.2	3,823.2
OUTDOOR LIGHT				75		

3159,000

PLEASE CONSERVE-HIGHER SUMMER RATES ARE IN EFFECT.

****
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SOUTHERN REGIONAL MARKETING OFFICE 908-502-4657
****

1-800-662-3115 1-908-531-3277 09/12/94 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

DATE AUGUST 1994

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 08-02 TO 08-31 RATE 510

MEASURED DEMAND		DEMAND CHARGE			
	6757.20 KW		KW @	$	
ON PEAK	6757.20 KW	6757.20	KW @ 9.22	62301.38	
			KW @		
			KW @		$ 62301.38
OFF PEAK	5598.00 KW	RKVAH USE 2007000		PF .87	
		KVAR 3823.2 @ .43			1643.97

KWH METER		ENERGY CHARGE			
ON PEAK	OFF PEAK				
PRESENT 1192	1655	0	KWH @	$ 235.52	
PREVIOUS 1047	1449	1305000	KWH @ .072460	94560.30	ON PEAK
DIFFERENCE 145	206	1854000	KWH @ .062560	115986.24	OFF PEAK
MULTIPLIER 9000	9000		KWH @		
USE 1305000	1854000		KWH @		
			KWH @		
			KWH @		
			KWH @		
			KWH @		210782.06

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 6823.44-

SUB TOTAL $

SUB TOTAL $ 267903.97

OUTDOOR AREA LIGHTING 13.58

TOTAL AMOUNT DUE $ 267917.55

SEP94

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
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US ARMY FORT MONMOUTH 501 GRAND AVENUE
ASBURY PARK, NJ 07712
HOPE RD
EATONTOWN NJ 07724

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ACTUAL METER READING

THIS IS YOUR CURRENT BILL CALCULATION

BASE CHARGE	ON PEAK	$ 142,754.33
	OFF PEAK	103,599.36
OUTDOOR LIGHT		13.75
ENERGY ADJ CHG @ $.002160- PER KWH		6,240.41CR
CURRENT PERIOD CHARGES		$ 240,127.03

08/31/94 TO 09/30/94
FOR 30 DAYS

PAYMENTS/CHARGES SINCE LAST BILL

PREVIOUS BALANCE	$ .00
BALANCE AT BILLING	$ .00
CURRENT PERIOD CHARGES	240,127.03
TRANSFER TO 635100000911	240,127.03CR
AMOUNT DUE	.00

METER NUMBER	METER READING CURRENT	METER READING PREVIOUS	MULTIPLIER	KILOWATT HOURS USED	REGISTERED KW / KVAR	BILLING KW / KVAR
50693195 G	1329	1192	9000	1,233,000 ONPK	5,623.2	5,623.2
50693195 G	1839	1655	9000	1,656,000 OFFPK	4,856.4	0.0
62018313 G	1992	1787	9000	1,845,000 RVAH	3,092.4	3,092.4
OUTDOOR LIGHT				73		

2889.002

****
REMEMBER, DAYLIGHT SAVINGS TIME ENDS OCTOBER 30TH. THIS MEANS MORE HOURS OF DARKNESS. PROTECT AND SECURE YOUR PROPERTY OR INCREASE THE VISIBILITY OF YOUR BUSINESS WITH AN ENERGY-EFFICIENT OUTDOOR SECURITY LIGHTING SYSTEM. WE OFFER AFFORDABLE MONTHLY RATES, FREE MAINTENANCE, AND A LEASED SYSTEM, WHICH MEANS THERE IS NO UP-FRONT INVESTMENT. CALL TODAY FOR YOUR FREE OUTDOOR LIGHTING SURVEY:
NORTHERN REGIONAL MARKETING OFFICE 201-455-8942
SOUTHERN REGIONAL MARKETING OFFICE 908-502-4457
****
>>FOR ALL OTHER INQUIRIES OR TO REPORT AN OUTAGE
PLEASE USE PHONE NUMBERS LISTED BELOW <<

1-800-662-3115 1-908-531-3277 10/14/94 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

DATE SEPTEMBER 1994

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 08-31 TO 09-30 RATE 510

MEASURED DEMAND		DEMAND CHARGE			
	5623.20 KW		KW @	$	
ON PEAK	5623.20 KW	5623.20	KW @ 9.22	51845.90	
			KW @		
			KW @		$ 51845.90
OFF PEAK	4856.40 KW	RKVAH USE 1845000		PF .88	
		KVAR 3092.4 @ .43			1329.73

KWH METER

	ON PEAK	OFF PEAK					
PRESENT	1329	1839					
PREVIOUS	1192	1655	1233000	KWH @	.072460	89343.18	ON PEAK
DIFFERENCE	137	184	1656000	KWH @	.062560	103599.36	OFF PEAK
MULTIPLIER	9000	9000		KWH @			
USE	1233000	1656000		KWH @			
				KWH @			
				KWH @			
				KWH @			
				KWH @			193178.06

ENERGY CHARGE

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 6240.24-

SUB TOTAL $

SUB TOTAL $ 240113.45

OUTDOOR AREA LIGHTING 13.58

TOTAL AMOUNT DUE $ 240127.03

1 2 OCT 94

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

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HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ACTUAL METER READING

THIS IS YOUR CURRENT BILL CALCULATION

BASE CHARGE	ON PEAK	$ 109,544.08
	OFF PEAK	86,708.16
OUTDOOR LIGHT		13.75
ENERGY ADJ CHG @ $.002160- PER KWH		5,112.89CR
CURRENT PERIOD CHARGES		$ 191,153.10

09/30/94 TO 10/29/94
FOR 29 DAYS

PAYMENTS/CHARGES SINCE LAST BILL

PREVIOUS BALANCE	$ .00
BALANCE AT BILLING	$ .00
CURRENT PERIOD CHARGES	191,153.10
TRANSFER TO 6351000000911	191,153.10CR
AMOUNT DUE	.00

METER NUMBER	METER READING CURRENT	METER READING PREVIOUS	MULTIPLIER	KILOWATT HOURS USED		REGISTERED KH / KVAR	BILLING KH / KVAR
50693195 G	1438	1329	9000	981,000	ONPK	4,482.0	4,482.0
50693195 G	1993	1839	9000	1,386,000	OFFPK	4,413.6	0.0
62018313 G	1970	1808	9000	1,458,000	RVAH	2,278.8	2,278.8
OUTDOOR LIGHT				75			

2,367,000

****
NOW THAT DAYLIGHT SAVING TIME HAS ENDED, THERE ARE MORE HOURS OF DARKNESS. PROTECT AND SECURE YOUR PROPERTY OR INCREASE THE VISIBILITY OF YOUR BUSINESS WITH AN ENERGY-EFFICIENT OUTDOOR SECURITY LIGHTING SYSTEM. WE OFFER AFFORDABLE MONTHLY RATES, FREE MAINTENANCE, AND A LEASED SYSTEM, WHICH MEANS THERE IS NO UP-FRONT INVESTMENT. CALL TODAY FOR YOUR FREE OUTDOOR LIGHTING SURVEY:
NORTHERN REGIONAL MARKETING OFFICE 201-455-8942
SOUTHERN REGIONAL MARKETING OFFICE 908-502-4657
****
>>FOR ALL OTHER INQUIRIES OR TO REPORT AN OUTAGE
PLEASE USE PHONE NUMBERS LISTED BELOW <<

1-800-662-3115 1-908-531-3277 11/14/94 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

DATE OCTOBER 1994

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 09-30 TO 10-29 RATE 510

MEASURED DEMAND		DEMAND CHARGE				
	4482.00 KW		KW @		$	
ON PEAK	4482.00 KW	4482.00	KW @	8.31	37245.42	
			KW @			
			KW @			$ 37245.42
OFF PEAK	4413.60 KW	RKVAH USE 1458000		PF .89		
		KVAR 2278.8 @ .43				979.88

KWH METER	ON PEAK	OFF PEAK	ENERGY CHARGE				
PRESENT	1438	1993	0	KWH @		$ 235.52	
PREVIOUS	1329	1839	981000	KWH @	.072460	71083.26	ON PEAK
DIFFERENCE	109	154	1386000	KWH @	.062560	86708.16	OFF PEAK
MULTIPLIER	9000	9000		KWH @			
USE	981000	1386000		KWH @			
				KWH @			
				KWH @			
				KWH @			
				KWH @			158026.94

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 5112.72-

SUB TOTAL $

SUB TOTAL $ 191139.52

OUTDOOR AREA LIGHTING 13.58

TOTAL AMOUNT DUE $ 191153.10

1) 2) NOV94

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H 21 805133050015 0000000000000000000006

ESTIMATED BILL

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ESTIMATED METER READING

THIS IS YOUR CURRENT BILL CALCULATION

BASE CHARGE	ON PEAK	$ 122,723.03
	OFF PEAK	97,965.96
OUTDOOR LIGHT		13.75
ENERGY ADJ CHG @ $.002160- PER KWH		5,793.29CR
CURRENT PERIOD CHARGES		$ 214,912.45

10/29/94 TO 12/01/94
FOR 33 DAYS

PAYMENTS/CHARGES SINCE LAST BILL

PREVIOUS BALANCE	$ .00
BALANCE AT BILLING	$ .00
CURRENT PERIOD CHARGES	214,912.45
TRANSFER TO 535100000711	214,912.45CR
AMOUNT DUE	.00

METER NUMBER	METER READING CURRENT	METER READING PREVIOUS	MULTIPLIER	KILOWATT HOURS USED		REGISTERED KW / KVAR	BILLING KW / KVAR
50693195 G				108,000			
50693195 G	1550	1438	9000	1,116,000	ONPK	4,864.5	4,864.5
50693195 G				180,000			
50693195 G	2147	1993	9000	1,566,000	OFFPK	4,366.8	0.0
62018313 G				189,000			
62018313 G	2160	1970	9000	1,899,000	RVAH	2,786.4	2,786.4
OUTDOOR LIGHT				73			

1965,000

ALL OF US AT JERSEY CENTRAL POWER AND LIGHT COMPANY WISH YOU A HAPPY HOLIDAY SEASON

1-800-662-3115 1-908-531-3277 12/19/94 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD
HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

2

DATE DECEMBER 1994

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 10-29 TO 12-01 RATE 510

MEASURED DEMAND		DEMAND CHARGE			
	4864.50 KW		KW @	$	
ON PEAK	4864.50 KW	4864.50	KW @ 8.31	40424.00	
			KW @		
			KW @		$ 40424.00
OFF PEAK	4366.80 KW	RKVAH USE 1899000		PF .87	
		KVAR 2786.4 @ .43			1198.15

KWH METER	ON PEAK	OFF PEAK	ENERGY CHARGE			
PRESENT	1550	2147	0	KWH @	$ 235.52	
PREVIOUS	1438	1993	1116000	KWH @ .072460	80865.36	ON PEAK
DIFFERENCE	112	154	1566000	KWH @ .062560	97968.96	OFF PEAK
MULTIPLIER	9000	9000		KWH @		
USE	1116000	1566000				
			63-51-00-000 911			
				KWH @		179069.84

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 5793.12-

SUB TOTAL $

SUB TOTAL $ 214898.87

OUTDOOR AREA LIGHTING 13.58

TOTAL AMOUNT DUE $ 214912.45

DEC 94.

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H 21 805133050015 0000000000000000000006

ESTIMATED BILL

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ESTIMATED METER READING

THIS IS YOUR CURRENT BILL CALCULATION

BASE CHARGE	ON PEAK	$ 112,951.30
	OFF PEAK	85,019.04
OUTDOOR LIGHT		13.75
ENERGY ADJ CHG @ $.002160- PER KWH		5,087.62CR
CURRENT PERIOD CHARGES		$ 192,896.47

12/01/94 TO 12/30/94
FOR 29 DAYS

PAYMENTS/CHARGES SINCE LAST BILL

PREVIOUS BALANCE	$ .00
BALANCE AT BILLING	$ .00
CURRENT PERIOD CHARGES	192,896.47
TRANSFER TO 635100000911	192,896.47CR
AMOUNT DUE	.00

METER NUMBER	METER READING CURRENT	METER READING PREVIOUS	MULTIPLIER	KILOWATT HOURS USED		REGISTERED KW / KVAR	BILLING KW / KVAR
50693195 G				96,300			
50693195 G	1650	1550	9000	996,300	ONPK	4,737.6	4,737.6
50693195 G				171,000			
50693195 G	2279	2147	9000	1,359,000	OFFPK	4,289.4	0.0
62018313 G				167,400			
62018313 G	2318	2160	9000	1,589,400	RVAH	2,684.7	2,684.7
OUTDOOR LIGHT				75			

(1794.6

****
*WE KNOW THE WAY WE USE ELECTRICITY HAS CHANGED; *
*THIS CHANGE IN SOPHISTICATION BRINGS WITH IT *
*SUSCEPTIBILITY TO SPIKES, SAGS AND NOISE. *
*ALTHOUGH THE EXTERNAL CAUSES ARE MORE DRAMATIC *
*AND WELL KNOWN, RESEARCH HAS DETERMINED THAT *
*MOST DISTURBANCES OCCUR WITHIN FACILITIES. *
*THEREFORE, JERSEY CENTRAL POWER AND LIGHT IS *
*PLEASED TO ANNOUNCE POWERTEAM. WE ARE IN THE *
*BUSINESS OF EXPERTLY DIAGNOSING AND SOLVING *
*POWER QUALITY PROBLEMS WITHIN YOUR FACILITIES. *
* CALL 1-800-882-9229 FOR MORE INFORMATION *
****
>>FOR ALL OTHER INQUIRIES OR TO REPORT AN OUTAGE
PLEASE USE PHONE NUMBERS LISTED BELOW <<

1-800-662-3115 1-908-531-3277 01/16/95 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

2

DATE DECEMBER 1994

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 12-01 TO 12-30 RATE 510

MEASURED DEMAND		DEMAND CHARGE			
	4737.60 KW		KW @	$	
ON PEAK	4737.60 KW	4737.60	KW @ 8.31	39369.46	
			KW @		
			KW @		$ 39369.46
OFF PEAK	4289.40 KW	RKVAH USE 1589400		PF .87	
		KVAR 2684.72 @ .43			1154.42

KWH METER			ENERGY CHARGE			
	ON PEAK	OFF PEAK				
PRESENT	1650	2279	0	KWH @	$ 235.52	
PREVIOUS	1550	2147	996300	KWH @ .072460	72191.90	ON PEAK
DIFFERENCE	100	132	1359000	KWH @ .062560	85019.04	OFF PEAK
MULTIPLIER	9000	9000		KWH @		
USE	996300	1359000		KWH @		
				KWH @		
				KWH @		
				KWH @		
				KWH @		157446.46

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 5087.45-

SUB TOTAL $

SUB TOTAL $ 192882.89

OUTDOOR AREA LIGHTING 13.58

TOTAL AMOUNT DUE $ 192896.47

(2) JAN'95

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H 21 805133050015 0000000000000000000006

ESTIMATED BILL

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

ESTIMATED METER READING

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

THIS IS YOUR CURRENT BILL CALCULATION

BASE CHARGE	ON PEAK	$ 113,501.59
	OFF PEAK	94,977.14
OUTDOOR LIGHT		13.60
ENERGY ADJ CHG @ $.002160- PER KWH		5,462.81CR
CURRENT PERIOD CHARGES		$ 203,029.52

12/30/94 TO 01/30/95
FOR 31 DAYS

PAYMENTS/CHARGES SINCE LAST BILL

PREVIOUS BALANCE	$	.00
BALANCE AT BILLING	$	.00
CURRENT PERIOD CHARGES		203,029.52
TRANSFER TO 635100000911		203,029.52CR
AMOUNT DUE		.00

METER NUMBER	METER READING CURRENT	METER READING PREVIOUS	MULTIPLIER	KILOWATT HOURS USED		REGISTERED KW / KVAR	BILLING KW / KVAR
50693195 G				126,000			
50693195 G	1748	1650	9000	1,008,000	ONPK	4,725.9	4,725.9
50693195 G				189,000			
50693195 G	2427	2279	9000	1,521,000	OFFPK	4,247.1	0.0
62018313 G				198,000			
62018313 G	2486	2318	9000	1,710,000	RVAH	2,491.2	2,491.2
OUTDOOR LIGHT				75			

7 2,844,000

1-800-662-3115 1-908-531-3277 02/13/95 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

2

DATE JANUARY 1995

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 12-30 TO 01-30 RATE 510

MEASURED DEMAND		DEMAND CHARGE			
	4725.90 KW		KW @	$	
ON PEAK	4725.90 KW	4725.90	KW @ 8.31	39272.23	
			KW @		
			KW @		$ 39272.23
OFF PEAK	4247.10 KW	RKVAH USE 1710000		PF .88	
		KVAR 2491.2 @ .43			1071.21

KWH METER	ON PEAK	OFF PEAK	ENERGY CHARGE			
PRESENT	1748	2427	0	KWH @	$ 235.52	
PREVIOUS	1650	2279	1008000	KWH @ .072460	73039.68	ON PEAK
DIFFERENCE	98	148	1521000	KWH @ .062560	95153.76	OFF PEAK
MULTIPLIER	9000	9000		KWH @		
USE	1008000	1521000		KWH @		
				KWH @		
				KWH @		
				KWH @		
				KWH @		168428.96

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 5462.64-

SUB TOTAL $

SUB TOTAL $ 203309.76

RATE CHANGE ADJUSTMENT 293.67-

OUTDOOR AREA LIGHTING 13.43

TOTAL AMOUNT DUE $ 203029.52

FEB95

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H 21 805133050015 0000000000000000000006

ESTIMATED BILL

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ESTIMATED METER READING

THIS IS YOUR CURRENT BILL CALCULATION

BASE CHARGE	ON PEAK	$ 115,812.69
	OFF PEAK	88,789.68
OUTDOOR LIGHT		13.60
ENERGY ADJ CHG @ $.002160- PER KWH		5,326.72CR
CURRENT PERIOD CHARGES		$ 199,289.25

01/30/95 TO 03/01/95
FOR 30 DAYS

PAYMENTS/CHARGES SINCE LAST BILL

PREVIOUS BALANCE	$ .00
BALANCE AT BILLING	$ .00
CURRENT PERIOD CHARGES	199,289.25
TRANSFER TO 633106003911	199,289.25CR
AMOUNT DUE	.00

METER NUMBER	METER READING CURRENT	METER READING PREVIOUS	MULTIPLIER	KILOWATT HOURS USED		REGISTERED KW / KVAR	BILLING KW / KVAR
50693195 G				117,000			
50693195 G	1851	1748	9000	1,044,000	ONPK	4,691.7	4,691.7
50693195 G				189,000			
50693195 G	2564	2427	9000	1,422,000	OFFPK	4,295.7	0.0
62018313 G				189,000			
62018313 G	2642	2486	9000	1,593,000	RVAH	2,479.5	2,479.5
OUTDOOR LIGHT				68			

2,772,000

****
IMPROVE THE VISIBILITY, SECURITY, AND AESTHETICS OF YOUR PROPERTY WITH AN ENERGY-EFFICIENT OUTDOOR LIGHTING SYSTEM. INSTALLING THIS TYPE OF SYSTEM IS SIMPLE AND COST-EFFECTIVE. WE OFFER LOW MONTHLY RATES, FREE MAINTENANCE AND NO UP-FRONT INVESTMENT. WE EVEN OFFER GUARANTEED 10-DAY TURNAROUND TIME FOR OUR STANDARD INSTALLATION! CALL TODAY FOR YOUR FREE OUTDOOR LIGHTING SURVEY:
NORTHERN REGIONAL SALES OFFICE 201-455-8942
SOUTHERN REGIONAL SALES OFFICE 908-502-4657
****
>>FOR ALL OTHER INQUIRIES OR TO REPORT AN OUTAGE PLEASE USE PHONE NUMBERS LISTED BELOW <<

1-800-662-3115 1-908-531-3277 03/13/95 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

FORT MONMOUTH
[illegible] WOOD
HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

2

DATE FEBRUARY 1995

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 01-30 TO 03-01 RATE 510

MEASURED DEMAND

DEMAND CHARGE

4691.70 KW		KW @	$	
ON PEAK 4691.70 KW	4691.70	KW @ 8.31	38988.03	
		KW @		
		KW @		$ 38988.03
OFF PEAK 4295.70 KW	RKVAH USE 1593000		PF .88	
	KVAR 2479.5 @ .43			1066.18

ENERGY CHARGE

KWH METER

	ON PEAK	OFF PEAK				
PRESENT	1851	2564	0	KWH @	$ 235.52	
PREVIOUS	1748	2427	1044000	KWH @ .072340	75522.96	ON PEAK
DIFFERENCE	103	137	1422000	KWH @ .062440	88789.68	OFF PEAK
MULTIPLIER	9000	9000		KWH @		
USE	1044000	1422000		KWH @		
				KWH @		
				KWH @		
				KWH @		
				KWH @		164548.16

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 5326.56-

SUB TOTAL $

SUB TOTAL $ 199275.81

OUTDOOR AREA LIGHTING 13.44

TOTAL AMOUNT DUE $ 199289.25

7 MAR 95

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H 21 805133050015 000000000000000000006

ESTIMATED BILL

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ESTIMATED METER READING

THIS IS YOUR CURRENT BILL CALCULATION

BASE CHARGE	ON PEAK	$ 112,853.16
	OFF PEAK	84,799.76
OUTDOOR LIGHT		13.60
ENERGY ADJ CHG @ $.002160- PER KWH		5,101.23CR
CURRENT PERIOD CHARGES		$ 192,565.29

03/01/95 TO 03/30/95
FOR 29 DAYS

PAYMENTS/CHARGES SINCE LAST BILL

PREVIOUS BALANCE	$ .00
BALANCE AT BILLING	$ .00
CURRENT PERIOD CHARGES	192,565.29
TRANSFER TO 635100000911	192,565.29CR
AMOUNT DUE	.00

METER NUMBER	METER READING CURRENT	METER READING PREVIOUS	MULTIPLIER	KILOWATT HOURS USED		REGISTERED KW / KVAR	BILLING KW / KVAR
50693195 G				94,500			
50693195 G	1952	1851	9000	1,003,500	ONPK	4,678.2	4,678.2
50693195 G				170,100			
50693195 G	2696	2564	9000	1,358,100	OFFPK	4,280.0	0.0
62018313 G				153,000			
62018313 G	2801	2642	9000	1,584,000	RVAH	2,671.2	2,671.2
OUTDOOR LIGHT				75			

2,779.20

****
IMPROVE THE VISIBILITY, SECURITY, AND AESTHETICS OF YOUR PROPERTY WITH AN ENERGY-EFFICIENT OUTDOOR LIGHTING SYSTEM. INSTALLING THIS TYPE OF SYSTEM IS SIMPLE AND COST-EFFECTIVE. WE OFFER LOW MONTHLY RATES, FREE MAINTENANCE AND NO UP-FRONT INVESTMENT. WE EVEN OFFER GUARANTEED 10-DAY TURNAROUND TIME FOR OUR STANDARD INSTALLATION! CALL TODAY FOR YOUR FREE OUTDOOR LIGHTING SURVEY:
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SOUTHERN REGIONAL SALES OFFICE 908-502-4657
****

>>FOR ALL OTHER INQUIRIES OR TO REPORT AN OUTAGE
PLEASE USE PHONE NUMBERS LISTED BELOW <<

1-800-662-3115 1-908-531-3277 04/17/95 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

DATE APRIL 1995

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 03-01 TO 03-30 RATE 510

MEASURED DEMAND		DEMAND CHARGE			
	4678.20 KW		KW @	$	
ON PEAK	4678.20 KW	4678.20	KW @ 8.31	38875.84	
			KW @		
			KW @		$ 38875.84
OFF PEAK	4280.00 KW	RKVAH USE 1584000		PF .87	
		KVAR	2671.2 @ .43		1148.61

KWH METER	ON PEAK	OFF PEAK				
PRESENT	1952	2696		KWH @	$ 235.52	
PREVIOUS	1851	2564	1003500	KWH @ .072340	72593.19	ON PEAK
DIFFERENCE	101	132	1358100	KWH @ .062440	84799.76	OFF PEAK
MULTIPLIER	9000	9000		KWH @		
=	1003500	1358100		KWH @		
				KWH @		
				KWH @		
				KWH @		
				KWH @		157628.47

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 5101.06-

SUB TOTAL $

SUB TOTAL $ 192551.86

OUTDOOR AREA LIGHTING 13.43

TOTAL AMOUNT DUE $ 192565.29

APR 95

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *
MAKE CHECK PAYABLE JCP&L

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

H 21 805133050015 00000000000000000006

ESTIMATED BILL

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5

GT - GENERAL SERVICE
TRANSMISSION VOLTAGE

ESTIMATED METER READING

THIS IS YOUR CURRENT BILL CALCULATION

BASE CHARGE	ON PEAK	$ 115,125.38
	OFF PEAK	92,723.40
OUTDOOR LIGHT		13.60
ENERGY ADJ CHG @ $.002160- PER KWH		5,435.59CR
CURRENT PERIOD CHARGES		$ 202,426.79

03/30/95 TO 05/01/95
FOR 32 DAYS

PAYMENTS/CHARGES SINCE LAST BILL

PREVIOUS BALANCE	$ .00
BALANCE AT BILLING	$ .00
CURRENT PERIOD CHARGES	202,426.79
TRANSFER TO 635100000911	202,426.79CR
AMOUNT DUE	.00

METER NUMBER	METER READING CURRENT	METER READING PREVIOUS	MULTIPLIER	KILOWATT HOURS USED		REGISTERED KW / KVAR	BILLING KW / KVAR
50693195 G				95,400			
50693195 G	2056	1952	9000	1,031,400	ONPK	4,700.7	4,700.7
50693195 G				162,000			
50693195 G	2843	2696	9000	1,485,000	OFFPK	4,106.7	0.0
62018313 G				157,500			
62018313 G	2980	2801	9000	1,768,500	RVAH	2,826.9	2,826.9
OUTDOOR LIGHT				73			

2,931,300

****
IMPROVE THE VISIBILITY, SECURITY, AND AESTHETICS OF YOUR PROPERTY WITH AN ENERGY-EFFICIENT OUTDOOR LIGHTING SYSTEM. INSTALLING THIS TYPE OF SYSTEM IS SIMPLE AND COST-EFFECTIVE. WE OFFER LOW MONTHLY RATES, FREE MAINTENANCE AND NO UP-FRONT INVESTMENT. WE EVEN OFFER GUARANTEED 10-DAY TURNAROUND TIME FOR OUR STANDARD INSTALLATION! CALL TODAY FOR YOUR FREE OUTDOOR LIGHTING SURVEY:
NORTHERN REGIONAL SALES OFFICE 201-455-8942
SOUTHERN REGIONAL SALES OFFICE 908-502-4657
****
>>FOR ALL OTHER INQUIRIES OR TO REPORT AN OUTAGE
PLEASE USE PHONE NUMBERS LISTED BELOW <<

1-800-662-3115 1-908-531-3277 05/15/95 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

DATE APRIL 1995

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE FROM 03-30 TO 05-01 RATE 510

MEASURED DEMAND		DEMAND CHARGE			
	4700.70 KW		KW @	$	
ON PEAK	4700.70 KW	4700.70	KW @ 8.31	39062.82	
			KW @		
			KW @		$ 39062.82
OFF PEAK	4106.70 KW	RKVAH USE 1768500		PF .86	
		KVAR 2826.9 @ .43			1215.56

KWH METER	ON PEAK	OFF PEAK	ENERGY CHARGE			
PRESENT	2056	2843	0	KWH @	$ 235.52	
PREVIOUS	1952	2696	1031400	KWH @ .072340	74611.48	ON PEAK
DIFFERENCE	104	147	1485000	KWH @ .062440	92723.40	OFF PEAK
MULTIPLIER	9000	9000		KWH @		
USE	1031400	1485000		KWH @		
				KWH @		
				KWH @		
				KWH @		
				KWH @		16 570.40

ENERGY ADJUSTMENT CHARGE .002160-PER KWH 5435.42-

SUB TOTAL $

SUB TOTAL $ 202413.36

OUTDOOR AREA LIGHTING 13.43

TOTAL AMOUNT DUE $ 202426.79

JUL 95

US ARMY FORT MONMOUTH
CAMP WOOD
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLD 173
FORT MONMOUTH NJ 07703

* NO PAYMENT DUE *
MAKE CHECK PAYABLE JCP&L

JERSEY CENTRAL P&L CO.
PO BOX 193
ALLENHURST NJ 07711-0193

JUN 95
MAY 95
MISSING

H 21 805133050015 00000000000000000006

ESTIMATED BILL

US ARMY FORT MONMOUTH
HOPE RD
EATONTOWN NJ 07724

501 GRAND AVENUE
ASBURY PARK, NJ 07712

80 51 33 0500 1 5 -

GT-CRS5 - GENERAL SERVICE
TRANSMISSION VOLTAGE

ESTIMATED METER READING

THIS IS YOUR CURRENT BILL CALCULATION

BASE CHARGE	ON PEAK	$ 172,781.09
	OFF PEAK	137,118.24
OUTDOOR LIGHT		13.60
ENERGY ADJ CHG @ $.001110- PER KWH		4,065.80CR
CURRENT PERIOD CHARGES		$ 305,847.13

06/29/95 TO 07/31/95
FOR 32 DAYS

PAYMENTS/CHARGES SINCE LAST BILL

PREVIOUS BALANCE	$ .00
BALANCE AT BILLING	$ .00
CURRENT PERIOD CHARGES	305,847.13
TRANSFER TO 635100000911	305,847.13CR
AMOUNT DUE	.00

METER NUMBER	METER READING CURRENT	METER READING PREVIOUS	MULTIPLIER	KILOWATT HOURS USED		REGISTERED KH / KVAR	BILLING KH / KVAR
50693195 G				189,000			
50693195 G	2421	2279	9000	1,467,000	ONPK	7,002.9	7,002.9
50693195 G				315,000			
50693195 G	3344	3135	9000	2,196,000	OFFPK	6,122.7	0.0
62018313 G				243,000			
62018313 G	3605	3350	9000	2,538,000	RVAH	4,316.4	4,316.4
OUTDOOR LIGHT				75			

PLEASE CONSERVE-HIGHER SUMMER RATES ARE IN EFFECT.

1-800-662-3115 1-908-531-3277 08/14/95 NO PAYMENT DUE

JERSEY CENTRAL POWER AND LIGHT COMPANY

US ARMY FORT MONMOUTH
CAMP WOOD

HOPE RD
EATONTOWN NJ
DIRECTOR OF PUBLIC WORK

DATE JULY 1995

DISTRICT ASBURY PARK

ACCOUNT NO. 805133-0500-1 CK 5

ELECTRIC SERVICE ⇨ 06-29 TO 07-31 RATE 560

MEASURED DEMAND		DEMAND CHARGE			
	7002.90 KW		KW @	$	
ON PEAK	7002.90 KW	7002.90	KW @ 9.22	64566.74	
			KW @		
			KW @		$ 64566.74
OFF PEAK	6122.70 KW	RKVAH USE 2538000		PF .85	
		KVAR	6316.4 @ .43		1856.05

KWH METER	ON PEAK	OFF PEAK	ENERGY CHARGE			
PRESENT	2421	3344	0	KWH @	$ 235.52	
PREVIOUS	2279	3135	1467000	KWH @ .072340	106122.78	ON PEAK
DIFFERENCE	142	209	2196000	KWH @ .062440	137118.24	OFF PEAK
MULTIPLIER	9000	9000		KWH @		
USE	1467000	2196000		KWH @		
				KWH @		
				KWH @		
				KWH @		
				KWH @		243476.54

ENERGY ADJUSTMENT CHARGE .001110-PER KWH 4065.93-

SUB TOTAL $

SUB TOTAL $ 305833.60

OUTDOOR AREA LIGHTING 13.73

Attachment 8.3

Incremental Rate Calculations for Winter and Summer Bills

Jersey Central Power & Light Electric Rate Analysis

Prepared by Entech Engineering, Inc.

Billing and Client Information

Client	Bldg. 2700 - Myer Center
Billing Year	1994
Billing Period	July
# of Billing Days	33
Enter "1" for Oct-May, "0" for Jun-Sep	0
Rate Schedule in Effect	Summer

Demand and Usage Information

Demand Measurements	
On-Peak Demand (kW)	7,020
Reactive Demand (kvar)	3,960
Usage Measurements	
On-Peak Period (kWh)	1,629,000
Off-Peak Period (kWh)	2,403,000

Special Adjustments

Energy Cost Adjustment per kWh	($0.00216)

Jersey Central Power & Light Electric Rate Analysis

Prepared by Entech Engineering, Inc.

Duplicated Electric Bill

Customer Charge	1	Bill	@	$235.52	Per Bill	$235.52
On-Peak Demand Charge	7020	kW	@	$9.22	Per kW	$64,724.40
Reactive Demand Charge	3960	kvar	@	$0.43	Per kvar	$1,702.80
On-Peak Usage Charge	1,629,000	kWh	@	$0.072460	Per kWh	$118,037.34
Off-Peak Usage Charge	2,403,000	kWh	@	$0.062560	Per kWh	$150,331.68
Energy Cost Adjustment	4,032,000.00	$/kWh	@	($0.002160)	Per kWh	($8,709.12)
Outdoor Lighting Charge	1	Bill	@	$13.58	Per Bill	$13.58
					Current Period Charges:	**$326,336.20**

Calculated Incremental

Incremental Cost per kW	$9.22
Incremental Cost per Reactive Demand kvar	$0.43000
Incremental Cost per On-Peak kWh	$0.07246
Incremental Cost per Off-Peak kWh	$0.06256

Calculated Billing Statistics Based on Incremental Costs

Demand Cost	$64,724.40	Energy Cost	$268,369.02
% Demand	19.8%	% Energy Cost	82.2%
		Power Factor Penalty:	$1,702.80

Current Electric Tariff (Rate GT)

	Summer	Winter
Customer Charge ($/Bill)	$235.52	$235.52
On-Peak Demand Charge ($/kW)*	$9.22	$8.31
Reactive Demand Charge ($/kvar)*	$0.43	$0.43
On-Peak Usage Charge ($/kWh)*	$0.07246	$0.07246
Off-Peak Usage Charge ($/kWh)*	$0.06256	$0.06256
Energy Cost Adjustment Charge ($/kWh)	($0.00216)	($0.00216)
Outdoor Lighting*	$13.58	$13.58

Jersey Central Power & Light Electric Rate Analysis
Prepared by Entech Engineering, Inc.

Electric Bill Calculation

Calculation Description	Actual Billing	Demand , kW Minus 1kW	Reactive Demand Minus 1 kvar	On-Peak Usage Minus 1 kWh	Off-Peak Usage Minus 1 kWh
On-Peak Demand (kW)*	7,020.0	7,019.0	7,020.0	7,020.0	7,020.0
Reactive Demand (kvar)*	3,960.0	3,960.0	3,959.0	3,960.0	3,960.0
On-Peak Usage (kWh)*	1,629,000	1,629,000	1,629,000	1,628,999	1,629,000
Off-Peak Usage (kWh)*	2,403,000	2,403,000	2,403,000	2,403,000	2,402,999
Total Usage (kWh)	4,032,000	4,032,000	4,032,000	4,031,999	4,031,999
Energy Cost Adj. ($/kWh)	($0.00216)	($0.00216)	($0.00216)	($0.00216)	($0.00216)
Cost Calculation					
Customer Charge per month	$235.52	$235.52	$235.52	$235.52	$235.52
On-Peak Demand Charge	$64,724.40	$64,715.18	$64,724.40	$64,724.40	$64,724.40
Reactive Demand Charge	$1,702.80	$1,702.80	$1,702.37	$1,702.80	$1,702.80
On-Peak kWh Charge	$118,037.34000	$118,037.34000	$118,037.34000	$118,037.26754	$118,037.34000
Off-Peak kWh Charge	$150,331.68000	$150,331.68000	$150,331.68	$150,331.68	$150,331.62
Subtotal:	$335,031.74	$335,022.52	$335,031.31	$335,031.67	$335,031.68
Energy Cost Adjustment	($8,709.12)	($8,709.12)	($8,709.12)	($8,709.12)	($8,709.12)
Outdoor Lighting*	$13.58	$13.58	$13.58	$13.58	$13.58
Total Current Bill:	**$326,336.20**	**$326,326.98**	**$326,335.77**	**$326,336.13**	**$326,336.14**
Incremental Costs:	n/a	**$9.22**	**$0.43**	**$0.07246**	**$0.06256**

Jersey Central Power & Light Electric Rate Analysis

Prepared by Entech Engineering, Inc.

Incremental Cost Check

Cost Calculations Using Incrementals					
On-Peak Demand Charge	7,020.0	kW	@	$9.22	$64,724.40
On-Peak Usage Charge	1,629,000	kWh	@	$0.07246	$118,037.34
Off-Peak Usage Charge	2,403,000	kWh	@	$0.06256	$150,331.68
Total Calculated Billing Using Incrementals:					**$333,093.42**
Actual Current Period Charges:					**$326,336.20**
Cost Variance (Actual Minus Incremenal):					**($6,757.22)**
Percent Variance (Var/Actual):					**-2.1%**

Jersey Central Power & Light Electric Rate Analysis

Prepared by Entech Engineering, Inc.

Billing and Client Information

Client	Bldg. 2700 - Myer Center
Billing Year	1995
Billing Period	April
# of Billing Days	32
Enter "1" for Oct-May, "0" for Jun-Sep	1
Rate Schedule in Effect	Winter

Demand and Usage Information

Demand Measurements	
On-Peak Demand (kW)	4,701
Reactive Demand (kvar)	2,827
Usage Measurements	
On-Peak Period (kWh)	1,031,400
Off-Peak Period (kWh)	1,485,000

Special Adjustments

Energy Cost Adjustment per kWh	($0.00216)

Jersey Central Power & Light Electric Rate Analysis

Prepared by Entech Engineering, Inc.

Duplicated Electric Bill

Customer Charge	1	Bill	@	$235.52	Per Bill	$235.52
On-Peak Demand Charge	4700.7	kW	@	$8.31	Per kW	$39,062.82
Reactive Demand Charge	2826.9	kvar	@	$0.43	Per kvar	$1,215.57
On-Peak Usage Charge	1,031,400	kWh	@	$0.072340	Per kWh	$74,611.48
Off-Peak Usage Charge	1,485,000	kWh	@	$0.062440	Per kWh	$92,723.40
Energy Cost Adjustment	2,516,400.00	$/kWh	@	($0.002160)	Per kWh	($5,435.42)
Outdoor Lighting Charge	1	Bill	@	$13.43	Per Bill	$13.43
					Current Period Charges:	**$202,426.79**

Calculated Incremental

Incremental Cost per kW	$8.31
Incremental Cost per Reactive Demand kvar	$0.43000
Incremental Cost per On-Peak kWh	$0.07234
Incremental Cost per Off-Peak kWh	$0.06244

Calculated Billing Statistics Based on Incremental Costs

Demand Cost	$39,062.82	Energy Cost	$167,334.88
% Demand	19.3%	% Energy Cost	82.7%
		Power Factor Penalty:	$1,215.57

Current Electric Tariff (Rate GT)

	Summer	Winter
Customer Charge ($/Bill)	$235.52	$235.52
On-Peak Demand Charge ($/kW)*	$9.22	$8.31
Reactive Demand Charge ($/kvar)*	$0.43	$0.43
On-Peak Usage Charge ($/kWh)*	$0.07234	$0.07234
Off-Peak Usage Charge ($/kWh)*	$0.06244	$0.06244
Energy Cost Adjustment Charge ($/kWh)	($0.00216)	($0.00216)
Outdoor Lighting*	$13.43	$13.43

Jersey Central Power & Light Electric Rate Analysis
Prepared by Entech Engineering, Inc.

Electric Bill Calculation

Calculation Description	Actual Billing	Demand , kW Minus 1kW	Reactive Demand Minus 1 kvar	On-Peak Usage Minus 1 kWh	Off-Peak Usage Minus 1 kWh
On-Peak Demand (kW)*	4,700.7	4,699.7	4,700.7	4,700.7	4,700.7
Reactive Demand (kvar)*	2,826.9	2,826.9	2,825.9	2,826.9	2,826.9
On-Peak Usage (kWh)*	1,031,400	1,031,400	1,031,400	1,031,399	1,031,400
Off-Peak Usage (kWh)*	1,485,000	1,485,000	1,485,000	1,485,000	1,484,999
Total Usage (kWh)	2,516,400	2,516,400	2,516,400	2,516,399	2,516,399
Energy Cost Adj. ($/kWh)	($0.00216)	($0.00216)	($0.00216)	($0.00216)	($0.00216)
Cost Calculation					
Customer Charge per month	$235.52	$235.52	$235.52	$235.52	$235.52
On-Peak Demand Charge	$39,062.82	$39,054.51	$39,062.82	$39,062.82	$39,062.82
Reactive Demand Charge	$1,215.56	$1,215.56	$1,215.13	$1,215.56	$1,215.56
On-Peak kWh Charge	$74,611.47600	$74,611.47600	$74,611.47600	$74,611.40366	$74,611.47600
Off-Peak kWh Charge	$92,723.40000	$92,723.40000	$92,723.40	$92,723.40	$92,723.34
Subtotal:	$207,848.78	$207,840.47	$207,848.35	$207,848.70	$207,848.71
Energy Cost Adjustment	($5,435.42)	($5,435.42)	($5,435.42)	($5,435.42)	($5,435.42)
Outdoor Lighting*	$13.43	$13.43	$13.43	$13.43	$13.43
Total Current Bill:	**$202,426.79**	**$202,418.48**	**$202,426.36**	**$202,426.71**	**$202,426.72**
Incremental Costs:	n/a	**$8.31**	**$0.43**	**$0.07234**	**$0.06244**

Jersey Central Power & Light Electric Rate Analysis

Prepared by Entech Engineering, Inc.

Incremental Cost Check

Cost Calculations Using Incrementals					
On-Peak Demand Charge	4,700.7	kW	@	$8.31	$39,062.82
On-Peak Usage Charge	1,031,400	kWh	@	$0.07234	$74,611.48
Off-Peak Usage Charge	1,485,000	kWh	@	$0.06244	$92,723.40
Total Calculated Billing Using Incrementals:					**$206,397.69**
Actual Current Period Charges:					**$202,426.79**
Cost Variance (Actual Minus Incremenal):					**($3,970.90)**
Percent Variance (Var/Actual):					**-2.0%**

Attachment 8.4

Jersey Central Power & Light (JCP&L)
Electric Rate Schedule

SERVICE CLASSIFICATION GT
GENERAL SERVICE TRANSMISSION

APPLICABLE TO USE OF SERVICE FOR: Service Classification GT is available for general service purposes for commercial and industrial customers.

CHARACTER OF SERVICE: Three-phase service at transmission voltages.

RATE PER BILLING MONTH:

(a) Customer Charge: $235.52

(b) Demand Charge:
$9.22 per maximum KW during June through September on-peak hours
$8.31 per maximum KW during October through May on-peak hours

(c) Kilovolt-Ampere Charge: $0.43 per KVAR based upon the 15-minute integrated KVAR demand which occurs coincident with the KW demand used for Demand Charge purposes. (See Part II, Section 5.05)

(d) Base Rate Energy Charge:
7.234¢ per KWH during on-peak hours
6.244¢ per KWH during off-peak hours

(d) Rate Adjustment Charges: All KWH supplied under this Service Classification are additionally subject to the combined credit/charge provided under ENERGY ADJUSTMENT CLAUSE (Rider EAC) and DEMAND SIDE FACTOR (Rider DSF). Credits/charges provided under any other riders are already included within the stated Base Rate Energy Charge.

MINIMUM CHARGE PER MONTH:
Monthly bills computed under this service classification shall not be rendered for less than the sum of the current month's: Customer Charge, Base Rate Energy Charge, Kilovolt-Ampere Reactive Charge and Rate Adjustment Charges, all as determined above; plus **$2.74** per KW for the highest on-peak or off-peak demand created in the current and preceding eleven months (but not less than the Contract Demand). When the maximum on-peak demand created in the current and preceding eleven months has not exceeded 3% of the maximum off-peak demand created in the current and preceding eleven months, however, the charge per KW specified above shall be reduced by **$1.14.**

(continued)

SERVICE CLASSIFICATION GT
GENERAL SERVICE TRANSMISSION
(continued)

DETERMINATION OF DEMAND: The KW during on-peak hours used for billing purposes shall be the maximum 15 minute integrated kilowatt demand created during the on-peak hours each billing month calculated to nearest one-tenth KW. The off-peak demand shall be the maximum demand created during the remaining hours. A Contract Demand not less than the actual monthly demands may also be specified for mutually agreeable contract purposes.

DEFINITION OF ON-PEAK AND OFF-PEAK HOURS:
The hours to be considered as on-peak are from 8 a.m. to 8 p.m. prevailing time Monday through Friday. All other hours including weekend hours will be considered off-peak. The Company reserves the right to change the on-peak hours from time to time as the on-peak periods of the supply system change. The off-peak hours will not be less than 12 hours daily.

TERM OF CONTRACT: None, except that reasonable notice of service discontinuance will be required. Where special circumstances apply or special or unusual facilities are supplied, contracts of one year or more may be required.

TERMS OF PAYMENT: Bills are due when rendered and become overdue when payment is not received by the Company on or before the due date specified on the bill. Overdue bills thereafter become subject to a late payment charge as described in Section 3.19, Part II.

SERVICE CHARGE: A Service Charge of **$14.00** shall be applicable for initiating service to a customer under this Service Classification (see Part II, Section 2.01). A **$54.00** Service Charge shall be applicable for final bill readings requested to be performed other than during the normal working hours of 8 AM to 4:30 PM, Monday through Friday. (See Part II, Section 3.13)

RECONNECTION CHARGES: A Reconnection Charge, applicable after a discontinuance requested by the customer or because of a default by the customer, of **$22.00** is applicable to service reconnections which can be performed at the meter during the normal working hours of 8 AM to 4:30 PM, Monday through Friday. A Reconnection Charge of **$54.00** is applicable to service reconnections which can be performed at the meter during all other hours. The charge for all reconnections which cannot be performed at the meter shall be based upon billing work order costs. (see Part II, Section 8.04).

(continued)

SERVICE CLASSIFICATION GT
GENERAL SERVICE TRANSMISSION
(continued)

RECONNECTIONS WITHIN 12 MONTH PERIOD: Customers which request a disconnection and reconnection of service at the same location within a 12 month period shall not be relieved of Minimum Demand Charges resulting from demands created during the preceding eleven months, even though occurring prior to such disconnection.

Customers which request more than one disconnection and reconnection of service at the same location within a 12 month period shall be subject to the conditions specified above for the first such period of disconnection. In addition, for subsequent periods of disconnection, the customer shall be required to pay an additional Reconnection Charge equivalent to the sum of the Minimum Demand Charges, determined in accordance with the conditions specified in the preceding paragraph, for each month of that subsequent period.

SPECIAL PROVISIONS:

(a) Commuter Rail Service: Where service is supplied to interconnected traction power accounts for a commuter rail system, such accounts shall be conjunctively billed based upon coincident demands. This Special Provision also modifies the DEFINITION OF ON-PEAK AND OFF-PEAK HOURS for Demand Charge purposes only, such that the following Federal Holidays are considered off-peak the entire day: New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. In addition, the period from 8 AM to 10 AM prevailing time Monday through Friday shall be considered as off-peak for Demand Charge purposes only. The Company reserves the right to change the on-peak hours from time to time as the on-peak periods of the supply system change.

(b) High Tension Service: Where service is supplied at 230 KV, the Rate per Billing Month shall be reduced $0.23 per KW of Demand Charge and 0.146¢ per KWH of Base Rate Energy Charge to reflect the reduced line losses associated with service at this voltage level.

ADDITIONAL MODIFYING RIDERS: This Service Classification may also be modified for PUBLIC UTILITY EXEMPTION FROM STATE TAX COLLECTION (Rider TXE), COGENERATION AND SMALL POWER PRODUCTION SERVICE (Rider QFS) and STANDBY SERVICE (Rider STB). Curtailable credits are available under OPTIONAL CURTAILABLE SERVICE (Rider CURX) and CURTAILABLE SERVICE (Rider CUR).

STANDARD TERMS AND CONDITIONS: This Service Classification is subject to the Standard Terms and Conditions of this Tariff for Electric Service.

Issued: February 26, 1993 Effective: February 26, 1993

Issued by Michael P. Morrell, Vice President-Materials, Services and Regulatory Affairs
310 Madison Avenue, Morristown, NJ 07962-1911
Filed pursuant to Order of Board of Regulatory Commissioners
in Docket No. ER91121820J dated February 26, 1993

Attachment 8.5

Building 2700 Fuel Oil Bills

AFRS4

RECEIVING REPORT | DLA600-92-D-4192 | 2V 01 | U

DELIV NO	3 DATE SHIPPED	4 B/L	5 DISCOUNT TERMS
1	1 Apr 94	101	NET 30

CONTRACTOR CODE 00006879

Premier O&G Supply Co., Inc.
T/A CP PO Box 1071A
673 New Brunswick Ave, Rahway, NJ

9 ADMINISTERED BY CODE SC0600
Defense Fuel Supply Center
Camerdn Station
Alexandria, VA 22314

SHIPMENT NO. CODE TOR:

12 PAYMENT WILL BE MADE BY CODE SA4900
Defense Fuel Supply Center
ATTN: DFSC-CDX
Cameron Station, Bldg 5
Alexandria, VA 22314

13 MARKED FOR CODE
Beaty 2700

SHIPPED TO CODE W15HZS
Directorate of Logistics
Supply Services Division
Fuel Yard
Fort Monmouth, NJ 07703

ITEM NO	16. STOCK/PART NO. (Include number of shipping container - type of container - container number) DESCRIPTION	17. QUANTITY SHIP/RECD	18. UNIT	19. UNIT PRICE	20. AMOUNT
15-462	Burner Oil #2 TICKET 46114 GALLONS 7576.6	7,576.6	gal	.78	$5,909.75

PROCUREMENT QUALITY ASSURANCE

A ORIGIN

POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on attached documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B DESTINATION

POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on attached documents.

Barbara C. Moffett

4-1-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted

4-1-94 | John Walley

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark; if different, enter actual quantity received below quantity shipped and explain

CONTRACTOR USE ONLY

97X4930.5CF001.26.1 S44203 000000/A/RR W15HZS 4080-0201

722896.J30.000000 LM77Z2.4 ALJ116 99-4118-2008

RECEIVING REPORT | DLA600-92-D-4192 | 2V 01 | D

2. QUANTITY	3. DATE SHIPPED	4. U/L	5. DISCOUNT TERMS
2	5 Apr 94	101	NET 30

6. CONTRACTOR CODE 00006879

Premier O&G Supply Co., Inc.
T/A CP PO Box 1071A
673 New Brunswick Ave, Rahway, NJ

7. DELIVERED BY CODE SC0600

Defense Fuel Supply Center
Cameron Station
Alexandria, VA 22314

8. TRANSPORTATION ACCT. NO. CODE | FOB:

12. PAYMENT WILL BE MADE BY CODE SA4900

Defense Fuel Supply Center
ATTN: DFSC-CDX
Cameron Station, Bldg 5
Alexandria, VA 22314

9. MARKED FOR CODE W15HZS

Directorate of Logistics
Supply Services Division
Fuel Yard
Fort Monmouth, NJ 07703

14. MARKED FOR

Bldg 2700

15. ITEM NO.	16. STOCK/PART NO. (Include number of shipping document, type of container, container number) DESCRIPTION	17. QUANTITY SHIPPED/RECD	18. UNIT	19. UNIT PRICE	20. AMOUNT
45-462	Burner Oil #2 TICKET 46558 GALLONS 7029.7	7,029.7	gal	.78	$5,483.17

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTHORIZED GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Hoffler

4-5-94

DATE | SIGNATURE OF AUTHORIZED GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted

4-5-94 | John Walley

DATE RECEIVED | SIGNATURE OF AUTHORIZED GOVT REP

TYPED NAME AND OFFICE

If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark; if different, enter actual quantity received below quantity shipped and encircle

CONTRACTOR USE ONLY

97X4930.5CF001.26.1 S44203 000000/A/RR W15HZS 4080-02

722896.J30.000000 LMZZZ.4 4LJ116 99-4118-2007

AND RECEIVING REPORT | DLA600-92-D-4192 | 2V 01 | | D

1 SHIP TO	2 DATE SHIPPED	4 B/L	5 DISCOUNT TERMS
4	8 Apr 94	101	NET 30

6 CONTRACTOR CODE 00006879

Premier O&G Supply Co., Inc.
T/A CP PO Box 1071A
673 New Brunswick Ave, Rahway, NJ

7 FACILITY CODE | 8 PAYMENT WILL BE MADE BY CODE SA4900

Defense Fuel Supply Center
ATTN: DFSC-CDX
Cameron Station, Bldg 5
Alexandria, VA 22314

9 MARKED FOR CODE

Berg 2700

10 SHIPPED TO CODE W15HZS

Directorate of Logistics
Supply Services Division
Fuel Yard
Fort Monmouth, NJ 07703

ITEM NO	13. STOCK/PART NO. (Include number of address code - type of service - contract number) DESCRIPTION	17. QUANTITY SHIP/REC'D	18. UNIT	19. UNIT PRICE	20. AMOUNT
45-462	Burner Oil #2 TICKET 47029 GALLONS 6990.6	6,990.6	gal	.78	$5,452.67

PROCUREMENT QUALITY ASSURANCE

A ORIGIN

POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B DESTINATION

POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Haffert

4-8-94
DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted

4-8-94 | John Walley
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle

CONSTRUCTION USE ONLY

97X4930.5CF001.26.1 S44203 000000/A/RR W15HZS 4080-020

722896.J30.000000.LMZZZ4 4LJ116 99-4118-2005

RECEIVING REPORT | DLA600-92-D-4192 | 2V 01

1 SHIP TO	2 DATE SHIPPED	4 B/L	5 DISCOUNT TERMS
6	14 Apr 94	101	NET 30

3 CONTRACT CODE 00006079

Premier O&G Supply Co., Inc.
T/A CP PO Box 1071A
673 New Brunswick Ave, Rahway, NJ

6 ADMINISTERED BY CODE SC0600
Defense Fuel Supply Center
Cameron Station
Alexandria, VA 22314

7 DELIVERED FOR FOB: CODE

12 PAYMENT WILL BE MADE BY CODE SA4900
Defense Fuel Supply Center
ATTN: DFSC-CDX
Cameron Station, Bldg 5
Alexandria, VA 22314

8 MARKED FOR CODE
Bldg 2700

9 SHIPPED TO CODE W15HZS
Directorate of Logistics
Supply Services Division
Fuel Yard
Fort Monmouth, NJ 07703

ITEM NO	10. STOCK/PART NO. (Include number of inbound document - type of document - document number) DESCRIPTION	11. QUANTITY SHIP/REC'D	12. UNIT	13. UNIT PRICE	14. AMOUNT
45-462	Burner Oil #2 TICKET 47226 GALLONS 6990.1	6,990.1	gal	.78	$5,452.28

PROCUREMENT QUALITY ASSURANCE

A ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTHORIZED GOVT REP

TYPED NAME AND OFFICE

B DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

4-14-94

DATE | SIGNATURE OF AUTHORIZED GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 11 were received in apparent good condition except as noted

4-14-94 | DATE RECEIVED | SIGNATURE OF AUTHORIZED GOVT REP

TYPED NAME AND OFFICE

If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle

CONTRACTOR USE ONLY

97X4930.SCF001.26.1 S44203 000000/A/RR W15HZS 4080-0201

722896.J30.000000 LMZZZ.4 4LJ116 99-4118-2003

RECEIVING REPORT | DLA600-92-D-4192 | 2V 01 | D

1. AUTH NO.	2. DATE SHIPPED	4. B/L	5. DISCOUNT TERMS
8	20 Apr 94	101	NET 30

3. CONTRACT CODE	00006879	6. ADMINISTERED BY CODE	SC0600
Premier O&G Supply Co., Inc. T/A CP PO Box 1071A 673 New Brunswick Ave, Rahway, NJ		Defense Fuel Supply Center Cameron Station Alexandria, VA 22314	

7. DELIVERY FOR FOB ENTRY CODE	FOB:	12. PAYMENT WILL BE MADE BY CODE	SA4900
		Defense Fuel Supply Center ATTN: DFSC-CDX Cameron Station, Bldg 5 Alexandria, VA 22314	

13. SHIPPED TO CODE	W15HZS	14. MARKED FOR CODE	
Directorate of Logistics Supply Services Division Fuel Yard Fort Monmouth, NJ 07703		Bldg 2700 and 1220	

ITEM NO.	10. STOCK/PART NO. (Include number of shipping container - type of container - container number) DESCRIPTION	11. QUANTITY SHIPPED/RECD	18. UNIT	19. UNIT PRICE	20. AMOUNT
45-462	Burner Oil #2 TICKET GALLONS 47640 7551.8 47641 7521.5	15,073.3	gal	.78	$ 11,757.17

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

4-20-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 11 were received in apparent good condition except as noted

4-20-94 | Jim Willis

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark; if different, enter actual quantity received below quantity shipped and encircle

CONTRACTOR USE ONLY

97X4930.5CF001.26.1 S44203 000000/A/RR W15HZS 4080-02(

722896.J30.000000 LMZZZ4.4LJ116 99-4118-2001

Bldg 2700 - 7,521.5 gals

Bldg 1220 - 7,551.8 gals

AND
ECEIVING REPORT | DCA600-92-D-4192 | 2V 01 | U

2 QUANTITY	3 DATE SHIPPED	4 M/L	5 DISCOUNT TERMS
9	26Apr94	101	NET 30

CONTRACTOR CODE 00006079

Premier O&G Supply Co., Inc.
T/A CP PO Box 1071A
673 New Brunswick Ave, Rahway, NJ

6 SHIPPED BY CODE | SC0600
Defense Fuel Supply Center
Cameron Station
Alexandria, VA 22314

7 SHIPPED FROM (If other than 6) CODE | 8 PACK:

12 PAYMENT WILL BE MADE BY CODE | SA4900
Defense Fuel Supply Center
ATTN: DFSC-CDX
Cameron Station, Bldg 5
Alexandria, VA 22314

9 MAILED TO CODE | W15HZS
Directorate of Logistics
Supply Services Division
Fuel Yard
Fort Monmouth, NJ 07703

14. MARKED FOR CODE
Bldg 2700

ITEM NO	10. STOCK/PART NO. (Include number of shipping document, type of container, container number) DESCRIPTION	17. QUANTITY SHIP/REC'D	18. UNIT	19. UNIT PRICE	20. AMOUNT
45-462	Burner Oil #2 TICKET 47832 GALLONS 7009.5	7,009.5	gal	.78	$5,467.41

PROCUREMENT QUALITY ASSURANCE

A ORIGIN

POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTHORIZED REP

TYPED NAME AND OFFICE

B DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
4-26-94
DATE | SIGNATURE OF AUTHORIZED REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted

4-26-94 | Ted Smythe
DATE RECEIVED | SIGNATURE OF AUTHORIZED REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark; if different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X4930.5CF001.26.1 S44203 000000/A/RR W15HZS 4080-020

722896.J30.000000.LMzzz.4.4LJ116 99-4118-2000

May 94

RECEIVING REPORT

1 SHIP NO.	2 DATE SHIPPED	3 B/L	4 DISCOUNT TERMS	D
1	3 May 94	101	NET 30	

CONTRACT CODE	00006879	10 ADMINISTERED BY CODE	SCD600
Premier O&G Supply Co., Inc. T/A CP PO Box 1071A 673 New Brunswick Ave, Rahway, NJ		Defense Fuel Supply Center Cameron Station Alexandria, VA 22314	
PAID BY CODE	PAID:	12 PAYMENT WILL BE MADE BY CODE	SA4900
		Defense Fuel Supply Center ATTN: DFSC-CDX Cameron Station, Bldg 5 Alexandria, VA 22314	
SHIPPED TO CODE	W15HZS	14. MARKED FOR CODE	
Directorate of Logistics Supply Services Division Fuel Yard Fort Monmouth, NJ 07703		Bldg 2700	

ITEM NO	16. STOCK/PART NO. (Include number of shipping container - type of container - container number) DESCRIPTION	17. QUANTITY SHIPPED/RECD	18. UNIT	19. UNIT PRICE	20. AMOUNT
45-462	Burner Oil #2 TICKET 48389 GALLONS 6982.7	6,982.7	gal	.74	$5,167.-

PROCUREMENT QUALITY ASSURANCE

A ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

ED NAME
OFFICE

B DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
5-3-94
DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted

5-3-94
DATE RECEIVED

SIGNATURE OF AUTH GOV

TYPED NAME AND OFFICE

If quantity received by the Government is the same as quantity shipped, indicate by ✓ mark. If different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X4930.SCF001.26.1 S44203 000000/D/RR W15HZS 41(

722896.530.000000 LM222.4 4LS116 99-4144-2005

AND
RECEIVING REPORT | DLA600-92-D-4192 | 2V 34 | D

2 AUTH NO.	3 DATE SHIPPED	4 B/L	5 DISCOUNT TERMS
3	9 May 94	101	NET 30

6 CONTRACTOR CODE 00006079

Premier O&G Supply Co., Inc.
T/A CP PO Box 1071A
673 New Brunswick Ave, Rahway, NJ

7 ADMINISTERED BY CODE SC0600
Defense Fuel Supply Center
Cameron Station
Alexandria, VA 22314

8 PAID BY (If other than item 6) CODE | FOB:

12 PAYMENT WILL BE MADE BY CODE SA4900
Defense Fuel Supply Center
ATTN: DFSC-CDX
Cameron Station, Bldg 5
Alexandria, VA 22314

9 SHIPPED TO CODE W15HZS
Directorate of Logistics
Supply Services Division
Fuel Yard
Fort Monmouth, NJ 07703

14 MARKED FOR CODE
Bldg 2700

15 ITEM NO.	16 STOCK/PART NO. (Include number of shipping document, type of container, container number) DESCRIPTION	17 QUANTITY SHIP/REC'D	18 UNIT	19 UNIT PRICE	20 AMOUNT
45-462	Burner Oil #2 TICKET 48604 GALLONS 7487.7	7,487.7	gal	.74	$ 5,540.90

PROCUREMENT QUALITY ASSURANCE

A ORIGIN
POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.
DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

B DESTINATION
POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.
Barbara C. Heffelfinger
5-9-94
DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND TITLE

22. RECEIVER'S USE
Quantities shown in column 17 were received in apparent good condition except as noted
5-9-94
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE
If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark; if different, enter actual quantity received below quantity shipped and encircle

CONTRACTOR USE ONLY

97X4930.5CF001.26.1S33150 000000/A/RR W15HZS 4105-02

722896.530.000000 LM7774 4E5 116 99-4144-200

AND
RECEIVING REPORT

AUTH NO	DATE SHIPPED	DLA600-92-D-4192	2V 34		
4	13 May 94		NET 30		

CONTRACTOR CODE 00006879

Premier O&G Supply Co., Inc.
T/A CP PO Box 1071A
673 New Brunswick Ave, Rahway, NJ

ADMINISTERED BY CODE SC0600
Defense Fuel Supply Center
Cameron Station
Alexandria, VA 22314

SHIPPED FROM CODE FOB:

PAYMENT WILL BE MADE BY CODE SA4900
Defense Fuel Supply Center
ATTN: DFSC-CDX
Cameron Station, Bldg 5
Alexandria, VA 22314

SHIPPED TO CODE W15HZS
Directorate of Logistics
Supply Services Division
Fuel Yard
Fort Monmouth, NJ 07703

MARKED FOR CODE
Bldg 2700

ITEM NO	STOCK/PART NO. DESCRIPTION	QUANTITY SHIPPED	UNIT	UNIT PRICE	AMOUNT
45-462	Burner Oil #2 TICKET 48603 GALLONS 6971.5	6,971.5	gal	.74	$5,158.91

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
5-13-94
DATE SIGNATURE OF AUTH GOVT REP
TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted

5-13-94
DATE RECEIVED

SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark; if different, enter actual quantity received below quantity shipped and encircle

CONTRACTOR USE ONLY

97X4930.5CR001.26.1 S33150 000000/A/RR

W15HZS 4105-02

722896.J30.000000 LM2224 4L5116 99-4144-2002

MAY

RECEIVING REPORT | DLA600-92-D-4192 | 2V 34 | | D

AUTH NO	3 DATE SHIPPED	4 B/L	5 DISCOUNT TERMS
5	18 May 94	101	NET 30

6 CONSIGNOR CODE	7 SHIPPED FROM CODE
00006079	SC0600
Premier O&G Supply Co., Inc. T/A CP PO Box 1071A 673 New Brunswick Ave, Rahway, NJ	Defense Fuel Supply Center Cameron Station Alexandria, VA 22314

8 TRANSPORTATION METHOD CODE	TCN:	12 PAYMENT WILL BE MADE BY CODE
		SA4900
		Defense Fuel Supply Center ATTN: DFSC-CDX Cameron Station, Bldg 5 Alexandria, VA 22314

13 MARKED FOR CODE	14. MARKED FOR CODE
W15HZS	Bldg 2700
Directorate of Logistics Supply Services Division Fuel Yard Fort Monmouth, NJ 07703	

ITEM NO	16. STOCK/PART NO. (Include number of shipping container - type of container - container number) DESCRIPTION	17. QUANTITY SHIP/REC'D	18. UNIT	19. UNIT PRICE	20. AMOUNT
45462	Burner Oil #2 TICKET 49127 GALLONS 7522.5	7,522.5	gal	.74	$5,566.65

PROCUREMENT QUALITY ASSURANCE

A ORIGIN

POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C Moffett

5-18-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted

5-18-94 | Ron Walley

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark; if different, enter actual quantity received below quantity shipped and encircle

CONTRACTOR USE ONLY

97X4930.SCF001.26.1 S3350 000000/D/RR — W15HZS 4105-0

722896.J30.000000 LMZZZ.4 45116 99-4144-2001

MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-92-D-4192 | 2V 45 | 1 JUL 94 | 8 ACCEPTANCE POINT: D

2 SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
1	11 Jul 94	TCN	NET 30

6 DELIVERY CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE | FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping container - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
45-1462	Burner Oil #2 ticket #50832	7,473.9	GL	.74	$5,530.69

1. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

7-11-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

7-11-94 | DATE RECEIVED

SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CFO 01 26.1 S33150 000000/A/RR

W15HZS 4192-0045

722896.J30.000000 LMZZZ.4.4L5116 99-4214-2006

DD FORM 1 NOV 88 250 — REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

INSPECTION AND RECEIVING REPORT

DLA600- 92-D-4192 2V 45

8 ACCEPTANCE POINT: D

2. SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
3 2	14 Jul 94	TCN	NET 30

6. PRIME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 6) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

15. ITEM NO.	16. STOCK/PART NO. DESCRIPTION (indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
45-1462	Burner Oil #2 ticket # 41374	6,889.9	GL	.74	$5,098.53

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
7-14-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

7-14-94 | Ted Smythe
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4192-0045

722896.J30..000000 LMzzz.4 4LJ116 99-4214-2004

DD FORM 1 NOV 88 250 REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

INSPECTION AND RECEIVING REPORT

DLA600- 92-D-4192 2V 45

1 1 — 8. ACCEPTANCE POINT: D

2. SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5. DISCOUNT TERMS
34	25 Jul 94	TCN	NET 30

6. DELIVERY CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 6) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
45-462	Burner Oil #2 ticket # 52544	7,440.4	GL	.74	$5,505.9

15. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE — SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
7-25-94

DATE — SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

7-25-94 — DATE RECEIVED

Lori Willey — SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4138-0244

722896.J30.000000 LMzzz.4 4LJ116 ! 99-4214-2003

DD FORM 250 REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

...TION / ...G REPORT

1. PRCS. INSTRUMENT IDENT. (CONTRACT)			6 ACCEPTANCE POINT
DLA600- 92-D-4192	2V 45		D

NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
7	28 Jul 94	TCN	NET 30

E CONTRACTOR CODE	10 ADMINISTERED BY CODE
Premier O&G Supply Co., T/A CPO 673 Brunswick Ave., Box 1071A,. Rahway, NJ 07065	Defense Fuel Supply Center ATTN: DFAS-CO/DFSC-RFFP Cameron Station Bldg 8 Alexandria, VA 22304-6160

...PED FROM (if other than 9) CODE / FOB:	12. PAYMENT WILL BE MADE BY CODE
	Defense Finance/Accounting Service, Columbus Center Stock Fund Directorate Fuels Accounting and Payments Division ATTN: DFAS-CO-SFFP, P.O. Box 182317 Columbus, OH 43218-6252

...IPPED TO CODE	14. MARKED FOR CODE
...rectorate of Installation Logistics ...pply Services Division ...el Oil Branch ...rt Monmouth, NJ 07703-5000	Bldg 1220 & 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
5-1462	Burner Oil #2 Ticket #'s 52660 - 6,455.2 gals 52661 - 7,435.4 gals	13,890.6	GL	.74	$10,279.04

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE / SIGNATURE OF AUTH GOVT REP

D NAME
OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
7-28-94
DATE / SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

7-28-94
DATE RECEIVED

SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X4930.5CFO 01 26.1 S33150 000000/A/RR

WISHZS 4138-0244

722896.530.000000 LMZZZ.4 4LJ116 ; 99-4214-2000

Bldg 1220 - 6,455.2 gals

Bldg 2700 - 7,435.4 gals

...ION 250

PREVIOUS EDITION OF 1 AUG 67 WHICH MAY BE USED

MATERIAL INSPECTION AND RECEIVING REPORT

1. PRIOR INSTRUMENT IDENTIFICATION: DLA600-92-D-4129 | 2V 50 | 1AU134 | 6 ACCEPTANCE POINT: D

2 SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
1	12 Aug 94	TCN	NET 30

7 DELIVERY CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

11. SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/REC'D *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 Ticket # 53318	6,878	GL	.78	$5,364.84

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

R. Barbara C. Moffett
8-12-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

8-12-94 (DATE RECEIVED) | Tim Valley (SIGNATURE OF AUTH GOVT REP)

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CT0 01 26.1 S33150 000000/A/RR W15HZS 4206-0050

722596.J30 000000 LMZZZ4 4LJ116 99-4256-2008

DD FORM 250 REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

AL INSPECTION AND CEIVING REPORT

1. PROC. INSTRUMENT IDENT. (CONTRACT): DLA600-92-D-4129 2V 50

1 1

6 ACCEPTANCE POINT: D

PMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
2	15 Aug 94	TCN	NET 30

PTIVE CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

15. ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 ticket # 53319	7,459.1	GL	.78	$5,818.10

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Duffett
8-15-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

8-15-94 Ted Smith
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4206-0050

722896.530 000000 LY4ZZZ4 4L5116 99-4256-2007

DD FORM 250 REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

INSPECTION AND RECEIVING REPORT	DLA600-92-D-4129	2V50		1 1 / 6 ACCEPTANCE POINT D
2 SHIPMENT NO. 5	3. DATE SHIPPED 26 Aug 94	4. B/L TCN	5 DISCOUNT TERMS NET 30	

7. DELIVERY CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

11. SHIPPED FROM (If other than 7) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 ticket # 53753	7,452.9	GL	.78	$5,813.26

15. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
8-26-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

8-26-94 (DATE RECEIVED) — SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CFO 01 26.1 S33150 000000/A/RR W15HZS 4206-0050

722896.530.000000 LM2224 4L5116 99-4256-2004

DD FORM 250 REPLACES EDITION OF 1 AUG 87 WHICH MAY BE USED

INSPECTION AND EIVING REPORT | DLA600-92-D-4129 | 2V50 | 1 1 | 8 ACCEPTANCE POINT D

SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
6	29Aug94	TCN	NET 30

6. DELIVERY CONTRACTOR CODE	10. ADMINISTERED BY CODE
Premier O&G Supply Co., T/A CPO 673 Brunswick Ave., Box 1071A, Rahway, NJ. 07065	Defense Fuel Supply Center ATTN: DFAS-CO/DFSC-RFFP Cameron Station Bldg 8 Alexandria, VA 22304-6160
9. SHIPPED FROM (if other than 6) CODE / FOB:	12. PAYMENT WILL BE MADE BY CODE
	Defense Finance/Accounting Service, Columbus Center Stock Fund Directorate Fuels Accounting and Payments Division ATTN: DFAS-CO-SFFP, P.O. Box 182317 Columbus, OH 43218-6252
13. SHIPPED TO CODE	14. MARKED FOR CODE
Directorate of Installation Logistics Supply Services Division Fuel Oil Branch Fort Monmouth, NJ 07703-5000	Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 ticket # 53752	7,460.7	GL	.78	$5,819.35

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN
☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION
☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
8-29-94
DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE
Quantities shown in column 17 were received in apparent good condition except as noted.

8-29-94 (DATE RECEIVED) | (SIGNATURE OF AUTH GOVT REP)

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4206-0050

722896.J30.000000 LMzzz4 4LJ116 99-4256-2003

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

INSPECTION AND RECEIVING REPORT

DLA600-94 D- 4129 2V58

1 SEP 94
6 ACCEPTANCE POINT: D

SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
2	8 Aug 94	TCN	NET 30

DLE CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (indicate number of shipping containers - type of container - container number)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33462	Burner Oil #2 Ticket # 54089	7,467.7	GL	.78	$5,824.81

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Doffett
9-8-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

9-8-94 | SIGNATURE OF AUTH GOVT REP

DATE RECEIVED

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR

W15HZS 4234-0058

722896. J30.000000 LMzzz.4 4L5116 99-4276-2003

DD FORM 250

PREVIOUS EDITION OF 1 AUG 67 MAY BE USED

INSPECTION AND CEIVING REPORT

DLA600-94-D- 4129 2V58

1 1
8 ACCEPTANCE POINT
D

SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5. DISCOUNT TERMS
3	9 Aug 94	TCN	NET 30

SALE CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg. 1220 & 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 ticket # 54090 ticket # 54162	14,961.8	GL	.78	$11,670.20

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
9-9-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

9-9-94 DATE RECEIVED

SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X1930.5CFO 01 26.1 S33150 000000/A/RR W15HZS 4234-0058

722896.J30.000000 LMZZ2.4 4LJ116 99-4276-2002

Bldg 1220 – 7,462.4 gals

Bldg 2700 – 7,499.4 gals

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 WHICH MAY BE USED

...IAL INSPECTION AND ...ECEIVING REPORT

DLA600-94-D- 4129 2V 58

1 1

6. ACCEPTANCE POINT: D

...ENT NO.: 4

3. DATE SHIPPED: 22 Sep 94

4. B/L: TCI

5. DISCOUNT TERMS: NET 30

...E CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

...PED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

...FFED TO CODE

...irectorate of Installation Logistics
...upply Services Division
...uel Oil Branch
...ort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
...3462	Burner Oil #2 Ticket # 54826	6,914.9	GL	.78	$5,393.62

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

...D NAME
OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

V. Barbara C. Moffett
9-22-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

9-22-94 | Jon Whitley

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

...CONTRACTOR USE ONLY 97X1930.5CF0 01 26.1 S33150 000000/A/RR

W15HZS 4234-0058

722896.J30.000000 LMZZZ.4 4LJ116 99-4276-2001

SPECTION AND ING REPORT

DLA600-94-D- 4129 2V 58

1 1

6 ACCEPTANCE POINT: D

2. SHIP NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
5	23 Aug 94	TCN	NET 30

E CONTRACTOR CODE	10 ADMINISTERED BY CODE
Premier O&G Supply Co., T/A CPO 673 Brunswick Ave., Box 1071A, Rahway, NJ 07065	Defense Fuel Supply Center ATTN: DFAS-CO/DFSC-RFFP Cameron Station Bldg 8 Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:	12. PAYMENT WILL BE MADE BY CODE
	Defense Finance/Accounting Service, Columbus Center Stock Fund Directorate Fuels Accounting and Payments Division ATTN: DFAS-CO-SFFP, P.O. Box 182317 Columbus, OH 43218-6252

...FERRED TO CODE	14. MARKED FOR CODE
irectorate of Installation Logistics upply Services Division uel Oil Branch ort Monmouth, NJ 07703-5000	Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (indicate number of shipping containers - type of container - container number)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33462	Burner Oil #2 ticket # 54827	7,501.4	GL	.78	$5,851.09

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

9-23-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

9-23-94 | Ted Smith

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4234-0058

722896.T30.000000 LMZZZ.4 4LJ116 : 99-4276-2000

DD FORM 250 REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 60 | FCT-VL

6. ACCEPTANCE POINT: D

2. SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5. DISCOUNT TERMS
1	5 Oct 94	TCN	NET 30

7. DELIVERY CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

11. SHIPPED FROM (if other than 9) CODE | FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

15. ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 55491 7531.7	7,531.7	GL	.78	$5,874.73

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
10-5-94

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

10-5-94 | Ann Killey

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4270-0060

722896.J30.000000 5LJ116 LMZZZ5 99-4304-2018

INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 60 | 1 1 | 8 ACCEPTANCE POINT: D

2 SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
2	7 Oct 94	TCN	NET 30

6 ISSUE CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

9 SHIPPED FROM (if other than 6) CODE | FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 1220 and 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 55700 7485 55490 7407	14,892	GL	.78	$ 11,615.76

15. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
10-7-94
DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

10-7-94 | M. Walker
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CTO 01 26.1 S33150 000000/A/RR W15HZS 4270-0060

722896.J30.000000 LMZZZ5 SLJ116 99-4304-2017

Bldg 1220 - 7,485 gals

Bldg 2700 - 7,407 gals.

DD FORM 250 PREVIOUS EDITION OF 1 AUG 67 WHICH MAY BE USED

INITIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 60 | 1 1 | 8 ACCEPTANCE POINT: D

2 SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
4	17 Oct 94	TCN	NET 30

6 NAME CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

9 SHIPPED FROM (if other than 6) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

15. ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33462	Burner Oil #2 TICKET NR. GALLONS 56289 7487.1	7,487.1	GL	.78	$5,839.94

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
10-17-94
DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

10-19-94 | Ted Smythe
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4270-0060

722896.J3c.000000 LMIZZ5 5LJ-116, 99-4304-2015

DD FORM 250 REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 60 | 1 1 | 8 ACCEPTANCE POINT: D

2 SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
5	18 Oct 94	TCN	NET 30

6 PURCHASE CONTRACT NO. / CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY / CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) / CODE / FOB:

12. PAYMENT WILL BE MADE BY / CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO / CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR / CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. / DESCRIPTION (indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 56290 7555.7	7,555.7	GL	.78	$ 5,893.45

15. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
16-18-94
DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

10-18-94
DATE RECEIVED

SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACT USE ONLY

97X1930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4270-0060

722896.J30.000000LM2225 5LJ116 99-4304-2014

DD FORM 250 REPLACES EDITION OF 1 AUG 67 WHICH MAY BE USED

MAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 60 | 1 1 | 8 ACCEPTANCE POINT: D

2 SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
8	27 Oct 94	TCN	NET 30

6 TYPE CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

11 SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 56742 7426	7,426	GL	.78	$5,792.28

15. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
10-27-94
DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

10-27-94 Ted Smythe
DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4270-0060

722896.T30.000000 LMZZZ5 5LJ116 : 99-4304-2011

DD FORM 1 NOV 88 250 PREVIOUS EDITION OF 1 AUG 87 WHICH MAY BE USED

TERIAL INSPECTION AND RECEIVING REPORT	DLA600-94-D-4129	2V 60		1 1
				8. ACCEPTANCE POINT D

2. SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5. DISCOUNT TERMS
9	28-Oct-94	TCN	NET 30

6. NAME OF CONTRACTOR CODE	10. ADMINISTERED BY CODE
Premier O&G Supply Co., T/A CPO 673 Brunswick Ave., Box 1071A, Rahway, NJ 07065	Defense Fuel Supply Center ATTN: DFAS-CO/DFSC-RFFP Cameron Station Bldg 8 Alexandria, VA 22304-6160
7. SHIPPED FROM (if other than 6) CODE / FOB:	**12. PAYMENT WILL BE MADE BY CODE**
	Defense Finance/Accounting Service, Columbus Center Stock Fund Directorate Fuels Accounting and Payments Division ATTN: DFAS-CO-SFFP, P.O. Box 182317 Columbus, OH 43218-6252
13. SHIPPED TO CODE	**14. MARKED FOR CODE**
Directorate of Installation Logistics Supply Services Division Fuel Oil Branch Fort Monmouth, NJ 07703-5000	Bldgs 1220 & 2700

15. ITEM NO.	16. STOCK/PART NO. — DESCRIPTION (Indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD	18. UNIT	19. UNIT PRICE	20. AMOUNT
33462	Burner Oil #2 TICKET NR. GALLONS 57070 7313.1 57071 5605	12,918.1	GL	.78	$ 10,076.12

21. PROCUREMENT QUALITY ASSURANCE		22. RECEIVER'S USE
A. ORIGIN	B. DESTINATION	Quantities shown in column 17 were received in apparent good condition except as noted.
☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.	☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.	10-28-94 (DATE RECEIVED) Gail Whitley (SIGNATURE OF AUTH GOVT REP)
DATE / SIGNATURE OF AUTH GOVT REP	Barbara C. Moffett 10-28-94 DATE / SIGNATURE OF AUTH GOVT REP	TYPED NAME AND OFFICE
TYPED NAME AND OFFICE	TYPED NAME AND TITLE	* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4270-0060

722896.530.000000 LMZZZ5 5LJ116 99-4304-2010

Bldg 1220 - 7313.1 gals

2700 - 5605 gals

RECEIVING REPORT

DLA600-94-D-4129 2V 71

Dec 94

6 ACCEPTANCE POINT: D

2 SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
1	5 Dec 94	TCN	NET 30

7. FOR CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 8) CODE — **FOB:**

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

15. ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 59698 7568.6	7,568.6	GL	.59	$4,465.47

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE — SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Maffett

12-5-94

DATE — SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

12-5-94 — DATE RECEIVED

SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4322-0071

722896.J30.000000.LMZZ2.5 SLJ116 99-4363-2003

DD FORM 1 NOV 88 250 — PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

AND RECEIVING REPORT

DLA600-94-D-4129 2V 71

1 1

6 ACCEPTANCE POINT: D

SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
2	12 Dec 94	TCN	NET 30

7. CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 60113 7572.2	7,572.2	GL	.59	$4,467.60

1. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
12-12-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

12-12-94 Ted Smythe

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4322-0071

722896.J30.000000.LMZZZ.5 5LJ116 99-4363-2002

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

RECEIVING REPORT

DLA600-94-D-4129 2V 71

6 ACCEPTANCE POINT: D

2 SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
3	19Dec94	TCN	NET 30

7. TO: CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

8. SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

9. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

15. ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping container - type of container - container number.)	17. QUANTITY SHIP/RECD	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 60842 6970.8	6,970.8	GL	.59	$4,112.77

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
12-19-92
DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

12-19-94 Ted Smythe
DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4322-0071

722896.J30.000000.LMZZZ.5 SLJ116 99-4363-2001

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 WHICH MAY BE USED

AND RECEIVING REPORT

DLA600-94-D-4129 2V 71

8 ACCEPTANCE POINT: D

2. SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
4	20 Dec 94	131	NET 30

SALE CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 6) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. (include number of shipping containers - type of container - container number) DESCRIPTION	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 61127 7070.9	7,070.9	GL	.59	$4,171.83

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
12-20-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

12-20-94 Ted Smythe
DATE RECEIVED SIGNATURE OF AUTH GOVT REP.

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4322-0071

722896 530.000000 LMZZZ.5 5LJ116 99-4363-2000

DD FORM 250 PREVIOUS EDITION OF 1 AUG 67 MAY BE USED

RECEIVING REPORT | DLA600-94-D-4129 | 2V 7.1 | 1 1 | 0 ACCEPTANCE POINT D

SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
5	28 Dec 94	TCN	NET 30

6. CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 6) CODE / FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. (indicate number of shipping containers - type of container - container number.) DESCRIPTION	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 62151 7556.5	7,556.5	GL	.59	$4,458.34

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN
☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

B. DESTINATION
☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
12-28-94
DATE | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

12-28-94 | J. M. Walker
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X1930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4322-0071

722896.J30.000000 LMZZZ.5 5LJ116 99-4363-2011

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 WHICH MAY BE USED

AND RECEIVING REPORT

DLA600-94-D-4129 2V .7.1

1 1

6 ACCEPTANCE POINT D

SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
6	30 Dec 94	TCN	NET 30

DELIVERY CONTRACTOR CODE

Premier O&G Supply Co.,
T/A GPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping container - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 62152 7615.8	7,615.8	GL	.59	$ 4,493.32

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

12-30-94

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

12-30-94 J. M. Wallis

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4322-0071

722896.J30.000000 LMZZZ.5 5LJ116 99-5004-2001

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

MATERIAL INSPECTION AND RECEIVING REPORT

DLAGCO-94-D-4129 | 2V 76 | JAN 95 | 6 ACCEPTANCE POINT: D

2. SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5. DISCOUNT TERMS
1	3 Jan 95	TCN	NET 30

7. DELIVERY CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-NFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

11. SHIPPED FROM (if other than 7) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

15. ITEM NO.	16. STOCK/PART NO. / DESCRIPTION (indicate number of shipping containers - type of container - container number)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33462	Burner Oil #2 TICKET NR. GALLONS 27808 7585.5	7585.5	GL	.59	$4,475.45

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP | TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
1-3-95 | SIGNATURE OF AUTH GOVT REP | TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

1-3-95 | Ted Smythe
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4350-0076

722896.J30.000000 LM ZZZ.5 5ZJ116 99-5018-2009

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

...ERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 76 | 6. ACCEPTANCE POINT: D

2. SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5. DISCOUNT TERMS
2	9 Jan 95	TCN	NET 30

7. CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-PFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

11. SHIPPED FROM (if other than 9) CODE | FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service; Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

15. ITEM NO.	16. STOCK/PART NO. / DESCRIPTION (indicate number of shipping containers - type of container - container number)	17. QUANTITY SHIP/RECD	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 62720 7542.6	7,542.6	GL	.59	$ 4,450.13

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN
☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION
☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
1-9-95
DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

1-9-95 | Jim Walley
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CFO 01 26.1 S33150 000000/A/RR

WIS1ZS 4350-0076

722896.J30.000000 LMZZZ,5 SLJ116 99-5018-2008

DD FORM 250 | PREVIOUS EDITION OF 1 AUG 67 MAY BE USED

MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 76 | 1 L | 6 ACCEPTANCE POINT: D

1. SHIPMENT NO.	2. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
3	13 Jan 95	TCN	NET 30

3. DELIVERY CONTRACT CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE | **FOB**

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

15. ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33462	Burner Oil #2 TICKET NR. GALLONS 63630 7548	7,548	GL	.59	$4,453.32

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP | TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
1-13-95

DATE | SIGNATURE OF AUTH GOVT REP | TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

1-13-95 | Ted Smythe
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP | TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CFO 01 26.1 S33150 000000/A/RR W15HZS 4350-0076

722896.J30.000000 LMZZZ.5 5LJ116 99-5018-2007

DD FORM 250 | PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

...RIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 2V 76

8 ACCEPTANCE POINT: D

2 SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
4	20 Jan 95	TCH	NET 30

6 NAME CONTRACTOR / CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY / CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 6) / CODE / FOB:

12. PAYMENT WILL BE MADE BY / CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO / CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR / CODE

Bldg 2700

15. ITEM NO.	16. STOCK/PART NO. / DESCRIPTION (indicate number of shipping containers - type of container - container number)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 64548 7549	7,549	GL	.59	$4,453.91

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE / SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
1-20-95

DATE / SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

1-20-95 — DATE RECEIVED

Ted Smythe — SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CT0 01 26.1 S33150 000000/A/RR W15HZS 4350-0076

722896.J30.000000 LMZZZ.5 5LJ116 99-5024-2000

DD FORM 250 — PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

...IAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 76 | 1 of 1 | 6 ACCEPTANCE POINT: D

2. SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5. DISCOUNT TERMS
5	24 Jan 95	TCN	NET 30

7. FROM (If other than 6) CODE / FOB

8. TO CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

15. ITEM NO.	16. STOCK/PART NO. / DESCRIPTION (Include number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/REC'D *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 64848 7596.5	7,596.5	GL	.59	$4,481.94

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
1-24-95

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

1-24-95 | Ann Waller

DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CF0 01 26.1 S33150 000000/A/RR WI5IZS 4350-0076

722896.J30.000000 LMZZZ.5 5LJ116 99-5026-2000

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

INITIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 76 | 6 ACCEPTANCE POINT: D

2 SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
6	31 Jan 95	TCN	NET 30

1. CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE | **FOB:**

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

15. ITEM NO.	16. STOCK/PART NO. (indicate number of shipping containers - type of container - container number.) DESCRIPTION	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 65608 7590.1	7,590.1	GL	.59	$ 4,478.16

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Haffitt
1-31-95

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

1-31-95 | Signature of Auth Govt Rep

DATE RECEIVED

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CF0 01 26.1 S33150 000000/A/RR W15HZS 4350-0076

722896.J30.000000 1MZZZ.5 5LJ116 99-5032-2000

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

SPO600-94-D-4129 27 83

REPORT

2. DELIVERY NO.	3. DATE SHIPPED	4. B/L	5. ACCOUNT TO BE CHARGED	6. ACCEPTANCE POINT
4	13 Feb 95	TCN	NST 130	D

7. NAME OF CONTRACTOR CODE

Premier OSG Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-PFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

11. SHIPPED FROM (if other than 7) CODE FOB

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service; Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. (Indicate number of shipping containers - type of container - container number.) DESCRIPTION	17. QUANTITY SHIP/RECD	18. UNIT	19. UNIT PRICE	20. AMOUNT
33	33-462 Burner Oil #2 TICKET NR. GALLONS 66910 7574.3	7,574.3	GL	.59	$ 4,468.84

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
2-13-95

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

2-13-95 Gin Willis

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CT0 01 26.1 S33150 000000/A/RR WIS-ZS 5023-0083

722896.530.000000 LMZZZ.5 5L516 99-5045-2010

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

DLA600-94-D-4129 27 83

3. DATE SHIPPED	4. B/L	5. DISCOUNT TERMS	6. ACCEPTANCE POINT
17 Feb 95	TCN	NET 30	D

7. CONTRACTOR CODE	8. ADMINISTERED BY CODE
Premier O&G Supply Co., T/A CPO 673 Brunswick Ave., Box 1071A, Rahway, NJ 07065	Defense Fuel Supply Center ATTN: DFAS-CO/DFSC-RFFP Cameron Station Bldg 8 Alexandria, VA 22304-6160

SHIPPED FROM (if other than 7) CODE FOB	12. PAYMENT WILL BE MADE BY CODE
	Defense Finance/Accounting Service, Columbus Center Stock Fund Directorate Fuels Accounting and Payments Division ATTN: DFAS-CO-SFFP, P.O. Box 182317 Columbus, OH 43218-6252

13. SHIPPED TO CODE	14. MARKED FOR CODE
irectorate of Installation Logistics upply Services Division uel Oil Branch ort Monmouth, NJ 07703-5000	Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Include number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 66909 7578.1	7,578.1	GL	.59	$4,471.08

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE _____ SIGNATURE OF AUTH GOVT REP _____

TYPED NAME AND OFFICE _____

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

2-17-95

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE _____

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

2-17-95 Ted Smythe

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE _____

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97X1930.5CF0 01 26.1 S33150 000000/A/RR WHSE 5023-0083

722896. J30. 000000 LMZZ2.5 SLJ116 99.5052-2000

D 1924.250 PREVIOUS EDITION OF 1 AUG 67 MAY BE USED

SPO600-94-D-4129 27 83

3. ACCEPTANCE POINT
D.

5. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
21-feb95	TCN	NET 30

TRUE CONTRACTOR CODE	10 ADMINISTERED BY CODE
Premier O&G Supply Co., T/A CPO 673 Brunswick Ave., Box 1071A, Rahway, NJ 07065	Defense Fuel Supply Center ATTN: DFAS-CO/DFSC-RFFP Cameron Station Bldg 8 Alexandria, VA 22304-6160

SHIPPED FROM (if other than 9) CODE FOB:	12. PAYMENT WILL BE MADE BY CODE
	Defense Finance/Accounting Service, Columbus Center Stock Fund Directorate Fuels Accounting and Payments Division ATTN: DFAS-CO-SFFP, P.O. Box 182317 Columbus, OH 43218-6252

SHIPPED TO CODE	14. MARKED FOR CODE
Directorate of Installation Logistics Supply Services Division Fuel Oil Branch Fort Monmouth, NJ 07703-5000	Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 67650 7590.4	7,590.4	GL	.59	$4,478.34

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Maffett

2-21-95

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

2-21-95 DATE RECEIVED

SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CF0 01 26.1 S33150 000000/A/RR WISHZS 5023-0083

722896.530.000000 LMZZZ.5 5LJ116 99-5053-20

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

DLA500-94-D-4129 27 83

REPORT

2.	3. DATE SHIPPED	4. B/L	5. DISCOUNT TERMS	6. ACCEPTANCE POINT
7	23feb95	TCN	NET 30	D

7. TRUE CONTRACTOR CODE	10. ADMINISTERED BY CODE
Premier O&G Supply Co., T/A CPO 673 Brunswick Ave., Box 1071A, Rahway, NJ 07065	Defense Fuel Supply Center ATTN: DFAS-CO/DFSC-FFP Cameron Station Bldg 8 Alexandria, VA 22304-6160
8. SHIPPED FROM (if other than 6) CODE FOB	12. PAYMENT WILL BE MADE BY CODE
	Defense Finance/Accounting Service, Columbus Center Stock Fund Directorate Fuels Accounting and Payments Division ATTN: DFAS-CO-SFFP, P.O. Box 182317 Columbus, OH 43218-6252
13. SHIPPED TO CODE	14. MARKED FOR CODE
Directorate of Installation Logistics Supply Services Division Fuel Oil Branch Fort Monmouth, NJ 07703-5000	Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Include number of shipping container - type of container - container number)	17. QUANTITY SHIP/RECD	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 67649 7636.1	7,636.1	GL	.59	$4,505.30

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffitt

2-23-95

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

2-23-95 Ted Smythe

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 2G.1 S33150 000000/A/RR WISHZS 5023-0083

722896.J30.000000 LMZZZ.5 SLJ116 99-5C54-200C

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 WHICH MAY BE USED

SCO-94-D-4129 27 83 L

2. ACCEPTANCE POINT	3. DATE SHIPPED	4. B/L	5. DISCOUNT TERMS
D	28 feb 95	TCN	NET 30

6. DELIVERY CONTRACTOR / CODE	10. ADMINISTERED BY / CODE
Premier O&G Supply Co., T/A CPO 673 Brunswick Ave., Box 1071A, Rahway, NJ 07065	Defense Fuel Supply Center ATTN: DFAS-CO/DFSC-RFFP Cameron Station Bldg 8 Alexandria, VA 22304-6160
9. SHIPPED FROM (if other than 6) / CODE / FOB:	12. PAYMENT WILL BE MADE BY / CODE
	Defense Finance/Accounting Service, Columbus Center Stock Fund Directorate Fuels Accounting and Payments Division ATTN: DFAS-CO-SFFP, P.O. Box 182317 Columbus, OH 43218-6252
13. SHIPPED TO / CODE	14. MARKED FOR / CODE
Directorate of Installation Logistics Supply Services Division Fuel Oil Branch Fort Monmouth, NJ 07703-5000	Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/REC'D	18. UNIT	19. UNIT PRICE	20. AMOUNT
33462	Burner Oil #2 TICKET NR. GALLONS 68425 7658.5	7,658.5	GL	.59	$4,518.52

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE / SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

2-28-95

DATE / SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

2-28-95 — DATE RECEIVED

SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CT0 01 26.1 S33150 000000/A/RR WISHZS 5023-0083

722896.J38.000000 LMZZZ.5 5LJ116 99-5060-2C

DD FORM 250 PREVIOUS EDITION OF THIS FORM MAY BE USED

MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 2V 88

Page 1 of 5

5. ACCEPTANCE POINT: D

2. SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5. DISCOUNT TERMS
1	3 Jan 95	101	NET 30

6. TYPE CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

7. ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

8. SHIPPED FROM (if other than 6) CODE FOB:

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

9. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (indicate number of shipping containers - type of container - container number)	17. QUANTITY SHIP/RECD	18. UNIT	19. UNIT PRICE	20. AMOUNT
33462	Burner Oil #2 TICKET NR. GALLONS 68426 7571.1	7,571.1	GL	.59	$4,466.95

15. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

3-3-95

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

3-3-95 Ted Smythe

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CF0 01 26.1 S33150 000000/A/RR W1SZS 5055-0088

722896.J30.000000 LMzzz.5 SLJ116 99-5076-2003

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 WHICH MAY BE USED

...IAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 2V 88

5. ACCEPTANCE POINT: D

2. SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5. DISCOUNT TERMS
2	7 Mar 95	TCN	NET 30

6. NAME OF CONTRACTOR / CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY / CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

7. SHIPPED FROM (if other than 6) / CODE / FOB

12. PAYMENT WILL BE MADE BY / CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO / CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR / CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/REC'D	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 68907 7568.6	7,568.6	GL	.59	$ 4,465.47

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE / SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

3-7-95

DATE / SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

3-7-95 — DATE RECEIVED

Tom Walker — SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CF0 01 26.1 S33150 000000/A/RR

WIDES 5055-008E

722896. J30, 000000 LMzzz.5 SLJ116 99-5076-2002

DD FORM 250 — PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

...IAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 2V 88

3 ACCEPTANCE POINT: D

2 SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
3	13Mar95	TCN	NET 30

6 ISSUE CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

11 SHIPPED FROM (if other than 6) CODE FOB

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (indicate number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD	18. UNIT	19. UNIT PRICE	22. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 69356 7569.6	7,569.6	GL	.59	$4,466.06

15. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

3-13-95

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22 RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

3-13-95 Jon Wallis

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/N/RR WISHES 5055-0088

722896.J30.000000 LMZZZ.5 5LJ116 99-5076-2001

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

ERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 2V 88

1 L

3. ACCEPTANCE POINT: D

2. SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5. DISCOUNT TERMS
4	16 Mar 95	TCN	NET 30

6. NAME OF CONTRACTOR / CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY / CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

7. SHIPPED FROM (if other than 6) / CODE / FOB

12. PAYMENT WILL BE MADE BY / CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO / CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR / CODE

Bldg 2700

15. ITEM NO.	16. STOCK/PART NO. / DESCRIPTION (indicate number of shipping containers - type of container - container number)	17. QUANTITY SHIP/REC'D	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 69894 7533.7	7,533.7	GL	.59	$4,444.88

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE / SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

3-16-95

DATE / SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

3-16-95 — DATE RECEIVED

Ted Smythe — SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CF0 01 26.1 S33150 000000/A/RR WIFMS 5055-0088

722896.J30.000000 LMzzz.5 5LJ116 99-5076-200

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 WHICH MAY BE USED

MATERIAL INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 88 | 1 of 1 | 8 ACCEPTANCE POINT: D

2. SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5. DISCOUNT TERMS
5	24 Mar 95	TCN	NET 30

6. NAME OF CONTRACTOR / CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY / CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-NFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

7. SHIPPED FROM (if other than 6) / CODE / FOB

12. PAYMENT WILL BE MADE BY / CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

9. SHIPPED TO / CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR / CODE

Bldg 2700

15. ITEM NO.	16. STOCK/PART NO. / DESCRIPTION (Indicate number of shipping container - type of container - container number.)	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33-462	Burner Oil #2 TICKET NR. GALLONS 70683 7561.3	7,561.3	GL	.59	$4,461.17

21. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

3-24-95 | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

3-24-95 | SIGNATURE OF AUTH GOVT REP

DATE RECEIVED

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACT USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/N/RR WIHZS 5055-0088

722896.J30.000000 LMZZZ.5 5LJ116 99-5086-2000

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 MAY NOT BE USED

ITEM #	33-462	MONTH	MARCH	YEAR	1995	
DAY	COMPANY	TICKET #	BLDG #	TEMP	GRAV	GROSS	NET
3	Premier	68426	2700	46.0	34.1	7523.0	7571.1
4	CRD	68967	2700	48.0	32.4	7528.0	7568.6
16	CRD	70356	2700	49.0	33.6	7532.0	7569.5
16	Premier	68894	2700	50.0	32.3	7500.0	7533.7
24	CRD	70683	2700	48.0	33.5	7520.0	7561.3
		Total	37803.7				

AP2-5

MATERIAL INSPECTION AND RECEIVING REPORT

DO/600-94-D- 4129 | 2V 93 | 1 L | 6 ACCEPTANCE POINT: D

1 SHIPMENT NO.	2 DATE SHIPPED	4 B/L	5 DISCOUNT TERMS
1	11 Apr 95	TCN	NET 30

3 PURCHASE CONTRACTOR — CODE
Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY — CODE
Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (If other than 3) — CODE — FOB

12. PAYMENT WILL BE MADE BY — CODE
Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO — CODE
Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR — CODE
Bldg 2700

ITEM NO.	16. STOCK/PART NO. (Include number of shipping containers - type of container - container number.) DESCRIPTION	17. QUANTITY SHIP/RECD *	18. UNIT	19. UNIT PRICE	20. AMOUNT
33462	Burner Oil #2 TICKET NR. GALLONS 71902 7564.8	7,564.8	GL	.59	$ 4,463.23

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN
☐ PCA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.
DATE — SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

B. DESTINATION
☐ PCA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.
Barbara C. Moffett
4-11-95
DATE — SIGNATURE OF AUTH GOVT REP
TYPED NAME AND TITLE

22. RECEIVER'S USE
Quantities shown in column 17 were received in apparent good condition except as noted.
4-11-95
DATE RECEIVED — SIGNATURE OF AUTH GOVT REP
TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY
97X1930.5070 01 26.1 S33150 000000/A/RR WISHZS 5086-0093

722896.J30 000000 LMZZZ.5 5LJ116 99-5103-2000

DD FORM 250 — PREVIOUS EDITION OF 1 AUG 67 MAY BE USED

FINAL INSPECTION AND RECEIVING REPORT

SP0600-94-D-4129 2V 93 | 6 ACCEPTANCE POINT: D

VOUCHER NO.	3. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
2	18 Apr 95		NET 30

TRUE CONTRACTOR CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

SHIPPED FROM (if other than 7) CODE FOB

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. (include number of shipping container - type of container - container number) DESCRIPTION	17. QUANTITY SHIP/RECD	18. UNIT	19. UNIT PRICE	20. AMOUNT
33462	Burner Oil #2 TICKET NR. GALLONS 72322 7490.4	7,490.4	GL	.59	$4,419.34

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
4-18-95

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

4-18-95 | John Walling
DATE RECEIVED | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

CONTRACTOR USE ONLY

97A7800.BUTO 01 26.1 S33150 000000/A/RR WISHZS 5086-0093

722896.J3C.000000 LMZZZ.5 5LJ116 99-5109-2000

PREVIOUS EDITION OF 1 AUG 67 MAY BE USED

INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 | 2V 93 | 9 ACCEPTANCE POINT: D

1 PIIN	2. DATE SHIPPED	4. B/L	5 DISCOUNT TERMS
3	25 Apr 95	TCN	NET 30

6. CONTRACTOR CODE

Premier C&S Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

7 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

8 SHIPPED FROM (If other than 6) CODE FOB

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13 SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. (include number of shipping containers - type of container - container number) DESCRIPTION	17. QUANTITY SHIP/RECD	18. UNIT	19. UNIT PRICE	20. AMOUNT
33	462 Burner Oil #2 TICKET NR. GALLONS 72624 7555.3	7,555.3	GL	.59	$4,457.63

15. PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

4-25-95

DATE | SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

4-25-95 | SIGNATURE OF AUTH GOVT REP

DATE RECEIVED

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CF0 01 26.1 S33150 000000/A/RR W1SHZS 5086-0093

722896.J30.000000 LMZZZ.5 5LJ116 99-5118-2004

DD FORM 250

PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 2/ 10

5 ACCEPTANCE POINT: D

1. SHIPMENT NO.	3. DATE SHIPPED	4. B/L	5. DISCOUNT TERMS
1	7 July 95	101	NET 30

6. THE CONTRACTOR / CODE

Premier Oil Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY / CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-SFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

7. SHIPPED FROM (if other than 6) / CODE / FOB

12. PAYMENT WILL BE MADE BY / CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

9. SHIPPED TO / CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR / CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. (include number of shipping containers - type of container - container number) DESCRIPTION	17. QUANTITY SHIP/REC'D	18. UNIT	19. UNIT PRICE	20. AMOUNT
0334462	Burner Oil #2 TICKET NR. GALLONS 76091 7403.2	7,403.2	GL	.59	$4,367.89

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE / SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

7-7-95

DATE / SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

7-7-95

DATE RECEIVED / SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. CONTRACTOR USE ONLY

97X1930.5CF0 01 26.1 S33150 000000/A/RR

WHSDS 5180-0110

722896.530.000000 LMZZZ.5 5LJ116 99-5209-2001

DD FORM 250 PREVIOUS EDITION OF 1 AUG 87 MAY BE USED

INSPECTION AND RECEIVING REPORT

DLA600-94-D-4129 27 10

3 ACCEPTANCE POINT: D

2. CONT NO.	3. DATE SHIPPED	4. B/L	5. DISCOUNT TERMS
2	18 July 95	TCN	NET 30

6. NAME OF CONTRACTOR / CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

10. ADMINISTERED BY / CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

7. SHIPPED FROM (if other than 6) / CODE / FOB

12. PAYMENT WILL BE MADE BY / CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

8. SHIPPED TO / CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR / CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. (Include number of shipping containers - type of container - container number.) DESCRIPTION	17. QUANTITY SHIP/RECD	18. UNIT	19. UNIT PRICE	20. AMOUNT
0033462	Burner Oil #2 TICKET NR. GALLONS 76509 7456.7	7,456.7	GL	.59	2,595.68

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE / SIGNATURE OF AUTH GOVT REP / TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett

7-18-95

DATE / SIGNATURE OF AUTH GOVT REP / TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

7-18-95 — DATE RECEIVED

SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

21. CONTRACTOR USE ONLY

97X4930.5CF0 01 26.1 S33150 000000/A/RR

WHSIZS 5180-0110

722896.J30.000000 LMZZZ.5 SLJ116 99-5209-2000

DD FORM 250 PREVIOUS EDITION OF 1 AUG 67 MAY BE USED

INSPECTION AND ACCEPTANCE REPORT

DCSC-94-D-4129 2V 10

1 L

2 ACCEPTANCE POINT D

1 PIC NO.	2. DATE SHIPPED	3. B/L	5 DISCOUNT TERMS
3	27 July 95	101	NET 30

4. TYPE OF CONTRACT / ORDER CODE

Premier O&G Supply Co.,
T/A CPO
673 Brunswick Ave., Box 1071A,
Rahway, NJ 07065

6 ADMINISTERED BY CODE

Defense Fuel Supply Center
ATTN: DFAS-CO/DFSC-RFFP
Cameron Station Bldg 8
Alexandria, VA 22304-6160

9 PAID BY / OTHER THAN 8 CODE FOB

12. PAYMENT WILL BE MADE BY CODE

Defense Finance/Accounting Service, Columbus Center
Stock Fund Directorate
Fuels Accounting and Payments Division
ATTN: DFAS-CO-SFFP, P.O. Box 182317
Columbus, OH 43218-6252

13. SHIPPED TO CODE

Directorate of Installation Logistics
Supply Services Division
Fuel Oil Branch
Fort Monmouth, NJ 07703-5000

14. MARKED FOR CODE

Bldg 2700

ITEM NO.	16. STOCK/PART NO. DESCRIPTION (Include number of shipping containers - type of container - container number.)	17. QUANTITY SHIP/RECD	18. UNIT	19. UNIT PRICE	22. AMOUNT
0-33-462	Burner Oil #2 TICKET NR. GALLONS 76761 7471	7,471	GL	.59	$4,407.8

PROCUREMENT QUALITY ASSURANCE

A. ORIGIN

☐ POA ☐ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

B. DESTINATION

☐ POA ☒ ACCEPTANCE of listed items has been made by me or under my supervision and they conform to contract, except as noted herein or on supporting documents.

Barbara C. Moffett
7-27-95

DATE SIGNATURE OF AUTH GOVT REP

TYPED NAME AND TITLE

22. RECEIVER'S USE

Quantities shown in column 17 were received in apparent good condition except as noted.

7-27-95 Kevin Urban

DATE RECEIVED SIGNATURE OF AUTH GOVT REP

TYPED NAME AND OFFICE

* If quantity received by the Government is the same as quantity shipped, indicate by (✓) mark. If different, enter actual quantity received below quantity shipped and encircle.

23. GOVERNMENT USE ONLY 97X1930.5CT0 01 26.1 S33150 000000/A/RR

WIDTS 5180-0110

722896.530.000000 LMZZZ;5 SLJ116 99-5209-2002

DD FORM 250 PREVIOUS EDITION OF THIS FORM MAY BE USED

Attachment 8.6

Building 2700 Natural Gas Bills

NEW JERSEY NATURAL GAS COMPANY SUMMARY BILLING
PRIMARY ACCOUNT NUMBER 20-3298-4510-18
DATE 09/23/95 PAGE 81

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: ,GUAM,CT,,BLD 2103 FTMON
ACCOUNT NUMBER: 10-3203-0420-1-0 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 10/13/95
METER NUMBER: 544139 CONSTANT: B CURR METER READ: 4650 PREV METER READ: 4489
CCF USED: 161 X 1.052 = THERMS: 169.37 SERVICE PERIOD: 08/14-09/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $138.38

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 145,BUILDING,,,SHERRILL FTMON
ACCOUNT NUMBER: 10-3203-0421-1-6 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 10/13/95
METER NUMBER: 565301 CONSTANT: A CURR METER READ: 613 PREV METER READ: 575
CCF USED: 38 X 1.047 = THERMS: 39.79 SERVICE PERIOD: 08/14-09/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $43.07

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: ,RIVERSIDE,AV,,BLD 498 FTMON
ACCOUNT NUMBER: 10-3203-0423-1-9 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 10/13/95
METER NUMBER: 260119 CONSTANT: B CURR METER READ: 4231 PREV METER READ: 4225
CCF USED: 6 X 1.052 = THERMS: 6.31 SERVICE PERIOD: 08/14-09/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $18.45

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 1220,BUILDING,,,B RITTKO FTMON
ACCOUNT NUMBER: 10-3203-0425-1-1 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 10/13/95
METER NUMBER: 550502 CONSTANT: B CURR METER READ: 32 PREV METER READ: 29
CCF USED: 3 X 1.052 = THERMS: 3.16 SERVICE PERIOD: 08/14-09/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $16.14

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 2700,BUILDING,,,B PEARL HFTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 10/13/95
METER NUMBER: 382802 CONSTANT: B CURR METER READ: 7286 PREV METER READ: 7243
CCF USED: 43 X 1.052 = THERMS: 45.24 SERVICE PERIOD: 08/14-09/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $47.09

NEW JERSEY NATURAL GAS COMPANY SUMMARY BILLING
PRIMARY ACCOUNT NUMBER 20-3298-4510-18
DATE 10/25/95 PAGE 81

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: ,GUAM,CT,,BLD 2103 FTMON
ACCOUNT NUMBER: 10-3203-0420-1-0 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 12/14/95
METER NUMBER: 544139 CONSTANT: B CURR METER READ: 4769 PREV METER READ: 4650
CCF USED: 119 X 1.053 = THERMS: 125.31 SERVICE PERIOD: 09/13-10/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $105.97

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 145,BUILDING,,,SHERRILL FTMON
ACCOUNT NUMBER: 10-3203-0421-1-6 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 12/14/95
METER NUMBER: 565301 CONSTANT: A CURR METER READ: 584 PREV METER READ: 575
CCF USED: 9 X 1.048 = THERMS: 9.43 SERVICE PERIOD: 08/14-10/13
SERVICE CHARGE: $.00 ADJUSTMENT: $43.07-
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $8.51-

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: ,RIVERSIDE,AV,,BLD 498 FTMON
ACCOUNT NUMBER: 10-3203-0423-1-9 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 12/14/95
METER NUMBER: 260119 CONSTANT: B CURR METER READ: 4238 PREV METER READ: 4231
CCF USED: 7 X 1.053 = THERMS: 7.37 SERVICE PERIOD: 09/13-10/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $19.23

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 1220,BUILDING,,,B RITTKO FTMON
ACCOUNT NUMBER: 10-3203-0425-1-1 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 12/14/95
METER NUMBER: 550502 CONSTANT: B CURR METER READ: 38 PREV METER READ: 32
CCF USED: 6 X 1.053 = THERMS: 6.32 SERVICE PERIOD: 09/13-10/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $18.46

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 2700,BUILDING,,,B PEARL HFTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 12/14/95
METER NUMBER: 382802 CONSTANT: B CURR METER READ: 8125 PREV METER READ: 7286
CCF USED: 839 X 1.053 = THERMS: 883.47 SERVICE PERIOD: 09/13-10/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $663.60

NEW JERSEY NATURAL GAS COMPANY SUMMARY BILLING
PRIMARY ACCOUNT NUMBER 20-3298-4510-18
DATE 11/23/95 PAGE 81

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: ,GUAM,CT,,BLD 2103 FTMON
ACCOUNT NUMBER: 10-3203-0420-1-0 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 12/14/95
METER NUMBER: 544139 CONSTANT: B CURR METER READ: 5119 PREV METER READ: 4769
CCF USED: 350 X 1.052 = THERMS: 368.20 SERVICE PERIOD: 10/13-11/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $284.62

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 145,BUILDING,,,SHERRILL FTMON
ACCOUNT NUMBER: 10-3203-0421-1-6 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 12/14/95
METER NUMBER: 565301 CONSTANT: A CURR METER READ: 709 PREV METER READ: 584
CCF USED: 125 X 1.047 = THERMS: 130.88 SERVICE PERIOD: 10/13-11/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $110.07

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: ,RIVERSIDE,AV,,BLD 498 FTMON
ACCOUNT NUMBER: 10-3203-0423-1-9 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 12/14/95
METER NUMBER: 260119 CONSTANT: B CURR METER READ: 4267 PREV METER READ: 4238
CCF USED: 29 X 1.052 = THERMS: 30.51 SERVICE PERIOD: 10/13-11/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $36.25

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 1220,BUILDING,,,B RITTKO FTMON
ACCOUNT NUMBER: 10-3203-0425-1-1 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 12/14/95
METER NUMBER: 550502 CONSTANT: B CURR METER READ: 44 PREV METER READ: 38
CCF USED: 6 X 1.052 = THERMS: 6.31 SERVICE PERIOD: 10/13-11/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $18.45

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 2700,BUILDING,,,B PEARL HFTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 12/14/95
METER NUMBER: 382802 CONSTANT: B CURR METER READ: 8822 PREV METER READ: 8125
CCF USED: 697 X 1.052 = THERMS: 733.24 SERVICE PERIOD: 10/13-11/13
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $553.11

NEW JERSEY NATURAL GAS COMPANY SUMMARY BILLING
PRIMARY ACCOUNT NUMBER 20-3298-4510-18
DATE 12/28/95 PAGE 81

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 145,BUILDING,,,SHERRILL FTMON
ACCOUNT NUMBER: 10-3203-0421-1-6 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 02/14/96
METER NUMBER: 565301 CONSTANT: A CURR METER READ: 795 PREV METER READ: 709
CCF USED: 86 X 1.047 = THERMS: 90.04 SERVICE PERIOD: 11/13-12/14
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $80.04

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: ,RIVERSIDE,AV,,BLD 498 FTMON
ACCOUNT NUMBER: 10-3203-0423-1-9 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 02/14/96
METER NUMBER: 260119 CONSTANT: B CURR METER READ: 4311 PREV METER READ: 4267
CCF USED: 44 X 1.052 = THERMS: 46.29 SERVICE PERIOD: 11/13-12/14
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $47.85

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 1220,BUILDING,,,B RITTKO FTMON
ACCOUNT NUMBER: 10-3203-0425-1-1 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 02/14/96
METER NUMBER: 550502 CONSTANT: B CURR METER READ: 54 PREV METER READ: 44
CCF USED: 10 X 1.052 = THERMS: 10.52 SERVICE PERIOD: 11/13-12/14
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $21.54

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 2700,BUILDING,,,B PEARL HFTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 02/14/96
METER NUMBER: 382802 CONSTANT: B CURR METER READ: 9042 PREV METER READ: 8822
CCF USED: 220 X 1.052 = THERMS: 231.44 SERVICE PERIOD: 11/13-12/14
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $184.04

CUSTOMER NAME: FORT MONMOUTH SERVICE ADDRESS: 1124,BUILDING,,,ALEXANDERFTMON
ACCOUNT NUMBER: 10-3203-0427-1-4 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 02/14/96
METER NUMBER: 566086 CONSTANT: B CURR METER READ: 1035 PREV METER READ: 950
CCF USED: 85 X 1.052 = THERMS: 89.42 SERVICE PERIOD: 11/13-12/14
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $79.58

NEW JERSEY **NATURAL GAS** COMPANY
People and Resources Dedicated to Service
1415 WYCKOFF ROAD, P.O. BOX 1378 WALL, NEW JERSEY 07715-0001

Billing or Service Telephone Numbers-

WITHIN NEW JERSEY 1-800-221-0051
FROM OUT OF STATE 1-908-938-7977

ACCOUNT NUMBER		TOTAL BALANCE
20-3298-4510-18	FORT MONMOUTH DIRECTOR OF PUBLIC WORKS SELFM-PW-R BLDG 173 ATT: MRS WHITE FT MONMOUTH, NJ 07703	$83,040.86
		DUE DATE AUGUST 15, 1994
		SHOWS PAYMENTS RECEIVED BY AUGUST 03, 1994

BALANCE FORWARD:		$132,971.86	LGA AMOUNT:	$11,833.30
PRIOR BILLS:		$.00	WNA AMOUNT:	$.72
		$31,474.01-		
PAYMENT - THANK YOU	07/20	$101,497.85-		
ADJUSTMENTS:		$4,083.74-	THERMS:	115,001.27
SERVICE CHARGES:		$195.00		
CURRENT CHARGES:		$86,929.60		
TOTAL AMOUNT DUE:		$83,040.86		

IMPORTANT INFORMATION ON REVERSE SIDE

Please return this portion with your payment
When paying in person, please bring this entire notice with you
Make checks payable to NJNG

ACCOUNT NUMBER
20-3298-4510-18
DUE DATE
AUGUST 15, 1994
AMOUNT DUE
$83,040.86

FORT MONMOUTH
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLDG 173
ATT: MRS WHITE
FT MONMOUTH, NJ 07703-0000

NJ NATURAL GAS CO.
P.O.BOX 1378
WALL, N.J. 07715-0001

203298451013 2050 00000820000 0000000000

SERVICE ADDRESS: 1220,BUILDING,,,B RITTKO FTMON
ACCOUNT NUMBER: 10-3203-0425-1-1 CURRENT AMOUNT: $63.44 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 08/16/94
METER NUMBER: 550502B CURRENT METER READ: 14 PREVIOUS METER READ:
CCF USED: 14 X 1.060 = THERMS: 14.84 SERVICE PERIOD: 03/22-07/16
SERVICE CHARGE: $.00 ADJUSTMENT: $202.60-
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $139.16-

SERVICE ADDRESS: 2700,BUILDING,,,B GUAM FTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 CURRENT AMOUNT: $.00 BILL TYPE: UNBILLED
RATE: COM LLF CURRENT READ: NO READ NEXT READ DATE: 08/16/94
METER NUMBER: 382802B CURRENT METER READ: PREVIOUS METER READ: 5770
CCF USED: 0 X 1.060 = THERMS: .00 SERVICE PERIOD: 06/24-00/00
SERVICE CHARGE: $15.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $15.00

SERVICE ADDRESS: ,PINE BROOK,RD,,BLDG 45 ETNTN
ACCOUNT NUMBER: 10-3249-8155-1-6 CURRENT AMOUNT: $18,195.11 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 08/18/94

METER NUMBER:	CURRENT METER READ:	PREVIOUS METER READ:
500710	12127	12063
248860	73512	73026
508988	7114	7058
522758	70650	70425
522760	719320	718830

CCF USED: 24010 X 1.055 = THERMS: 25330.55 SERVICE PERIOD: 05/20-07/21
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $18,195.11

SERVICE ADDRESS: 116,MARCONI,RD,,CAMP EVANWALL
ACCOUNT NUMBER: 11-3347-5310-1-5 CURRENT AMOUNT: $1,059.24 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 08/22/94
METER NUMBER: 252269 CURRENT METER READ: 59955 PREVIOUS METER READ: 59821
CCF USED: 1340 X 1.055 = THERMS: 1413.70 SERVICE PERIOD: 06/23-07/25
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $1,059.24

SERVICE ADDRESS: ,OCEANPORT,AV,,AREA 1C OCNPT
ACCOUNT NUMBER: 13-3254-7500-1-6 CURRENT AMOUNT: $4.14 BILL TYPE: FINAL
RATE: COM HLF CURRENT READ: ACTUAL NEXT READ DATE: 08/15/94

METER NUMBER:	CURRENT METER READ:	PREVIOUS METER READ:
528490	108555	108555
336220	56179	56179

CCF USED: 0 X 1.055 = THERMS: .00 SERVICE PERIOD: 06/16-06/24
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $4.14

NEW JERSEY **NATURAL GAS** COMPANY
People and Resources Dedicated to Service
1415 WYCKOFF ROAD, P.O. BOX 1378 WALL, NEW JERSEY 07715-0001

Billing or Service Telephone Numbers-
WITHIN NEW JERSEY 1-800-221-0051
FROM OUT OF STATE 1-908-938-7977

ACCOUNT NUMBER		TOTAL BALANCE
20-3298-4510-18	FORT MONMOUTH DIRECTOR OF PUBLIC WORKS SELFM-PW-R BLDG 173 ATT: MRS WHITE FT MONMOUTH, NJ 07703	$59,372.90
		DUE DATE SEPTEMBER 06, 1994
		SHOWS PAYMENTS RECEIVED BY AUGUST 24, 1994

LANCE FORWARD:		$83,040.86	LGA AMOUNT:	$8,177.98
IOR BILLS:		$.00	WNA AMOUNT:	$.16
YMENT - THANK YOU	08/23	$83,040.86-		
JUSTMENTS:		$4,602.87-	THERMS:	79,474.93
RVICE CHARGES:		$495.00		
RRENT CHARGES:		$63,480.77		
TAL AMOUNT DUE:		$59,372.90		

IMPORTANT INFORMATION ON REVERSE SIDE

ease return this portion with your payment. When paying in person, ease bring this entire bill with you. Make checks payable to NJNG. r address changes or comments, please call numbers shown above.

ACCOUNT NUMBER
20-3298-4510-18
DUE DATE
SEPTEMBER 06, 1994
AMOUNT DUE
$59,372.90

FORT MONMOUTH
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLDG 173
ATT: MRS WHITE
FT MONMOUTH, NJ 07703-0000

NJ NATURAL GAS CO.
P.O.BOX 1378
WALL, N.J. 07715-0001

A0022 02/14/94

20329845101 2050 00005937290 00000000000

SERVICE ADDRESS: 2103,BUILDING,,,GUAM RD FTMON
ACCOUNT NUMBER: 10-3203-0420-1-0 CURRENT AMOUNT: $232.83 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/17/94
METER NUMBER: 5441398 CURRENT METER READ: 652 PREVIOUS METER READ: 371
CCF USED: 281 X 1.054 = THERMS: 296.17 SERVICE PERIOD: 07/19-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $232.83

SERVICE ADDRESS: 621,BUILDING,,,HARMON AV FTMON
ACCOUNT NUMBER: 10-3203-0422-1-2 CURRENT AMOUNT: $53.12 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/17/94
METER NUMBER: 2757958 CURRENT METER READ: 267 PREVIOUS METER READ: 252
CCF USED: 15 X 1.054 = THERMS: 15.81 SERVICE PERIOD: 05/18-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $95.75-
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $42.63-

SERVICE ADDRESS: 498,BUILDING,,,RIVERSIDE FTMON
ACCOUNT NUMBER: 10-3203-0423-1-9 CURRENT AMOUNT: $19.27 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/17/94
METER NUMBER: 2601198 CURRENT METER READ: 3961 PREVIOUS METER READ: 3954
CCF USED: 7 X 1.054 = THERMS: 7.38 SERVICE PERIOD: 07/16-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $19.27

SERVICE ADDRESS: 1220,BUILDING,,,B RITTKO FTMON
ACCOUNT NUMBER: 10-3203-0425-1-1 CURRENT AMOUNT: $16.93 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/17/94
METER NUMBER: 5505028 CURRENT METER READ: 18 PREVIOUS METER READ: 14
CCF USED: 4 X 1.054 = THERMS: 4.22 SERVICE PERIOD: 07/16-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $16.93

SERVICE ADDRESS: 2700,BUILDING,,,B GUAM FTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 CURRENT AMOUNT: $76.47 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 10/17/94
METER NUMBER: 3828028 CURRENT METER READ: 5838 PREVIOUS METER READ: 5770
CCF USED: 68 X 1.054 = THERMS: 71.67 SERVICE PERIOD: 06/24-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $76.47

NEW JERSEY **NATURAL GAS** COMPANY
People and Resources Dedicated to Service
1415 WYCKOFF ROAD, P.O. BOX 1378 WALL, NEW JERSEY 07715-0001

Billing or Service Telephone Numbers-
WITHIN NEW JERSEY 1-800-221-0051
FROM OUT OF STATE 1-908-938-7977

ACCOUNT NUMBER		TOTAL BALANCE
20-3298-4510-18	FORT MONMOUTH DIRECTOR OF PUBLIC WORKS SELFM-PW-R BLDG 173 ATT: MRS WHITE FT MONMOUTH, NJ 07703	$55,554.98
		DUE DATE OCTOBER 05, 1994
		SHOWS PAYMENTS RECEIVED BY SEPTEMBER 23, 1994

BALANCE FORWARD:		$59,372.90	LGA AMOUNT:	$7,935.10
PRIOR BILLS:		$.00	WNA AMOUNT:	$17.82
PAYMENT - THANK YOU	09/13	$59,372.90-		
ADJUSTMENTS:		$6,012.46-	THERMS: →	77,115.40
SERVICE CHARGES:		$255.00		
CURRENT CHARGES:		$61,312.44		
TOTAL AMOUNT DUE: →		$55,554.98		

IMPORTANT INFORMATION ON REVERSE SIDE

Please return this portion with your payment. When paying in person, please bring this entire bill with you. Make checks payable to NJNG. For address changes or comments, please call numbers shown above.

ACCOUNT NUMBER
20-3298-4510-18
DUE DATE
OCTOBER 05, 1994
AMOUNT DUE
$55,554.98

FORT MONMOUTH
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLDG 173
ATT: MRS WHITE
FT MONMOUTH, NJ 07703-0000

NJ NATURAL GAS CO.
P.O.BOX 1378
WALL, N.J. 07715-0001

A0022 02/24/94

20329845101 2050 00005555498 00000000000

SERVICE ADDRESS: 2700,BUILDING,,,B PEARL HFTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 CURRENT AMOUNT: $.00 BILL TYPE: UNBILLED
RATE: COM LLF CURRENT READ: NO READ NEXT READ DATE: 10/17/94
METER NUMBER: 382802B CURRENT METER READ: PREVIOUS METER READ: 5770
CCF USED: 0 X 1.054 = THERMS: .00 SERVICE PERIOD: 09/01-00/00
SERVICE CHARGE: $15.00 ADJUSTMENT: $76.47-
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $61.47-

SERVICE ADDRESS: ,PINE BROOK,RD,,BLDG 45 ETNTN
ACCOUNT NUMBER: 10-3249-8155-1-6 CURRENT AMOUNT: $9,211.14 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/19/94

METER NUMBER:	CURRENT METER READ:	PREVIOUS METER READ:
500710	12129	12127
248860	73967	73512
508988	7146	7114
522758	70774	70650
522760	719610	719320

CCF USED: 12090 X 1.049 = THERMS: 12682.41 SERVICE PERIOD: 07/21-09/19
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $9,211.14

SERVICE ADDRESS: 116,MARCONI,RD,,CAMP EVANWALL
ACCOUNT NUMBER: 11-3347-5310-1-5 CURRENT AMOUNT: $2,075.56 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/21/94
METER NUMBER: 252269 CURRENT METER READ: 60219 PREVIOUS METER READ: 59955
CCF USED: 2640 X 1.049 = THERMS: 2769.36 SERVICE PERIOD: 07/25-09/21
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $2,075.56

SERVICE ADDRESS: ,OCEANPORT,AV,,AREA 1C OCNPT
ACCOUNT NUMBER: 13-3254-7500-1-6 CURRENT AMOUNT: $.00 BILL TYPE: FINAL
RATE: COM HLF CURRENT READ: ACTUAL NEXT READ DATE: 08/15/94

METER NUMBER:	CURRENT METER READ:	PREVIOUS METER READ:
528490	108555	108555
336220	56179	56179

CCF USED: 0 X 1.055 = THERMS: .00 SERVICE PERIOD: 06/16-06/24
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $.00

JERSEY **NATURAL GAS** COMPANY
Energy and Resources Dedicated to Service
1415 WYCKOFF ROAD, P.O. BOX 1378 WALL, NEW JERSEY 07715-0001

Billing or Service Telephone Numbers-

WITHIN NEW JERSEY 1-800-221-0051
FROM OUT OF STATE 1-908-938-7977

ACCOUNT NUMBER		TOTAL BALANCE
20-3298-4510-18	FORT MONMOUTH DIRECTOR OF PUBLIC WORKS SELFM-PW-R BLDG 173 ATT: MRS WHITE FT MONMOUTH, NJ 07703	**$97,444.28** DUE DATE **NOVEMBER 04, 1994** SHOWS PAYMENTS RECEIVED BY OCTOBER 25, 1994

LANCE FORWARD:		$55,554.98	LGA AMOUNT:	$13,167.59
IOR BILLS:		$.00	WNA AMOUNT:	$.02
YMENT - THANK YOU	10/07	$55,554.98-		
JUSTMENTS:		$3,017.41-	THERMS:	127,964.96
RVICE CHARGES:		$690.00		122.26 Hdw
RRENT CHARGES:		$99,771.69		128,087.22
TAL AMOUNT DUE:		$97,444.28		
		115.07 Hdw		
		$97,559.35		

IMPORTANT INFORMATION ON REVERSE SIDE

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ACCOUNT NUMBER
20-3298-4510-18
DUE DATE
NOVEMBER 04, 1994
AMOUNT DUE
$97,444.28

FORT MONMOUTH
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLDG 173
ATT: MRS WHITE
FT MONMOUTH, NJ 07703-0000

NJ NATURAL GAS CO.
P.O.BOX 1378
WALL, N.J. 07715-0001

A0022 02/24/94

20329845101 2050 00009744428 00000000000

SERVICE ADDRESS: 1220,BUILDING,,,B RITTKO FTMON
ACCOUNT NUMBER: 10-3203-0425-1-1 CURRENT AMOUNT: $33.08 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 12/16/94
METER NUMBER: 550502B CURRENT METER READ: 25 PREVIOUS METER READ: 18
CCF USED: 7 X 1.054 = THERMS: 7.38 SERVICE PERIOD: 08/16-10/17
SERVICE CHARGE: $.00 ADJUSTMENT: $43.43-
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $10.35-

SERVICE ADDRESS: 2700,BUILDING,,,B PEARL HFTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 CURRENT AMOUNT: $109.57 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 12/16/94
METER NUMBER: 382802B CURRENT METER READ: 5884 PREVIOUS METER READ: 5770
CCF USED: 114 X 1.054 = THERMS: 120.16 SERVICE PERIOD: 09/01-10/17
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $109.57

SERVICE ADDRESS: ,PINE BROOK,RD.,BLDG 45 ETNTN
ACCOUNT NUMBER: 10-3249-8155-1-6 CURRENT AMOUNT: $.00 BILL TYPE: UNBILLED
RATE: COM LLF CURRENT READ: NO READ NEXT READ DATE: 11/17/94
METER NUMBER: 500710 CURRENT METER READ: PREVIOUS METER READ: 12129
248860 73967
508988 7146
522758 70774
CCF USED: 0 X 1.050 = THERMS: .00 SERVICE PERIOD: 09/19-00/00
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $.00

SERVICE ADDRESS: 116,MARCONI,RD,,CAMP EVANWALL
ACCOUNT NUMBER: 11-3347-5310-1-5 CURRENT AMOUNT: $1,388.17 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 11/17/94
METER NUMBER: 252269 CURRENT METER READ: 60396 PREVIOUS METER READ: 60219
CCF USED: 1770 X 1.050 = THERMS: 1858.50 SERVICE PERIOD: 09/21-10/19
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $1,388.17

SERVICE ADDRESS: ,OCEANPORT,AV,,AREA 1C OCNPT
ACCOUNT NUMBER: 13-3254-7500-1-6 CURRENT AMOUNT: $.00 BILL TYPE: FINAL
RATE: COM HLF CURRENT READ: ACTUAL NEXT READ DATE: 08/15/94
METER NUMBER: 528490 CURRENT METER READ: 108555 PREVIOUS METER READ: 108555
336220 56179 56179
CCF USED: 0 X 1.055 = THERMS: .00 SERVICE PERIOD: 06/16-06/24
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $.00

NEW JERSEY **NATURAL GAS** COMPANY
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1415 WYCKOFF ROAD, P.O. BOX 1378 WALL, NEW JERSEY 07715-0001

Billing or Service Telephone Numbers-

WITHIN NEW JERSEY 1-800-221-0051
FROM OUT OF STATE 1-908-938-7977

ACCOUNT NUMBER		TOTAL BALANCE
20-3298-4510-18	FORT MONMOUTH DIRECTOR OF PUBLIC WORKS SELFM-PW-R BLDG 173 ATT: MRS WHITE FT MONMOUTH, NJ 07703	$59,372.90
		DUE DATE SEPTEMBER 06, 1994
		SHOWS PAYMENTS RECEIVED BY AUGUST 24, 1994

BALANCE FORWARD:		$83,040.86	LGA AMOUNT:	$8,177.98
PRIOR BILLS:		$.00	WNA AMOUNT:	$.16
PAYMENT - THANK YOU	08/23	$83,040.86-		
ADJUSTMENTS:		$4,602.87-	THERMS:	79,474.93
SERVICE CHARGES:		$495.00		
CURRENT CHARGES:		$63,480.77		
TOTAL AMOUNT DUE:		$59,372.90		

IMPORTANT INFORMATION ON REVERSE SIDE

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ACCOUNT NUMBER
20-3298-4510-18
DUE DATE
SEPTEMBER 06, 1994
AMOUNT DUE
$59,372.90

FORT MONMOUTH
DIRECTOR OF PUBLIC WORKS
SELFM-PW-R BLDG 173
ATT: MRS WHITE
FT MONMOUTH, NJ 07703-0000

NJ NATURAL GAS CO.
P.O.BOX 1378
WALL, N.J. 07715-0001

A0022 02/24/94

20329845101 2050 00005937290 00000000000

NEW JERSEY NATURAL GAS COMPANY SUMMARY BILLING
PRIMARY ACCOUNT NUMBER 20-3298-4510-18
DATE 08/25/94 PAGE 66

SERVICE ADDRESS: 2103,BUILDING,,,GUAM RD FTMON
ACCOUNT NUMBER: 10-3203-0420-1-0 CURRENT AMOUNT: $232.83 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/17/94
METER NUMBER: 5441398 CURRENT METER READ: 652 PREVIOUS METER READ: 371
CCF USED: 281 X 1.054 = THERMS: 296.17 SERVICE PERIOD: 07/19-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $232.83

SERVICE ADDRESS: 621,BUILDING,,,HARMON AV FTMON
ACCOUNT NUMBER: 10-3203-0422-1-2 CURRENT AMOUNT: $53.12 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/17/94
METER NUMBER: 2757958 CURRENT METER READ: 267 PREVIOUS METER READ: 252
CCF USED: 15 X 1.054 = THERMS: 15.81 SERVICE PERIOD: 05/18-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $95.75-
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $42.63-

SERVICE ADDRESS: 498,BUILDING,,,RIVERSIDE FTMON
ACCOUNT NUMBER: 10-3203-0423-1-9 CURRENT AMOUNT: $19.27 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/17/94
METER NUMBER: 2601198 CURRENT METER READ: 3961 PREVIOUS METER READ: 3954
CCF USED: 7 X 1.054 = THERMS: 7.38 SERVICE PERIOD: 07/16-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $19.27

SERVICE ADDRESS: 1220,BUILDING,,,B RITTKO FTMON
ACCOUNT NUMBER: 10-3203-0425-1-1 CURRENT AMOUNT: $16.93 BILL TYPE: MONTHLY
RATE: COM LLF CURRENT READ: ACTUAL NEXT READ DATE: 10/17/94
METER NUMBER: 5505028 CURRENT METER READ: 18 PREVIOUS METER READ: 14
CCF USED: 4 X 1.054 = THERMS: 4.22 SERVICE PERIOD: 07/16-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $16.93

SERVICE ADDRESS: 2700,BUILDING,,,B GUAM FTMON
ACCOUNT NUMBER: 10-3203-0426-1-8 CURRENT AMOUNT: $76.47 BILL TYPE: PRORATE
RATE: COM LLF CURRENT READ: CALCULATED NEXT READ DATE: 10/17/94
METER NUMBER: 3828028 CURRENT METER READ: 5838 PREVIOUS METER READ: 5770
CCF USED: 68 X 1.054 = THERMS: 71.67 SERVICE PERIOD: 06/24-08/16
SERVICE CHARGE: $.00 ADJUSTMENT: $.00
PRIOR BILL: $.00 ADDITIONAL CURRENT CHRGS: $.00 TOTAL: $76.47

GENERAL INFORMATION

OFFICE LOCATIONS
HOURS—8am to 4.30pm

ROCKAWAY	301 Pounchill Drive
ASBURY PARK	601 Bangs Ave
WALL	1415 Wickoff Rd
LAKEWOOD	775 Vassar Ave

TELEPHONE NUMBERS
1-800 NUMBERS ARE TOLL FREE
Subject to Service Observation
HOURS—See Below

Customer Inquiry	
WITHIN NJ	1-800-221-0051
OUTSIDE NJ	1-908-938-7977
FOR THE DEAF	1-800-223-0024
GAS LEAKS	1-800-392-6865

TELEPHONE HOURS
Customers may call our Customer Inquiry Center Monday through Friday 7:30am to 6pm.
FOR EMERGENCY SERVICE OUR PHONES ARE ANSWERED 24 HOURS A DAY.

SPECIAL SERVICES
NJNG offers special notification services to residential customers with overdue gas bills.

TELEPHONE NOTIFICATION
NJNG will telephone any customer over 65 years of age, at their request, before acting on an overdue bill.

THIRD PARTY NOTIFICATION
Customers may designate an individual or agency (the third party) to receive a duplicate copy of their delinquent notice. The "third party" would act only to remind the customers of the overdue balance to avoid an interruption of service and is under no obligation to pay the bill.

ENERGY CONSERVATION
NJNG offers energy conservation programs to help customers reduce their gas usage. For more information, contact our Conservation Center at our Customer Inquiry Numbers noted above.

CHARGES YOU SHOULD NOTE
To help cover the cost of collecting delinquent bills NJNG charges for:

RETURNED CHECK—$10
For each check returned by the bank due to lack of funds, there will be a charge of $10 added to the customer account.

FIELD COLLECTION—$15
If a field collection visit is required on an overdue bill, there may be a charge of $15 added to the customer account.

LATE PAYMENT
Commercial and Industrial customers who allow their bill to go unpaid at the time the next monthly bill is prepared are charged an extra 1.5 percent on the overdue balance.

EXPLANATIONS

The following descriptions refer to the other side of this bill.

BILL CALCULATION
This shows the rates and method used to calculate the gas charge portion of your bill

BUDGET BILLING SUMMARY
This information is shown each month on the bills of customers using the Equal Payment Plan. Information includes the starting month, starting balance, all charges and payments, and the running balance which includes the current bill's gas charges.

BTU (British Thermal Unit) CONTENT
This is the heat "value" of the gas you used. The volume of gas used (CCF) is multiplied by the heat value and pressure value, where applicable, to determine the number of billing units (therms) used.

BUDGET OPTION
Customers can automatically join the Equal Payment Plan by paying the "Budget Option" amount shown.

CALCULATED BILL
When meters are not read, NJNG calculates gas use based on the history of your account. At the next actual meter reading, the account automatically adjusts for any difference between the calculated and actual use. Meters are read bi-monthly to reduce operating costs borne by our customers.

CUSTOMER CHARGE
This cost covers a portion of the company's cost to serve customers for such items as mailing, taxes, system maintenance and record keeping. The fixed amount is not related to the quantity of gas used.

DC (Demand Charge)
The demand charge for cogeneration customers.

LGA (Levelized Gas Adjustment)
The LGA reflects costs NJNG pays for natural gas and passes through to customers. NJNG makes no profit on this charge.

RA (Remediation Adjustment)
The RA is an approved rate adjustment relating to environmental corrections of coal-gas manufacturing sites.

THERMS
A therm is a technical name for billing units. Each therm is equivalent to 100,000 BTU.

USE COMPARISONS
This information is provided for a comparison of current billing data with the same period last year.
BILLING DAYS - number of days in the billing period
CCF BILLED - volume of gas used.
CCF PER DAY - volume used per day.
DEGREE DAYS - the method used to measure cold weather; the colder the weather, the higher number of degree days.

WNA (Weather Normalization Adjustment)
The WNA is an approved rate adjustment based upon variances from normal weather.

FY 96 SUMMARY

FT. MONMOUTH Facilities Energy Consumption

Utility	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	TOTAL
Electric (MWH)	6,991	5,402	6,132	0	0	0	0	0	0	0	0	0	18,525
Electric (MBTU	23,860	18,437	20,928	0	0	0	0	0	0	0	0	0	63,225
GAS (THERMS	104,933	322,181	505,511	885,039	0	0	0	0	0	0	0	0	1,817,664
GAS (MBTU's)	10,493	32,218	50,551	88,504	0	0	0	0	0	0	0	0	181,766
#2 FUEL (GALS	29,980	56,667	60,707	0	0	0	0	0	0	0	0	0	147,354
#2 FUEL(MBTU	4,158	7,859	8,419	0	0	0	0	0	0	0	0	0	20,436
PROPANE (GA	1,092	2,338	655	655	655	655	655	655	655	655	655	655	655
PROPANE (MB	104	223	63	63	63	63	63	63	63	63	63	63	63
TOTAL													YEARLY MBTU'S
Monthly MBTU's	38,615	58,737	79,961	88,566	63	63	63	63	63	63	63	63	265,490
Cum MBTU's	38,615	97,352	177,313	265,880	265,942	266,005	266,067	266,130	266 192	266,255	266,317	266,380	531,870
ELECTRIC													ELECTRIC
MONTHLY KWH	6,991,000	5,402,000	6,132,000	0	0	0	0	0	0	0	0	0	18,525,000
COST $/KWH	0.0837	0.0977	0.0852	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	$0.1165
													NAT GAS
NAT GAS	104,933	322,181	505,511	885,039	0	0	0	0	0	0	0	0	1,817,664
COST $/ BTU/t	0.7831	0.7364	0.7255	0.7226	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	$0.684
NO 2 FUEL OIL	FY 96	FY 95	FY 94										
	0.78	0.59	0.71										

Conversion Factors	To	Multiply by
ELEC MWH	MBTU's	3.412949
NAT GAS THERMS	MBTU's	0.100000
#2 GALS	MBTU's	0.138688
#6 GALS	MBTU's	0.149685
PROPANE GALS	MBTU'S	0.09547

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ▶ 2

To John From C. Haig

Dept./Agency Phone # 908-532-8349

Fax # Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

Fort Monmouth, NJ
UTILITY COSTS

FORT MONMOUTH
UTILITY COSTS

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Total
ELECTRIC													
FY96$	584,838	527,651	522,652	522,346									$2,157,487
FY95$	531,684	543,072	558,663	534,311	531,558	513,954	538,024	536,749	685,427	827,645	771,607	680,872	$7,253,566
FY 94$	553,811	573,675	531,906	512,086	592,547	494,101	565,108	521,633	707,003	827,645	731,168	646,309	$7,256,992
FY 93$	505,692	523,189	500,629	486,498	533,310	530,326	523,399	572,616	680,092	805,532	760,867	523,189	6,945,339
FY 92$	573,379	470,732	518,273	481,839	430,365	487,929	558,579	539,173	608,715	716,315	746,425	671,064	6,800,786
FY 91$	488,979	460,860	457,378	451,467	461,060	458,527	514,006	560,731	644,940	752,638	697,736	649,632	6,597,954
FY96 How Comm													
FY95 How Comm	228	228	228	226	226	226	64630	82391	131394	67745	67638	46780	481,940
FY 94 How Comm	24,893	23,584	26,680	28,511	27,884	27,289							158,841
FY 93 How Comm	22,527	19,580	23,227	23,631	23,642	25,297	22,408	21,954	31,904	44,850	22,527	19,580	301,127
FY 92 How Comm	25,724	23,104	24,049	26,748	24,749	23,026	23,249	18,869	28,478	34,843	31,776	32,728	315,342
FY 91 How Comm	23,964	21,031	23,157	25,741	24,176	21,550	22,631	25,271	35,907	38,532	44,831	39,082	345,871
COB FY 96													
COB FY 95			132,900			164,100			150,700			167,374	615,074
COB FY 94			136,200			174,000			175,400			163,700	649,300
COB FY 93			129,000			135,400			142,600			134,000	541,000
COB FY 92			127,900			134,600			135,900			127,700	526,100
COB FY 91			138,000			134,700			120,800			135,700	529,200
NATURALGAS													
FY96$	82,169	237,261	366,723	639,535									$1,243,519
FY95$	145,801	328,897	442,178	398,308	388,098	260,898	175,520	114,575	74,820	66,565	73,966	82,170	$2,549,794
FY 94$	67,601	128,917	195,093	462,257	225,914	249,864	66,929	101,498	83,041	59,373	55,555	84,638	$1,780,680
FY 93$	42,438	32,610	200,919	180,818	210,691	344,027	164,337	78,895	93,513	80,442	40,330	89,638	1,558,658
FY 92$	49,926		147,974	148,738	165,186	142,890	121,951	66,128	43,643	17,539	25,413	31,250	960,638
FY91$	38,084	92,023	106,472	97,896	111,217	111,714	70,913	37,394	23,709	23,808	22,074	25,429	760,733
WATER													
FY96$	77,108	70,970	89,932	59,914									$297,924
FY95$	62,871	67,090	67,084	73,898	53,838	56,853	51,369	53,340	141,102	83,024	91,260	112,708	$814,237
FY 94$	63,650	81,323	56,762	58,101	58,387	71,155	71,907	94,115	94,516	79,281	72,477	75,226	856,880
FY 93$	82,228	63,228	63,155	54,240	55,626	62,120	68,510	79,905	103,811	103,389	95,507	68,128	897,847
FY92$	67,623	70,979	59,296	45,125	66,069	61,898	64,618	71,023	90,366	90,304	81,117	74,399	842,817
FY91$	69,116	59,630	56,088	56,794	58,287	62,745	74,344	85,430	93,738	91,573	92,846	87,272	867,862
SEWER		EST	EST	EST									
FY96$	33,323	32,050	32,050	32,050									$129,473
FY95$	46,478	49,371	49,288	34,571	33,229	34,993	30,633	32,290	32,270	32,690	32,790	33,120	$441,921
FY 94$	51,861	49,269	48,576	62,151	55,229	60,609	56,268	51,758	49,456	48,702	54,990	51,439	$639,308
FY 93$	43,706	46,336	50,004	51,808	51,282	75,434	80,677	56,098	48,376	46,903	47,078	48,830	644,632
FY92$	53,742	50,044	53,919	43,724	44,298	49,479	44,975	47,466	43,528	43,136	39,418	41,709	555,440
FY91$	51,079	39,032	68,955	72,421	63,143	72,375	69,436	69,209	55,147	52,453	59,091	53,388	725,729
FY96-FY95	-1.19%	-12.19%	-9.47%	20.67%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-100.00%	-65.69%
MONTHLY DIFF	-9,396	-120,498	-105,854	214,759	-1,006,523	-866,698	-795,746	-736,954	-933,619	-1,009,924	-969,623	-908,870	-7,331,115
TOTAL		12.44%											
MONTHLY SEWER, WATER, N		73,608											
FY96	777,438	867,932	1,011,357	1,253,845	0	0	0	0	0	0	0	0	$3,828,403
FY 95	786,834	988,430	1,117,211	1,039,086	1,006,523	866,698	795,746	736,954	933,619	1,009,924	969,623	908,870	$11,159,518
FY 94	738,923	813,184	832,337	1,094,595	932,077	875,729	759,212	769,004	934,016	1,014,981	914,190	857,612	10,533,860
FY 93	674,064	665,363	814,707	773,364	850,909	1,011,907	836,923	787,514	925,792	1,036,268	943,782	725,885	10,046,476
FY92	744,670	591,755	777,462	719,426	705,917	742,196	790,122	723,790	786,253	867,296	892,373	818,422	9,159,681
FY91	647,258	651,545	688,893	678,578	693,707	705,361	728,699	752,764	817,534	920,472	871,748	795,721	8,952,278

Primary Acct.#: 20-3298-4510-18
Service Address: 2700, Bldg,,,B Pearl HFTMON
Bldg. Service Acct.#: 10-3203-0426-1-8
Meter #: 382802B
DON'T SHOW BELOW!
August-November 1995

Month	MCF	Therm Factor	Therms	Customer Charge	<= 3,000 Therms $ / Therm	> 3,000 Therms $ / Therm	Levelized Gas Adj.	Misc. Adj.	Rate	TOTAL BILL
1994										
July*		1.060	0.00	$15.00	N/A		$0.1029			$15.00
August*	6.8	1.054	71.67	$24.86	$0.6210		$0.1029			$76.74
September*	0	1.054	0.00	$15.00	N/A		$0.1029	($76.47)		($61.47
October*	11.4	1.054	120.16	$13.81	$0.6210		$0.1029			$100.79
1995										
Esti. Use w/ Boiler typ mont	5440	1.053	57,283.20	$13.81	$0.6326	$0.6034	$0.1029		LLF	$40,560.53
August*	4.6	1.052	48.39	$13.81	$0.6326	$0.6034	$0.1029	($2.31)	LLF	$47.09
September	83.9	1.053	883.47	$13.81	$0.6326	$0.6034	$0.1029		LLF	$663.60
October*	69.7	1.052	733.24	$13.81	$0.6326	$0.6034	$0.1029		LLF	$553.11
November	22	1.052	231.44	$13.81	$0.6326	$0.6034	$0.1029		LLF	$184.04
TOTAL:	5,638.4		59,372	$137.72						$42,139.44

.00232

"*" Denotes that billing for this month was either not read or not calculated.
"?" Denotes that no billing information available.

Attachment 8.7

Natural Gas Rate Schedule

NJRCA
New Jersey Gas — E. Monmouth River Center

NEW RATE SCHEDULE

(Effective 1/1/95)

ENTERED — NO. 4130.05

RESIDENTIAL

Customer Charge:	$6.04
Commodity Charge:	$.6362 per therm
Levelized Gas Adjustment (Effective 12/1/93)	$.1029 per therm for all therms

AIR CONDITIONING AND POOL HEATING

Upon separate application, customers who have installed, and are using gas air conditioning or gas pool heating equipment, will be billed on the above monthly rates except that the commodity charge will be $.3115 per therm for all monthly consumption over 35 therms of gas for services rendered between May 1 and September 30 of each year. This commodity charge will be adjusted in a similar manner as the CAC service classification.

GENERAL SERVICE - HIGH LOAD FACTOR - 204, 206, 207, 208, 214, 216 218, 224, 226, 227, 228, 229 230, 253, 257, 281, 299

Customer Charge:	$13.81 per month
Commodity Charge:	$.6026 per therm for first 3,000 therms
	$.5734 per therm for all over 3,000 therms
Levelized Gas Adjustment (Effective 12/1/93)	$.1029 per therm for all therms

NEW RATE SCHEDULE (con't)

GENERAL SERVICE - LOW LOAD FACTOR - 004, 006, 007, 008, 014, 016
018, 024, 026, 027, 028, 029
030, 053, 057, 081, 099

Customer Charge:	$13.81 per month
Commodity Charge:	$.6326 per therm for first 3,000 therms
	$.6034 per therm for all over 3,000 therms
Levelized Gas Adjustment (Effective 12/1/93)	$.1029 per therm for all therms

SERVICE CLASSIFICATION

Customers that have an **initial** load factor **greater than 58 percent** will be assigned to the **GS-HLF** classification. Customers that have an **initial** load factor equal to or **less than 58 percent** will be assigned to the **GS-LLF** classification.

CALCULATION OF LOAD FACTOR

Each customer's load factor will be equal to the result of dividing:

a) the total annual usage by
b) the highest single month's usage times 12

$$\text{Load Factor} = \frac{\text{Total Annual Use}}{\text{Highest Month's Use X 12}}$$

REVIEW OF LOAD FACTORS

The Company shall review, once a year, each load factor based on the most recent 12 months of billing information.

The Company shall review a load factor any time the Customer makes a written request to the Company.

NEW RATE SCHEDULE (con't)

CHANGE IN SERVICE CLASSIFICATION

After the initial assignment, if a customer's load factor increases above 61 percent, classification will be switched to the GS-HLF.

The Company will change a customer's service classificataion based upon a load factor review. No service classification changes will be made without 12 months of valid billing data.

A new customer will be assigned an initial load factor by the Company based on an evaluation of the customer's equipment and anticipated gas consumption patterns.

INTERRUPTIBLES

Bill Code = 2

05-3200

05-3204

- Customer Service does not calculate these the same as Residential or General Service.
- These are negotiated items. Carol Procassini, Rates Department, gets them and calls on billing concerning Interruptibles go to Barbara Roma.
- These accounts are read every month.

CALCULATION

REGULAR AND PRO-RATED PERIODS

1. A regular bill covers a period of 26 to 34 days.
2. A pro-rated bill covers a period less than 26 days or more than 34 days. It assures that the rate is appropriately applied to the days in the period that are greater or less than the days in the regular bill period.

LGA (Levelized Gas Adjustment)

1. The LGA is an amount added to the bill. To calculate the LGA amount, multiply the monthly LGA cost factor by the number of therms being billed.
2. Refer to the Standard Response se0ction for a more detailed definition.

REGULAR BILL CALCULATIONS - EXAMPLE

Problem:

Rate 003 customer uses 121 CCF during a 30-day period. January 10, 1995 through February 10, 1995. LGA factor is .1029.

Step 1

121 ccf x 1.046 Therm Factor = 126.57 therms to be billed

Rate 003 = residential service rate (RS)

Step 2

126.57 Therms to be Billed

Customer Charge	$ 6.04
126.57 Therm @ .6362	$80.52
Bill Amount	$86.56

Step 3

126.57 therms x .1029 = $13.02 LGA

Step 4

126.57 therms x .0073 WNA = ($.92)

Step 5

Bill Amount	$86.56
LGA	$13.02
WNA	$ (.92)
Total Bill	$98.66

Effective January 1, 1995

CALCULATION (con't)

GENERAL SERVICE RATES (GS) - RATE CODES - 004-014-029
006-016-007
008-018-053-057
083-086-089-099

Problem:

Rate 008 customer uses 3622 CCF during a 27-day period. January 10, 1995 through February 6, 1995. LGA factor is .1029.

Step 1

3622 CCF x 1.044 therm factor = 3781.37 therms to be billed.

Rate 008 = General Service Rate (GS)

Step 2

3781.37 therms to be billed

Customer Charge	$ 13.81
First 3000 therms at .6326 each	$1897.80
781.37 therms at .6034 each	$ 471.48
Bill Amount	$2,383.09

Step 3

3781.37 therms x .1029 LGA factor = $389.10 LGA

Step 4

3781.37 therms x .0073 WNA = ($27.60)

Step 5

Bill Amount	$2383.09
LGA	$ 389.10
WNA	$ (27.60)
Total Bill	$2744.59

Attachment 8.8

Building 2700 Boiler Logs

UTILITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth | PLANT: A.J. Myer Ctr | BLDG: 2

DATE	STEAM PRESSURE LB	STEAM PRODUCED BOILER 1 1,000 LB	BOILER 2 1,000 LB.	BOILER 3 1,000 LB.	TOTAL 1,000 LB.	FEED WATER TO BOILER 1,000 LB.	FUEL USED LB. M C.F. GAL.	EVAP. LB. PER UNIT	OUTSIDE TEMP. AV. °F.	FEEDWATER HEATER PRESS. LB.	FEEDWATER HEATER TEMP. °F.	MAKEUP GAL	%CO2 BOILER 1	%CO2 BOILER 2	%CO2 BOILER 3	FLUE GAS TEMPERATURE BOILER 1 °F	FLUE GAS TEMPERATURE BOILER 2 °F	FLUE GAS TEMPERATURE BOILER 3 °F
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	91			134,000	134,000		1040	11.0	62	2.5	212	3200						
2	90.25			134,000	134,000		1040	11.0	56	2.5	212	3100						
3	91.5	659,000		133,000	133,000	5030	1010	11.0	61	2.5	212	3100	15200					
4	91.83			124,000	124,000		950	11.0	66	2.5	212	3100						
5	92.			131,000	126,000		990	11.1	63	2.5	212	3200						
6	92.33			127,000	127,000		970	11.0	63	2.5	212	2800						
7	92.66	447,000		128,000	126,000	3400	950	11.0	68	2.5	212	3300						
8	92.58			122,000	122,000		920	11.1	71	2.5	212	3200	10500					
9	92.42			70,000	70,000		530	11.1	70.5	2.5	212	1700						
10	PLANT Down To Disconnect #4 Boiler																	
11	PLANT Down To Disconnect #4 Boiler																	
12	86.			139,000	139,000		1050	11.1	67	2.5	212	4400						
13	92.25	123,000		123,000	123000		940	11.0	67	2.5	212	2700						
14	88.33	132,000			132,000		1010	11.0	62	2.5	212	3000						
15	88.83	124,000			124,000		950	11.0	63	2.5	212	2900						
16	86.	92,000			92,000		700	11.0	62	2.5	212	2300						
17	88.28	PLANT Down To Disconnect #4 Boiler																
18	88.72	42,000			42,000		320	11.0	61	2.5	212	1000						
19	91.	135,000	284,000		419,000	7020	1020	11.1	55	2.5	212	2600	22400					
20	89.	132,000			132,000		1030	11.1	61	2.5	212	4000						
21	89.	125,000			125,000		980	11.0	63	2.5	212	3200						
22	88.83	119,000			119,000		910	11.0	62	2.5	212	3200						
23	91.14	123,000			123,000		920	11.1	60.5	2.5	212	3000						
24	92.	108,000			108,000		820	11.1	60.6	2.5	212	3400						
25	91.	112,000			112,000		850	11.0	59.3	2.5	212	2700						
26	91.82	127,000			127,000		970	11.0	55	2.5	212	2400						
27	89.66	127,000	1,429,000		127,000	8590	960	11.1	28.66	2.5	212	3600	23800					
28	91.66	123,000			123,000		940	11.0	65.66	2.5	212	2200						
29	91.66	147,000			147,000		1110	11.1	64.33	2.5	212	3400						
30	92.33	128,000			128,000		980	11.0	63	2.5	212	3500						
31	92.66	134,000			134,000		1000	11.1	61	2.5	212	3100						
TOTAL			3,012,000			24,040						76,400						
MAXIMUM																		
MINIMUM																		
AVERAGE	90.45																	

EVAPORATION LB. STEAM PER LB. STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY | DATE

REMARKS: July - 1993

APPROVED BY | DATE

DA FORM 1 NOV 72 3967 REPLACES DA FORM 5-58 1 JUN 58, WHICH WILL BE USED.

FACIL .S ENGINEERING OPERATING LOG *(Boiler Plant)*

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: FT. Monmouth

PLANT: A.J. MYER CTR.

BLDG NO: 2700

DATE	STEAM PRESSURE LB	STEAM PRODUCED BOILER 1 1,000 LB	BOILER 2 1,000 LB	BOILER 3 1,000 LB	TOTAL 1,000 LB.	FEED-WATER TO BOILER 1,000 LB.	FUEL USED LB. M C.F. GAL.	EVAP. LB. PER UNIT	OUTSIDE TEMP. AV. °F.	FEEDWATER HEATER PRESS LB.	FEEDWATER HEATER TEMP. °F.	FEEDWATER HEATER MAKEUP GAL.	%CO2 BOILER 1	%CO2 BOILER 2	%CO2 BOILER 3	FLUE GAS TEMPERATURE BOILER 1 °F	FLUE GAS TEMPERATURE BOILER 2 °F	FLUE GAS TEMPERATURE BOILER 3 °F	TE H SUR °F
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(1)
1	92.—	124,000			124,000		950	11.0	61	2.5	212	2900				349			1
2	93.—	123,000			123,000		940	11.0	62	2.5	212	3000				345			1
3 23	92.33	127,000	624,000		127,000	4720	970	11.0	67	2.5	212	3700	15,800			350			1
4	94.66	123,000			123,000		940	11.0	63	2.5	212	3500				345			1
5	90.66	127,000			127,000		970	11.0	69	2.5	212	2700				351			1
6	91.41	132,000			132,000		1010	11.0	72	2.5	212	3600				348			1
7	91.33	136,000			136,000		1030	11.1	72	2.5	212	2900				352			1
8 78	92.—	131,000	662,000		131,000	5040	1000	11.0	73	2.5	212	3900	14,300			352			1
9	90.83	136,000			134,000		1040	11.0	73	2.5	212	3000				348			1
10	93.33	127,000			127,000		960	11.1	75	2.5	212	2900				352			1
11	90.83	131,000			131,000		1000	11.0	73	2.5	212	3800				355			1
12	91.33	134,000			134,000		1030	11.1	74	2.5	212	3900				340			1
13	91.—	131,000	661,000		131,000	5040	1000	11.0	74	2.5	212	3800	16,200			358			1
14	91.5	132,000			132,000		1010	11.0	74	2.5	212	3500				352			1
15	91.—	131,000			131,000		1000	11.1	76	2.5	212	3700				346			1
16	89.—	131,000			131,000		990	12.1	73	2.5	212	3900				358			1
17	91.—	131,000			131,000		1000	11.0	70	2.5	212	3900				350			1
18 28	91.—	135,000	649,000		135,000	4940	1020	11.1	69	2.5	212	3700	17,800			358			1
19	92.—	124,000			124,000		950	11.0	69	2.5	212	3400				343			1
20	92.41	128,000			128,000		980	11.0	70	2.5	212	3900				346			1
21	91.33	124,000			124,000		950	11.0	69	2.5	212	3100				348			1
22	90.91	132,000			132,000		1010	11.0	75	2.5	212	3000				352			1
23 18	91.87	128,000	642,000		128,000	4900	980	11.0	75	2.5	212	3100	13,300			350			1
24	93.83	127,000			127,000		960	11.1	77	2.5	212	3200				341			1
25	92.—	131,000			131,000		1000	11.0	72	2.5	212	3100				350			1
26	91.83	126,000			124,000		960	11.0	67	2.5	212	2800				348			1
27	91.75	123,000			123,000		930	11.1	73	2.5	212	3200				349			1
28 63	91.25	127,000	756,000		127,000	5760	960	11.1	72	2.5	212	2900	17,800			348			1
29	84.—	124,000			124,000		950	11.0	68	2.5	212	3300				349			1
30	93.—	128,000			128,000		980	11.0	64	2.5	212	2100				345			1
31	93.—	128,000			128,000		980	11.0	64	2.5	212	3500				350			1
TOTAL			3,994,000			30,450						104,900							
MAXIMUM																			
MINIMUM																			
AVERAGE	91.73																		

EVAPORATION LB. STEAM PER LB. STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY

DATE

REMARKS: August - 1993

APPROVED BY

DATE

PO

FORM 3967 REPLACES DA FORM 5981, JUN 54, WHICH WILL BE USED.

I ILITIES ENGINEERING OPERATING LOG *(Boiler Plant)*

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

STALLATION: Ft. Monmouth | PLANT: A.J. Myer Ctr. | BLDG: 2

DATE	STEAM PRESSURE LB	STEAM PRODUCED BOILER 1 1,000 LB	BOILER 2 1,000 LB	BOILER 3 1,000 LB.	TOTAL 1,000 LB	FEED-WATER TO BOILER 1,000 LB.	FUEL USED LB. M.C.F. GAL.	EVAP. LB. PER UNIT	OUTSIDE TEMP. AV. °F.	FEEDWATER HEATER PRESS. LB.	FEEDWATER HEATER TEMP. °F.	MAKEUP GAL.	%CO₂ BOILER 1	%CO₂ BOILER 2	%CO₂ BOILER 3	FLUE GAS TEMPERATURE BOILER 1 °F	FLUE GAS TEMPERATURE BOILER 2 °F	FLUE GAS TEMPERATURE BOILER 3 °F
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	92	127,000			127,000		970	11.0	63	2.5	212	3900				354		
2	92	131,000			131,000		1000	11.0	58	2.5	212	3400				350		
3	92.33	123,000	436,000		123,000	4840	930	11.1	62	2.5	212	3500	16,500			348		
4	91.33	128,000			128,000		980	11.0	58	2.5	212	2600				345		
5	92.66	127,000			127,000		960	11.1	58	2.5	212	3300				342		
6	90.25	131,000			131,000		990	11.1	57	2.5	212	2900				352		
7	94	111,000			111,000		850	11.0	56	2.5	212	3500				344		
8	91.5	114,000	598,000		114,000	4540	870	11.0	56	2.5	212	3700	12,200			339		
9	92	124,000			124,000		950	11.1	56	2.5	212	3600				343		
10	92.58	114,000			114,000		880	11.1	56	2.5	212	3500				344		
11	91.66	108,000			108,000		820	11.1	54	2.5	212	3200				340		
12	92	108,000			108,000		820	11.1	46	2.5	212	3100				343		
13	92.66	102,000	518,000		104,000	3940	810	11.0	59	2.5	212	3400	15,800			343		
14	93	101,000			101,000		770	11.0	63	2.5	212	3400				338		
15	92.33	95,000			95,000		720	11.1	63	2.5	212	3500				335		
16	92.25	99,000			99,000		750	11.1	56	2.5	212	2900				337		
17	91.25	104,000			104,000		790	11.1	52	2.5	212	3600				341		
18	93	99,000	516,000		99,000	3920	750	11.1	51	2.5	212	3300	15,600			337		
19	92	101,000			101,000		770	11.1	50	2.5	212	3400				330		
20	92.5	113,000			113,000		860	11.0	47	2.5	212	3900				339		
21	93.33	90,000			90,000		690	11.0	46?	2.5	212	2800				330		
22	91.91	94,000			94,000		710	11.0	46?	2.5	212	3400				338		
23	94.25	91,000	456,000		91,000	3420	690	11.1	46?	2.5	212	3500	16,700			338		
24	94.75	89,000			89,000		680	11.0	46?	2.5	212	3200				334		
25	91.66	93,000			93,000		700	11.0	46?	2.5	212	3800				345		
26	92.91	89,000			89,000		680	11.0	46?	2.5	212	3100				332		
27	92.25	81,000			81,000		610	11.1	57	2.5	212	3900				334		
28	90.5	98,000	449,000		98,000	3420	750	11.0	54	2.5	212	3500	18,300			330		
29	91.83	89,000			89,000		680	11.0	56	2.5	212	4000				335		
30	91.5	92,000			92,000		700	11.0	46	2.5	212	3500				342		
31																		
TOTAL			3173,000			24,130		11.0				100,000						
MAXIMUM																		
MINIMUM																		
AVERAGE	92.30																	

EVAPORATION LB STEAM PER LB. STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY | DATE

REMARKS: SepTembee - 1993

APPROVED BY | DATE

DA FORM 1 NOV 72 3967 REPLACES DA FORM 5-98, 1 JUN 58, WHICH WILL BE USED.

FACILITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth

PLANT: A.J. Myer Ctr

BLDG NO: 276

DATE	STEAM PRODUCED: STEAM PRESSURE LB (1)	BOILER 1 1,000 LB (2)	BOILER 2 1,000 LB (3)	BOILER 3 1,000 LB (4)	TOTAL 1,000 LB (5)	FEED-WATER TO BOILER 1,000 LB (6)	FUEL USED LB. M C.F. GAL. (7)	EVAP. LB. PER UNIT (8)	OUTSIDE TEMP. AV. °F (9)	FEEDWATER HEATER: PRESS. LB. (10)	FEEDWATER HEATER: TEMP. °F (11)	MAKEUP GAL. (12)	%CO2 BOILER 1 (13)	%CO2 BOILER 2 (14)	%CO2 BOILER 3 (15)	FLUE GAS TEMPERATURE BOILER 1 °F (16)	FLUE GAS TEMPERATURE BOILER 2 °F (17)	FLUE GAS TEMPERATURE BOILER 3 °F (18)
1	92.25	87,000			87,000		670	11.0	46	2.5	212	3400				346		
2	92.—	90,000			90,000		690	11.0	46	2.5	212	3400				333		
91 3 93	91.58	81,000	444,000		81,000	3,400	620	11.0	46	2.5	212	3200	17,600			336		
4	94.25	84,000			84,000		640	11.0	46	2.5	212	3400				330		
5	89.33	102,000			102,000		780	11.0	46	2.5	212	3900				339		
6	92.66	124,000			124,000		950	11.0	46	2.5	212	4600				345		
7	91.—	115,000			115,000		880	11.0	46	2.5	212	3000				346		
90 8 60	91.32	75,000	450,000		25,000	3440	570	11.1	46	2.5	212	2400	13,300			340		
9	87.—	30,000			30,000		230	11.0	46	2.5	212	1500				330		
10	91.—	104,000			104,000		810	11.0	46	2.5	212	3200				336		
11	92.41	117,000			117,000		900	11.1	46	2.5	212	3500				335		
12	94.—	111,000			111,000		850	11.0	46	2.5	212	3300				334		
92 13 28	91.—	122,000	628,000		122,000	4780	960	11.1	46	2.5	212	4000	18,700			345		
14	92.—	131,000			131,000		1000	11.0	46	2.5	212	4200				350		
15	92.—	140,000			140,000		1070	11.0	46	2.5	212	3800				340		
16	91.—	132,000			132,000		1010	11.0	46	2.5	212	3500				342		
17	91.33	126,000			126,000		960	11.0	46	2.5	212	3400				343		
90 18 93	92.25	119,000	657,000		119,000	5010	900	11.1	46	2.5	212	3000	16,400			341		
19	98.66	144,000			144,000		1100	11.0	46	2.5	212	3300				352		
20	91.66	136,000			136,000		1040	11.0	46	2.5	212	3400				352		
21	93.—	119,000			119,000		900	11.1	46	2.5	212	3500				340		
22	91.5	141,000			141,000		1080	11.0	46	2.5	212	3500				348		
91 23 75	91.—	152,000	711,000		152,000	5420	1200	11.0	46	2.5	212	3300	16,500			345		
24	91.25	145,000			145,000		1110	11.0	46	2.5	212	3200				348		
25	92.—	149,000			149,000		1140	11.0	46	2.5	212	4000				349		
26	92.—	152,000			152,000		1150	11.1	46	2.5	212	4500				355		
27	92.—	152,000			152,000		1150	11.1	46	2.5	212	3400				352		
28	91.25	149,000			149,000		1140	11.0	46	2.5	212	3500				348		
91 29 59	92.—	139,000	935,000		139,000	7110	1060	11.0	46	2.5	212	3200	19,600			341		
30	91.—	165,000			165,000		1250	11.1	46	2.5	212	3400				353		
31	91.33	178,000			178,000		1360	11.0	46	2.5	212	4100				360		
TOTAL			3,825,000			29110		11.0				10,300	0					
MAXIMUM																		
MINIMUM																		
AVERAGE	91.53																	

EVAPORATION LB. STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: October - 1993

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY

DATE

APPROVED BY

DATE

DA FORM 1 NOV 72 3967 REPLACES DA FORM 598, 1 JUN 58, WHICH WILL BE USED. 2 2060

FACILITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth | PLANT: A.V. Myer Ctr. | BLDG NO: 21

DATE	STEAM PRODUCED: STEAM PRESSURE LB (1)	BOILER 1 1,000 LB (2)	BOILER 2 1,000 LB (3)	BOILER 3 1,000 LB (4)	TOTAL 1,000 LB. (5)	FEED-WATER TO BOILER 1,000 LB. (6)	FUEL USED LB. M C.F. GAL. (7)	EVAP. LB. PER UNIT (8)	OUTSIDE TEMP. AV. °F. (9)	FEEDWATER HEATER: PRESS. LB. (10)	FEEDWATER HEATER: TEMP. °F. (11)	MAKEUP GAL. (12)	%CO2 BOILER 1 (13)	%CO2 BOILER 2 (14)	%CO2 BOILER 3 (15)	FLUE GAS TEMPERATURE BOILER 1 °F (16)	FLUE GAS TEMPERATURE BOILER 2 °F (17)	FLUE GAS TEMPERATURE BOILER 3 °F (18)
1	92	194,000			194,000		1480	11.0	46	2.5	212	3800				362		
2	89.66	202,000			202,000		1570	11.1	46	2.5	212	1800				442		
3	91.74	198,000	901,000		198,000	4,860	1500	11.1	46	2.5	212	2300	14200			358		
4	91.75	166,000			166,000		1270	11.0	46	2.5	212	3400				352		
5	92.33	136,000			136,000		1040	11.0	46	2.5	212	2900				347		
6	93.—	59,000	Plant Down		59,000		450	11.1	46	2.5	212	1300	Plant Down			348	Plant Down	
7	92.5	198,000			198,000		1500	11.1	46	2.5	212	3100				355		
8 9 20	91.—	198,000	844,000		198,000	6420	1510	11.1	46	2.5	212	3500	12,900			366		
9	92.—	198,000			198,000		1500	11.1	46	2.5	212	1700				370		
10	91.—	191,000			191,000		1460	11.0	46	2.5	212	3400				364		
11	92.58	182,000			182,000		1390	11.0	46	2.5	212	2100				363		
12	91.58	160,000			160,000		1210	11.1	46	2.5	212	2800				357		
13 9 21	91.91	152,000	757,000		152,000	5250	1180	11.1	46	2.5	212	2700	13,900			348		
14	91.66	135,000			135,000		1080	11.1	46	2.5	212	2980				344		
15	92.—	124,000			124,000		950	11.0	46	2.5	212	3400				332		
16	91.83	166,000			166,000		1270	11.0	46	2.5	212	3200				361		
17	92.—	165,000			165,000		1250	11.1	46	2.5	212	3900				351		
18 9 22	91.25	169,000	831,000		169,000	6330	1210	11.1	46	2.5	212	2600	13,400			356		
19	91.25	166,000			166,000		1270	11.0	46	2.5	212	3600				362		
20	90.41	174,000			174,000		1330	11.0	46	2.5	212	2100				357		
21	90.25	189,000			189,000		1430	11.1	46	2.5	212	2800				360		
22	91.58	186,000			186,000		1420	11.0	46	2.5	212	3400				358		
23 9 23	92.—	183,000	954,000		183,000	7270	1390	11.0	46	2.5	212	2800	14900			345		
24	91.41	184,000			184,000		1400	11.0	46	2.5	212	2800				355		
25	91.5	211,000			211,000		1610	11.0	46	2.5	212	3100				323		
26	91.33	221,000			221,000		1690	11.0	46	2.5	212	3700				322		
27	91.75	181,000			181,000		1380	11.0	46	2.5	212	3400				353		
28 9 27	91.—	152,000	945,000		152,000	7190	1150	11.1	46	2.5	212	3000	13900			355		
29	92.29	203,000			203,000		1540	11.0	46	2.5	212	3900				366		
30	92.—	189,000			189,000		1430	11.1	46	2.5	212	1900				325		
31																		
TOTAL			5,233,000			37,820												
MAXIMUM												83,300						
MINIMUM																		
AVERAGE	91.67							11.0										

EVAPORATION LB. STEAM PER LB. STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY

DATE

REMARKS: November - 1993

APPROVED BY

DATE

DA FORM 1 NOV 72 3967 REPLACES DA FORM 598, 1 JUN 58, WHICH WILL BE USED.

FAC. IES ENGINEERING OPERATING LOG *(Boiler Plant)*

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

IN LATION: Ft. Monmouth

PLANT: A.J. Myer Ctr.

BLDG NO: 270

DATE	STEAM PRESSURE LB	STEAM PRODUCED BOILER 1 1,000 LB.	BOILER 2 1,000 LB.	BOILER 3 1,000 LB.	TOTAL 1,000 LB.	FEED-WATER TO BOILER 1,000 LB.	FUEL USED LB. M C.F. GAL.	EVAP. LB. PER UNIT	OUTSIDE TEMP. AV. °F.	FEEDWATER HEATER PRESS. LB.	FEEDWATER HEATER TEMP. °F.	MAKEUP GAL.	%CO2 BOILER 1	%CO2 BOILER 2	%CO2 BOILER 3	FLUE GAS TEMPERATURE BOILER 1 °F	FLUE GAS TEMPERATURE BOILER 2 °F	FLUE GAS TEMPERATURE BOILER 3 °F
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	91.41	211,000			211,000		1610	11.0	46	2.5	212	2600				322		
2	91.25	178,000			178,000		1360	11.0	46	2.5	212	2300				363		
3	92.41	173,000	895,000		173,000	6820	1320	11.0	46	2.5	212	2200	11,500			350		
4	91.83	173,000			173,000		1310	11.1	46	2.5	212	2300				352		
5	90.—	160,000			160,000		1220	11.0	46	2.5	212	2100				342		
6	92.75	194,000			194,000		1470	11.1	46	2.5	212	1500				360		
7	91.66	183,000			183,000		1400	11.0	46	2.5	212	1400				359		
8	91.—	182,000	920,000		182,000	7010	1430	11.0	46	2.5	212	3200	13,700			359		
9	92.33	182,000			182,000		1430	11.0	46	2.5	212	3800				359		
10	92.—	169,000			169,000		1280	11.0	46	2.5	212	3800				354		
11	91.25	199,000			199,000		1520	11.0	46	2.5	212	4200				362		
12	92.—	212,000			212,000		1620	11.0	46	2.5	212	4400				370		
13	92.5	220,000	1069,000		320,000	8170	1680	11.0	43	2.5	212	4200	21,200			404		
14	92.—	234,000			234,000		1790	11.0	43	2.5	212	3400				393		
15	91.58	204,000			204,000		1560	11.0	35	2.5	212	2900				402		
16	91.66	230,000			230,000		1760	11.0	33	2.5	212	3500				403		
17	92.41	259,000			259,000		1960	11.1	30	2.5	212	3200				404		
18	92.41	267,000	4213,000		267,000	9250	2040	11.0	30	2.5	212	4000	19,800			406		
19	91.—	219,000			219,000		1670	11.0	30	2.5	212	4400				404		
20	93.16	238,000			238,000		1820	11.0	30	2.5	212	4700				402		
21	91.58	216,000			216,000		1650	11.0	30	2.5	212	4900				422		
22	90.41	259,000			259,000		1980	11.0	30	2.5	212	5000				412		
23	91.11	262,000	1,271,000		262,000	9690	2000	11.0	28	2.5	212	3200	18,600			405		
24	91.5	272,000			272,000		2040	11.1	28	2.5	212	3900				414		
25	91.66	263,000			263,000		2000	11.0	28	2.5	212	3400				407		
26	90.66	309,000			309,000		2360	11.0	28	2.5	212	3800				423		
27	90.—	324,000			324,000		2490	11.0	28	2.5	212	3900				436		
28	93.54	329,000	1,905,000		329,000	14,560	2510	11.0	28	2.5	212	3800	18,000			433		
29	93.58	323,000			323,000		2440	11.1	28	2.5	212	3900				408		
30	94.00	313,000			313,000		2390	11.0	28	2.5	212	3800				413		
31	93.—	310,000			310,000		2370	11.0	28	2.5	212	3900				428		
TOTAL			7,273,000			55,500		11.0				126,300						
MAXIMUM																		
MINIMUM																		
AVERAGE	91.32																	

EVAPORATION LB STEAM PER LB. STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY

DATE

REMARKS: December - 1993

APPROVED BY

DATE

PO

FORM 1 NOV 72 **3967** REPLACES DA FORM 598, 1 JUN 68, WHICH WILL BE USED.

FA TIES ENGINEERING OPERATING LOG *(Boiler Plant)*

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

ALLATION: Ft. Monmouth

PLANT: A.J. Myer CTR

BLDG NO: 22

DATE	STEAM PRESSURE LB	STEAM PRODUCED BOILER 1 1,000 LB	BOILER 2 1,000 LB	BOILER 3 1,000 LB	TOTAL 1,000 LB.	FEED-WATER TO BOILER 1,000 LB.	FUEL USED LB. M.C.F. GAL.	EVAP. LB. PER UNIT	OUTSIDE TEMP. AV. °F.	FEEDWATER HEATER PRESS. LB.	FEEDWATER HEATER TEMP. °F.	MAKEUP GAL.	%CO2 BOILER 1	%CO2 BOILER 2	%CO2 BOILER 3	FLUE GAS TEMPERATURE BOILER 1 °F	FLUE GAS TEMPERATURE BOILER 2 °F	FLUE GAS TEMPERATURE BOILER 3 °F
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	91.25		258,000		258000		1920	11.0		2.5	212	3000					413	
2	93.—		233,000	1351,00	233,000		1780	11.0		2.5	212	3000					412	
9/3 6/22	92.89		279,000		279,000	10,280	2130	11.0		2.5	212	3000	15,000				434	
4	90.25		289,000		289,000		2120	11.1		2.5	212	3000					434	
5	90.83		301,000		301,000		2280	11.1		2.5	212	3000					434	
6	91.83		313,000	1646,00	313,000		2370	11.1		2.5	212	3500					431	
7	92.66		309,000		309,000		2340	11.1		2.5	212	2800					428	
9/8 9/5	91.—		318,000		318,000	13,180	2430	11.0		2.5	212	2800	12500				432	
9	91.44		345,000		345,000		2610	11.1		2.5	212	3100					442	
10	90.33		361,000		361,000		2730	11.1		2.5	212	3460					455	
11	92.85		322,000	1497,00	322,000		2440	11.1		2.5	212	4100					439	
12	90.—		289,000		289,000		2190	11.1		2.5	212	3400					432	
9/13 9/11	93.5		259,000		259,000	11,380	1980	11.0		2.5	212	2800	16,800				425	
14	91.—		276,000		276,000		2090	11.1		2.5	212	3500					421	
15	91.83		351,000		351,000		2680	11.0		2.5	212	3000					443	
16	92.33		356,000	1897,00	356,000		2720	11.0		2.5	212	3000					453	
17	92.—		330,000		330,000		2520	11.0		2.5	212	3000					442	
9/18 9/19	93.33		370,000		370,000	14,670	2800	11.1		2.5	212	4000	17,900				450	
19	90.5		418,000		418,000		3400	11.0		2.5	212	3400					455	
20	91.33		423,000		423,000		3230	11.0		2.5	212	4500					420	
21	91.62		395,000	1647,00	395,000		2990	11.1		2.5	212	3000					455	
22	92.—		349,000		349,000		2640	11.1		2.5	212	3000					456	
9/23 9/27	91.83		323,000	2000	323,000	17,330	2470	11.0		2.5	212	4000	15,560				443	
24	14.—		267,000		267,000		2040	11.0		2.5	212	4500					431	
25	91.91		289,000		289,000		2190	11.1		2.5	212	4000					441	
26	92.—		338,000	1732	338,000		2580	11.0		2.5	212	4500					442	
27	92.—		341,000		341,000		2580	11.1		2.5	212	3500					441	
9/28 9/26	93.58		237,000	0	237,000	13,200	1810	11.0		2.5	212	2800	11,600				419	
29	92.—		238,000		238,000		1830	11.1		2.5	212	4000					417	
30	92.—		275,000		275,000		2100	11.0		2.5	212	4200					417	
31	92.—		297,000		297,000		2340	11.1		2.5	212	3700					433	
TOTAL			9,7[illegible]4,000			61,140	0	11.1				107,300						
MAXIMUM																		
MINIMUM																		
AVERAGE	91.63																	

EVAPORATION LB. STEAM PER LB. STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY

DATE

REMARKS: #2 Boiler 31 DAYS

APPROVED BY: JANUARY-1994

DATE

DA FORM 1 NOV 72 3967 REPLACES DA FORM 598, 1 JUN 68, WHICH WILL BE USED.

FAC[illegible]IES ENGINEERING OPERATING LOG *(Boiler Plant)*

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth | PLANT: A.T. Myer Ctr | BLDG. NO: 274

DATE	STEAM PRESSURE LB	STEAM PRODUCED BOILER 1 1,000 LB	BOILER 2 1,000 LB	BOILER 3 1,000 LB	TOTAL 1,000 LB.	FEED WATER TO BOILER 1,000 LB.	FUEL USED LB M.C.F. GAL.	EVAP. LB. PER UNIT	OUTSIDE TEMP. AV. °F.	FEEDWATER HEATER PRESS. LB.	FEEDWATER HEATER TEMP. °F.	MAKEUP GAL.	%CO2 BOILER 1	%CO2 BOILER 2	%CO2 BOILER 3	FLUE GAS TEMPERATURE BOILER 1 °F	FLUE GAS TEMPERATURE BOILER 2 °F	FLUE GAS TEMPERATURE BOILER 3 °F
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	91		318,000	[illegible]	318,000		2430	11.0		2.5	212	3200					452	
2	90.66		343,000	[illegible]	343,000		2620	11.0		2.5	212	3800					440	
3	91.66		309,000	[illegible]	309,000	11,850	2360	11.0		2.5	212	3000	17500				426	
4	91.83		309,000		309,000		2340	11.1		2.5	212	8500					438	
5	91.33		275,000		275,000		2100	11.0		2.5	212	4000					426	
6	92.33		267,000	[illegible]	267,000		2020	11.1		2.5	212	3000					429	
7	93.2[illegible]		271,000	[illegible]	271,000		2050	11.1		2.5	212	3800					430	
8	90.[illegible]		339,000	[illegible]	339,000	11,980	2590	11.0		2.5	212	4000	18800				454	
9	91.25		335,000		335,000		2560	11.0		2.5	212	4000					445	
10	91.[illegible]		365,000		365,000		2760	11.1		2.5	212	4000					447	
11	92.41		358,000	[illegible]	358,000		2710	11.1		2.5	212	4000					449	
12	92.83		325,000	[illegible]	325,000		2480	11.0		2.5	212	4300					450	
13	91.25		293,000	[illegible]	293,000	12,160	2220	11.1		2.5	212	3000	20300				433	
14	92.33		322,000		322,000		2440	11.1		2.5	212	4000					445	
15	91.[illegible]		305,000		305,000		2310	11.1		2.5	212	5000					443	
16	91.[illegible]		272,000	[illegible]	272,000		2060	11.1		2.5	212	5000					433	
17	93.[illegible]		284,000	[illegible]	284,000		2150	11.1		2.5	212	4000					435	
18	93.35		254,000	[illegible]	254,000	9530	1940	11.0		2.5	212	4500	20700				422	
19	91.91		232,000		232,000		1810	11.0		2.5	212	3800					421	
20	93.58		207,000		207,000		1570	11.1		2.5	212	3400					411	
21	93.91		216,000	[illegible]	216,000		1610	11.0		2.5	212	3100					412	
22	91.66		242,000	[illegible]	242,000		1830	11.1		2.5	212	4000					422	
23	90.41		288,000	[illegible]	288,000	10,030	2190	11.1		2.5	212	4700	20,900				421	
24	91.[illegible]		276,000	[illegible]	276,000		2090	11.1		2.5	212	5000					422	
25	92.[illegible]		305,000		305,000		2310	11.1		2.5	212	4000					432	
26	91.[illegible]		309,000	[illegible]	309,000		2340	11.1		2.5	212	4000					428	
27	92.3[illegible]		355,000	[illegible]	355,000	7830	2710	11.1		2.5	212	3900	11600				453	
28	90.[illegible]		372,000	[illegible]	372,000		2880	11.0		2.5	212	3200					447	
29																		
30																		
31																		
TOTAL	91.64		8,35[illegible]	5,000		634[illegible]		11.1				109,700						
MAXIMUM				[illegible]														
MINIMUM																		
AVERAGE																	10.9%	

EVAPORATION LB. STEAM PER LB. STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY

DATE

REMARKS: #2 Boiler 28 DAY

APPROVED BY: Febuary-1994

DATE

DA FORM 1 NOV 72 3967 REPLACES DA FORM 598, 1 JUN 58, WHICH WILL BE USED.

FAC ...TIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

I. ...LLATION: Ft. Monmouth | PLANT: A.J. Myer CTR | BLDG NO: 27

DATE	STEAM PRESSURE LB (1)	STEAM PRODUCED BOILER 1 1,000 LB (2)	BOILER 2 1,000 LB (3)	BOILER 3 1,000 LB (4)	TOTAL 1,000 LB. (5)	FEED WATER TO BOILER 1,000 LB. (6)	FUEL USED LB. M C.F. GAL. (7)	EVAP. LB. PER UNIT (8)	OUTSIDE TEMP. AV. °F. (9)	FEEDWATER HEATER PRESS. LB. (10)	FEEDWATER HEATER TEMP. °F. (11)	MAKEUP GAL (12)	%CO2 BOILER 1 (13)	%CO2 BOILER 2 (14)	%CO2 BOILER 3 (15)	FLUE GAS TEMPERATURE BOILER 1 °F. (16)	FLUE GAS TEMPERATURE BOILER 2 °F (17)	FLUE GAS TEMPERATURE BOILER 3 °F (18)
1	82.66		313,000	45,000	313,000	45,000	2390	11.0		2.5	212	5000					436	
2	85.—		314,000	50,000	314,000	50,000	2400	11.0		2.5	212	6000					444	
3	84.41		296,000	0	296,000	0	2260	11.0		2.5	212	5000	24.0				436	
4	86.25		268,000		268,000		2030	11.1		2.5	212	4500					423	
5	85.83		263,000		263,000		2010	11.0		2.5	212	3800					427	
6	85.66		263,000	40,000	263,000		1990	11.1		2.5	212	5000					432	
7	84.—		232,000	39,000	232,000		1770	11.0		2.5	212	6000					418	
8	84.83		221,000	0	221,000	9,440	1690	11.0		2.5	212	3000	25.0				425	
9	84.33		292,000	0	292,000		2230	11.0		2.5	212	6000					432	
10	85.66		232,000		230,000		1760	11.0		2.5	212	5200					418	
11	84.41		254,000	40,000	254,000		1940	11.0		2.5	212	5000					423	
12	85.75		280,000	0	280,000		2120	11.1		2.5	212	5000					438	
13 29	84.33		244,000	0	244,000	9330	1860	11.0		2.5	212	2200	23.0				423	
14	87.—		221,000	0	221,000		1670	11.1		2.5	212	4900					418	
15	83.—		230,000		230,000		1740	11.1		2.5	212	5000					412	
16	82.—		259,000	43,000	259,000		1960	11.1		2.5	212	6000					433	
17	83.91		289,000	0	289,000		2190	11.1		2.5	212	4500					434	
18 28	83.58		301,000	0	301,000	10,560	2280	11.1		2.5	212	4100	24.0				429	
19	84.—		276,000	0	276,000		2110	11.0		2.5	212	4600					430	
20	87.41		267,000		267,000		2020	11.1		2.5	212	5000					438	
21	87.20		263,000	40,000	263,000		2010	11.0		2.5	212	5200					427	
22	85.45		220,000	0	220,000		1680	11.0		2.5	212	6000					412	
23 48	89.—		185,000	50,000	185,000	8070	1490	11.0		2.5	212	5000	24.0				423	
24	88.75		178,000	0	178,000		1360	11.0		2.5	212	4000					402	
25	87.5		209,000		209,000		1530	11.0		2.5	212	4200					402	
26	88.91		234,000	40,000	234,000		1710	11.0		2.5	212	3500					434	
27	86.—		211,000	0	211,000		1610	11.0		2.5	212	4000					427	
28 84	88.—		207,000	0	207,000	8380	1570	11.0		2.5	212	4000	24.0				423	
29	88.—		229,000		229,000		1730	11.1		2.5	212	5000					427	
30	88.33		230,000		230,000		1760	11.0		2.5	212	5000					425	
31	89.58		217,000		217,000		1660	11.0		2.5	212	5100					423	
TOTAL			7,687,000			58,530						147,300						
MAXIMUM																		
MINIMUM																		
AVERAGE	86.38																	

EVAPORATION LB. STEAM PER LB STD. FUEL: 7,687,000 LBS

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS): 58,530 GAL

PREPARED BY: [signature] | DATE: 4/1/94

REMARKS: #2 Boiler 31 Days

APPROVED BY: March-1994 | DATE

DA FORM 1 NOV 72 3967 REPLACES DA FORM 598 1 JUN 58, WHICH WILL BE USED

FAC TIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

LOCATION: Ft. Monmouth | PLANT: A.J. Myer Ctr | BLDG NO: 27

DATE	STEAM PRESSURE LB (1)	STEAM PRODUCED BOILER 1 1,000 LB (2)	BOILER 2 1,000 LB (3)	BOILER 3 1,000 LB (4)	TOTAL 1,000 LB (5)	FEED-WATER TO BOILER 1,000 LB (6)	FUEL USED LB. M.C.F. GAL. (7)	EVAP. LB. PER UNIT (8)	OUTSIDE TEMP. AV. °F (9)	FEEDWATER HEATER PRESS. LB. (10)	FEEDWATER HEATER TEMP. °F. (11)	MAKEUP GAL. (12)	%CO2 BOILER 1 (13)	%CO2 BOILER 2 (14)	%CO2 BOILER 3 (15)	FLUE GAS TEMPERATURE BOILER 1 °F. (16)	FLUE GAS TEMPERATURE BOILER 2 °F (17)	FLUE GAS TEMPERATURE BOILER 3 °F (18)
1	88.58	10	124,000		124,000		1480	11.0	52.5	2.5	212	3500					401	
2	87.66	12	321,000		321,000		1490	11.0	47.0	2.5	212	5200					402	
3	91.33	10	182,000		182,000	7740	1380	11.1	55.25	2.5	212	3000	17,200				400	
4	93.63	00	206,000		206,000		1570	11.0	53.0	2.5	212	2000					402	
5	93.00		214,000		214,000		1620	11.1	49.73	2.5	212	4000					403	
6	93.12	9	194,000		194,000		1470	11.1	52.66	2.5	212	4000					221	
7	94.41	8	172,000		172,000		1490	11.1	53.36	2.5	212	4000					400	
8	92.58	20	194,000		194,000	7450	1410	11.1	49.08	2.5	212	3000	19200				400	
9	95.83	20	215,000		215,000		1640	11.0	48.64	2.5	212	5000					401	
10	95.—		181,000		181,000		1380	11.0	60.—	2.5	212	3000					402	
11	93.41		198,000		198,000		1500	11.1	56.—	2.5	212	3000					402	
12	94.41		215,000		215,000		1640	11.0	50	2.5	212	4000					402	
13	87.66		195,000		195,000	7290	1490	11.0	52	2.5	212	4000	18,200				402	
14	89.5			178,000	178,000		1360	11.0	63	2.5	212	4200					-	320
15	90.—	256,000		170,000	170,000		1300	11.0	66	2.5	212	3000						343
16	90.41			177,000	177,000		1340	11.1	63	2.5	212	3500						338
17	87.—			173,000	173,000		1310	11.1	59	2.5	212	4500						335
18	89.41	852,000		181,000	181,000	6490	1370	11.1	59	2.5	212	3500	21,900					333
19	92.66			152,000	152,000		1190	11.1	71	2.5	212	5100						331
20	94.33			162,000	162,000		1280	11.1	63	2.5	212	3000						332
21	93.33			173,000	173,000		1310	11.1	57	2.5	212	3800						332
22	93.75			178,000	178,000		1360	11.0	56	2.5	212	4000						332
23	92.33	856,000		184,000	184,000	6520	1410	11.1	53	2.5	212	3800	17,200					332
24	92.—			162,000	162,000		1240	11.0	63	2.5	212	3800						332
25	88.33			152,000	152,000		1200	11.0	68	2.5	212	2800						335
26	88.—			181,000	181,000		1370	11.1	56	2.5	212	3500						334
27	90.5			148,000	148,000		1140	11.0	70	2.5	212	4000						332
28	88.25	813,000		148,000	148,000	6190	1130	11.0	70	2.5	212	3300	23,400					327
29	87.91			178,000	178,000		1360	11.0	58	2.5	212	5100						324
30	88.83			152,000	152,000		1190	11.1	65	2.5	212	5000						334
31																		332
TOTAL	58.20	5,180,000				41650	11.1					126,100						
MAXIMUM																		
MINIMUM																		
AVERAGE																		

EVAPORATION LB. STEAM PER LB. STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY

DATE

REMARKS: #2 Boiler 13 DAYS

APPROVED BY

DATE: APRIL-1994

DA FORM 1 NOV 72 3967 REPLACES DA FORM 5-98, 1 JUN 68, WHICH WILL BE USED.

FAC. .TIES ENGINEERING OPERATING LOG *(Boiler Plant)*

For use of this form, see AR 420-49, the proponent agency is the Corps of Engineers.

I LLATION: FT. Monmouth | PLANT: A.J. Myer CTR | BLDG NO: 274

DATE	STEAM PRESSURE LB	STEAM PRODUCED BOILER 1 1,000 LB	BOILER 2 1,000 LB	BOILER 3 1,000 LB	TOTAL 1,000 LB	FEED-WATER TO BOILER 1,000 LB	FUEL USED LB. M.C.F. GAL.	EVAP. LB. PER UNIT	OUTSIDE TEMP. AV. °F.	FEEDWATER HEATER PRESS. LB.	FEEDWATER HEATER TEMP. °F.	MAKEUP GAL.	%CO2 BOILER 1	%CO2 BOILER 2	%CO2 BOILER 3	FLUE GAS TEMPERATURE BOILER 1 °F	FLUE GAS TEMPERATURE BOILER 2 °F	FLUE GAS TEMPERATURE BOILER 3 °F
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	86.66			156,000	156,000		1180	11.1	65	2.5	212	2500						332
2	88.91			199,000	199,000		1450	11.0	58	2.5	212	4000						340
3	84.83	881,000		184,000	184,000	6220	1420	11.0	53	2.5	212	4000	18,200					340
4	85.66			187,000	187,000		1430	11.0	56	2.5	212	3900						339
5	87.5			163,000	163,000		1240	11.0	61	2.5	212	3800						333
6	89.33			165,000	165,000		1240	11.0	62	2.5	212	4800						331
7	89.—			184,000	184,000		1410	11.1	55	2.5	212	5000						335
8 28 39	86.33	838,000		161,000	161,000	6380	1230	11.0	60	2.5	212	4000	20,800					335
9	89.—			169,000	169,000		1280	11.1	64	2.5	212	4000						338
10	88.33			152,000	152,000		1200	11.0	65	2.5	212	5000						330
11	85.75			123,000	123,000		1310	11.1	63	2.5	212	5000						334
12	87.5			153,000	153,000		1170	11.0	63	2.5	212	4100						333
13 37	87.58	817,000		170,000	170,000	6210	1300	11.0	59	2.5	212	4000	20,700					334
14	85.66			165,000	165,000		1250	11.1	62	2.5	212	4000						330
15	89.75			156,000	156,000		1180	11.1	65	2.5	212	3600						330
16	90.91			148,000	148,000		1130	11.0	68	2.5	212	4000						330
17	84.33			173,000	173,000		1310	11.1	57	2.5	212	4000						334
18 37 83	87.—	827,000		165,000	165,000	6300	1260	11.0	59	2.5	212	5000	23,200					332
19	88.25			160,000	160,000		1220	11.0	54	2.5	212	5500						335
20	88.66			181,000	181,000		1380	11.0	54	2.5	212	5200						332
21	87.—			177,000	177,000		1340	11.1	60	2.5	212	5500						335
22	88.91			174,000	174,000		1330	11.0	65	2.5	212	5500						336
23 25 44	87.33	789,000		152,000	152,000	5930	1200	11.0	70	2.5	212	5200	26,200					345
24	91.66			134,000	134,000		1030	11.1	75	2.5	212	5000						331
25	85.33			136,000	136,000		1030	11.1	74	2.5	212	5000						329
26	86.33			132,000	132,000		1040	11.0	70	2.5	212	4900						342
27	85.—			144,000	144,000		1090	11.1	66	2.5	212	5500						334
28 56 —	88.66	862,000		144,000	144,000	6520	1100	11.0	62	2.5	212	3700	22,400					332
29	85.33			142,000	142,000		1140	11.0	68	2.5	212	5000						347
30	91.41			145,000	145,000		1110	11.0	73	2.5	212	5000						342
31	85.66			144,000	144,000		1090	11.0	73	2.5	212	5000						345
TOTAL		5,000	5,000			38,110		11.0				138,700						
MAXIMUM																		
MINIMUM																		
AVERAGE	87.44																	

EVAPORATION LB STEAM PER LB. STD. .UEL

SEE REVERSE SIDE FOR .. STRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY

DATE

REMARKS: #3 Boiler 31 Days

APPROVED BY: MAY-1994

DATE

DA FORM 1 NOV 72 3967 REPLACES DA FORM 598 1 JUN 68, WHICH WILL BE USED.

F... ITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49, the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth

PLANT: A.J. Myer Ctr

BLDG #: 2

DATE	STEAM PRODUCED: STEAM PRESSURE LB (1)	BOILER 1 1,000 LB (2)	BOILER 2 1,000 LB. (3)	BOILER 3 1,000 LB (4)	TOTAL 1,000 LB. (5)	FEED-WATER TO BOILER 1,000 LB. (6)	FUEL USED LB. M C.F. GAL. (7)	EVAP. LB. PER UNIT (8)	OUTSIDE TEMP. AV. °F. (9)	FEEDWATER HEATER: PRESS. LB. (10)	TEMP. °F. (11)	MAKEUP GAL. (12)	%CO2 BOILER 1 (13)	%CO2 BOILER 2 (14)	%CO2 BOILER 3 (15)	FLUE GAS TEMPERATUR BOILER 1 °F (16)	FLUE GAS TEMPERATUR BOILER 2 °F (17)	FLUE GAS TEMPERATUR BOILER 3 °F (18)
1	87.91			132,000	132,000		1010	11.0	78	2.5	212	5200						330
2	86.—			141,000	141,000		1080	11.0	70	2.5	212	4700						342
3	87.25	704,000		145,000	145,000	5390	1110	11.0	68	2.5	212	4100	24,000					344
4	86.—			141,000	146,000		1080	11.0	72	2.5	212	5000						335
5	87.83			145,000	145,000		1110	11.0	71	2.5	212	5200						342
6	89.91			140,000	140,000		1060	11.1	73	2.5	212	4800						343
7	89.33			135,000	135,000		1020	11.1	80	2.5	212	3500						345
8	84.—	687,000		132,000	132,000	5210	1010	11.0	78	2.5	212	5200						342
9	88.41			140,000	140,000		1060	11.1	71	2.5	212	3800	23,200					338
10	88.—			140,000	140,000		1060	11.1	73	2.5	212	4400						342
11	85.—			135,000	135,000		1030	11.0	70	2.5	212	4100						338
12	88.25			136,000	136,000		1040	11.0	75	2.5	212	4300						341
13	89.—	641,000		136,000	136,000	4890	1040	11.0	79	2.5	212	5200	23,800					353
14	89.58			122,000	122,000		960	11.1	82	2.5	212	5300						345
15	86.58			107,000	107,000		820	11.0	83	2.5	212	5700						322
16	89.—			118,000	118,000		890	11.1	72	2.5	212	4400						336
17	89.—			120,000	120,000		920	11.0	77	2.5	212	4400						336
18	86.25	584,000		118,000	118,000	4450	900	11.0	83	2.5	212	4800	23,800					339
19	88.41			110,000	110,000		840	11.0	89	2.5	212	4000						333
20	90.91			118,000	118,000		900	11.0	80	2.5	212	5000						336
21	92.58			124,000	124,000		950	11.0	77	2.5	212	5500						340
22	83.25			122,000	122,000		930	11.0	81	2.5	212	5200						333
23	85.25	642,000		120,000	120,000	4680	920	11.0	85	2.5	212	3600	22,800					340
24	86.83			126,000	126,000		960	11.0	80	2.5	212	3900						345
25	87.—			120,000	120,000		920	11.0	84	2.5	212	4100						348
26	90.58			128,000	128,000		980	11.0	77	2.5	212	5100	?					345
27	91.33			126,000	126,000		960	11.0	78	2.5	212	6800	?					320
28	89.—	646,000		135,000	135,000	4920	1030	11.0	79	2.5	212	3700	25,400					390
29	84.25			123,000	123,000		940	11.0	78	2.5	212	5700	?					354
30	88.91			134,000	134,000		1030	11.0	75	2.5	212	4700						393
31																		
TOTAL		3,874,000				29,540		11.0										
MAXIMUM													142,500					
MINIMUM																		
AVERAGE																		

EVAPORATION LB. STEAM PER LB. STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY

DATE

REMARKS: #3 Boiler 27 Days #2

APPROVED BY: June-1994

DATE

DA FORM 1 NOV 72 3967 REPLACES DA FORM 598, 1 JUN 68, WHICH WILL BE USED.

FACILITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49, the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth

PLANT: A.T. Myer CTR

BLDG #: 27

DATE	STEAM PRESSURE LB (1)	STEAM PRODUCED BOILER 1 1,000 LB (2)	BOILER 2 1,000 LB (3)	BOILER 3 1,000 LB (4)	TOTAL 1,000 LB. (5)	FEED WATER TO BOILER 1,000 LB. (6)	FUEL USED LB. M C.F. GAL. (7)	EVAP. LB. PER UNIT (8)	OUTSIDE TEMP. AV. °F. (9)	FEEDWATER HEATER PRESS. LB. (10)	FEEDWATER HEATER TEMP. °F. (11)	MAKEUP GAL. (12)	%CO2 BOILER 1 (13)	%CO2 BOILER 2 (14)	%CO2 BOILER 3 (15)	FLUE GAS TEMPERATURE BOILER 1 °F (16)	FLUE GAS TEMPERATURE BOILER 2 °F (17)	FLUE GAS TEMPERATURE BOILER 3 °F (18)
1	88.75		135,000	64.5	135,000		1030	11.0	78	2.5	212	2700					339	
2	88.75		128,000		128,000		980	11.0	83	2.5	212	3500					380	
3	87.5		131,000	0.0	131,000	5070	990	11.1	81	2.5	212	3300	12500				388	
4	88.0		126,000	0	131,000		1000	11.0	78	2.5	212	4000					387	
5	88.25		140,000		140,000		1070	11.0	86	2.5	212	4000					373	
6	86.4		123,000	6.3	123,000		940	11.0	86	2.5	212	4000					352	
7	86.2		127,000	9.3	127,000		970	11.0	89	2.5	212	3000					372	
8	85.64		123,000	3.00	123,000	4620	930	11.1	87	2.5	212	4200	29600				320	
9	81.83		123,000		123,000		920	11.1	85	2.5	212	3500					352	
10	82.2		123,000		123,000		920	11.1	84	2.5	212	3500					352	
11	84.83		127,000	6.4	127,000		960	11.1	79	2.5	212	5200					325	
12	91.0		135,000		135,000		1020	11.0	78	2.5	212	2600					412	
13	87.25		124,000	0.0	124,000	4820	950	11.0	83	2.5	212	4300	25200				332	
14	85.16		123,000		123,000		940	11.0	82	2.5	212	5200					351	
15	84.25		122,000		122,000		1010	11.0	77	2.5	212	5200					352	
16	83.16		123,000	6.3	123,000		920	11.1	82	2.5	212	4700					334	
17	82.—		124,000		124,000		950	11.0	81	2.5	212	3800					355	
18	82.—		127,000	6.3	127,000	4800	970	11.0	78	2.5	212	4200	22700				348	
19	84.66		131,000	0.0	131,000		990	11.1	81	2.5	212	5500					395	
20	80.—		126,000		126,000		960	11.0	85	2.5	212	4000					382	
21	87.41		131,000	6.5	131,000		1000	11.0	86	2.5	212	3800					395	
22	84.66		124,000	5.3	124,000		950	11.0	86	2.5	212	3500					374	
23	90.—		135,000	2.0	135,000	4960	1020	11.1	79	2.5	212	3600	20400				390	
24	85.33		131,000	0.0	131,000		990	11.1	81	2.5	212	4000					393	
25	87.25		131,000		131,000		1000	11.0	80	2.5	212	5200					395	
26	91.33		136,000	5.0	136,000		1030	11.1	75	2.5	212	6600					372	
27	89.25		152,000	0.0	152,000		1160	11.0	75	2.5	212	4300					395	
28	85.91		126,000	0.0	126,000	6130	920	11.0	80	2.5	212	4500					291	
29	87.66		131,000	0.0	131,000		990	11.1	79	2.5	212	3200	25000				307	
30	86.91	131,000			131,000		990	11.1	81	2.5	212	4500					395	
31	85.25		131,000		131,000		990	11.1	82	2.5	212	4500					395	
TOTAL			4,020,000			30,540		11.0				132,200						
MAXIMUM																		
MINIMUM																		
AVERAGE																		

EVAPORATION LB STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: #2 Boiler 31 DAYS

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY

DATE

APPROVED BY

DATE: July-1994

DA FORM 3967

FAC. ...IES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth | PLANT: A.J. Myer Ctr. | BLDG NO: 2700

DATE	STEAM PRESSURE LB	STEAM PRODUCED BOILER 1 1,000 LB	BOILER 2 1,000 LB	BOILER 3 1,000 LB.	TOTAL 1,000 LB.	FEED WATER TO BOILER 1,000 LB.	FUEL USED LB. M C.F. GAL.	EVAP. LB. PER UNIT	OUTSIDE TEMP. AV. °F.	FEEDWATER HEATER PRESS. LB.	FEEDWATER HEATER TEMP. °F.	MAKEUP GAL.	%CO2 BOILER 1	%CO2 BOILER 2	%CO2 BOILER 3	FLUE GAS TEMPERATURE BOILER 1 °F	FLUE GAS TEMPERATURE BOILER 2 °F	FLUE GAS TEMPERATURE BOILER 3 °F	S
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
1	83.66		135,000	6a	135,000		1030	11.0	77	2.5	212	4600					392		
2	85.66		135,000	7a2	135,000		1020	11.1	79	2.5	212	5100					395		
3	84.66		131,000	700	131,000	5100	1000	11.0	81	2.5	212	2800	20000				394		
4	85.83		136,000		136,000		1030	11.1	83	2.5	212	3300					392		
5	85.66		135,000		135,000		1020	11.1	77	2.5	212	3200					395		
6	83.66		144,000	7,7	144,000		1100	11.0	21	2.5	212	3600					385		
7	84.91		145,000	7,7	145,000		1110	11.0	22	2.5	212	3500					407		
8	86.41		144,000	7,00	144,000	5480	1100	11.0	24	2.5	212	3900	18800				402		
9	83.25		144,000		144,000		1100	11.0	22	2.5	212	3900					402		
10	86.41		140,000		140,000		1070	11.0	23	2.5	212	3900					398		
11	84.91		145,000	7,4	145,000		1110	11.0	25	2.5	212	3700					403		
12	87.—		144,000	7,4	144,000		1100	11.0	24	2.5	212	4000					394		
13	84.66		136,000	700	136,000	5440	1030	11.1	81	2.5	212	4300	18200				398		
14	85.66		140,000		140,000		1060	11.1	80	2.5	212	3400					398		
15	86.41		140,000		140,000		1080	11.0	69	2.5	212	2200					400		
16	85.—		150,000	7,0	150,000		1150	11.1	69	2.5	212	3000					405		
17	85.—		144,000	7,0	144,000		1090	11.1	23	2.5	212	4600					397		
18	84.5		136,000	700	136,000	5400	1040	11.0	29	2.5	212	3900	19500				399		
19	86.—		140,000		140,000		1070	11.0	22	2.5	212	4000					398		
20	84.33		138,000		138,000		1050	11.0	81	2.5	212	3500					392		
21	84.66		135,000	7,0	135,000		1020	11.1	80	2.5	212	3100					392		
22	87.5		145,000	7,0	145,000		1110	11.0	69	2.5	212	5400	?				400		
23	84.58		144,000	700	144,000	5320	1100	11.0	67	2.5	212	7100	?				400		
24	84.—		141,000		141,000		1080	11.0	65	2.5	212	4100	23100				400		
25	86.5		139,000		139,000		1060	11.0	70	2.5	212	3400					398		
26	87.66		140,000	8	140,000		1060	11.1	75	2.5	212	3800					395		
27	86.—		135,000	3,1	135,000		1020	11.1	79	2.5	212	2800					399		
28	87.41		138,000	7,00	138,000	5320	980	11.1	81	2.5	212	3600	23700				399		
29	85.—		136,000	7,00	136,000		1030	11.1	75	2.5	212	4500					402		
30	87.33		145,000		145,000		1130	11.0	68	2.5	212	5500					403		
31	84.—		144,000		144,000		1100	11.0	72	2.5	212	3500					402		
TOTAL			4/3	53,000		3310		11.0				1997200							
MAXIMUM																			
MINIMUM																			
AVERAGE																			

EVAPORATION LB. STEAM PER LB. STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY

DATE

REMARKS: #2 Boiler 31 DAYS

APPROVED BY: AUGUST-1994

DATE

P

DA FORM 1 NOV 72 3967 REPLACES DA FORM 5-98, 1 JUN 58, WHICH WILL BE USED.

FACILITIES ENGINEERING OPERATING LOG *(Boiler Plant)*

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth NJ

PLANT: Wilmer CTR

BLDG #: 2

DATE	STEAM PRESSURE LB (1)	STEAM PRODUCED BOILER 1 1,000 LB (2)	BOILER 2 1,000 LB (3)	BOILER 3 1,000 LB (4)	TOTAL 1,000 LB. (5)	FEED WATER TO BOILER 1,000 LB (6)	FUEL USED LB. M.C.F. GAL. (7)	EVAP. LB. PER UNIT (8)	OUTSIDE TEMP. AV. °F. (9)	FEEDWATER HEATER PRESS. LB. (10)	FEEDWATER HEATER TEMP °F. (11)	MAKEUP GAL. (12)	%CO2 BOILER 1 (13)	%CO2 BOILER 2 (14)	%CO2 BOILER 3 (15)	FLUE GAS TEMPERATUR BOILER 1 °F (16)	FLUE GAS TEMPERATUR BOILER 2 °F (17)	FLUE GAS TEMPERATUR BOILER 3 °F (18)
1	85.91		140,000	7,000	140,000		1070	11.0	25	2.5	212	4300					382	
2	86.—		149,000		149,000		1140	11.0	69	2.5	212	4000					402	
3	85.75		155,000		155,000	5680	1160	11.0	69	2.5	212	3200	17,800				406	
4	84.25		150,000		150,000		1150	11.1	68	2.5	212	3400					402	
5	85.66		152,000		152,000		1160	11.0	66	2.5	212	3500					406	
6	89.33		148,000	7,000	148,000		1130	11.0	66	2.5	212	3400					395	
7	84.83		144,000	7,000	144,000	5330	1090	11.1	69	2.5	212	3400					387	
8	86.53		143,000		143,000		1090	11.0	22	2.5	212	3800	17,600				391	
9	86.11		144,000		144,000		1100	11.0	23	2.5	212	3500					393	
10	84.91		148,000		148,000		1120	11.1	20	2.5	212	3300					393	
11	86.25		150,000	7,000	150,000		1150	11.1	64	2.5	212	3400					394	
12	89.33		150,000	4,000	150,000		1150	11.1	65	2.5	212	3900					395	
13	88.—		144,000	7,000	144,000	5530	1100	11.0	23	2.5	212	5400	20,300				390	
14	86.—		142,000		141,000		1080	11.0	22	2.5	212	3800					385	
15	84.—		138,000		138,000		1050	11.1	22	2.5	212	3400					383	
16	86.25		145,000	7,000	145,000		1110	11.0	24	2.5	212	3900					395	
17	87.5		140,000	3,000	140,000		1070	11.0	29	2.5	212	3200					378	
18	89.—		145,000	7,000	145,000	5630	1110	11.0	22	2.5	212	3900	20,400				388	
19	82.58		152,000		152,000		1160	11.0	66	2.5	212	4600					397	
20	82.5		156,000		156,000		1180	11.1	63	2.5	212	5800					400	
21	86.5		141,000		141,000		1080	11.0	68	2.5	212	4100					378	
22	84.33		142,000	6,000	142,000		1080	11.0	65	2.5	212	3700					384	
23	86.83		136,000	7,000	136,000	5320	1040	11.0	66	2.5	212	3900	17,700				373	
24	85.33		140,000	7,000	140,000		1070	11.0	69	2.5	212	3900					375	
25	85.—		139,000		139,000		1050	11.1	20	2.5	212	3100					378	
26	88.—		148,000		148,000		1060	11.1	21	2.5	212	4600					380	
27	84.91		140,000	7,000	140,000		1070	11.0	21	2.5	212	6800					391	
28	85.58		144,000	7,000	144,000	5460	1090	11.1	68	2.5	212	5100	23,000				383	
29	84.—		144,000		144,000		1090	11.1	61	2.5	212	3800					375	
30	84.5		150,000		150,000		1150	11.0	60	2.5	212	5100					399	
31	86		4350,000			32,150	11.0					116,700						
TOTAL																		
MAXIMUM																		
MINIMUM																		
AVERAGE																		

EVAPORATION LB STEAM PER LB STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY

DATE

REMARKS: #2 Boiler 30 DAYS September-1994

APPROVED BY

DATE

DA FORM 1 NOV 72 3967 REPLACES DA FORM 598 1 JUN 68, WHICH WILL BE USED.

FAC TIES ENGINEERING OPERATING LOG *(Boiler Plant)*

For use of this form see AR 420-49; the proponent agency is the Corps of Engineers.

LOCATION: Ft. Monmouth

PLANT: A.J. Myer CTR

BLDG NO: 22

DATE	STEAM PRODUCED: STEAM PRESSURE LB	BOILER 1 1,000 LB	BOILER 2 1,000 LB	BOILER 3 1,000 LB	TOTAL 1,000 LB	FEED-WATER TO BOILER 1,000 LB	FUEL USED LB M.C.F. GAL.	EVAP. LB. PER UNIT	OUTSIDE TEMP AV. °F.	FEEDWATER HEATER: PRESS. LB.	TEMP. °F.	MAKEUP GAL.	%CO2 BOILER 1	%CO2 BOILER 2	%CO2 BOILER 3	FLUE GAS TEMPERATURE BOILER 1 °F	FLUE GAS TEMPERATURE BOILER 2 °F	FLUE GAS TEMPERATURE BOILER 3 °F
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	86.75		157,000	29	157,000		1200	11.0	57	2.5	212	3600					403	
2	84.64		154,000	25	154,000		1180	11.1	60	2.5	212	3700					402	
3 26	86.41		165,000	2100	165,000	6050	1260	11.0	55	2.5	212	2900	17100				427	
4	89		161,000		161,000		1230	11.0	54	2.5	212	2800					413	
5	84.57		154,000		154,000		1180	11.1	54	2.5	212	4100					391	
6	85.75		162,000	79	162,000		1240	11.0	54	2.5	212	3300					402	
7	86.25		168,000	2100	168,000		1280	11.0	58	2.5	212	3300					399	
8 27	86		157,000		157,000	6040	1200	11.0	62	2.5	212	3300	15,500				385	
9	86.33		143,000		143,000		1080	11.1	68	2.5	212	2800					391	
10	87.25		162,000		162,000		1240	11.0	62	2.5	212	2800					404	
11	86		162,000	79	162,000		1240	11.0	53	2.5	212	3600					412	
12	85		152,000		152,000		1190	11.1	51	2.5	212	3400					402	
13 66	85.58		153,000	1000	153,000	5850	1160	11.1	52	2.5	212	3800	17400				399	
14	83.33		148,000		148,000		1120	11.2	56	2.5	212	3300					395	
15	84.41		149,000		149,000		1140	11.0	58	2.5	212	3300					395	
16	85.25		149,000	7	149,000		1140	11.0	54	2.5	212	3300					400	
17	84.25		154,000	43	154,000		1190	11.0	54	2.5	212	3300					405	
18 27	82		143,000	100	143,000	5510	1090	11.0	57	2.5	212	2800	17400				419	
19	84.83		139,000		139,000		1050	11.1	64	2.5	212	4100					393	
20	82.25		136,000		136,000		1040	11.0	63	2.5	212	3800					399	
21	87		140,000	20	140,000		1070	11.0	64	2.5	212	3600					389	
22	88		140,000		140,000		1070	11.0	62	2.5	212	3400					390	
23 28	84.25		140,000	40	140,000	5400	1070	11.0	62	2.5	212	3300	15400				392	
24	85.40		143,000	0	143,000		1090	11.0	59	2.5	212	2800					395	
25	82.25		148,000		148,000		1120	11.1	58	2.5	212	2300					424	
26	85.25		148,000	8	148,000		1130	11.0	51	2.5	212	3300					391	
27	84.83		152,000	29	152,000		1160	11.0	50	2.5	212	3100					398	
28 72	87		152,000	2	152,000	6720	1160	11.0	50	2.5	212	3600	21500				403	
29	87.25		145,000	100	145,000		1110	11.2	56	2.5	212	3100					395	
30	84.41		141,000	0	141,000		1080	11.0	60	2.5	212	3700					391	
31	82.33		141,000		141,000		1080	11.0	60	2.5	212	4500					403	
TOTAL				4629000		35370						100	73500					
MAXIMUM																		
MINIMUM																		
AVERAGE																		

EVAPORATION LB STEAM PER LB. STD FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: #2 Boiler 31 DAYS

PREPARED BY

DATE

APPROVED BY: October-1994

DATE

P

SEE REVERSE SIDE FOR INSTRUCTIONS

DA FORM 1 NOV 72 3967 REPLACES DA FORM 558, 1 JUN 68, WHICH WILL BE USED.

FA· TIES ENGINEERING OPERATING LOG *(Boiler Plant)*

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth | PLANT: A.J. Myer Ctr | BLDG NO: 22

DATE	STEAM PRESSURE LB	STEAM PRODUCED BOILER 1 1,000 LB	BOILER 2 1,000 LB	BOILER 3 1,000 LB.	TOTAL 1,000 LB.	FEED-WATER TO BOILER 1,000 LB	FUEL USED LB. M C.F. GAL.	EVAP. LB. PER UNIT	OUTSIDE TEMP. AV. °F.	FEEDWATER HEATER PRESS. LB.	FEEDWATER HEATER TEMP. °F.	MAKEUP GAL.	%CO2 BOILER 1	%CO2 BOILER 2	%CO2 BOILER 3	FLUE GAS TEMPERATURE BOILER 1 °F	FLUE GAS TEMPERATURE BOILER 2 °F	FLUE GAS TEMPERATURE BOILER 3 °F
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	32.87		140,000				1070	11.0	63	2.5	212	4500					420	
2	33.66		165,000				1250	11.1	53	2.5	212	3100					402	
3	57.25		169,000			5950	1290	11.0	63	2.5	212	4300	18300				406	
4	57.91		153,000				1120	11.0	65	2.5	212	3900					397	
5	52.—		146,000				1120	11.0	66	2.5	212	3500					394	
6	85.75		144,000				1090	11.1	65	2.5	212	3500					395	
7	87.33		182,000				1380	11.0	55	2.5	212	4400					427	
8	87.25		124,000			6260	1230	11.0	53	2.5	212	3300	12400				425	
9	82.—		149,000				1140	11.0	65	2.5	212	3900					420	
10	85.91		123,000				1330	11.0	53	2.5	212	3300					423	
11	86.83		191,000				1460	11.0	47	2.5	212	3700					427	
12	86.66		185,000				1490	11.0	47	2.5	212	3500					427	
13	86.95		169,000			6670	1390	11.0	54	2.5	212	3300	14300				414	
14	87.29		172,000				1300	11.0	52	2.5	212	2900					423	
15	82.33		144,000				1230	11.0	60	2.5	212	2900					422	
16	84.—		124,000				1330	11.0	53	2.5	212	3900					420	
17	86.—		123,000				1310	11.1	54	2.5	212	4200					405	
18	86.62		169,000			6620	1290	11.0	58	2.5	212	3400	15300				420	
19	85.70		135,000				1260	11.1	59	2.5	212	3800					402	
20	84.95		187,000				1430	11.0	51	2.5	212	3500					425	
21	87.87		165,000				1260	11.0	54	2.5	212	3500					422	
22	85.—		183,000				1390	11.0	53	2.5	212	3500					429	
23	85.60		217,000			7220	1660	11.0	40	2.5	212	4100	18900				435	
24	83.—		237,000				1810	11.0	32	2.5	212	4100					439	
25	91.91		211,000				1600	11.1	43	2.5	212	3700					425	
26	86.29		220,000				1680	11.0	43	2.5	212	3700					426	
27	83.29		235,000				1720	11.0	39	2.5	212	4500					426	
28	91.5—		156,000			7320	1190	11.0	59	2.5	212	3500	18300				428	
29	88.45		178,000				1360	11.0	53	2.5	212	3900					429	
30	52.—		186,000				1420	11.0	49	2.5	212	3400					411	
31																		
TOTAL			[illegible]	84,000		40570						109220						
MAXIMUM																		
MINIMUM																		
AVERAGE																		

EVAPORATION LB. STEAM PER LB. STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY

DATE

REMARKS: #2 Boiler 30 Days

APPROVED BY

DATE: November-1994

DA FORM 1 NOV 72 3967 REPLACES DA FORM 598 1 JUN 58, WHICH WILL BE USED.

FACILITIES ENGINEERING OPERATING LOG *(Boiler Plant)*

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Wadsworth | PLANT: Ass. Mkt. Ctr. | BLDG. NO: 220

DATE	STEAM PRESSURE LB	STEAM PRODUCED BOILER 1 1,000 LB	BOILER 2 1,000 LB	BOILER 3 1,000 LB	TOTAL 1,000 LB	FEED WATER TO BOILER 1,000 LB	FUEL USED LB M.C.F. GAL.	EVAP. LB. PER UNIT	OUTSIDE TEMP AV. °F.	FEEDWATER HEATER PRESS. LB.	FEEDWATER HEATER TEMP. °F.	MAKEUP GAL.	%CO2 BOILER 1	%CO2 BOILER 2	%CO2 BOILER 3	FLUE GAS TEMPERATURE BOILER 1 °F	FLUE GAS TEMPERATURE BOILER 2 °F	FLUE GAS TEMPERATURE BOILER 3 °F
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	84.91		199,000	85	199,000		1520	11.0	41	2.5	212	3500					439	
2	92.5		185,000	85	185,000		1490	11.0	44	2.5	212	3900					414	
3	89.25		122,000	200	122,000	6230	1340	11.1	51	2.5	212	3400	1800				432	
4	89.87		165,000		165,000		1350	11.1	52	2.5	212	3200					422	
5	22.32		145,000		145,000		1230	11.0	58	2.5	212	3200					420	
6	20		162,000	20	162,000		1320	11.1	60	2.5	212	3200					425	
7	89.25		162,000	80	162,000		1342	11.0	56	2.5	212	3200					428	
8	87.5		211,000	200	211,000	7110	1610	11.0	59	2.5	212	3600	1630				439	
9	87.64		205,000		205,000		1590	11.0	59	2.5	212	3700					431	
10	82.45		195,000		195,000		1450	11.0	65	2.5	212	3400					428	
11	84.80		191,000	40	191,000		1460	11.0	42	2.5	212	3300					435	
12	92. —		250,000	160	250,000		1820	11.1	31	2.5	212	3900					422	
13	92.87		334,000	200	334,000	8490	1790	11.0	36	2.5	212	2900	1530				452	
14	89.62		221,000		221,000		1620	11.1	41	2.5	212	2200					432	
15	46.33		220,000		220,000		1680	11.0	40	2.5	212	4300					420	
16	82.58		234,000	40	234,000		1680	11.0	40	2.5	212	3600					452	
17	92		194,000	20	194,000		1420	11.1	42	2.5	212	3100					428	
18	89.62		187,000	20	187,000	7850	1430	11.0	45	2.5	212	3200	1790				418	
19	86.25		204,000	60	204,000		1560	11.0	40	2.5	212	3900					443	
20	87		224,000		224,000		1710	11.0	37	2.5	212	3800					453	
21	91.62		215,000	40	215,000		1640	11.0	38	2.5	212	3600					424	
22	92.85		213,000	80	213,000		1630	11.0	42	2.5	212	4500					435	
23	93.25		192,000	200	192,000	7280	1440	11.1	48	2.5	212	3500	1580				425	
24	93.64		211,000	0	211,000		1610	11.0	48	2.5	212	3500					426	
25	92.66		184,000		184,000		1420	11.1	51	2.5	212	3400					433	
26	92.33		234,000	40	234,000		1710	11.0	42	2.5	212	3400					426	
27	92.91		231,000	40	225,000		1730	11.0	36	2.5	212	3800					445	
28	93.66		208,000	200	208,000	10270	1590	11.0	43	2.5	212	4000	2210				439	
29	94		212,000	200	212,000		1660	11.0	40	2.5	212	3200					431	
30	92.64		240,000		240,000		1830	11.0	38	2.5	212	3600					421	
31	93.41		230,000		230,000		1760	11.0	34	2.5	212	3600					421	
TOTAL			6,172,000			45.3	0	11.0				100,000						
MAXIMUM																		
MINIMUM																		
AVERAGE																		

EVAPORATION LB. STEAM PER LB. STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY

DATE

REMARKS: #2 Boiler 31 Days

APPROVED BY

DATE: December-1984

DA FORM 3967 REPLACES DA FORM 558, 1 JUN 58, WHICH WILL BE USED.

F ILITIES ENGINEERING OPERATING LOG *(Boiler Plant)*

INSTALLATION: FT Monmouth – N.J.

PLANT: A.J. Myer Ctr.

BLDG: 2

For use of this form, see AR 420-49, the proponent agency is the Corps of Engineers.

DATE	STEAM PRESSURE LB	STEAM PRODUCED BOILER 1 1,000 LB	BOILER 2 1,000 LB	BOILER 3 1,000 LB.	TOTAL 1,000 LB.	FEED-WATER TO BOILER 1,000 LB.	FUEL USED LB. M C.F. GAL.	EVAP. LB. PER UNIT	OUTSIDE TEMP. AV. °F.	FEEDWATER HEATER PRESS. LB.	FEEDWATER HEATER TEMP. °F.	MAKEUP GAL.	%CO2 BOILER 1	%CO2 BOILER 2	%CO2 BOILER 3	FLUE GAS TEMPERATURE BOILER 1 °F	FLUE GAS TEMPERATURE BOILER 2 °F	FLUE GAS TEMPERATURE BOILER 3 °F
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1	86.62		18,000	4	18,000		1380	11.0	46	2.5	212	3400					423	
2	85.79		22,000	66	22,000		1660	11.0	37	2.5	212	3200					458	
3	84.45		25,400	200	25,600	8890	1980	11.0	24	2.5	212	3100	16400				484	
4	86.45		24,200		24,200		1820	11.1	28	2.5	212	3100					452	
5	84.—		26,000		26,000		2040	11.0	19	2.5	212	3200					483	
6	85.83		26,300	53	26,300		2010	11.0	26	2.5	212	4400					458	
7	86.45		22,300	53	22,300		1700	11.0	44	2.5	212	3100					475	
8	84.83		24,200	300	24,500	9320	1820	11.1	35	2.5	212	3300	17800				489	
9	86.33		24,600		24,600		1880	11.0	33	2.5	212	3100					512	
10	85.83		25,300		25,300		1910	11.1	31	2.5	212	4000					508	
11	84.63		23,000	0	23,000		1760	11.0	35	2.5	212	2900					475	
12	82.85		19,200	200	19,400	6510	1480	11.0	45	2.5	212	3500					445	
13	85.—		16,400		16,400		1240	11.1	52	2.5	212	3600	16800				419	
14	88.—		16,400		16,400	6850	1230	11.1	59	2.5	212	4200					419	
15	87.83		15,200		15,200		1150	11.1	61	2.5	212	3400					413	
16	86.—		16,200	0	16,200		1240	11.0	52	2.5	212	3400					463	
17	84.66		17,400	33	17,400		1330	11.0	57	2.5	212	3000					432	
18	85.58		19,400	200	19,600	7420	1480	11.0	42	2.5	212	4100	16800				443	
19	85.41		20,200		20,200		1540	11.0	43	2.5	212	3200					457	
20	85.66		20,000		20,000		1530	11.0	46	2.5	212	3100					457	
21	84.95		20,300	44	20,300		1540	11.1	40	2.5	212	3200					453	
22	85.41		26,200	60	26,200		1620	11.0	34	2.5	212	4100					458	
23	84.75		25,600	200	25,800	8830	1910	11.0	32	2.5	212	4000	19300				503	
24	85.—		25,800		25,800		1970	11.0	35	2.5	212	4000					519	
25	86.—		23,200		23,200		1790	11.1	38	2.5	212	4000					422	
26	85.66		23,400	44	23,400	—	1790	11.0	35	2.5	212	4000					472	
27	84.58		24,000	40	24,000	—	1840	11.0	33	2.5	212	4000					502	
28	84.—		25,000	200	25,000	0	1890	11.1	31	2.5	212	4000					512	
29	86.83		25,100	0	25,100	0	1900	11.1	28	2.5	212	4000					499	
30	85.29		24,000		24,000		1860	11.1	33	2.5	212	3700	23100				514	
31	84.91		23,800		23,800		1820	11.0	35	2.5	212	3400					502	
TOTAL			696,400			5221	90	11.0				111,600						
MAXIMUM																		
MINIMUM																		
AVERAGE	85.91																	

EVAPORATION LB STEAM PER LB STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY

DATE

REMARKS: JANUARY-1995

APPROVED BY

DATE

DA FORM 1 NOV 72 3967 REPLACES DA FORM 5 98, 1 JUN 58, WHICH WILL BE USED.

FACILITIES ENGINEERING OPERATING LOG *(Boiler Plant)*

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Wainwright | PLANT: U.S. Dwyer Ctr | BLDG NO.: 27

DATE	STEAM PRESSURE LB (1)	STEAM PRODUCED BOILER 1 1,000 LB (2)	BOILER 2 1,000 LB (3)	BOILER 3 1,000 LB. (4)	TOTAL 1,000 LB (5)	FEED-WATER TO BOILER 1,000 LB. (6)	FUEL USED LB. M.C.F. GAL. (7)	EVAP. LB. PER UNIT (8)	OUTSIDE TEMP. AV. °F. (9)	FEEDWATER HEATER PRESS. LB. (10)	FEEDWATER HEATER TEMP. °F. (11)	MAKEUP GAL (12)	%CO2 BOILER 1 (13)	%CO2 BOILER 2 (14)	%CO2 BOILER 3 (15)	FLUE GAS TEMPERATURE BOILER 1 °F (16)	FLUE GAS TEMPERATURE BOILER 2 °F (17)	FLUE GAS TEMPERATURE BOILER 3 °F (18)
1	88		209,000		209,000		1590	11.0	40	2.5	212	3500					450	
2	92		217,000		317,000		1660	11.0	38	2.5	212	3800					452	
3	85.83		355,000		255,000	9240	1850	11.0	27	2.5	212	3500	12,200				541	
4	92.33		250,000		250,000		1890	11.1	33	2.5	212	3100					542	
5	91.25		284,000		284,000		2150	11.1	21	2.5	212	3300					520	
6	91.54		284,000		284,000		2120	11.0	10	2.5	212	4000					496	
7	93.33		323,000		323,000		2460	11.0	19	2.5	212	4000					609	
8	92.33		318,000		318,000	11490	2410	11.1	20	2.5	212	3300	12500				611	
9	91.—		314,000		314,000		2400	11.0	20	2.5	212	3400					608	
10	92.41		271,000		271,000		2050	11.1	33	2.5	212	3300					526	
11	92.—		247,000		247,000		1870	11.1	39	2.5	212	2800					534	
12	93.—		317,000		317,000		2400	11.0	18	2.5	212	3300					607	
13	91.—		312,000		312,000	11010	2460	11.0	18	2.5	212	3300	14,000				585	
14	85.58		282,000		282,000		2310	11.1	26	2.5	212	4100					524	
15	92.—		269,000		269,000		1980	11.0	28	2.5	212	3500					522	
16	92.41		229,000		229,000		1730	11.1	40	2.5	212	3300					523	
17	92.25		234,000		234,000		1790	11.0	39	2.5	212	3100					515	
18	92.26		250,000		250,000	8910	1890	11.1	38	2.5	212	3300	16,200				524	
19	92.—		237,000		237,000		1810	11.0	40	2.5	212	3400					533	
20	92.—		221,000		221,000		1690	11.0	43	2.5	212	3000					543	
21	92.41		224,000		224,000		1710	11.0	41	2.5	212	3300					545	
22	92.25		223,000		223,000		1700	11.0	37	2.5	212	3300					529	
23	92.25		211,000		211,000	8700	1610	11.0	40	2.5	212	2500	15,600				527	
24	91.—		229,000		229,000		1730	11.1	41	2.5	212	3400					526	
25	92.29		255,000		255,000		1950	11.0	31	2.5	212	3000					523	
26	92.25		265,000		265,000		2030	11.0	31	2.5	212	3100					526	
27	92.25		293,000		293,000		2200	11.0	35	2.5	212	3100					534	
28	92.29		215,000		215,000	5520	1640	11.0	42	2.5	212	3400					491	
29																		
30																		
31																		
TOTAL			7,276,000			54920		11.0				9210						
MAXIMUM																		
MINIMUM																		
AVERAGE																		

VAPORATION LB STEAM PER LB STD FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY

DATE

REMARKS: Febuary - 1995

APPROVED BY

DATE

FORM A NOV 72 3967 REPLACES DA FORM 638 1 JUN 58, WHICH WILL BE USED.

FACILITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: Ft. Monmouth | PLANT: A.J. Wycoff | BLDG NO: 276

DATE	STEAM PRODUCED: STEAM PRESSURE LB (1)	BOILER 1 1,000 LB (2)	BOILER 2 1,000 LB (3)	BOILER 3 1,000 LB. (4)	TOTAL 1,000 LB. (5)	FEED WATER TO BOILER 1,000 LB. (6)	FUEL USED LB. M C.F. GAL. (7)	EVAP. LB. PER UNIT (8)	OUTSIDE TEMP. AV. °F. (9)	FEEDWATER HEATER: PRESS. LB (10)	TEMP °F. (11)	MAKEUP GAL. (12)	%CO2 BOILER 1 (13)	%CO2 BOILER 2 (14)	%CO2 BOILER 3 (15)	FLUE GAS TEMPERATURE BOILER 1 °F (16)	FLUE GAS TEMPERATURE BOILER 2 °F (17)	FLUE GAS TEMPERATURE BOILER 3 °F (18)
1	96.87		22,000	4/	22,000		1200	11.0	42	2.5	212	3200					495	
2	96.91		23,000	4/	23,000		1280	11.0	38	2.5	212	3300					529	
3	97.25		24,000	50	24,000	8250	1840	11.0	32	2.5	212	3500	12400				533	
4	96.41		23,000		23,000		1260	11.0	39	2.5	212	3500					529	
5	96.82		21,000		21,000		1620	11.0	41	2.5	212	3600					525	
6	97.23		21,000		21,000		1620	11.0	46	2.5	212	3200					514	
7	96 —		12[illegible],000	4/	12[illegible],000		1520	11.0	48	2.5	212	3600					478	
8	97 —		15,000	50	15,000	8290	1380	11.1	38	2.5	212	2100	14400				498	
9	96.66		25,000		25,000		1820	11.1	32	2.5	212	3600					529	
10	97 —		22,000		22,000		1650	11.1	31	2.5	212	3900					522	
11	96.95		23,000	50	23,000		1280	11.0	38	2.5	212	3400					510	
12	97.25		21,000	4/	21,000		1640	11.0	42	2.5	212	3600					496	
13 98	97 —		18,000	100	18,000	7220	1410	11.1	52	2.5	212	3700	14200				493	
14	96 —		19,000		19,000		1520	11.0	49	2.5	212	4000					525	
15	96 —		17,000		17,000		1320	11.0	53	2.5	212	4100					530	
16	97.15		12,000	90	12,000		1340	11.1	57	2.5	212	4000					528	
17	96.66		16,000		16,000		1280	11.1	55	2.5	212	4100					518	
18 46	98.91		18,000	200	18,000	6820	1410	11.1	52	2.5	212	4100	18200				493	
19	96.20		18,000		18,000		1410	11.1	48	2.5	212	3500					481	
20	96.29		18,000		18,000		1380	11.0	47	2.5	212	3500					499	
21	98.45		16,000	90	16,000		1260	11.1	55	2.5	212	3300					558	
22	96 —		17,000	90	17,000		1310	11.1	49	2.5	212	3200					542	
23 83	98.33		17,000	100	17,000	6850	1320	11.0	48	2.5	212	3200	13600				537	
24	98.41		19,000		19,000		1470	11.1	44	2.5	212	2000					497	
25	98 —		19,000		19,000		1500	11.0	46	2.5	212	2900					489	
26	98.33		17,000		17,000		1360	11.0	52	2.5	212	3500					478	
27	98.25		15,000	50	15,000		1400	11.1	49	2.5	212	3600					494	
28 —	97 —		19,000	50	19,000	8360	1440	11.2	47	2.5	212	3500	19600				485	
29	98.25		15,000	50	15,000		1430	11.0	48	2.5	212	3500					462	
30	99.25		13,000		13,000		1350	11.0	49	2.5	212	3100					457	
31	97.20		16,000		16,000		1410	11.1	49	2.5	212	3400					421	
TOTAL			613000			46,920						100,000						
MAXIMUM								11.0										
MINIMUM																		
AVERAGE																		

EVAPORATION LB STEAM PER LB STD FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY | DATE

REMARKS: March - 1985

APPROVED BY | DATE | PO

FORM 1 NOV 72 3367 REPLACES DA FORM 598 1 JUN 58, WHICH WILL BE USED

FACILITIES ENGINEERING OPERATING LOG (Boiler Plant)

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

ALLATION: Ft. Monmouth N.J. | PLANT: A.J. Myer Ctr. | BLDG NO: 270

DATE	STEAM PRESSURE LB (1)	STEAM PRODUCED BOILER 1 1,000 LB (2)	BOILER 2 1,000 LB (3)	BOILER 3 1,000 LB. (4)	TOTAL 1,000 LB. (5)	FEED-WATER TO BOILER 1,000 LB. (6)	FUEL USED LB. M C F. GAL. (7)	EVAP. LB. PER UNIT (8)	OUTSIDE TEMP. AV. °F. (9)	FEEDWATER HEATER PRESS. LB. (10)	FEEDWATER HEATER TEMP. °F. (11)	FEEDWATER HEATER MAKEUP GAL (12)	%CO2 BOILER 1 (13)	%CO2 BOILER 2 (14)	%CO2 BOILER 3 (15)	FLUE GAS TEMPERATURE BOILER 1 °F (16)	FLUE GAS TEMPERATURE BOILER 2 °F (17)	FLUE GAS TEMPERATURE BOILER 3 °F (18)
1	89.75		194,000	98	194,000		1470	11.1	47	2.5	212	3500					478	
2	95.5		82,000		182,000		1380	11.0	48	2.5	212	3300					455	
3	98.—		292,000	2	292,000	2480	1540	11.0	45	2.5	212	3400	16.900				458	
4	96.—		81,000	500	181,000		1380	11.0	54	2.5	212	3300					498	
5	99.—		224,000		224,000		1710	11.0	34	2.5	212	3400					502	
6	98.5		207,000	9	207,000		1580	11.0	40	2.5	212	3200					493	
7	90.5		123,000	91	123,000		1320	11.0	52	2.5	212	2900					462	
8	95.83		183,000	400	183,000	2130	1470	11.0	44	2.5	212	3100	15400				474	
9	88		142,000	00	142,000		1290	11.0	53	2.5	212	3000					439	
10	92.58		194,000		194,000		1470	11.1	45	2.5	212	3200					456	
11	95.29		183,000	8	183,000		1400	11.0	47	2.5	212	3200					450	
12	91.33		165,000	67	165,000		1260	11.0	55	2.5	212	4000					435	
13	92.83		160,000	00	160,000	1610	1220	11.0	54	2.5	212	4200	20200				413	
14	95.25		181,000	60	181,000		1320	11.1	48	2.5	212	3400					450	
15	95.2		125,000		125,000		1360	11.0	50	2.5	212	4400					502	
16	95.—		123,000		123,000		1120	11.0	53	2.5	212	3400					444	
17	89.45		185,000		185,000		1400	11.2	52	2.5	212	3000					422	
18	96.25		160,000		160,000		1290	11.0	54	2.5	212	3300					467	
19	90.29		145,000		145,000		1110	11.0	66	2.5	212	3500					438	
20	94.91		169,000		169,000		1390	11.0	65	2.5	212	3800					459	
21	95.33		135,000		135,000		1020	11.1	58	2.5	212	2300					440	
22		PLANT	DOWN															
23	35.—		53,000		53,000		1120	11.0	58	2.5	212	9500					422	
24	22.41		144,000		144,000		1900	11.1	51	2.5	212	1900					411	
25	16.33		123,000		123,000		1310	11.1	58.5	2.5	212	1200					452	
26	99.—		165,000		165,000		1260	11.0	52	2.5	212	2600					455	
27	91.5		169,000		169,000		1290	11.1	64	2.5	212	3200					450	
28	94.—		92,000		92,000		700	11.0	65	2.5	212	1900					472	
29				PLANT	DOWN	FOR	CONVERSION											
30			46,500	0	36,180		11.0					9380	00					
31																		
TOTAL																		
MAXIMUM																		
MINIMUM																		
AVERAGE																		

EVAPORATION LB. STEAM PER LB. STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY

DATE

REMARKS: APRIL 1995

APPROVED BY

DATE

DA FORM 3967 REPLACES DA FORM 5-R, 1 JUN 58, WHICH WILL BE USED

FAC[illegible]TIES ENGINEERING OPERATING LOG *(Boiler Plant)*

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

LLATION: Ft Monmouth NJ

PLANT: AST Myer Ctr

BLDG NO: 27

DATE	STEAM PRESSURE LB	STEAM PRODUCED BOILER 1 1,000 LB	BOILER 2 1,000 LB	BOILER 3 1,000 LB.	TOTAL 1,000 LB.	FEED-WATER TO BOILER 1,000 LB.	FUEL USED LB. M.C.F. GAL.	EVAP. LB. PER UNIT	OUTSIDE TEMP. AV. °F.	FEEDWATER HEATER PRESS. LB.	FEEDWATER HEATER TEMP. °F.	MAKEUP GAL.	%CO₂ BOILER 1	%CO₂ BOILER 2	%CO₂ BOILER 3	FLUE GAS TEMPERATURE BOILER 1 °F	FLUE GAS TEMPERATURE BOILER 2 °F	FLUE GAS TEMPERATURE BOILER 3 °F
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1																		
2																		
3							PLANT Down FOR GAS Conversion											
4																		
5								MAINTANCE										
6																		
7																		
8																		
9																		
10							PLANT START UP											
11	85.37		101,000	5	101,000	3	220	11.0	22	2.5	212	3600					395	
12	82.5		104,000	15	104,000	39	220	11.0	21	2.5	212	2700					393	
13	82.33		102,000	10	102,000	3	220	11.0	63	2.5	212	2400	13600				392	
14	82.41		106,000	0	106,000	0	810	11.0	66	2.5	212	3200					391	
15	84.35		106,000		106,000		810	11.0	21	2.5	212	2200					392	
16	82.5		106,000	5	106,000	4	810	11.0	73	2.5	212	3000					391	
17	82.—		102,000	2	102,000	0	780	11.0	76	2.5	212	3000					384	
18	83.—		109,000	8	109,000	3	830	11.0	29	2.5	212	2900	14200				392	
19	83.55		104,000	10	104,000	0	810	11.0	83	2.5	212	2900					393	
20	80.		105,000		105,000		800	11.0	84	2.5	212	2900					392	
21	82.—		110,000	5	110,000	4	840	11.0	27	2.5	212	2900					391	
22	82.66		110,000	4	110,000	2	840	11.0	70	2.5	212	2900					390	
23	83.25		113,000	6	113,000	0	860	11.0	69	2.5	212	3600	15500				395	
24	80.25		110,000	0	110,000		840	11.0	69	2.5	212	2800					387	
25	82.—		109,000		109,000		830	11.0	25	2.5	212	3300					387	
26	83.33		114,000	5	114,000	4	860	11.0	25	2.5	212	3300					385	
27	91.41		118,000	7	118,000	3	900	11.0	67	2.5	212	3200					400	
28	92.91		118,000	1	118,000	5	900	11.0	66	2.5	212	3200	16600				392	
29	84.—		111,000	0	111,000	0	850	11.0	69	2.5	212	3300					390	
30	82.33		109,000		109,000		840	11.0	24	2.5	212	3700					382	
31																		
TOTAL			2160,000			165 00						6094	00					
MAXIMUM																		
MINIMUM																		
AVERAGE																		

EVAPORATION LB. STEAM PER LB. STD. FUEL

FUEL USED DURING MONTH (STANDARD TONS)

REMARKS: June - 1995

SEE REVERSE SIDE FOR INSTRUCTIONS

PREPARED BY

DATE

APPROVED BY

DATE

IA FORM 1 NOV 72 3967 REPLACES DA FORM 598 1 JUN 58 WHICH WILL BE USED

FACILITIES ENGINEERING OPERATING LOG *(Boiler Plant)*

For use of this form, see AR 420-49; the proponent agency is the Corps of Engineers.

INSTALLATION: FT Monmouth N.J. | PLANT: R.J. Myer CTR | BLDG NO.: 22

DATE	STEAM PRODUCED: STEAM PRESSURE LB (1)	BOILER 1 1,000 LB. (2)	BOILER 2 1,000 LB. (3)	BOILER 3 1,000 LB. (4)	TOTAL 1,000 LB. (5)	FEED-WATER TO BOILER 1,000 LB. (6)	FUEL USED LB. M.C.F. GAL. (7)	EVAP. LB. PER UNIT (8)	OUTSIDE TEMP. AV. °F. (9)	FEEDWATER HEATER: PRESS. LB. (10)	TEMP. °F. (11)	MAKEUP GAL. (12)	%CO2 BOILER 1 (13)	%CO2 BOILER 2 (14)	%CO2 BOILER 3 (15)	FLUE GAS TEMPERATURE BOILER 1 °F. (16)	FLUE GAS TEMPERATURE BOILER 2 °F. (17)	FLUE GAS TEMPERATURE BOILER 3 °F (18)
1	81		113,000	334	113,000	4	860	11.0	75	2.5	212	4200					384	
2	82		109,000	77	109,000	2	830	11.0	76	2.5	212	3900					383	
3	83		114,000	000	114,000	50	870	11.0	71	2.5	212	2900	16				394	
4	83.66		106,000		106,000		840	11.0	74	2.5	212	2700	18				395	
5	84		111,000		111,000		850	11.0	79	2.5	212	2600	00				393	
6	83		111,000		111,000		850	11.0	80	2.5	212	2300					385	
7	82.25		111,000	5	111,000	4	850	11.0	77	2.5	212	3500	14				393	
8	82		103,000	45	103,000	70	790	11.0	81	2.5	212	2500	50				396	
9	82.29		109,000	000	109,000		830	11.0	73	2.5	212	3000	00				397	
10	84.83		111,000		111,000		850	11.0	74	2.5	212	3200					391	
11	81		103,000	44	103,000	3	280	11.0	75	2.5	212	2400					397	
12	77		103,000	8	103,000	80	790	11.0	72	2.5	212	3000	15				396	
13	82		98,100	000	98,100	0	740	11.0	82	2.5	212	3400	90				382	
14	82		98,000		98,000		750	11.0	88	2.5	212	3800					392	
15	81.33		97,000		97,000		740	11.0	85	2.5	212	3300					391	
16	82.31		95,000	48	95,000	37	740	11.0	86	2.5	212	3400					396	
17	81.83		98,000	0	98,000	30	750	11.0	81	2.5	212	2800	13				392	
18	82.25		104,000	200	104,000		770	11.0	81	2.5	212	2000	00				389	
19	81.25		103,000		103,000		790	11.0	83	2.5	212	2200					395	
20	82.66		76,000		76,000		580	11.0	81	2.5	212	2400					393	
21	2.5		25,000	5	25,000	3	570	11.1	79	2.5	212	2000					395	
22	83.92		125,000	01	125,000	8	880	11.0	78	2.5	212	2800	13				416	
23	81.—		103,000	000	103,000	30	790	11.0	82	2.5	212	2900	38				420	
24	81.03		105,000		105,000		800	11.0	84	2.5	212	3000	00				420	
25	82.48		103,000		103,000		790	11.0	82	2.5	212	3100					416	
26	83.65		100,000	6	100,000	3	760	11.0	87	2.5	212	3000					415	
27	82		103,000	15	103,000	39	790	11.0	87	2.5	212	3200	15				413	
28	82.5		101,000	000	101,000	40	770	11.0	85	2.5	212	3100	00				420	
29	80.66		103,000		103,000		790	11.0	88	2.5	212	2900					417	
30	83.33		103,000		103,000		780	11.0	87	2.5	212	3000					417	
31	81.91		109,000		109,000		830	11.0	83	2.5	212	3400					411	
TOTAL			3,182,000		3,182,000		2,362.0					92,100						
MAXIMUM																		
MINIMUM																		
AVERAGE																		

EVAPORATION LB. STEAM PER LB. STD. FUEL

SEE REVERSE SIDE FOR INSTRUCTIONS

FUEL USED DURING MONTH (STANDARD TONS)

PREPARED BY | DATE

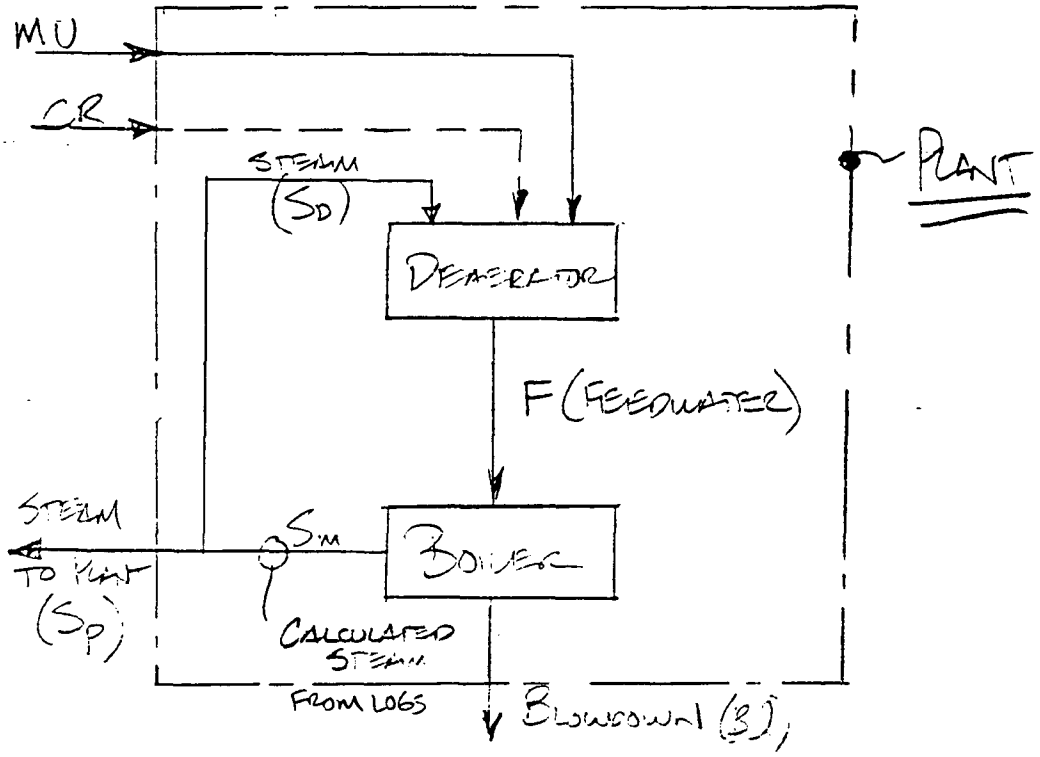
REMARKS: July - 1995

APPROVED BY | DATE

DA FORM 3967 REPLACES DA FORM 598, 1 JUN 58, WHICH WILL BE USED

Attachment 8.9

Boiler Plant Steam Use Calculations



Comments

EQUATIONS

BOILER $F = B) + S_M$

DEAERATOR $F = MU + CR - S_D$

PLANT $MU + CR = S_P + B)$

$MU = S_P + B) - CR$

1993/994 $MU = (60,063 - 5,829) + 1,200 - 59,378$

$MU = 2,661$ ✓

THE DERIVATION OF THE EQUATIONS FOR BALANCING THE DEAERATOR FOLLOWS.

Comments

PROBLEM: BALANCE DEAERATOR BASED ON KNOWN/ESTIMATED MAKE-UP WATER RELATIVE TO FEEDWATER = 1

CONDITIONS:

MAKE-UP RATE % = VARIES (GIVEN)
" TEMP = 50°F (AVERAGE)
" ENTHALPY = 18 BTU/LBM

CONDENSATE TEMP = 150°F (AVERAGE)
" ENTHALPY = 118 BTU/LBM
" RATE % = UNKNOWN (SOLVE %)

STEAM ENTHALPY = 1187.2 BTU/LBM → SATURATED 85 PSIG THROTTLED TO ≈ 15-20
STEAM RATE % = UNKNOWN (SOLVE %)

MIX TEMP = NOT REQUIRED
MIX ENTHALPY = " "
MIX RATE % = 1 − CONDENSATE FRACTION

FEEDWATER TEMP = 212°F (AVE)
FEEDWATER ENTHALPY = 180 BTU/LBM
FEEDWATER RATE % = 100% (UNITY)

APPROACH:

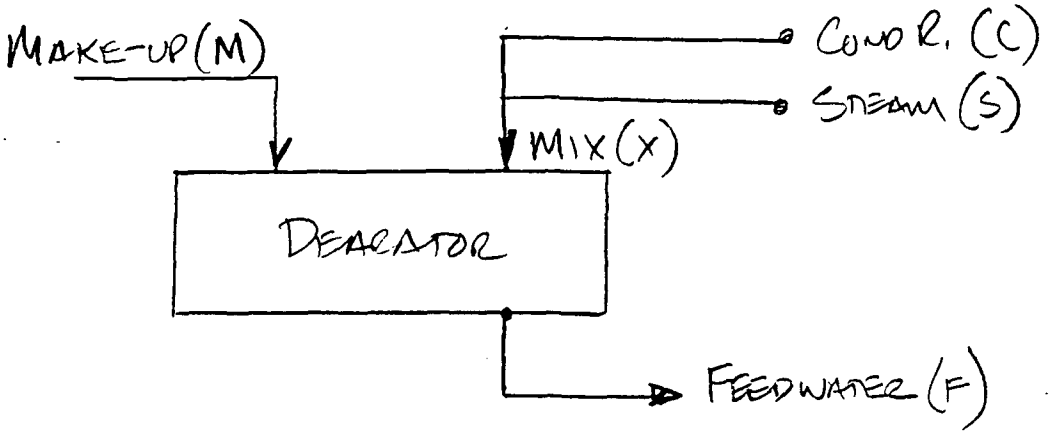
TO SOLVE FOR BALANCE BETWEEN KNOWN MAKE-UP WATER PLUS MIX (STEAM + COND. RETURN) TO EQUAL FEEDWATER OUT TO BOILER.

① SOLVE FOR STEAM REQUIRED FIRST IN PERCENT (%).

② SOLVE FOR CONDENSATE REQUIRED.

1 − MAKE-UP − STEAM = CONDENSATE (%)

Comments



Mass Balance(s)

Feedwater $F = M + X = M + (C+S) = 1$

Mix $X = C + S = 1 - M$

Condensate $C = 1 - M - S$

Heat Balance(s)

h = Enthalpy = BTU/lbm

Feedwater (Solve for Mix Enthalpy)

$$F(h_f) = m(h_m) + X(h_x)$$
$$(1)(h_f) = M(h_m) + (1-M)h_x$$
$$h_x = (h_f - M(h_m))/(1-M)$$

Mix (Solve for Mix Enthalpy)

$$X(h_x) = C(h_c) + S(h_s)$$
$$(1-M)h_x = (1-M-S)(h_c) + S(h_s)$$
$$(1-M)h_x = (h_c) - M(h_c) - S(h_c) + S(h_s)$$
$$h_x = \frac{[(h_c) - M(h_c) - S(h_c) + S(h_s)]}{(1-M)}$$

Comments

SETTING h_x EQUATIONS EQUAL TO EACH & SOLVING FOR STEAM (S)

h_x (FEEDWATER EQUATION) $= h_x$ (MIX EQUATION)

$$(h_f - M(h_m))/(1-M) = \frac{[(h_c) - M(h_c) - S(h_c) + S(h_s)]}{(1-M-S)}$$

$$h_f - M(h_m) = h_c - M(h_c) - S(h_c) + S(h_s)$$

$$S(h_s) - S(h_c) = h_f - M(h_m) - h_c + M(h_c)$$

$$S = [(h_f - h_c) - M(h_m - h_c)]/(h_s - h_c)$$ STEAM RATE

$$C = 1 - M - S$$ CONDENSATE RATE

EXAMPLE: 5% MAKE-UP RATE

$$S = [(180 - 118) - (.05)(18 - 118)]/(1187.2 - 118)$$

$$S = [62 + 5]/1069.2$$

$S = 0.06266 \times 100 = 6.266\%$ (STEAM)

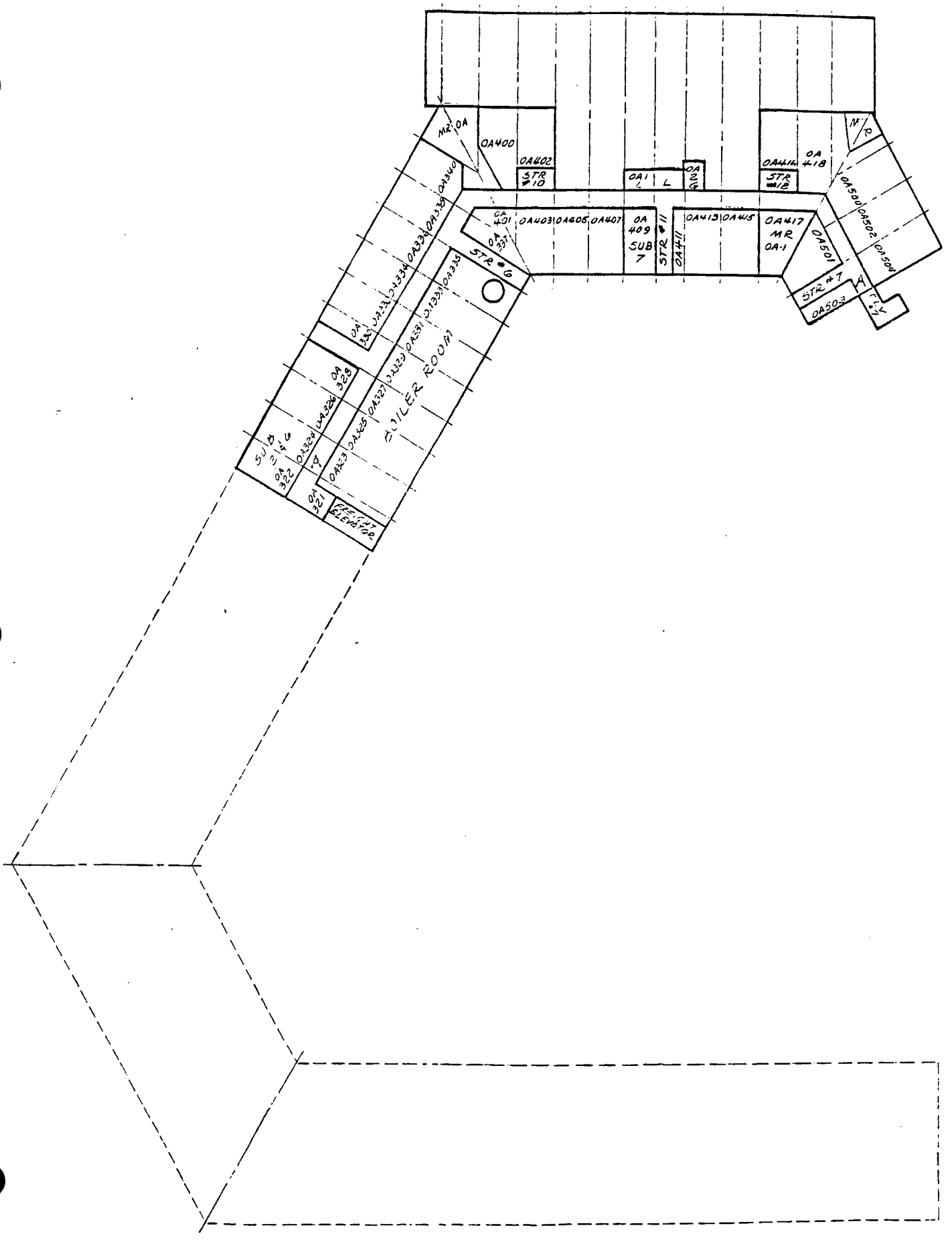
$C = 1 - 0.05 - .06266 = 0.887$ OR 88.7% (CONDENSATE)

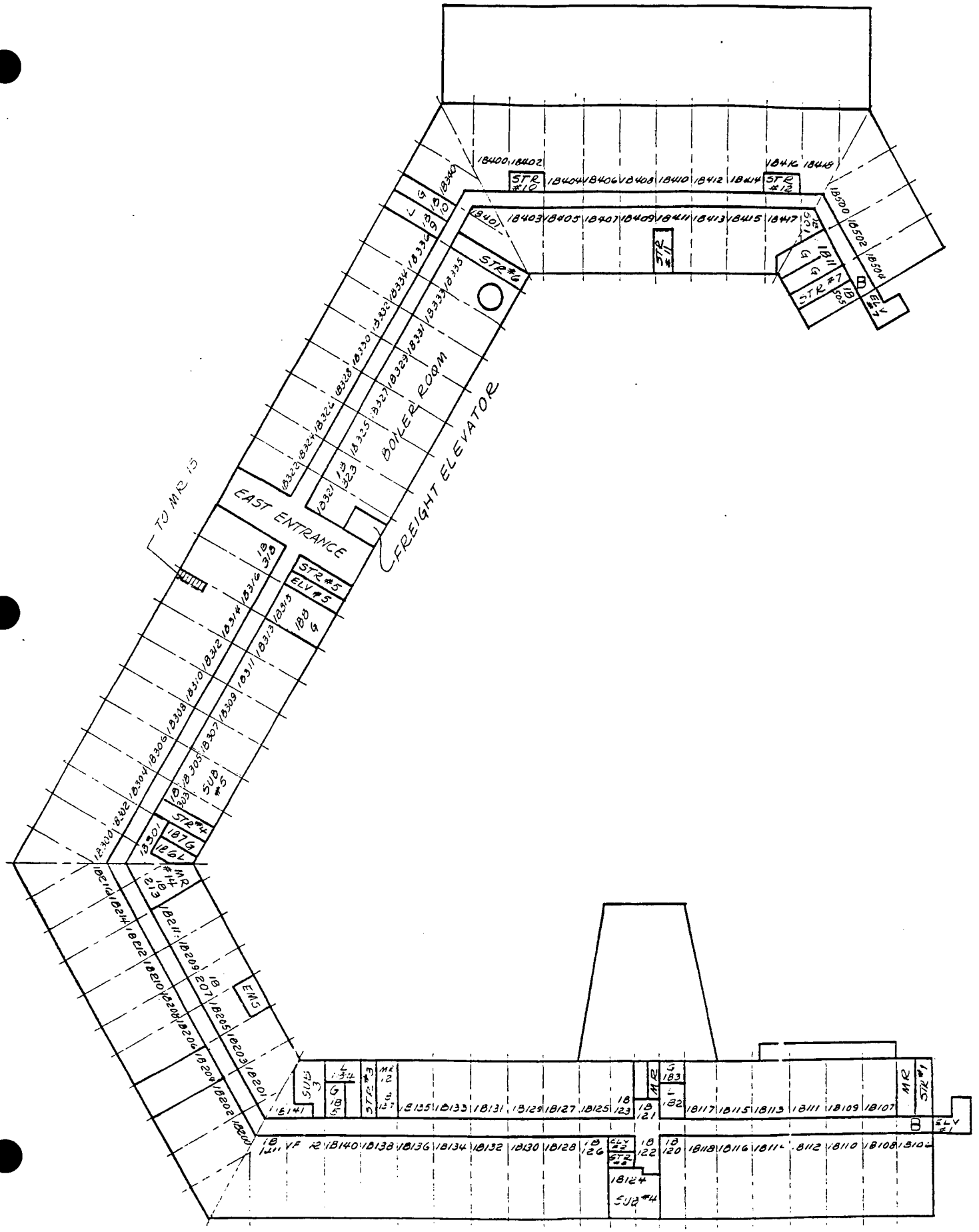
(SEE PG 5 OF 5 ATTACHED WHICH IS A SPREADSHEET OF THESE CALCULATIONS)

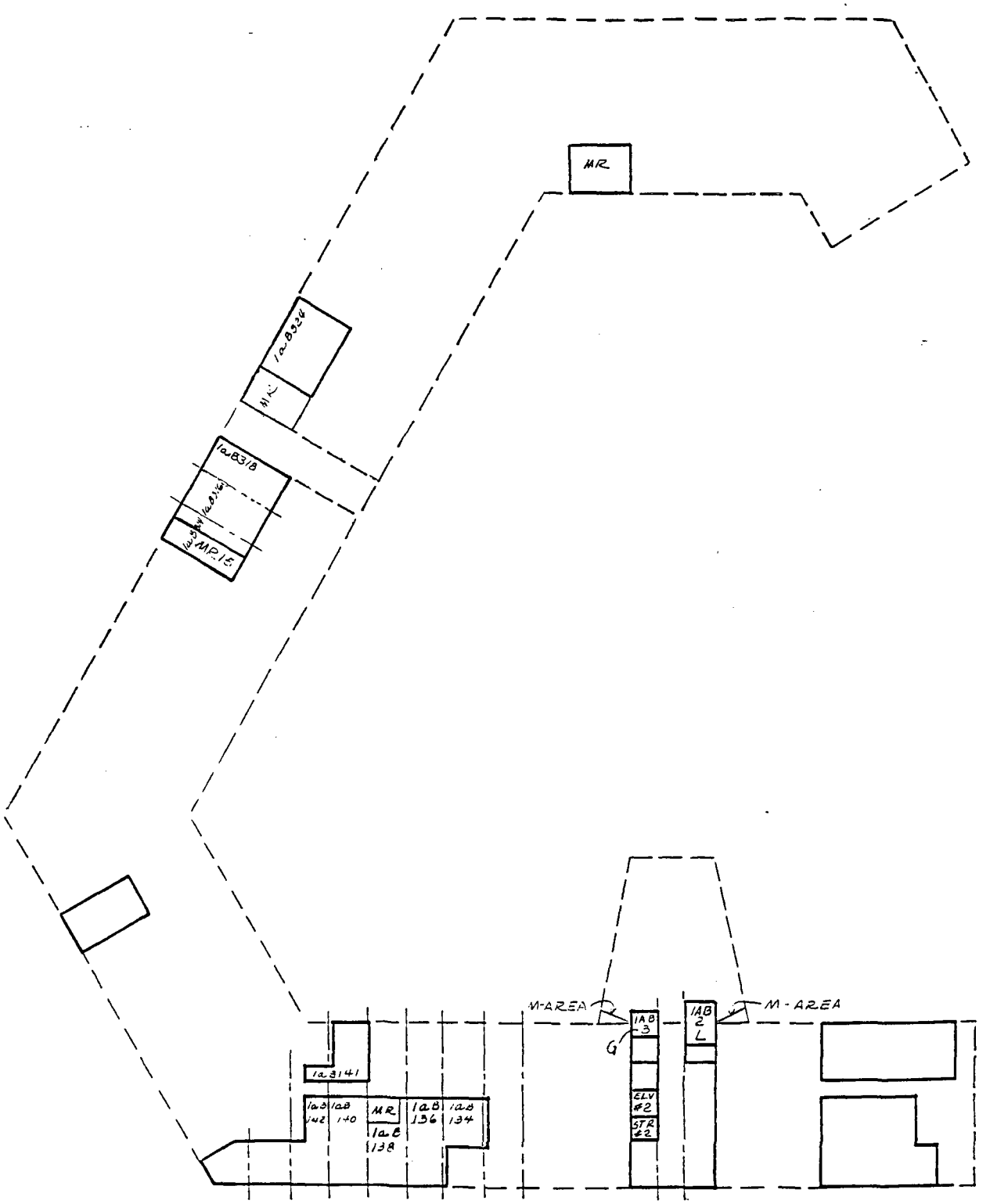
Feedwater Ave. Temp.(F)	Feedwater (Btu/lbm)	Make-Up (%)	Make-Up Ave. Temp.(F)	Make-Up (Btu/lbm)	Condensate (% - Calc.)	Condensate Ave. Temp.(F)	Condensate (Btu/lbm)	Heat Steam (% - Calc.)	Heat Steam (Btu/lbm)
212	180	1.2%	50	18	92.9%	150	118	5.911%	1187.2
212	180	1.4%	50	18	92.7%	150	118	5.930%	1187.2
212	180	1.6%	50	18	92.5%	150	118	5.948%	1187.2
212	180	1.8%	50	18	92.2%	150	118	5.967%	1187.2
212	180	2.0%	50	18	92.0%	150	118	5.986%	1187.2
212	180	2.2%	50	18	91.8%	150	118	6.004%	1187.2
212	180	2.4%	50	18	91.6%	150	118	6.023%	1187.2
212	180	2.6%	50	18	91.4%	150	118	6.042%	1187.2
212	180	2.8%	50	18	91.1%	150	118	6.061%	1187.2
212	180	3.0%	50	18	90.9%	150	118	6.079%	1187.2
212	180	3.2%	50	18	90.7%	150	118	6.098%	1187.2
212	180	3.4%	50	18	90.5%	150	118	6.117%	1187.2
212	180	3.6%	50	18	90.3%	150	118	6.135%	1187.2
212	180	3.8%	50	18	90.0%	150	118	6.154%	1187.2
212	180	4.0%	50	18	89.8%	150	118	6.173%	1187.2
212	180	4.2%	50	18	89.6%	150	118	6.192%	1187.2
212	180	4.4%	50	18	89.4%	150	118	6.210%	1187.2
212	180	4.6%	50	18	89.2%	150	118	6.229%	1187.2
212	180	4.8%	50	18	89.0%	150	118	6.248%	1187.2
212	180	5.0%	50	18	88.7%	150	118	6.266%	1187.2
212	180	5.2%	50	18	88.5%	150	118	6.285%	1187.2
212	180	5.4%	50	18	88.3%	150	118	6.304%	1187.2
212	180	5.6%	50	18	88.1%	150	118	6.322%	1187.2
212	180	5.8%	50	18	87.9%	150	118	6.341%	1187.2
212	180	6.0%	50	18	87.6%	150	118	6.360%	1187.2
212	180	6.2%	50	18	87.4%	150	118	6.379%	1187.2
212	180	6.4%	50	18	87.2%	150	118	6.397%	1187.2
212	180	6.6%	50	18	87.0%	150	118	6.416%	1187.2
212	180	6.8%	50	18	86.8%	150	118	6.435%	1187.2
212	180	7.0%	50	18	86.5%	150	118	6.453%	1187.2
212	180	7.2%	50	18	86.3%	150	118	6.472%	1187.2
212	180	7.4%	50	18	86.1%	150	118	6.491%	1187.2
212	180	7.6%	50	18	85.9%	150	118	6.510%	1187.2
212	180	7.8%	50	18	85.7%	150	118	6.528%	1187.2
212	180	8.0%	50	18	85.5%	150	118	6.547%	1187.2
212	180	8.2%	50	18	85.2%	150	118	6.566%	1187.2
212	180	8.4%	50	18	85.0%	150	118	6.584%	1187.2
212	180	8.6%	50	18	84.8%	150	118	6.603%	1187.2
212	180	8.8%	50	18	84.6%	150	118	6.622%	1187.2
212	180	9.0%	50	18	84.4%	150	118	6.640%	1187.2
212	180	9.2%	50	18	84.1%	150	118	6.659%	1187.2
212	180	9.4%	50	18	83.9%	150	118	6.678%	1187.2
212	180	9.6%	50	18	83.7%	150	118	6.697%	1187.2
212	180	9.8%	50	18	83.5%	150	118	6.715%	1187.2
212	180	10.0%	50	18	83.3%	150	118	6.734%	1187.2
212	180	10.2%	50	18	83.0%	150	118	6.753%	1187.2
212	180	10.4%	50	18	82.8%	150	118	6.771%	1187.2
212	180	10.6%	50	18	82.6%	150	118	6.790%	1187.2
212	180	10.8%	50	18	82.4%	150	118	6.809%	1187.2
212	180	11.0%	50	18	82.2%	150	118	6.828%	1187.2
212	180	11.2%	50	18	82.0%	150	118	6.846%	1187.2
212	180	11.4%	50	18	81.7%	150	118	6.865%	1187.2
212	180	11.6%	50	18	81.5%	150	118	6.884%	1187.2
212	180	11.8%	50	18	81.3%	150	118	6.902%	1187.2
212	180	12.0%	50	18	81.1%	150	118	6.921%	1187.2
212	180	12.2%	50	18	80.9%	150	118	6.940%	1187.2
212	180	12.4%	50	18	80.6%	150	118	6.958%	1187.2
212	180	12.6%	50	18	80.4%	150	118	6.977%	1187.2
212	180	12.8%	50	18	80.2%	150	118	6.996%	1187.2
212	180	13.0%	50	18	80.0%	150	118	7.015%	1187.2
212	180	13.2%	50	18	79.8%	150	118	7.033%	1187.2
212	180	13.4%	50	18	79.5%	150	118	7.052%	1187.2
212	180	13.6%	50	18	79.3%	150	118	7.071%	1187.2
212	180	13.8%	50	18	79.1%	150	118	7.089%	1187.2
212	180	14.0%	50	18	78.9%	150	118	7.108%	1187.2
212	180	14.2%	50	18	78.7%	150	118	7.127%	1187.2
212	180	14.4%	50	18	78.5%	150	118	7.146%	1187.2
212	180	14.6%	50	18	78.2%	150	118	7.164%	1187.2
212	180	14.8%	50	18	78.0%	150	118	7.183%	1187.2
212	180	15.0%	50	18	77.8%	150	118	7.202%	1187.2
212	180	15.2%	50	18	77.6%	150	118	7.220%	1187.2
212	180	15.4%	50	18	77.4%	150	118	7.239%	1187.2
212	180	15.6%	50	18	77.1%	150	118	7.258%	1187.2
212	180	15.8%	50	18	76.9%	150	118	7.276%	1187.2
212	180	16.0%	50	18	76.7%	150	118	7.295%	1187.2
212	180	16.2%	50	18	76.5%	150	118	7.314%	1187.2
212	180	16.4%	50	18	76.3%	150	118	7.333%	1187.2
212	180	16.6%	50	18	76.0%	150	118	7.351%	1187.2
212	180	16.8%	50	18	75.8%	150	118	7.370%	1187.2
212	180	17.0%	50	18	75.6%	150	118	7.389%	1187.2

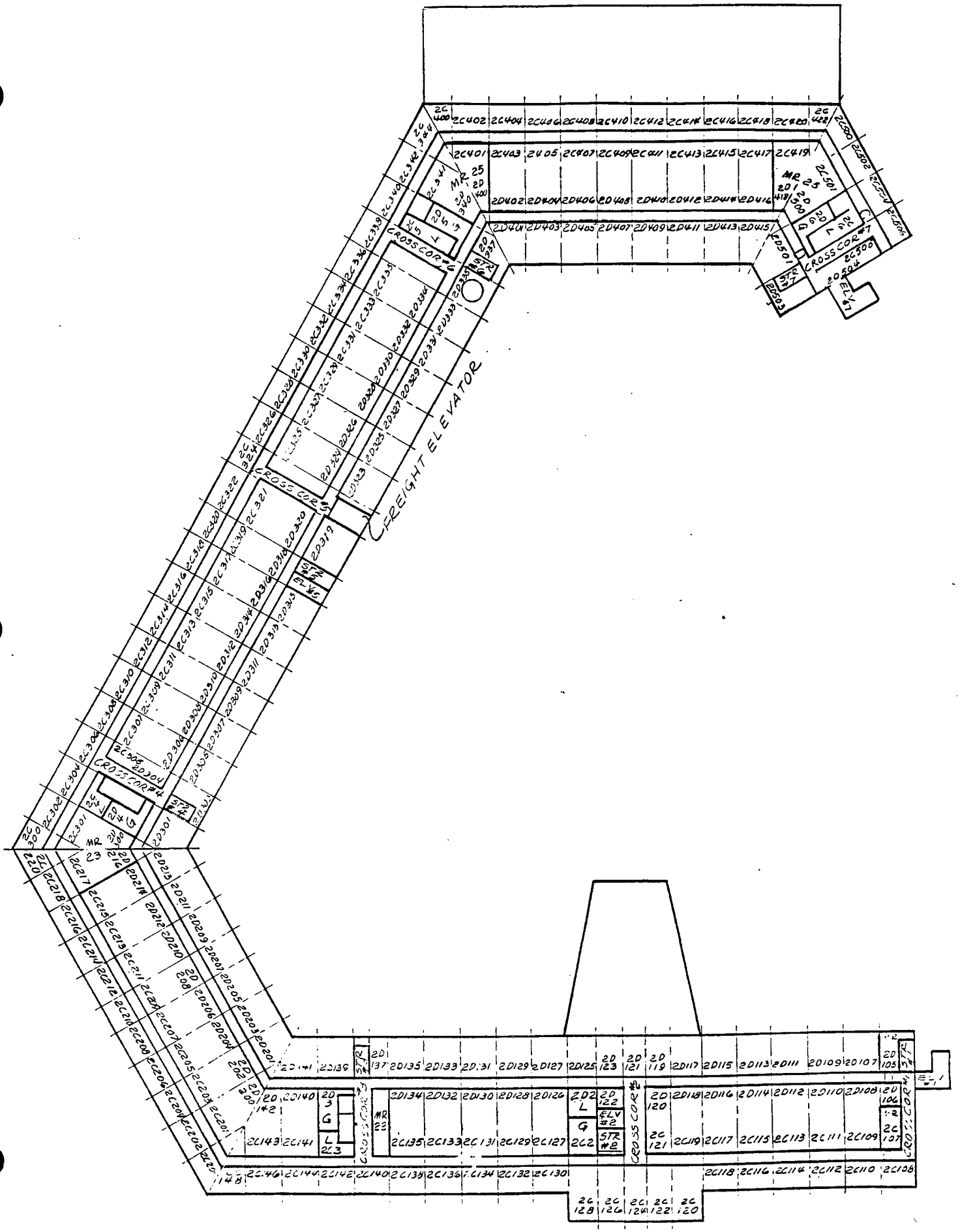
Attachment 8.10

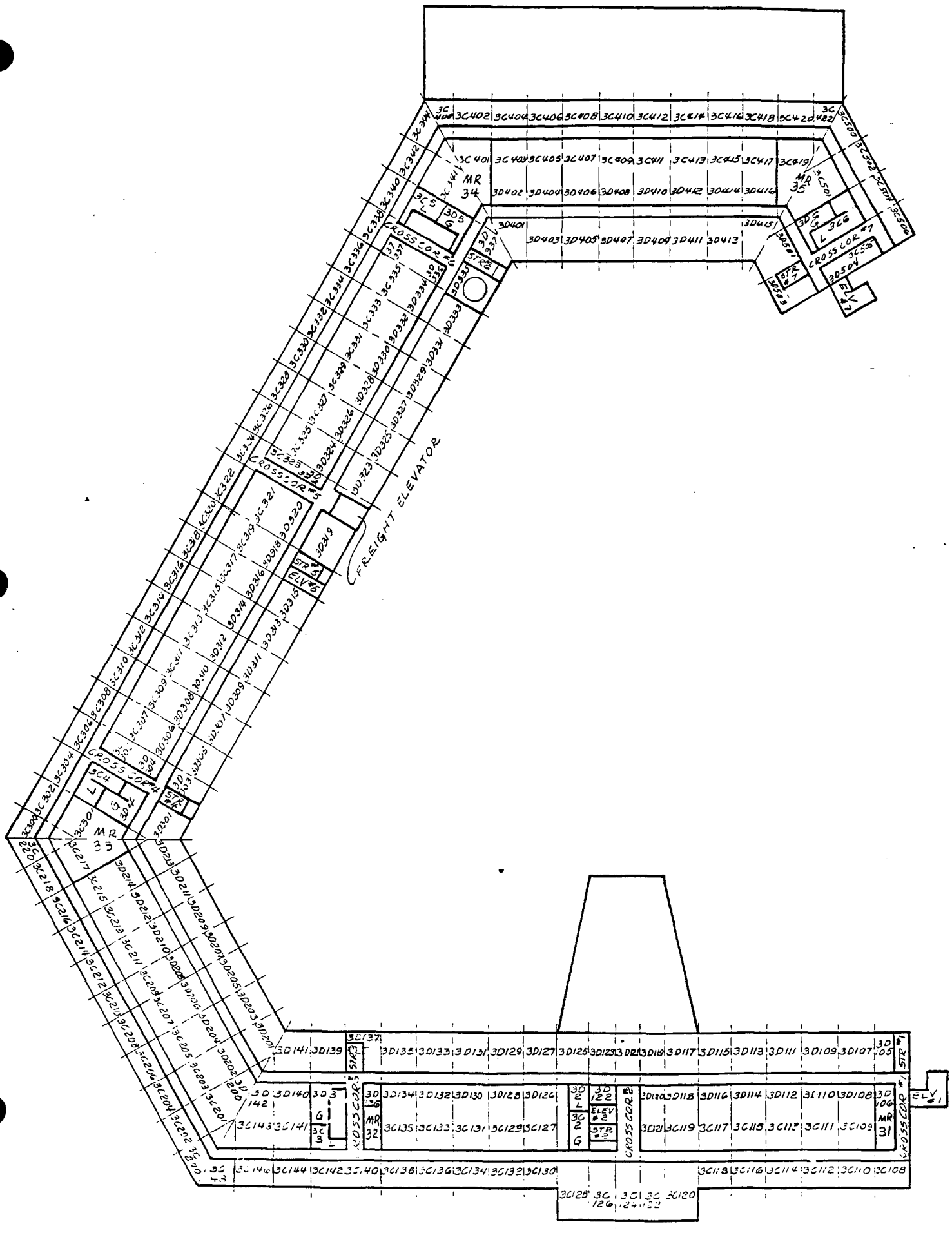
Building 2700 Room Numbers

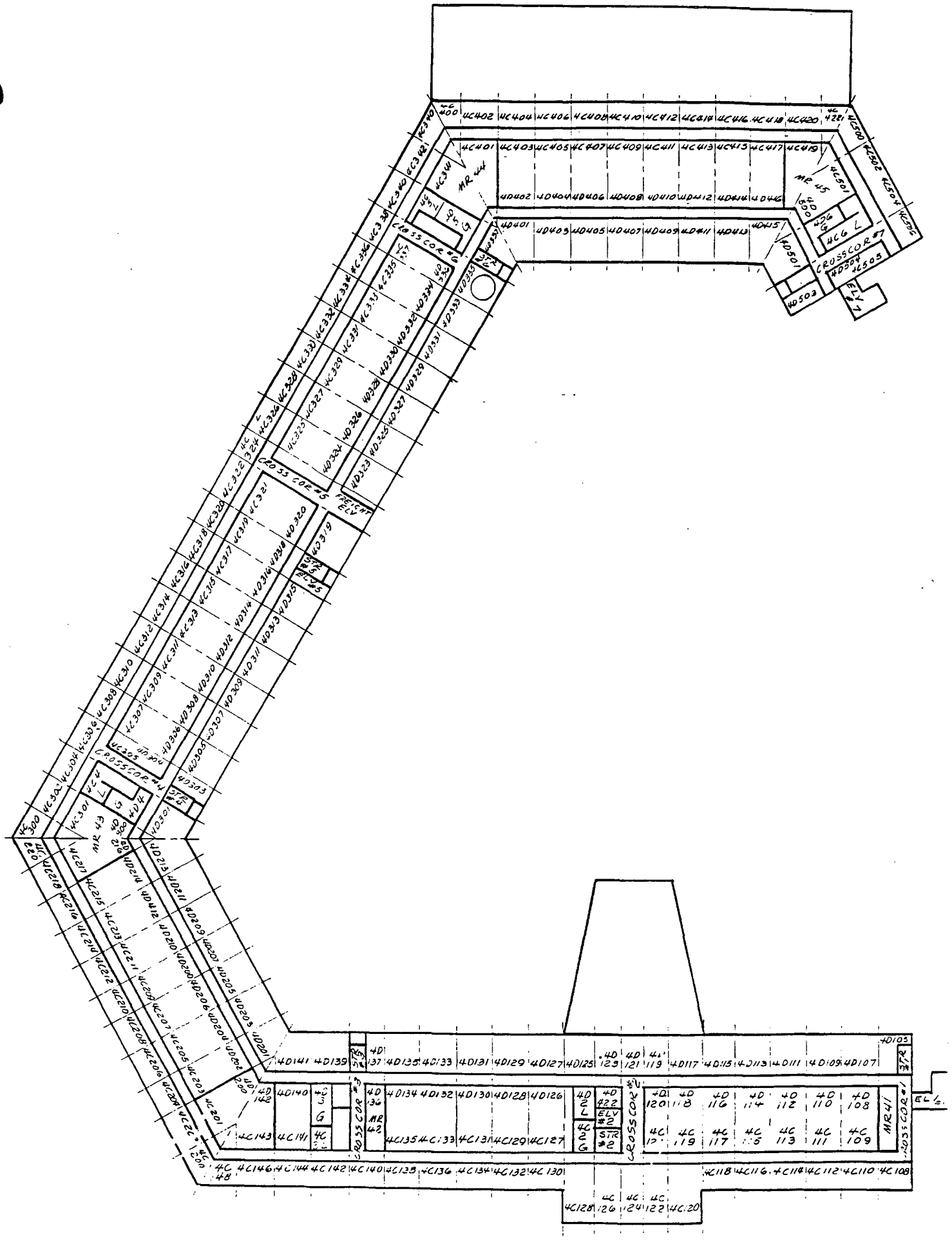

MR OA
OA400
OA402
STR #10
OA 1 L
OA 410
OA414
STR #12
OA 418
MR
OA431
OA403
OA405
OA407
OA 409 SUB 7
STR #11
OA411
OA413
OA415
OA417 MR OA-1
OA501
OA502
OA504
STR #7
OA503
OA 431
OA 337
STR #6
OA 334
OA 333
OA 332
OA 335
OA 328
OA 326
OA 324
OA 322
OA 321
OA 327
OA 325
OA 323
OA 331
BOILER ROOM
ELEVATOR


BOILER ROOM
FREIGHT ELEVATOR
EAST ENTRANCE
TO MR 15
STR #10
STR #12
STR #11
STR #6
STR #5
STR #4
STR #3
STR #1
ELV #5
ELV #1
SUB #5
SUB #4
SUB 3
MR #14
MR 12
MR 11
EMS


MR
1aB32
1aB31B
MP.15
M-AREA
M-AREA
1AB 3
1AB 2 L
G
ELV #2
STR #2
1aB141
1aB 142
1aB 140
MR
1aB 136
1aB 134
1aB 138


FREIGHT ELEVATOR
CROSS CORR #1
CROSS CORR #2
CROSS CORR #3
CROSS CORR #4
CROSS CORR #5
CROSS CORR #6
CROSS CORR #7
MR 25
MR 23
MR 22
STR #1
STR #2
STR #3
STR #4
STR #5
STR #6
STR #7
STR #8
ELV #1
ELV #2
ELV #3
ELV #4
ELV #5
ELV #6
ELV #7
ELV #8


FREIGHT ELEVATOR
CROSS COR #1
CROSS COR #2
CROSS COR #3
CROSS COR #4
CROSS COR #5
CROSS COR #6
CROSS COR #7
MR 34
MR 33
MR 32
MR 31
STR #1
STR #2
STR #3
STR #4
STR #5
STR #6
STR #7
ELV #1
ELV #2
ELV #3
ELV #4
ELV #5
ELV #6
ELV #7


CROSS COR #1
CROSS COR #2
CROSS COR #3
CROSS COR #4
CROSS COR #5
CROSS COR #6
CROSS COR #7
MR 41
MR 42
MR 43
MR 44
MR 45
ELV #1
ELV #2
ELV #3
ELV #4
ELV #5
ELV #6
ELV #7
4C400
4C402
4C404
4C406
4C408
4C410
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4C420
4C422
4C500
4C502
4C504
4C506
4C508
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4C121
4C123
4C125
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4C131
4C133
4C135
4C137
4C139
4C141
4C143
4C145
4C147

Attachment 8.11

EZDOE Baseline Modeling Results

```
INPUT LOADS  ..

                $-------------------------------------$
                $ E Z - D O E   L O A D S   I N P U T $
                $-------------------------------------$

                   $ GENERAL PROJECT DATA

TITLE  LINE-1 *          ENTECH  ENGINEERING           *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
       LINE-3 *     READING,       PA       19603     *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1   * ..

ABORT                ERRORS  ..
DIAGNOSTIC           WARNINGS ..
LOADS-REPORT         SUMMARY=(LS-F)  ..
BUILDING-LOCATION    ALTITUDE = 15.
                     X-REF = 0.0
                     Y-REF = 0.0  ..
RUN-PERIOD           JAN 1 1994 THRU DEC 31 1994  ..

                     $ SCHEDULES

D24FULOFF  =DAY-SCHEDULE   (1,24) (0.) ..

DOWNUP01   =DAY-SCHEDULE   (1,6) (0.07)
                           (7,8) (0.7,0.9)
                           (9,14) (1.)
                           (15,18) (0.9,0.7,0.25,0.15)
                           (19,24) (0.07) ..

d24occofhr =DAY-SCHEDULE   (1,24) (0.07) ..

DWKLITE1   =DAY-SCHEDULE   (1,6) (0.1)
                           (7,8) (0.5,0.9)
                           (9,14) (1.)
                           (15,18) (0.9,0.7,0.25,0.15)
                           (19,24) (0.1) ..

DNOTLITE1  =DAY-SCHEDULE   (1,24) (0.1) ..

DINFILWIN1 =DAY-SCHEDULE   (1,24) (0.8) ..

DINFILSUM1 =DAY-SCHEDULE   (1,24) (0.8) ..

DFULON24   =DAY-SCHEDULE   (1,24) (1.) ..

DEQPWKDAY  =DAY-SCHEDULE   (1,7) (0.15)
                           (8,19) (0.5)
                           (20,24) (0.15) ..

DEQAWKEND  =DAY-SCHEDULE   (1,24) (0.15) ..


W24FULON7D =WEEK-SCHEDULE  (ALL) DFULON24  ..
```

```
WOCC01      =WEEK-SCHEDULE   (WD)   DOCCUP01
                             (WEH)  d24occofhr  ..

W  TE1      =WEEK-SCHEDULE   (WD)   DWKLITE1
                             (WEH)  DNOTLITE1  ..

WINFILWIN1 =WEEK-SCHEDULE   (ALL)  DINFILWIN1  ..

WINFILSUM1 =WEEK-SCHEDULE   (ALL)  DINFILSUM1  ..

WHR16MAY    =WEEK-SCHEDULE   (MON)  DFULON24
                             (TUE)  D24FULOFF
                             (WED)  D24FULOFF
                             (THU)  D24FULOFF
                             (FRI)  D24FULOFF
                             (SAT)  D24FULOFF
                             (SUN)  D24FULOFF
                             (HOL)  D24FULOFF ..

WLFULOF     =WEEK-SCHEDULE   (ALL)  D24FULOFF  ..

WEQSCHA     =WEEK-SCHEDULE   (WD)   DEQPWKDAY
                             (WEH)  DEQAWKEND  ..


$ 24 HR FULON 7D/WK WK1
Y24FULON7D =SCHEDULE THRU DEC 31 W24FULON7D  ..

$  LOADS OCCUP SCH 01
Y  C01      =SCHEDULE THRU DEC 31 WOCC01  ..

$ YR LIGHTING SCH 1/.1
YLITE1      =SCHEDULE THRU DEC 31 WLITE1  ..

$ YR INFIL SCHD 1
YINFIL1     =SCHEDULE THRU MAY 15 WINFILWIN1
                      THRU OCT 15 WINFILSUM1
                      THRU DEC 31 WINFILWIN1  ..

$ HRLY RPT 16MAY
HRMAY16     =SCHEDULE THRU MAY 15 WLFULOF
                      THRU MAY 16 WHR16MAY
                      THRU DEC 31 WLFULOF  ..

$ YR EQUIPMENT SCHDA 5015
YEQSCHA     =SCHEDULE THRU DEC 31 WEQSCHA  ..



                  $ CONSTRUCTION TYPES



 $ ROOF CON1 MAIN ROOF
ROOFCON1 =CONSTRUCTION    U-VALUE =  0.100  ..

 $ EXTERIOR WAL1 TYP
EXWAL1   =CONSTRUCTION    U-VALUE =  0.080  ..
```

```
 $ INTERIOR WALL 1 TYP
INTWAL1  =CONSTRUCTION    U-VALUE =  0.480
                           ABSORPTANCE = 0.000  ..

 $ EXTERIOR DOOR TYP 01 U=.4
EXTDR01  =CONSTRUCTION    U-VALUE =  0.400  ..

 $ UNDER GRND WALL 1
UWAL1    =CONSTRUCTION    U-VALUE =  0.100  ..

GLTYP1   =GLASS-TYPE      SHADING-COEF = 0.560
                          PANES = 1
                          GLASS-CONDUCTANCE =  0.520  ..



                    $ SPACE DESCRIPTION

1EXTPER     =SPACE     AREA = 38634.0  VOLUME = 647120.0
                       TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                       PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                       LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                       LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                       EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.3
                       INF-METHOD = NONE   ..

               E-W       HEIGHT = 22.3  WIDTH = 51.0  CONS = EXWAL1
                         AZIMUTH = 270   ..

                 WINDOW HEIGHT = 2.7  WIDTH = 41.3  G-T = GLTYP1 ..

               E-W       HEIGHT = 22.3  WIDTH = 96.0  CONS = EXWAL1
                         AZIMUTH = 180   ..

                 WINDOW HEIGHT = 2.7  WIDTH = 77.8  G-T = GLTYP1 ..

               E-W       HEIGHT = 22.3  WIDTH = 183.0  CONS = EXWAL1
                         AZIMUTH = 135   ..

                 WINDOW HEIGHT = 2.7  WIDTH = 148.2  G-T = GLTYP1 ..

               E-W       HEIGHT = 22.3  WIDTH = 384.5  CONS = EXWAL1
                         AZIMUTH = 90   ..

                 WINDOW HEIGHT = 2.7  WIDTH = 311.5  G-T = GLTYP1 ..

                 DOOR   HEIGHT = 7.0  WIDTH = 5.0  CONS = EXTDR01
                        MULTIPLIER = 2.0   ..

               E-W       HEIGHT = 22.3  WIDTH = 24.0  CONS = EXWAL1
                         AZIMUTH = 45   ..

                 WINDOW HEIGHT = 2.7  WIDTH = 19.4  G-T = GLTYP1 ..

               E-W       HEIGHT = 22.3  WIDTH = 50.0  CONS = EXWAL1
                         AZIMUTH = 315   ..
```

```
          WINDOW HEIGHT = 2.7  WIDTH = 40.5  G-T = GLTYP1 ..


1INTPER   =SPACE    AREA = 7696.0  VOLUME = 128908.0
                    TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                    PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                    PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                    LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                    LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                    EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.3
                    INF-METHOD = NONE   ..

             E-W      HEIGHT = 22.3  WIDTH = 156.0  CONS = EXWAL1
                      AZIMUTH = 315   ..

               WINDOW HEIGHT = 2.7  WIDTH = 126.4  G-T = GLTYP1 ..

               DOOR   HEIGHT = 7.0  WIDTH = 5.0  CONS = ROOFCON1 ..


2EXTPER   =SPACE    AREA = 25789.0  VOLUME = 251443.0
                    TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                    PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                    PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                    LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                    LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                    EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.3
                    INF-METHOD = AIR-CHANGE  AIR-CHANGES/HR = 1.0
                    INF-SCHEDULE = YINFIL1   ..

             E-W      HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                      AZIMUTH = 270   ..

               WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..

             E-W      HEIGHT = 15.3  WIDTH = 96.0  CONS = EXWAL1
                      AZIMUTH = 180   ..

               WINDOW HEIGHT = 2.7  WIDTH = 77.8  G-T = GLTYP1 ..

             E-W      HEIGHT = 15.3  WIDTH = 280.0  CONS = EXWAL1
                      AZIMUTH = 135   ..

               WINDOW HEIGHT = 2.7  WIDTH = 226.8  G-T = GLTYP1 ..

             E-W      HEIGHT = 15.3  WIDTH = 548.0  CONS = EXWAL1
                      AZIMUTH = 90   ..

               WINDOW HEIGHT = 2.7  WIDTH = 443.9  G-T = GLTYP1 ..

             E-W      HEIGHT = 15.3  WIDTH = 260.0  CONS = EXWAL1
                      AZIMUTH = 45   ..

               WINDOW HEIGHT = 2.7  WIDTH = 210.6  G-T = GLTYP1 ..

             E-W      HEIGHT = 15.3  WIDTH = 382.0  CONS = EXWAL1
                      AZIMUTH = 315   ..

               WINDOW HEIGHT = 2.7  WIDTH = 309.0  G-T = GLTYP1 ..
```

```
              E-W       HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                        AZIMUTH = 225   ..

                WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..

2INTPER     =SPACE    AREA = 20421.0  VOLUME = 199105.0
                      TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                      PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                      PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                      LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                      LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                      EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.3
                      INF-METHOD = AIR-CHANGE  AIR-CHANGES/HR = 1.0
                      INF-SCHEDULE = YINFIL1   ..

              E-W       HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                        AZIMUTH = 270   ..

                WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..

              E-W       HEIGHT = 15.3  WIDTH = 39.0  CONS = EXWAL1
                        AZIMUTH = 0   ..

                WINDOW HEIGHT = 2.7  WIDTH = 31.6  G-T = GLTYP1 ..

              E-W       HEIGHT = 15.3  WIDTH = 166.0  CONS = EXWAL1
                        AZIMUTH = 315   ..

                WINDOW HEIGHT = 2.7  WIDTH = 135.0  G-T = GLTYP1 ..

              E-W       HEIGHT = 15.3  WIDTH = 433.0  CONS = EXWAL1
                        AZIMUTH = 270   ..

                WINDOW HEIGHT = 2.7  WIDTH = 350.7  G-T = GLTYP1 ..

              E-W       HEIGHT = 15.3  WIDTH = 146.0  CONS = EXWAL1
                        AZIMUTH = 225   ..

                WINDOW HEIGHT = 2.7  WIDTH = 118.3  G-T = GLTYP1 ..

              E-W       HEIGHT = 15.3  WIDTH = 427.0  CONS = EXWAL1
                        AZIMUTH = 135   ..

                WINDOW HEIGHT = 2.7  WIDTH = 346.0  G-T = GLTYP1 ..

              E-W       HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                        AZIMUTH = 225   ..

                WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..

2MIDL       =SPACE    AREA = 40144.0  VOLUME = 391404.0
                      TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                      PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                      PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                      LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                      LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                      EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.8
                      INF-METHOD = NONE   ..
```

```
          E-W       HEIGHT = 15.3  WIDTH = 14.0  CONS = EXWAL1
                    AZIMUTH = 270   ..

            WINDOW HEIGHT = 2.7  WIDTH = 11.3  G-T = GLTYP1 ..

          E-W       HEIGHT = 15.3  WIDTH = 165.0  CONS = EXWAL1
                    AZIMUTH = 315   ..

            WINDOW HEIGHT = 2.7  WIDTH = 133.7  G-T = GLTYP1 ..

          E-W       HEIGHT = 15.3  WIDTH = 70.0  CONS = EXWAL1
                    AZIMUTH = 225   ..

            WINDOW HEIGHT = 2.7  WIDTH = 56.7  G-T = GLTYP1 ..


3EXTPER   =SPACE    AREA = 25789.0  VOLUME = 251443.0
                    TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                    PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                    PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                    LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                    LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                    EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.3
                    INF-METHOD = AIR-CHANGE  AIR-CHANGES/HR = 1.0
                    INF-SCHEDULE = YINFIL1   ...

          E-W       HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                    AZIMUTH = 270   ..

            WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..

          E-W       HEIGHT = 15.3  WIDTH = 96.0  CONS = EXWAL1
                    AZIMUTH = 180   ..

            WINDOW HEIGHT = 2.7  WIDTH = 77.8  G-T = GLTYP1 ..

          E-W       HEIGHT = 15.3  WIDTH = 280.0  CONS = EXWAL1
                    AZIMUTH = 135   ..

            WINDOW HEIGHT = 2.7  WIDTH = 226.8  G-T = GLTYP1 ..

          E-W       HEIGHT = 15.3  WIDTH = 548.0  CONS = EXWAL1
                    AZIMUTH = 90   ..

            WINDOW HEIGHT = 2.7  WIDTH = 443.9  G-T = GLTYP1 ..

          E-W       HEIGHT = 15.3  WIDTH = 260.0  CONS = EXWAL1
                    AZIMUTH = 45   ..

            WINDOW HEIGHT = 2.7  WIDTH = 210.6  G-T = GLTYP1 ..

          E-W       HEIGHT = 15.3  WIDTH = 382.0  CONS = EXWAL1
                    AZIMUTH = 315   ..

            WINDOW HEIGHT = 2.7  WIDTH = 309.4  G-T = GLTYP1 ..

          E-W       HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                    AZIMUTH = 225   ..
```

```
                WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..


3MIDL       =SPACE     AREA = 49416.0  VOLUME = 481806.0
                       TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                       PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                       LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                       LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                       EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.8
                       INF-METHOD = NONE   ..

                  E-W      HEIGHT = 15.3  WIDTH = 14.0  CONS = EXWAL1
                           AZIMUTH = 270   ..

                    WINDOW HEIGHT = 2.7  WIDTH = 11.3  G-T = GLTYP1 ..

                  E-W      HEIGHT = 15.3  WIDTH = 165.0  CONS = EXWAL1
                           AZIMUTH = 315   ..

                    WINDOW HEIGHT = 2.7  WIDTH = 133.7  G-T = GLTYP1 ..

                  E-W      HEIGHT = 15.3  WIDTH = 70.0  CONS = EXWAL1
                           AZIMUTH = 225   ..

                    WINDOW HEIGHT = 2.7  WIDTH = 56.7  G-T = GLTYP1 ..


3INTPER     =SPACE     AREA = 20421.0  VOLUME = 199105.0
                       TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                       PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                       LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                       LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                       EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.3
                       INF-METHOD = AIR-CHANGE  AIR-CHANGES/HR = 1.0
                       INF-SCHEDULE = YINFIL1   ..

                  E-W      HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                           AZIMUTH = 270   ..

                    WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..

                  E-W      HEIGHT = 15.3  WIDTH = 39.0  CONS = EXWAL1
                           AZIMUTH = 0   ..

                    WINDOW HEIGHT = 2.7  WIDTH = 31.6  G-T = GLTYP1 ..

                  E-W      HEIGHT = 15.3  WIDTH = 166.0  CONS = EXWAL1
                           AZIMUTH = 315   ..

                    WINDOW HEIGHT = 2.7  WIDTH = 135.0  G-T = GLTYP1 ..

                  E-W      HEIGHT = 15.3  WIDTH = 433.0  CONS = EXWAL1
                           AZIMUTH = 270   ..

                    WINDOW HEIGHT = 2.7  WIDTH = 350.7  G-T = GLTYP1 ..

                  E-W      HEIGHT = 15.3  WIDTH = 146.0  CONS = EXWAL1
                           AZIMUTH = 225   ..
```

```
              WINDOW HEIGHT = 2.7  WIDTH = 118.3  G-T = GLTYP1 ..

            E-W       HEIGHT = 15.3  WIDTH = 427.0  CONS = EXWAL1
                      AZIMUTH = 135   ..

              WINDOW HEIGHT = 2.7  WIDTH = 346.0  G-T = GLTYP1 ..

            E-W       HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                      AZIMUTH = 225   ..

              WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..


4EXTPER     =SPACE    AREA = 25789.0  VOLUME = 251443.0
                      TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                      PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                      PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                      LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                      LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                      EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.3
                      INF-METHOD = AIR-CHANGE  AIR-CHANGES/HR = 1.0
                      INF-SCHEDULE = YINFIL1   ..

            E-W       HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                      AZIMUTH = 270   ..

              WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..

            E-W       HEIGHT = 15.3  WIDTH = 96.0  CONS = EXWAL1
                      AZIMUTH = 180   ..

              WINDOW HEIGHT = 2.7  WIDTH = 77.8  G-T = GLTYP1 ..

            E-W       HEIGHT = 15.3  WIDTH = 280.0  CONS = EXWAL1
                      AZIMUTH = 135   ..

              WINDOW HEIGHT = 2.7  WIDTH = 226.8  G-T = GLTYP1 ..

            E-W       HEIGHT = 15.3  WIDTH = 548.0  CONS = EXWAL1
                      AZIMUTH = 90   ..

              WINDOW HEIGHT = 2.7  WIDTH = 443.9  G-T = GLTYP1 ..

            E-W       HEIGHT = 15.3  WIDTH = 260.0  CONS = EXWAL1
                      AZIMUTH = 45   ..

              WINDOW HEIGHT = 2.7  WIDTH = 210.6  G-T = GLTYP1 ..

            E-W       HEIGHT = 15.3  WIDTH = 382.0  CONS = EXWAL1
                      AZIMUTH = 315   ..

              WINDOW HEIGHT = 2.7  WIDTH = 309.4  G-T = GLTYP1 ..

            E-W       HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                      AZIMUTH = 225   ..

              WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..

            ROOF      HEIGHT = 257.9  WIDTH = 100.0  CONS = ROOFCON1
```

```
                    TILT = 0    ..

4MIDL       =SPACE     AREA = 36103.0  VOLUME = 352004.0
                       TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                       PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                       LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                       LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                       EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.8
                       EQUIPMENT-KW = 1.0  INF-METHOD = NONE    ..

                  E-W      HEIGHT = 15.3  WIDTH = 14.0  CONS = EXWAL1
                           AZIMUTH = 270    ..

                    WINDOW HEIGHT = 2.7  WIDTH = 11.3  G-T = GLTYP1 ..

                  E-W      HEIGHT = 15.3  WIDTH = 165.0  CONS = EXWAL1
                           AZIMUTH = 315    ..

                    WINDOW HEIGHT = 2.7  WIDTH = 133.7  G-T = GLTYP1 ..

                  E-W      HEIGHT = 15.3  WIDTH = 70.0  CONS = EXWAL1
                           AZIMUTH = 225    ..

                    WINDOW HEIGHT = 2.7  WIDTH = 56.7  G-T = GLTYP1 ..

                  ROOF     HEIGHT = 361.0  WIDTH = 100.0  CONS = ROOFCON1
                           TILT = 0    ..

4INTPER     =SPACE     AREA = 20421.0  VOLUME = 199105.0
                       TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                       PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                       LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                       LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                       EQUIP-SCHEDULE = YEQSCHA  EQUIPMENT-W/SQFT = 1.3
                       INF-METHOD = AIR-CHANGE  AIR-CHANGES/HR = 1.0
                       INF-SCHEDULE = YINFIL1    ..

                  E-W      HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                           AZIMUTH = 270    ..

                    WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..

                  E-W      HEIGHT = 15.3  WIDTH = 39.0  CONS = EXWAL1
                           AZIMUTH = 0    ..

                    WINDOW HEIGHT = 2.7  WIDTH = 31.6  G-T = GLTYP1 ..

                  E-W      HEIGHT = 15.3  WIDTH = 166.0  CONS = EXWAL1
                           AZIMUTH = 315    ..

                    WINDOW HEIGHT = 2.7  WIDTH = 135.0  G-T = GLTYP1 ..

                  E-W      HEIGHT = 15.3  WIDTH = 433.0  CONS = EXWAL1
                           AZIMUTH = 270    ..

                    WINDOW HEIGHT = 2.7  WIDTH = 350.7  G-T = GLTYP1 ..
```

```
          E-W       HEIGHT = 15.3  WIDTH = 146.0  CONS = EXWAL1
                    AZIMUTH = 225   ..

            WINDOW HEIGHT = 2.7  WIDTH = 118.3  G-T = GLTYP1 ..

          E-W       HEIGHT = 15.3  WIDTH = 427.0  CONS = EXWAL1
                    AZIMUTH = 135   ..

            WINDOW HEIGHT = 2.7  WIDTH = 346.0  G-T = GLTYP1 ..

          E-W       HEIGHT = 15.3  WIDTH = 17.0  CONS = EXWAL1
                    AZIMUTH = 225   ..

            WINDOW HEIGHT = 2.7  WIDTH = 13.8  G-T = GLTYP1 ..

          ROOF      HEIGHT = 204.2  WIDTH = 100.0  CONS = ROOFCON1
                    TILT = 0   ..


0INTEXTPER =SPACE     AREA = 18905.0  VOLUME = 151240.0
                      TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                      PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                      PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                      LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 3.1
                      LIGHTING-SCHEDULE = YLITE1 .
                      EQUIP-SCHEDULE = Y24FULON7D  EQUIPMENT-W/SQFT = 1.3
                      INF-METHOD = NONE   ..

           E-W        HEIGHT = 14.0  WIDTH = 110.0  CONS = EXWAL1
                      AZIMUTH = 180   ..

             WINDOW HEIGHT = 2.7  WIDTH = 89.1  G-T = GLTYP1 ..

           E-W        HEIGHT = 14.0  WIDTH = 60.5  CONS = EXWAL1
                      AZIMUTH = 225   ..

             WINDOW HEIGHT = 2.7  WIDTH = 48.6  G-T = GLTYP1 ..

          U-W       HEIGHT = 14.0  WIDTH = 75.0  CONS = UWAL1 ..

          U-W       HEIGHT = 95.0  WIDTH = 39.0  CONS = UWAL1 ..

           E-W        HEIGHT = 14.0  WIDTH = 80.0  CONS = EXWAL1
                      AZIMUTH = 135   ..

             WINDOW HEIGHT = 2.7  WIDTH = 64.8  G-T = GLTYP1 ..

           E-W        HEIGHT = 14.0  WIDTH = 60.0  CONS = EXWAL1
                      AZIMUTH = 270   ..

             WINDOW HEIGHT = 2.7  WIDTH = 77.8  G-T = GLTYP1 ..

           ROOF       HEIGHT = 484.7  WIDTH = 39.0  CONS = ROOFCON1
                      TILT = 0   ..


END   ..
COMPUTE LOADS   ..
```

BUILDING 2700 – CLEANROOM DESIGN

(ESTIMATED HEATING & COOLING LOADS)

FORT MONMOUTH EEAP STUDY – ENTECH #9130.05

(3) UNITS TOGETHER FIT A NOMINAL SIZE of ≤ 50,000 CFM w/ 20% OUTSIDE AIR @ 93°DB 72°WB

COOLING

ROOM @ 68°F (55% RH)

$Q = 4.5(50{,}000)(27.3 - 21.0) = 1.4175$ mmBtu/Hr

BOHN CHILLER

$Q = 118.1$ TONS → 155 HP (3) 40 (1) 35

(≈ 1 KW/TON)

HEATING

$Q(\text{reheat}) = 1.1(50{,}000)(68-51)$

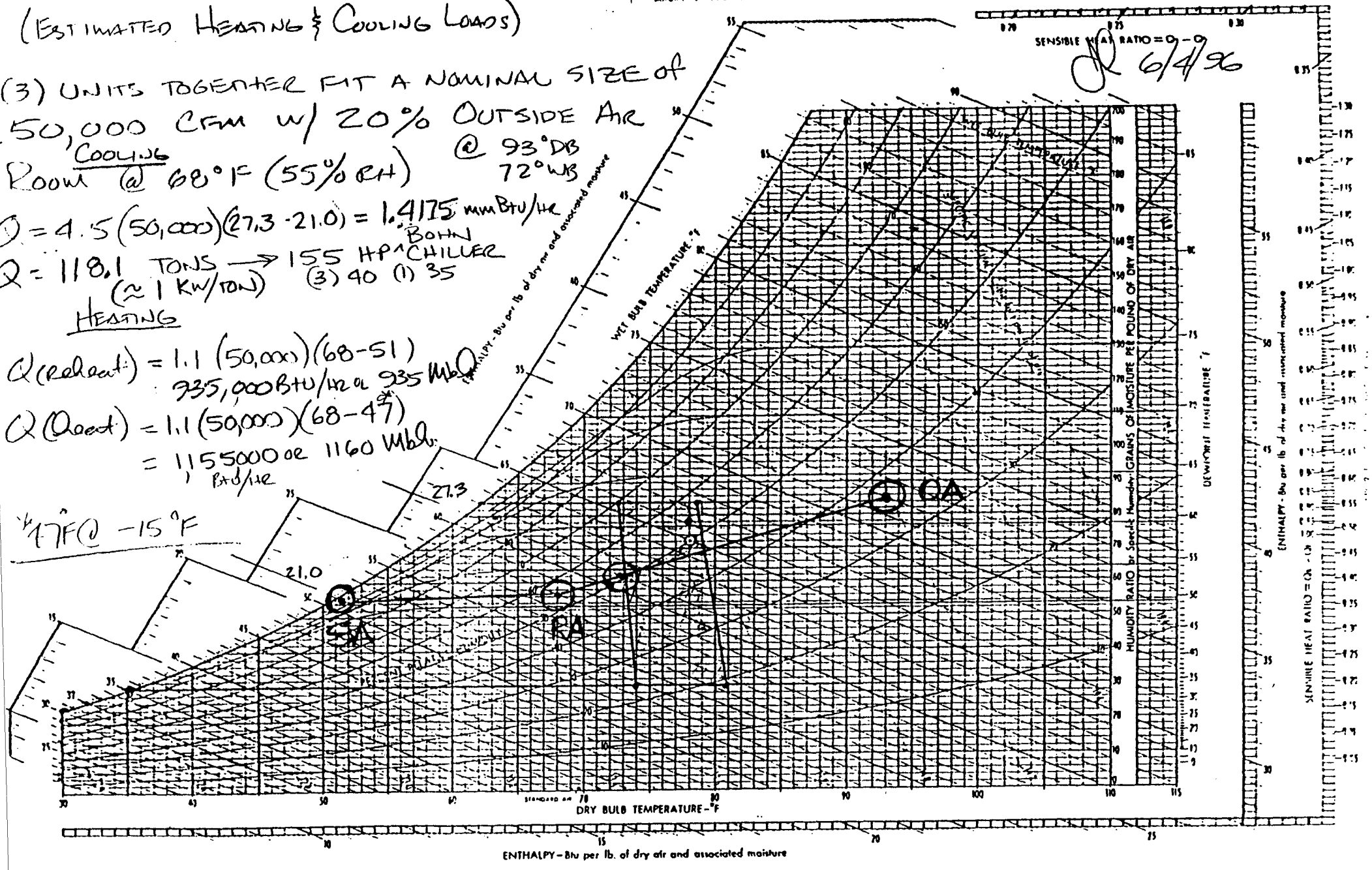
$= 935{,}000$ BTU/HR or 935 MBH

$Q(\text{heat}) = 1.1(50{,}000)(68-47)$

$= 1155000$ BTU/HR or 1160 MBH

47°F @ −15°F

Q 6/4/96



```
INPUT SYSTEMS  ..

                $----------------------------------------$
                $ E Z - D O E   S Y S T E M S   I N P U T $
                $----------------------------------------$

                   $ GENERAL PROJECT DATA

TITLE  LINE-1 *          ENTECH  ENGINEERING           *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
       LINE-3 *     READING,      PA       19603      *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1   * ..
ABORT               ERRORS  ..
DIAGNOSTIC          WARNINGS ..
SYSTEMS-REPORT      SUMMARY=(SS-A,SS-D)
                    REPORT-FREQUENCY = MONTHLY  ..

                    $ SCHEDULES

D24FULON    =DAY-SCHEDULE  (1,24) (1.) ..
D24FULOF    =DAY-SCHEDULE  (1,24) (0.) ..
DHTSET1     =DAY-SCHEDULE  (1,24) (72.) ..
DCLSET1     =DAY-SCHEDULE  (1,24) (75.) ..
DLOTMPNOHT  =DAY-SCHEDULE  (1,24) (0.) ..
DHITMPNOCL  =DAY-SCHEDULE  (1,24) (90.) ..
SCH_1       =DAY-SCHEDULE  (1,24) (1.) ..
  _2        =DAY-SCHEDULE  (1,24) (0.) ..
OF_PKD      =DAY-SCHEDULE  (1,7) (1.)
                           (8,19) (0.)
                           (20,24) (1.) ..
ON_PKD      =DAY-SCHEDULE  (1,7) (0.)
                           (8,19) (1.)
                           (20,24) (0.) ..
SET_BACKD1  =DAY-SCHEDULE  (1,5) (80.)
                           (6,19) (75.)
                           (20,24) (80.) ..
SET_BACKD2  =DAY-SCHEDULE  (1,24) (80.) ..
SET_BACKD3  =DAY-SCHEDULE  (1,5) (67.)
                           (6,19) (72.)
                           (20,24) (67.) ..
SET_BACKD4  =DAY-SCHEDULE  (1,24) (67.) ..
FAN_WKD     =DAY-SCHEDULE  (1,5) (0.)
                           (6,19) (1.)
                           (20,24) (0.) ..
FAN_WKEND   =DAY-SCHEDULE  (1,24) (0.) ..

W24FULON    =WEEK-SCHEDULE  (ALL) D24FULON  ..

WFULOF247D  =WEEK-SCHEDULE  (ALL) D24FULOF  ..

WHTSET1     =WEEK-SCHEDULE  (ALL) DHTSET1  ..

WCLSET1     =WEEK-SCHEDULE  (ALL) DCLSET1  ..

WLOTMPNOHT  =WEEK-SCHEDULE  (ALL) DLOTMPNOHT  ..

WHITMPNOCL  =WEEK-SCHEDULE  (ALL) DHITMPNOCL  ..
```

```
SCH_1W      =WEEK-SCHEDULE   (ALL) SCH_1   ..

SCH_2W      =WEEK-SCHEDULE   (ALL) SCH_2   ..

OF[redacted]PKW     =WEEK-SCHEDULE   (WD)  OF_PKD
                                     (WEH) D24FULON   ..

ON_PKW      =WEEK-SCHEDULE   (WD)  ON_PKD
                                     (WEH) D24FULOF   ..

SET_BACKW1  =WEEK-SCHEDULE   (WD)  SET_BACKD1
                                     (WEH) SET_BACKD2   ..

SET_BACKW2  =WEEK-SCHEDULE   (WD)  SET_BACKD3
                                     (WEH) SET_BACKD4   ..

FAN_WEEK    =WEEK-SCHEDULE   (WD)  FAN_WKD
                                     (WEH) FAN_WKEND   ..


$ YR SCHD FULON 24HRS 7D
YFULON247D =SCHEDULE THRU DEC 31 W24FULON   ..

$ YR SCHD HEATING SEAS 1
YHTSEAS1    =SCHEDULE THRU MAY 15 W24FULON
                      THRU OCT 15 WFULOF247D
                      THRU DEC 31 W24FULON   ..

$[redacted] SCH COOL SEASON 1
YC[redacted]EAS1    =SCHEDULE THRU MAY 15 WFULOF247D
                      THRU OCT 15 W24FULON
                      THRU DEC 31 WFULOF247D   ..

$ YRSCH HTSET1 72 /NON0
YHTSET1     =SCHEDULE THRU MAY 15 WHTSET1
                      THRU OCT 15 WHTSET1
                      THRU DEC 31 WHTSET1   ..

$ YRSCH COLSET 72/NON 130
YCLSET1     =SCHEDULE THRU MAY 15 WCLSET1
                      THRU OCT 15 WCLSET1
                      THRU DEC 31 WCLSET1   ..

SCH_1Y      =SCHEDULE THRU AUG 17 SCH_2W
                      THRU AUG 19 SCH_1W
                      THRU DEC 31 SCH_2W   ..

OFF_PKY     =SCHEDULE THRU DEC 31 OFF_PKW   ..

ON_PKY      =SCHEDULE THRU DEC 31 ON_PKW   ..

SET_BACKY1 =SCHEDULE THRU DEC 31 SET_BACKW1   ..

S[redacted]BACKY2 =SCHEDULE THRU DEC 31 SET_BACKW2   ..

FAN_YEAR    =SCHEDULE THRU DEC 31 FAN_WEEK   ..
```

```
                    $ ZONE DESCRIPTION

1EXTPER     =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                      HEAT-TEMP-SCH = SET_BACKY2  COOL-TEMP-SCH = SET_BACKY1
                      ZONE-TYPE = CONDITIONED
                      THERMOSTAT-TYPE = PROPORTIONAL
                      BASEBOARD-CTRL = THERMOSTATIC
                      SIZING-OPTION = FROM-LOADS   ..

1INTPER     =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                      HEAT-TEMP-SCH = SET_BACKY2  COOL-TEMP-SCH = SET_BACKY1
                      ZONE-TYPE = CONDITIONED
                      THERMOSTAT-TYPE = PROPORTIONAL
                      BASEBOARD-CTRL = THERMOSTATIC
                      SIZING-OPTION = FROM-LOADS   ..

2EXTPER     =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                      HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                      ZONE-TYPE = CONDITIONED
                      THERMOSTAT-TYPE = PROPORTIONAL
                      BASEBOARD-CTRL = THERMOSTATIC
                      SIZING-OPTION = FROM-LOADS   ..

2INTPER     =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                      HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                      ZONE-TYPE = CONDITIONED
                      THERMOSTAT-TYPE = PROPORTIONAL
                      BASEBOARD-CTRL = THERMOSTATIC
                      SIZING-OPTION = FROM-LOADS   ..

2[redacted]DL       =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                      HEAT-TEMP-SCH = SET_BACKY2  COOL-TEMP-SCH = SET_BACKY1
                      ZONE-TYPE = CONDITIONED
                      THERMOSTAT-TYPE = PROPORTIONAL
                      BASEBOARD-CTRL = THERMOSTATIC
                      SIZING-OPTION = FROM-LOADS
                      HEATING-CAPACITY = -800000.0
                      COOLING-CAPACITY = 16800000.0   ..

3EXTPER     =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                      HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                      ZONE-TYPE = CONDITIONED
                      THERMOSTAT-TYPE = PROPORTIONAL
                      BASEBOARD-CTRL = THERMOSTATIC
                      SIZING-OPTION = FROM-LOADS   ..

3MIDL       =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                      HEAT-TEMP-SCH = SET_BACKY2  COOL-TEMP-SCH = SET_BACKY1
                      ZONE-TYPE = CONDITIONED
                      THERMOSTAT-TYPE = PROPORTIONAL
                      BASEBOARD-CTRL = THERMOSTATIC
                      SIZING-OPTION = FROM-LOADS
                      HEATING-CAPACITY = -800000.0
                      COOLING-CAPACITY = 16800000.0   ..

3[redacted]TPER     =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                      HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                      ZONE-TYPE = CONDITIONED
                      THERMOSTAT-TYPE = PROPORTIONAL
                      BASEBOARD-CTRL = THERMOSTATIC
```

```
                    SIZING-OPTION = FROM-LOADS    ..

4EXTPER     =ZONE   DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    BASEBOARD-CTRL = THERMOSTATIC
                    SIZING-OPTION = FROM-LOADS    ..

4MIDL       =ZONE   DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    BASEBOARD-CTRL = THERMOSTATIC
                    SIZING-OPTION = FROM-LOADS
                    HEATING-CAPACITY = -800000.0
                    COOLING-CAPACITY = 16800000.0    ..

4INTPER     =ZONE   DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    BASEBOARD-CTRL = THERMOSTATIC
                    SIZING-OPTION = FROM-LOADS    ..

0INTEXTPER =ZONE    DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = SET_BACKY2  COOL-TEMP-SCH = SET_BACKY1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    SIZING-OPTION = FROM-LOADS    ..


                    $ SYSTEM DESCRIPTION

1SMCAHUSZR =SYSTEM    SYSTEM-TYPE = SZRH
                      MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                      HEATING-SCHEDULE = YHTSEAS1
                      COOLING-SCHEDULE = YCLSEAS1  PREHEAT-T = 0.0
                      OA-CONTROL = ENTHALPY  HEATING-CAPACITY = -800000.0
                      MIN-OUTSIDE-AIR = 0.15  FAN-SCHEDULE = FAN_YEAR
                      SUPPLY-DELTA-T = 2.4  SUPPLY-KW = 0.00098
                      NIGHT-CYCLE-CTRL = CYCLE-ON-ANY  NIGHT-VENT-DT = 0.0
                      MIN-CFM-RATIO = 1.0  COOL-FT-MIN = 0.
                      PREHEAT-SOURCE = HOT-WATER  RETURN-AIR-PATH = DUCT
                      ZONE-NAMES = (1EXTPER, 1INTPER)   ..

2SPERFC     =SYSTEM   SYSTEM-TYPE = TPFC
                      MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                      HEATING-SCHEDULE = YHTSEAS1
                      COOLING-SCHEDULE = YCLSEAS1
                      FAN-SCHEDULE = YFULON247D  SUPPLY-DELTA-T = 0.2
                      SUPPLY-KW = 0.00007  NIGHT-CYCLE-CTRL = STAY-OFF
                      COOL-FT-MIN = 0.
                      ZONE-NAMES = (2EXTPER, 2INTPER)   ..

3 ERFC      =SYSTEM   SYSTEM-TYPE = TPFC
                      MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                      HEATING-SCHEDULE = YHTSEAS1
                      COOLING-SCHEDULE = YCLSEAS1
                      FAN-SCHEDULE = YFULON247D  SUPPLY-DELTA-T = 0.2
```

```
                    SUPPLY-KW = 0.00007  NIGHT-CYCLE-CTRL = STAY-OFF
                    COOL-FT-MIN = 0.
                    ZONE-NAMES = (3EXTPER, 3INTPER)  ..

4ERFC     =SYSTEM   SYSTEM-TYPE = TPFC
                    MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                    HEATING-SCHEDULE = YHTSEAS1
                    COOLING-SCHEDULE = YCLSEAS1
                    FAN-SCHEDULE = YFULON247D  SUPPLY-DELTA-T = 0.2
                    SUPPLY-KW = 0.00007  NIGHT-CYCLE-CTRL = STAY-OFF
                    COOL-FT-MIN = 0.
                    ZONE-NAMES = (4EXTPER, 4INTPER)  ..

SSZF2MID  =SYSTEM   SYSTEM-TYPE = SZRH
                    MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                    HEATING-SCHEDULE = YHTSEAS1
                    COOLING-SCHEDULE = YCLSEAS1  PREHEAT-T = 0.0
                    OA-CONTROL = ENTHALPY  SUPPLY-KW = 0.00007
                    MIN-OUTSIDE-AIR = 0.15  FAN-SCHEDULE = FAN_YEAR
                    SUPPLY-DELTA-T = 2.4  SUPPLY-KW = 0.00098
                    NIGHT-CYCLE-CTRL = CYCLE-ON-ANY  NIGHT-VENT-DT = 0.0
                    MIN-CFM-RATIO = 1.0  PREHEAT-SOURCE = HOT-WATER
                    RETURN-AIR-PATH = DUCT
                    ZONE-NAMES = (2MIDL)  ..

SSFZ3MID  =SYSTEM   SYSTEM-TYPE = SZRH
                    MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                    HEATING-SCHEDULE = YHTSEAS1
                    COOLING-SCHEDULE = YCLSEAS1  PREHEAT-T = 0.0
                    OA-CONTROL = ENTHALPY  SUPPLY-KW = 0.00007
                    MIN-OUTSIDE-AIR = 0.15  FAN-SCHEDULE = FAN_YEAR
                    SUPPLY-DELTA-T = 2.4  SUPPLY-KW = 0.00098
                    NIGHT-CYCLE-CTRL = CYCLE-ON-ANY  NIGHT-VENT-DT = 0.0
                    MIN-CFM-RATIO = 1.0  PREHEAT-SOURCE = HOT-WATER
                    RETURN-AIR-PATH = DUCT
                    ZONE-NAMES = (3MIDL)  ..

SSZF4MID  =SYSTEM   SYSTEM-TYPE = SZRH
                    MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                    HEATING-SCHEDULE = YHTSEAS1
                    COOLING-SCHEDULE = YCLSEAS1  PREHEAT-T = 0.0
                    OA-CONTROL = ENTHALPY  SUPPLY-KW = 0.00007
                    MIN-OUTSIDE-AIR = 0.15  FAN-SCHEDULE = FAN_YEAR
                    SUPPLY-DELTA-T = 2.4  SUPPLY-KW = 0.00098
                    NIGHT-CYCLE-CTRL = CYCLE-ON-ANY  NIGHT-VENT-DT = 0.0
                    MIN-CFM-RATIO = 1.0  PREHEAT-SOURCE = HOT-WATER
                    RETURN-AIR-PATH = DUCT
                    ZONE-NAMES = (4MIDL)  ..

0SMCAHUSZR =SYSTEM  SYSTEM-TYPE = SZRH
                    MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                    HEATING-SCHEDULE = YHTSEAS1
                    COOLING-SCHEDULE = YCLSEAS1  PREHEAT-T = 0.0
                    OA-CONTROL = ENTHALPY  SUPPLY-KW = 0.00007
                    MIN-OUTSIDE-AIR = 0.15  FAN-SCHEDULE = FAN_YEAR
                    SUPPLY-DELTA-T = 2.4  SUPPLY-KW = 0.00098
                    NIGHT-CYCLE-CTRL = CYCLE-ON-ANY  NIGHT-VENT-DT = 0.0
                    MIN-CFM-RATIO = 1.0  COOL-FT-MIN = 0.
                    PREHEAT-SOURCE = HOT-WATER
                    ZONE-NAMES = (0INTEXTPER)  ..
```

```
                    $ HOURLY REPORT DESCRIPTION

S[redacted]     =REPORT-BLOCK VARIABLE-TYPE = 1SMCAHUSZR
                              VARIABLE-LIST = (49) ..
SY_2        =REPORT-BLOCK VARIABLE-TYPE = 2SPERFC
                              VARIABLE-LIST = (49) ..
SY_3        =REPORT-BLOCK VARIABLE-TYPE = 3SPERFC
                              VARIABLE-LIST = (49) ..
SY_4        =REPORT-BLOCK VARIABLE-TYPE = 4SPERFC
                              VARIABLE-LIST = (49) ..
SY_5        =REPORT-BLOCK VARIABLE-TYPE = SSZF2MID
                              VARIABLE-LIST = (49) ..
SY_6        =REPORT-BLOCK VARIABLE-TYPE = SSFZ3MID
                              VARIABLE-LIST = (49) ..
SY_7        =REPORT-BLOCK VARIABLE-TYPE = SSZF4MID
                              VARIABLE-LIST = (49) ..
SY_8        =REPORT-BLOCK VARIABLE-TYPE = 0SMCAHUSZR
                              VARIABLE-LIST = (49) ..
Z_1         =REPORT-BLOCK VARIABLE-TYPE = 1EXTPER
                              VARIABLE-LIST = (7,6) ..
Z_2         =REPORT-BLOCK VARIABLE-TYPE = 1INTPER
                              VARIABLE-LIST = (7,6) ..
Z_3         =REPORT-BLOCK VARIABLE-TYPE = 2EXTPER
                              VARIABLE-LIST = (7,6) ..
Z_4         =REPORT-BLOCK VARIABLE-TYPE = 2INTPER
                              VARIABLE-LIST = (7,6) ..
Z_5         =REPORT-BLOCK VARIABLE-TYPE = 3EXTPER
                              VARIABLE-LIST = (7,6) ..
Z_[redacted]        =REPORT-BLOCK VARIABLE-TYPE = 3INTPER
                              VARIABLE-LIST = (7,6) ..
Z_7         =REPORT-BLOCK VARIABLE-TYPE = 4EXTPER
                              VARIABLE-LIST = (7,6) ..
Z_8         =REPORT-BLOCK VARIABLE-TYPE = 4INTPER
                              VARIABLE-LIST = (7,6) ..
Z_9         =REPORT-BLOCK VARIABLE-TYPE = 2MIDL
                              VARIABLE-LIST = (7,6) ..
Z_10        =REPORT-BLOCK VARIABLE-TYPE = 3MIDL
                              VARIABLE-LIST = (7,6) ..
Z_11        =REPORT-BLOCK VARIABLE-TYPE = 4MIDL
                              VARIABLE-LIST = (7,6) ..
Z_12        =REPORT-BLOCK VARIABLE-TYPE = 0INTEXTPER
                              VARIABLE-LIST = (7,6) ..
RS_1        = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKY
                              REPORT-BLOCK = (SY_1,SY_2,SY_3,SY_4)
 ..
RS_2        = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKY
                              REPORT-BLOCK = (SY_5,SY_6,SY_7,SY_8)
 ..
RS_3        = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKY
                              REPORT-BLOCK = (Z_1,Z_2)
 ..
RS_4        = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKY
[redacted]                    REPORT-BLOCK = (Z_3,Z_4)
 ..
RS_5        = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKY
                              REPORT-BLOCK = (Z_5,Z_6)
 ..
RS_6        = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKY
```

```
                          REPORT-BLOCK = (Z_7,Z_8)
 ..
RS_7        = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKY
                          REPORT-BLOCK = (Z_9,Z_10)

RS_8        = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKY
                          REPORT-BLOCK = (Z_11,Z_12)
 ..
END  ..
COMPUTE SYSTEMS  ..

INPUT PLANT  ..


                  $---------------------------------------$
                  $ E Z - D O E   P L A N T S  I N P U T $
                  $---------------------------------------$

                     $ GENERAL PROJECT DATA

TITLE  LINE-1 *          ENTECH  ENGINEERING          *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
       LINE-3 *     READING,       PA       19603     *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1   * ..

ABORT                ERRORS  ..
DIAGNOSTIC           WARNINGS ..
PRINT-REPORT         SUMMARY=(PS-C,PS-D,PS-H,BEPS)

                     REPORT-FREQUENCY = MONTHLY  ..

                      $ SCHEDULES

D24FULON    =DAY-SCHEDULE  (1,24) (1.) ..

D24FULOF    =DAY-SCHEDULE  (1,24) (0.) ..

OFF_PKDP    =DAY-SCHEDULE  (1,7) (1.)
                           (8,19) (0.)
                           (20,24) (1.) ..

ON_PKDP     =DAY-SCHEDULE  (1,7) (0.)
                           (8,19) (1.)
                           (20,24) (0.) ..


W24FULON7D =WEEK-SCHEDULE  (ALL) D24FULON  ..

W24FULOF7D =WEEK-SCHEDULE  (ALL) D24FULOF  ..

OFF_PKWP    =WEEK-SCHEDULE  (WD)  OFF_PKDP
                            (WEH) D24FULON  ..

ON_PKWP     =WEEK-SCHEDULE  (WD)  ON_PKDP
                            (WEH) D24FULOF  ..


$ YRSCH FUL ON 24HR/7D
```

```
Y24FULON7D =SCHEDULE THRU DEC 31 W24FULON7D  ..

$ YRSCH HEATING SEAS1
YHTSEAS1   =SCHEDULE THRU MAY 15 W24FULON7D
                     THRU OCT 15 W24FULOF7D
                     THRU DEC 31 W24FULON7D  ..

$ YRSCH COOL SEAS1
YCLSEAS1   =SCHEDULE THRU MAY 15 W24FULOF7D
                     THRU OCT 15 W24FULON7D
                     THRU DEC 31 W24FULOF7D  ..

TEST_1     =SCHEDULE THRU AUG 17 W24FULOF7D
                     THRU AUG 19 W24FULON7D
                     THRU DEC 31 W24FULOF7D  ..

OFF_PKYP   =SCHEDULE THRU DEC 31 OFF_PKWP  ..

ON_PKYP    =SCHEDULE THRU DEC 31 ON_PKWP  ..



                  $ EQUIPMENT DESCRIPTION

HWBLR1     =PLANT-EQUIPMENT   TYPE = HW-BOILER
                     SIZE = -999.  ..

HCCC-CHILR =PLANT-EQUIPMENT   TYPE = HERM-CENT-CHLR
                     SIZE = 7.8  ..

M  COOLTWR =PLANT-EQUIPMENT   TYPE = COOLING-TWR
                     SIZE = -999.  ..

PLANT-PARAMETERS     BOILER-CONTROL = STANDBY  HW-BOILER-HIR = 1.2
                     TWR-WTR-SET-POINT = 85.  TWR-PUMP-HEAD = 50.
                     TWR-CELL-MAX-GPM = 1.0  TWR-FAN-OFF-CFM = 0.1
                     CHILLER-CONTROL = STANDBY  CHILL-WTR-T = 55.
                     CCIRC-HEAD = 100.0  CCIRC-DESIGN-T-DROP = 5.0
                     HCIRC-HEAD = 100.0  HCIRC-DESIGN-T-DROP = 25.0    ..


ENERGY-RESOURCE      RESOURCE = FUEL-OIL  ..
ENERGY-RESOURCE      RESOURCE = ELECTRICITY  ..



                  $ HOURLY REPORT DESCRIPTION

P_1        =REPORT-BLOCK VARIABLE-TYPE = HERM-CENT-CHLR
                         VARIABLE-LIST = (1,3,12,13) ..
P_2        =REPORT-BLOCK VARIABLE-TYPE = COOLING-TWR
                         VARIABLE-LIST = (8,10,20,21) ..
P_3        =REPORT-BLOCK VARIABLE-TYPE = HW-BOILER
                         VARIABLE-LIST = (1,3,4,7) ..
R  1       = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKYP
                         REPORT-BLOCK = (P_1,P_2)
 ..
RP_2       = HOURLY-REPORT  REPORT-SCHEDULE = ON_PKYP
                         REPORT-BLOCK = (P_3)
```

```
 ..
END  ..
COMPUTE PLANT ..

INPUT ECONOMICS  ..

                $----------------------------------------$
                $ E Z - D O E   E C O N O M I C S  I N P U T $
                $----------------------------------------$

                   $ GENERAL PROJECT DATA

TITLE  LINE-1 *         ENTECH  ENGINEERING          *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
       LINE-3 *     READING,      PA       19603     *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1   * ..

ABORT                ERRORS  ..
DIAGNOSTIC           WARNINGS ..
ECONOMICS-REPORT     VERIFICATION=(EV-B)
                     SUMMARY=(ES-D,ES-E)  ..

                      $ SCHEDULES

D24OFPKKWH =DAY-CHARGE-SCH  (1,24) (4OFPKKWH) ..

DHTGDEMKWH =DAY-CHARGE-SCH  (1,7) (4OFPKKWH)
                            (8,19) (4OFPKKWH,EONPKDMHTG)
                            (20,24) (4OFPKKWH) ..

DCLGDEMKWH =DAY-CHARGE-SCH  (1,7) (4OFPKKWH)
                            (8,19) (EONPKKWH,EONPKDMCL)
                            (20,24) (4OFPKKWH) ..

D24OFPKWH  =DAY-CHARGE-SCH  (1,24) (4OFPKKWH) ..


WHTG       =WEEK-SCHEDULE   (WD)  DHTGDEMKWH
                            (WEH) D24OFPKWH  ..

WCLG       =WEEK-SCHEDULE   (WD)  DCLGDEMKWH
                            (WEH) D24OFPKWH  ..


$ YRSCH ELEC1
YELEC1     =SCHEDULE THRU MAY 31 WHTG
                     THRU SEP 30 WCLG
                     THRU DEC 31 WHTG  ..



                      $ CHARGE ASSIGNMENT

4OFPKKWH   =C-A    RESOURCE = ELECTRICITY  TYPE = ENERGY
                   UNIFORM-CHARGE = 0.0719  ..

EONPKKWH   =C-A    RESOURCE = ELECTRICITY  TYPE = ENERGY
```

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                    UNIFORM-CHARGE = 0.0801   ..

EONPKDMHTG =C-A     RESOURCE = ELECTRICITY  TYPE = DEMAND
                    UNIFORM-CHARGE = 8.57   ..

EONPKDMCL  =C-A     RESOURCE = ELECTRICITY  TYPE = DEMAND
                    UNIFORM-CHARGE = 9.47   ..


                     $ ENERGY COST

ENERGY-COST            RESOURCE = FUEL-OIL  UNIT = 138690.
                       UNIFORM-COST = .59     ..

ENERGY-COST            RESOURCE = ELECTRICITY  UNIT = 3413.
                       ASSIGN-SCHEDULE = YELEC1     ..

END   ..
COMPUTE ECONOMICS ..
STOP   ..
```

REPORT- LS-F BUILDING MONTHLY LOAD COMPONENTS IN MBTU WEATHER FILE- NEWARK, NJ

(UNITS=MBTU)		WALLS	ROOFS	INT SUR	UND SUR	INFIL	GL CON	GL SOL	OCCUP	LIGHTS	EQUIP	SOURCE	TOTAL
	HEATNG	-272.143	-235.737	0.000	-2.939	-634.744	-273.952	90.257	21.964	302.375	139.833	0.000	-865.087
JAN	SEN CL	-88.805	-84.339	0.000	-6.694	-52.599	-83.527	46.116	44.024	555.107	240.910	0.000	570.193
	LAT CL					0.000			36.621		0.000	0.000	36.621
	HEATNG	-218.424	-191.017	0.000	-2.457	-533.922	-224.334	102.075	16.750	234.412	112.097	0.000	-704.819
FEB	SEN CL	-87.312	-75.890	0.000	-7.318	-69.480	-85.655	61.199	43.069	543.078	232.517	0.000	554.207
	LAT CL					0.000			35.840		0.000	0.000	35.840
	HEATNG	-179.153	-144.817	0.000	-0.896	-473.362	-188.526	110.535	15.468	218.676	98.211	0.000	-543.864
MAR	SEN CL	-92.850	-85.440	0.000	-10.027	-104.621	-98.050	109.224	55.576	698.190	296.472	0.000	768.475
	LAT CL					1.353			46.222		0.000	0.000	47.574
	HEATNG	-85.349	-65.463	0.000	-0.070	-202.330	-90.633	66.229	7.398	108.121	49.780	0.000	-212.315
APR	SEN CL	-71.480	-54.761	0.000	-9.954	-97.012	-92.076	181.122	58.424	745.584	324.314	0.000	984.160
	LAT CL					10.991			47.597		0.000	0.000	58.589
	HEATNG	-42.064	-31.012	0.000	0.000	-93.948	-44.586	37.149	3.678	56.766	27.623	0.000	-86.394
MAY	SEN CL	-36.767	-13.580	0.000	-8.090	-63.422	-68.791	252.767	62.335	801.088	353.208	0.000	1278.748
	LAT CL					45.072			50.670		0.000	0.000	95.742
	HEATNG	-5.192	-4.771	0.000	0.000	-8.496	-5.522	4.896	0.530	8.609	4.277	0.000	-5.668
JUN	SEN CL	12.210	42.748	0.000	-5.639	17.368	-29.364	266.725	67.590	871.311	375.945	0.000	1618.894
	LAT CL					131.621			54.193		0.000	0.000	185.814
	HEATNG	-0.957	-0.927	0.000	0.000	-2.463	-1.053	0.941	0.137	2.316	1.200	0.000	-0.807
JUL	SEN CL	37.004	64.735	0.000	-3.864	44.720	-9.099	278.968	63.686	830.929	373.892	0.000	1680.972
	LAT CL					174.480			50.873		0.000	0.000	225.353
	HEATNG	-4.534	-4.023	0.000	0.000	-5.615	-4.698	2.765	0.388	6.648	3.810	0.000	-5.259
AUG	SEN CL	18.893	43.115	0.000	-2.618	25.941	-22.592	255.873	70.525	908.241	390.393	0.000	1687.771
	LAT CL					168.708			56.571		0.000	0.000	225.278
	HEATNG	-13.768	-12.033	0.000	0.000	-22.322	-14.263	10.316	1.427	21.523	10.213	0.000	-18.907
SEP	SEN CL	-29.372	-8.509	0.000	-2.428	-46.479	-59.584	216.242	64.243	829.882	363.324	0.000	1327.318
	LAT CL					114.185			51.602		0.000	0.000	165.787
	HEATNG	-64.933	-50.966	0.000	0.000	-121.023	-67.644	41.892	5.425	83.459	40.759	0.000	-133.032
OCT	SEN CL	-69.273	-60.550	0.000	-3.516	-87.576	-88.728	157.492	58.247	747.498	333.778	0.000	987.371
	LAT CL					19.721			47.506		0.000	0.000	67.226
	HEATNG	-143.714	-119.464	0.000	-0.102	-299.257	-147.606	61.607	11.786	171.038	79.471	0.000	-386.243
NOV	SEN CL	-83.307	-80.952	0.000	-5.148	-74.613	-84.796	69.595	51.424	651.692	287.342	0.000	731.238
	LAT CL					17.222			42.566		0.000	0.000	59.788
	HEATNG	-239.997	-202.021	0.000	-1.568	-600.226	-243.249	77.138	20.889	288.299	129.441	0.000	-771.295
DE	SEN CL	-85.360	-86.599	0.000	-6.050	-58.126	-81.374	45.636	45.404	573.762	252.411	0.000	599.703
	LAT CL					0.000			37.607		0.000	0.000	37.607
	HEATNG	-1270.234	-1062.250	0.000	-8.032	-2997.727	-1306.058	605.806	105.839	1502.228	696.708	0.000	-3733.721

TOT	SEN CL	-576.415	-400.023	0.000	-71.346	-565.898	-803.641	1940.944	684.535	8755.893	3824.610	0.000 12788.659
	LAT CL					683.358			557.718		0.000	0.000 1241.076

REPORT- SV-A SYSTEM DESIGN PARAMETERS 1SMCAHUSZR WEATHER FILE- NEWARK, NJ

SYSTEM NAME	ALTITUDE MULTIPLIER
1SMCAHUSZR	1.000

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
30680.	30.066	2.4	0.	0.000	0.0	0.150	1162.387	0.690	-800.000	0.00	0.00

ZONE NAME	SUPPLY FLOW	EXHAUST FLOW	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
1EXTPER	25920.	0.	0.000	1.000	3888.	0.00	0.00	559.87	0.00	-488.64	1.0
1INTPER	4760.	0.	0.000	1.000	714.	0.00	0.00	102.82	0.00	-89.73	1.0

REPORT- SV-A SYSTEM DESIGN PARAMETERS 2SPERFC WEATHER FILE- NEWARK, NJ

SYSTEM NAME	ALTITUDE MULTIPLIER
2SPERFC	1.000

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
49470.	0.000	0.2	0.	0.000	0.0	0.000	0.000	0.000	0.000	0.00	0.00

ZONE NAME	SUPPLY FLOW	EXHAUST FLOW	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
2EXTPER	27710.	0.	1.940	1.000	0.	954.80	0.70	598.41	-1422.16	-1428.11	1.0
2INTPER	21760.	0.	1.523	1.000	0.	756.73	0.70	469.97	-1116.79	-1121.46	1.0

REPORT- SV-A SYSTEM DESIGN PARAMETERS 3SPERFC WEATHER FILE- NEWARK, NJ

SYSTEM NAME	ALTITUDE MULTIPLIER
3SPERFC	1.000

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
49470.	0.000	0.2	0.	0.000	0.0	0.000	0.000	0.000	0.000	0.00	0.00

ZONE NAME	SUPPLY FLOW	EXHAUST FLOW	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
3EXTPER	27710.	0.	1.940	1.000	0.	954.80	0.70	598.44	-1422.16	-1428.11	1.0
3INTPER	21760.	0.	1.523	1.000	0.	756.73	0.70	469.97	-1116.79	-1121.46	1.0

SYSTEM NAME	ALTITUDE MULTIPLIER
4SPERFC	1.000

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
58060.	0.000	0.2	0.	0.000	0.0	0.000	0.000	0.000	0.000	0.00	0.00

ZONE NAME	SUPPLY FLOW	EXHAUST FLOW	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
4EXTPER	32540.	0.	2.278	1.000	0.	1112.80	0.70	702.80	-1670.05	-1677.03	1.0
4INTPER	25520.	0.	1.786	1.000	0.	873.11	0.70	551.02	-1309.76	-1315.24	1.0

REPORT- SV-A SYSTEM DESIGN PARAMETERS SSZF2MID WEATHER FILE- NEWARK, NJ

SYSTEM NAME	ALTITUDE MULTIPLIER
SSZF2MID	1.000

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
24400.	23.912	2.4	0.	0.000	0.0	0.150	925.890	0.690	-1464.441	0.00	0.00

ZONE NAME	SUPPLY FLOW	EXHAUST FLOW	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
2MIDL	24400.	0.	0.000	1.000	3660.	0.00	0.00	527.04	0.00	-1264.90	1.0

REPORT- SV-A SYSTEM DESIGN PARAMETERS SSFZ3MID WEATHER FILE- NEWARK, NJ

SYSTEM NAME	ALTITUDE MULTIPLIER
SSFZ3MID	1.000

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
29850.	29.253	2.4	0.	0.000	0.0	0.150	1132.830	0.690	-1791.540	0.00	0.00

ZONE NAME	SUPPLY FLOW	EXHAUST FLOW	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
3MIDL	29850.	0.	0.000	1.000	4478.	0.00	0.00	644.76	0.00	-1547.42	1.0

REPORT- SV-A SYSTEM DESIGN PARAMETERS SSZF4MID WEATHER FILE- NEWARK, NJ

SYSTEM NAME	ALTITUDE MULTIPLIER
SSZF4MID	1.000

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
30070.	29.469	2.4	0.	0.000	0.0	0.150	1135.188	0.691	-1804.744	0.00	0.00

ZONE NAME	SUPPLY FLOW	EXHAUST FLOW	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
4MIDL	30070.	0.	0.000	1.000	4511.	0.00	0.00	649.51	0.00	-1558.83	1.0

SYSTEM NAME	ALTITUDE MULTIPLIER
0SMCAHUSZR	1.000

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
17920.	17.562	2.4	0.	0.000	0.0	0.150	675.350	0.691	-1075.524	0.00	0.00

ZONE NAME	SUPPLY FLOW	EXHAUST FLOW	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
0INTEXTPER	17920.	0.	0.000	1.000	2688.	0.00	0.00	387.07	0.00	-928.97	1.0

REPORT- SS-D PLANT MONTHLY LOADS SUMMARY FOR DEFAULT-PLANT WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	0.00000					0.000	-806.201	5	20	15.F	12.F	-3786.090	417143.	1420.651
FEB	0.00000					0.000	-635.981	20	3	10.F	7.F	-4087.203	376069.	1420.651
MAR	0.00000					0.000	-432.909	5	1	29.F	24.F	-2218.542	439182.	1420.651
APR	0.00000					0.000	-126.976	11	6	35.F	35.F	-1706.639	419518.	1420.651
MAY	485.67633	26	15	86.F	71.F	6298.961	-12.614	4	2	40.F	35.F	-279.126	433551.	1420.651
JUN	1665.38916	13	15	98.F	74.F	7296.639	0.000					0.000	433468.	1420.651
JUL	1847.39661	13	14	90.F	73.F	6964.448	0.000					0.000	419270.	1420.651
AUG	1843.29443	18	15	94.F	74.F	7204.293	0.000					0.000	450948.	1420.651
SEP	1157.01685	20	14	83.F	72.F	6181.995	0.000					0.000	420016.	1420.651
OCT	205.22958	14	15	77.F	62.F	4954.120	-22.207	26	6	43.F	40.F	-776.548	412488.	1420.651
NOV	0.00000					0.000	-288.533	25	6	38.F	37.F	-2276.397	401453.	1420.651
DEC	0.00000					0.000	-702.332	26	7	25.F	24.F	-2637.494	416299.	1420.651
TOTAL	7204.001						-3027.752						5039503.	
MAX						7296.639						-4087.203		1420.651

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 1SMCAHUSZR WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	0.00000					0.000	-0.850	3	6	31.F	28.F	-197.626	56271.	203.731
FEB	0.00000					0.000	-0.268	7	7	15.F	13.F	-29.149	50885.	203.731
MAR	0.00000					0.000	-0.012	25	6	28.F	25.F	-7.991	59973.	203.731
APR	0.00000					0.000	0.000					0.000	58205.	203.731
MAY	53.54640	26	14	83.F	71.F	879.738	-0.057	10	17	87.F	68.F	-9.676	60931.	203.731
JUN	206.00967	13	13	95.F	75.F	988.951	0.000					0.000	60477.	203.731
JUL	227.73489	19	14	85.F	74.F	939.398	0.000					0.000	58178.	203.731
AU	237.14639	18	16	91.F	77.F	990.470	0.000					0.000	62318.	203.731
SEP	142.15143	20	12	80.F	75.F	939.177	0.000					0.000	57874.	203.731
OCT	18.88570	14	14	75.F	61.F	705.816	0.000					0.000	56284.	203.731
NOV	0.00000					0.000	0.000					0.000	54430.	203.731
DEC	0.00000					0.000	-0.210	8	6	19.F	17.F	-29.654	56301.	203.731
TOTAL	885.475						-1.398						692103.	
MAX						990.470						-197.626		203.731

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 2SPERFC WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELECTRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	0.00000					0.000	-204.373	5	20	15.F	12.F	-1172.794	49885.	176.678
FEB	0.00000					0.000	-161.799	20	3	10.F	7.F	-1115.597	45103.	176.678
MAR	0.00000					0.000	-108.891	5	1	29.F	24.F	-669.678	52738.	176.678
APR	0.00000					0.000	-31.192	11	4	37.F	36.F	-479.441	49242.	176.678
MAY	86.59464	16	2	70.F	64.F	1289.167	-2.907	2	22	50.F	39.F	-62.214	49885.	176.678
JUN	246.58362	13	15	98.F	74.F	999.814	0.000					0.000	50668.	176.678
JUL	267.83667	13	14	90.F	73.F	949.750	0.000					0.000	48459.	176.678
AUG	258.52383	18	15	94.F	74.F	1005.357	0.000					0.000	52738.	176.678
SEP	180.10347	7	15	82.F	64.F	796.730	0.000					0.000	49242.	176.678
OCT	45.34973	14	15	77.F	62.F	663.986	-3.223	26	6	43.F	40.F	-155.664	48459.	176.678
NOV	0.00000					0.000	-67.506	25	6	38.F	37.F	-630.040	47816.	176.678
DEC	0.00000					0.000	-182.107	26	7	25.F	24.F	-686.903	49885.	176.678
TOTAL	1084.992						-761.998						594129.	
MAX						1289.167						-1172.794		176.678

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 3SPERFC WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	0.00000					0.000	-204.383	5	20	15.F	12.F	-1172.817	49885.	176.678
FEB	0.00000					0.000	-161.807	20	3	10.F	7.F	-1115.619	45103.	176.678
MAR	0.00000					0.000	-108.895	5	1	29.F	24.F	-669.697	52738.	176.678
APR	0.00000					0.000	-31.193	11	4	37.F	36.F	-479.449	49242.	176.678
MAY	86.59817	16	2	70.F	64.F	1289.196	-2.907	2	22	50.F	39.F	-62.215	49885.	176.678
JUN	246.59200	13	15	98.F	74.F	999.837	0.000					0.000	50668.	176.678
JUL	267.84625	13	14	90.F	73.F	949.770	0.000					0.000	48459.	176.678
AUG	258.53091	18	15	94.F	74.F	1005.376	0.000					0.000	52738.	176.678
SEP	180.10663	7	15	82.F	64.F	796.743	0.000					0.000	49242.	176.678
OCT	45.34949	14	15	77.F	62.F	663.989	-3.223	26	6	43.F	40.F	-155.696	48459.	176.678
NOV	0.00000					0.000	-67.511	25	6	38.F	37.F	-630.055	47816.	176.678
DEC	0.00000					0.000	-182.117	26	7	25.F	24.F	-686.924	49885.	176.678
TOTAL	1085.023						-762.036						594129.	
MAX						1289.196						-1172.817		176.678

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REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 4SPERFC WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	0.00000					0.000	-345.504	5	20	15.F	12.F	-1440.479	50332.	177.279
FEB	0.00000					0.000	-277.102	20	3	10.F	7.F	-1388.293	45508.	177.279
MAR	0.00000					0.000	-204.234	5	1	29.F	24.F	-879.167	53185.	177.279
APR	0.00000					0.000	-63.949	9	4	32.F	27.F	-725.252	49675.	177.279
MAY	79.56396	26	15	86.F	71.F	939.903	-6.514	4	4	39.F	35.F	-231.386	50332.	177.279
JUN	261.59937	13	15	98.F	74.F	1180.491	0.000					0.000	51101.	177.279
JUL	294.83423	13	14	90.F	73.F	1084.089	0.000					0.000	48906.	177.279
AUG	274.80002	18	15	94.F	74.F	1154.626	0.000					0.000	53185.	177.279
SEP	170.26332	7	14	82.F	64.F	896.833	0.000					0.000	49675.	177.279
OCT	30.41889	14	15	77.F	62.F	647.320	-15.717	25	6	41.F	36.F	-500.299	48906.	177.279
NOV	0.00000					0.000	-145.622	25	6	38.F	37.F	-792.909	48249.	177.279
DEC	0.00000					0.000	-307.718	26	7	25.F	24.F	-906.660	50332.	177.279
TOTAL	1111.481						-1366.360						599332.	
MAX						1180.491						-1440.479		177.279

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR SSZF2MID WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	0.00000					0.000	-0.140	17	4	16.F	14.F	-22.945	53835.	184.421
FEB	0.00000					0.000	-0.346	20	4	9.F	7.F	-28.400	48580.	184.421
MAR	0.00000					0.000	0.000					0.000	57080.	184.421
APR	0.00000					0.000	0.000					0.000	54998.	184.421
MAY	48.87048	26	14	83.F	71.F	722.120	-0.041	10	17	87.F	68.F	-7.125	56681.	184.421
JUN	178.64218	13	13	95.F	75.F	790.296	0.000					0.000	55556.	184.421
JUL	194.48663	19	14	85.F	74.F	767.954	0.000					0.000	53755.	184.421
AUG	204.10178	18	16	91.F	77.F	795.853	0.000					0.000	57964.	184.421
SEP	130.62488	20	12	80.F	75.F	775.442	0.000					0.000	53994.	184.421
OCT	20.88273	14	15	77.F	62.F	600.384	0.000					0.000	54018.	184.421
NOV	0.00000					0.000	0.000					0.000	52575.	184.421
DEC	0.00000					0.000	-0.007	27	5	21.F	19.F	-7.429	53787.	184.421
TOTAL	777.609						-0.535						652815.	
MAX						795.853						-28.400		184.421

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR SSFZ3MID WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELECTRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	0.00000					0.000	-0.122	17	5	16.F	14.F	-26.723	66437.	226.834
FEB	0.00000					0.000	-0.417	20	4	9.F	7.F	-34.467	59946.	226.834
MAR	0.00000					0.000	0.000					0.000	70397.	226.834
APR	0.00000					0.000	0.000					0.000	67767.	226.834
MAY	60.04546	26	14	83.F	71.F	884.621	-0.050	10	17	87.F	68.F	-8.944	69713.	226.834
JUN	219.02705	13	13	95.F	75.F	967.301	0.000					0.000	68343.	226.834
JUL	238.13353	19	14	85.F	74.F	940.303	0.000					0.000	66095.	226.834
AUG	250.13724	18	16	91.F	77.F	973.837	0.000					0.000	71274.	226.834
SEP	160.69432	20	12	80.F	75.F	950.956	0.000					0.000	66422.	226.834
OCT	25.98936	14	15	77.F	62.F	735.752	0.000					0.000	66475.	226.834
NOV	0.00000					0.000	0.000					0.000	64822.	226.834
DEC	0.00000					0.000	0.000					0.000	66378.	226.834
TOTAL	954.027						-0.589						804023.	
MAX						973.837						-34.467		226.834

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR SSZF4MID WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	0.00000					0.000	-46.775	10	6	19.F	17.F	-440.053	52613.	174.320
FEB	0.00000					0.000	-32.560	20	7	8.F	6.F	-516.131	46702.	174.320
MAR	0.00000					0.000	-10.812	6	7	34.F	31.F	-278.698	53734.	174.320
APR	0.00000					0.000	-0.642	11	6	35.F	35.F	-176.844	51724.	174.320
MAY	42.36839	26	14	83.F	71.F	761.691	-0.102	3	6	39.F	33.F	-18.083	55324.	174.320
JUN	187.35571	13	13	95.F	75.F	906.793	0.000					0.000	56277.	174.320
JUL	217.72856	29	13	88.F	73.F	856.526	0.000					0.000	54660.	174.320
AUG	218.72540	17	13	86.F	74.F	869.120	0.000					0.000	58390.	174.320
SEP	113.27917	20	12	80.F	75.F	771.033	0.000					0.000	54199.	174.320
OCT	9.77956	14	14	75.F	61.F	572.149	-0.044	25	6	41.F	36.F	-15.953	50534.	174.320
NOV	0.00000					0.000	-7.841	14	6	31.F	27.F	-296.989	48790.	174.320
DEC	0.00000					0.000	-29.089	27	5	21.F	19.F	-399.486	51670.	174.320
TOTAL	789.237						-127.865						634615.	
MAX						906.793						-516.131		174.320

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 0SMCAHUSZR WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELECTRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	0.00000					0.000	-4.054	10	6	19.F	17.F	-221.000	37887.	100.709
FEB	0.00000					0.000	-1.681	7	6	14.F	12.F	-235.263	34243.	100.709
MAR	0.00000					0.000	-0.065	24	6	30.F	26.F	-15.548	39339.	100.709
APR	0.00000					0.000	0.000					0.000	38667.	100.709
MAY	28.08884	26	14	83.F	71.F	489.535	-0.035	10	17	87.F	68.F	-5.218	40802.	100.709
JUN	119.57966	13	13	95.F	75.F	569.703	0.000					0.000	40376.	100.709
JUL	138.79631	29	13	88.F	73.F	532.865	0.000					0.000	40760.	100.709
AUG	141.32867	18	16	91.F	77.F	562.700	0.000					0.000	42342.	100.709
SEP	79.79346	20	12	80.F	75.F	515.543	0.000					0.000	39369.	100.709
OCT	8.57403	14	14	75.F	61.F	383.748	0.000					0.000	39355.	100.709
NOV	0.00000					0.000	-0.053	9	6	29.F	25.F	-16.791	36957.	100.709
DEC	0.00000					0.000	-1.083	27	6	21.F	19.F	-137.388	38062.	100.709
TOTAL	516.161						-6.972						468189.	
MAX						569.703						-235.263		100.709

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
HW-BOILER	4.101	1	1															
HERM-CENT-CHLR	7.800	1	1															
COOLING-TWR	2.379	4	4															

EQUIPMENT	HOURS AT PERCENT PART LOAD RATIO											TOTAL HOURS	ANNUAL LOAD (MBTU)	FALSE LOAD (MBTU)	ELEC USED (MBTU)	THERMAL USED (MBTU)
	0 -- 10	-- 20	-- 30	-- 40	-- 50	-- 60	-- 70	-- 80	-- 90	-- 100	- 110+					
HW-BOILER	2827	616	634	478	311	139	41	28	9	4	1	5088	3096.9	0.0	202.4	4504.8
	2827	616	634	478	311	139	41	28	9	4	1					
HERM-CENT-CHLR	1286	825	408	207	244	352	266	81	3	0	0	3672	8366.2	0.0	1972.7	0.0
	1286	825	408	207	244	352	266	81	3	0	0					
COOLING-TWR	1660	651	227	116	89	77	68	102	125	115	442	3672	10338.9	0.0	807.7	0.0
	1660	651	227	116	89	77	68	102	125	115	442					

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 154.2 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 993.6 MBTU

NOTES TO TABLE

1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HW-BOILER	3096.9	100.0
LOAD SATISFIED	3096.9	100.0
TOTAL LOAD ON PLANT	3096.9	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-CENT-CHLR	8366.2	100.0
LOAD SATISFIED	8366.2	100.0
TOTAL LOAD ON PLANT	8366.2	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	21337.4	100.0
LOAD SATISFIED	21337.4	100.0
TOTAL LOAD ON PLANT	21337.3	

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 1 HOURS
MAXIMUM TOWER EXIT TEMPERATURE = 86.F

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	3096.9	3096.9	0.000	0.000	0
COOLING LOADS	8366.2	8366.2	0.000	0.000	0
ELECTRICAL LOADS	21337.3	21337.4	0.000	0.000	0

EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON DAY HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
HW-BOILER	0.148	4.101	2 20 3	4.101	5088								
HERM-CENT-CHLR	0.292	7.613	6 13 15	7.800	3672								
COOLING-TWR	0.296	9.214	6 13 15	2.379	14688								

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
HW-BOILER	4.712	1	1												
HERM-CENT-CHLR	7.800	1	1												
COOLING-TWR	2.379	4	4												
CTANK-STORAGE	73.200	1	1												

EQUIPMENT	HOURS AT PERCENT PART LOAD RATIO											TOTAL HOURS	ANNUAL LOAD (MBTU)	FALSE LOAD (MBTU)	ELEC USED (MBTU)	THERMAL USED (MBTU)
	0 -- 10	-- 20	-- 30	-- 40	-- 50	-- 60	-- 70	-- 80	-- 90	-- 100	- 110+	-----	------	------	------	------
HW-BOILER	2851	617	617	459	307	134	57	32	9	4	1	5088	3532.8	0.0	229.0	5128.5
	2851	617	617	459	307	134	57	32	9	4	1					
HERM-CENT-CHLR	424	57	39	21	19	16	17	17	8	236	982	1836	8721.1	0.0	2401.3	0.0
	424	57	39	21	19	16	17	17	8	236	982					
COOLING-TWR	468	53	22	11	12	14	9	4	3	14	1226	1836	11122.4	0.0	411.5	0.0
	468	53	22	11	12	14	9	4	3	14	1226					
CTANK-STORAGE	166	152	172	266	212	169	218	216	111	28	28	1738	5723.4	0.0	0.0	0.0
	1738	0	0	0	0	0	0	0	0	0	0					

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 177.2 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 950.4 MBTU

NOTES TO TABLE
1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HW-BOILER	3532.8	100.0
LOAD SATISFIED	3532.8	100.0
TOTAL LOAD ON PLANT	3532.8	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-CENT-CHLR	8721.1	98.2
LOAD SATISFIED	8721.1	98.2
TOTAL LOAD ON PLANT	8877.2	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	23174.3	100.0
LOAD SATISFIED	23174.3	100.0
TOTAL LOAD ON PLANT	23174.2	

STORAGE TANK USE	MBTU STORED	MBTU RETURNED	MBTU LOST	MBTU RESIDUAL
CTANK-STORAGE	5798.4	5723.4	1.71	73.27

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 0 HOURS

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	3532.8	3532.8	0.000	0.000	0
COOLING LOADS	8877.2	8721.1	671.417	33.169	218
ELECTRICAL LOADS	23174.2	23174.3	0.000	0.000	0

EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON DAY HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
HW-BOILER	0.147	4.712	2 20 3	4.712	5088								
HERM-CENT-CHLR	0.609	6.719	5 27 21	7.800	1836								
COOLING-TWR	0.637	8.526	7 28 22	2.379	7344								
CTANK-STORAGE	0.457	7.272	6 13 15	73.200	1738								

ENERGY TYPE IN SITE MBTU - CATEGORY OF USE	ELECTRICITY	FUEL-OIL
SPACE HEAT	229.01	5128.55
SPACE COOL	2812.84	0.00
HVAC AUX	5352.46	0.00
DOM HOT WTR	0.00	0.00
AUX SOLAR	0.00	0.00
LIGHTS	10258.49	0.00
VERT TRANS	0.00	0.00
MISC EQUIP	4521.37	0.00
TOTAL	23174.17	5128.55

TOTAL SITE ENERGY 28302.79 MBTU 85.9 KBTU/SQFT-YR GROSS-AREA 85.9 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 74720.99 MBTU 226.8 KBTU/SQFT-YR GROSS-AREA 226.8 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 3.7
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 2.5

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
HW-BOILER	4.712	1	1															
HERM-CENT-CHLR	7.800	1	1															
COOLING-TWR	2.379	4	4															

EQUIPMENT	HOURS AT PERCENT PART LOAD RATIO											TOTAL HOURS	ANNUAL LOAD (MBTU)	FALSE LOAD (MBTU)	ELEC USED (MBTU)	THERMAL USED (MBTU)
	0 -- 10	-- 20	-- 30	-- 40	-- 50	-- 60	-- 70	-- 80	-- 90	-- 100	- 110+					
HW-BOILER	2851	617	617	459	307	134	57	32	9	4	1	5088	3532.8	0.0	229.0	5128.5
	2851	617	617	459	307	134	57	32	9	4	1					
HERM-CENT-CHLR	1092	504	749	469	312	340	170	36	0	0	0	3672	8802.2	0.0	1987.2	0.0
	1092	504	749	469	312	340	170	36	0	0	0					
COOLING-TWR	1230	587	542	328	143	106	122	122	112	89	291	3672	10789.4	0.0	813.3	0.0
	1230	587	542	328	143	106	122	122	112	89	291					

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 177.2 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 950.4 MBTU

NOTES TO TABLE
1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HW-BOILER	3532.8	100.0
LOAD SATISFIED	3532.8	100.0
TOTAL LOAD ON PLANT	3532.8	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-CENT-CHLR	8802.2	100.0
LOAD SATISFIED	8802.2	100.0
TOTAL LOAD ON PLANT	8802.2	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	23162.0	100.0
LOAD SATISFIED	23162.0	100.0
TOTAL LOAD ON PLANT	23161.8	

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 1 HOURS
MAXIMUM TOWER EXIT TEMPERATURE = 86.F

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	3532.8	3532.8	0.000	0.000	0
COOLING LOADS	8802.2	8802.2	0.000	0.000	0
ELECTRICAL LOADS	23161.8	23162.0	0.000	0.000	0

EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON DAY HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
HW-BOILER	0.147	4.712	2 20 3	4.712	5088								
HERM-CENT-CHLR	0.307	7.282	8 18 15	7.800	3672								
COOLING-TWR	0.309	8.785	8 18 15	2.379	14688								

ENERGY TYPE IN SITE MBTU -	ELECTRICITY	FUEL-OIL
CATEGORY OF USE		
SPACE HEAT	229.01	5128.55
SPACE COOL	2800.53	0.00
HVAC AUX	5352.49	0.00
DOM HOT WTR	0.00	0.00
AUX SOLAR	0.00	0.00
LIGHTS	10258.54	0.00
VERT TRANS	0.00	0.00
MISC EQUIP	4521.39	0.00
TOTAL	23161.97	5128.55

TOTAL SITE ENERGY 28290.50 MBTU 85.9 KBTU/SQFT-YR GROSS-AREA 85.9 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 74684.07 MBTU 226.6 KBTU/SQFT-YR GROSS-AREA 226.6 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 3.7
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	HERM-CEN T-CHLR ENTERING COND TEM F ----(12)	HERM-CEN T-CHLR LEAVING COLD TEM F ----(13)	COOLING-TWR WATER FLOWRATE GAL/MIN ----(8)	COOLING-TWR RANGE R ----(10)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)
MONTHLY SUMMARY (JAN)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (FEB)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (MAR)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (APR)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (MAY)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	6348487.	1259033.	80.3	56.0	1950.0	7.9	140410.	90465.
SM	592633024.	149378288.	25573.0	20852.3	748800.1	792.5	46451604.	34738696.
AV	796550.	200777.	34.4	28.0	1006.5	1.1	62435.	46692.
MONTHLY SUMMARY (JUN)								
MN	302722.	142762.	64.6	53.9	1950.0	0.5	106446.	90465.
MX	7271629.	1508870.	84.1	56.3	1950.0	9.1	140410.	90465.
SM	1993556224.	434153376.	50592.8	39414.0	1404000.1	2548.0	96531648.	65135048.
AV	2768828.	602991.	70.3	54.7	1950.0	3.5	134072.	90465.
MONTHLY SUMMARY (JUL)								
MN	302722.	142762.	64.4	53.9	1950.0	0.5	112750.	90465.
MX	7050099.	1439969.	82.5	56.3	1950.0	8.8	140410.	90465.
SM	2276703488.	485572096.	53494.1	40805.5	1450800.1	2892.9	102251000.	67306216.
AV	3060085.	652651.	71.9	54.8	1950.0	3.9	137434.	90465.

	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	HERM-CEN T-CHLR ENTERING COND TEM F ----(12)	HERM-CEN T-CHLR LEAVING COLD TEM F ----(13)	COOLING-TWR WATER FLOWRATE GAL/MIN ----(8)	COOLING-TWR RANGE R ----(10)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)
MONTHLY SUMMARY (AUG)								
MN	302722.	142762.	64.5	53.9	1950.0	0.5	107603.	90465.
MX	7281769.	1503519.	85.6	56.3	1950.0	9.1	140410.	90465.
SM	2224733696.	480761472.	53669.2	40786.8	1450800.1	2834.7	101112896.	67306216.
AV	2990234.	646185.	72.1	54.8	1950.0	3.8	135904.	90465.
MONTHLY SUMMARY (SEP)								
MN	302722.	142762.	64.5	53.9	1950.0	0.5	106446.	90465.
MX	6235474.	1244477.	82.3	56.0	1950.0	7.7	140410.	90465.
SM	1422730752.	342039488.	49467.6	39209.6	1404000.1	1868.7	93164680.	65135048.
AV	1976015.	475055.	68.7	54.5	1950.0	2.6	129395.	90465.
MONTHLY SUMMARY (OCT)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	5014499.	925996.	71.0	55.5	1950.0	6.2	140410.	90465.
SM	291873184.	95304560.	23507.7	19454.6	702000.1	426.8	41607896.	32567528.
AV	392303.	128098.	31.6	26.1	943.5	0.6	55925.	43774.
MONTHLY SUMMARY (NOV)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (DEC)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
YEARLY SUMMARY								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	7281769.	1508870.	85.6	56.3	1950.0	9.1	140410.	90465.
SM	8802230272.	1987209344.	256304.4	200522.8	7160400.5	11363.6	481119712.	332188736.
AV	1004821.	226850.	29.3	22.9	817.4	1.3	54922.	37921.

MMDDHH	HW-BOILER LOAD BTU/HR ----(1)	HW-BOILER ELECTRIC USE BTU/HR ----(3)	HW-BOILER FUEL USE BTU/HR ----(4)	HW-BOILER CAPACITY RUNNING BTU/HR ----(7)
MONTHLY SUMMARY (JAN)				
MN	15616.	1374.	24498.	4712348.
MX	4230237.	103672.	5165285.	4712348.
SM	941701824.	54773668.	1334094848.	3505984256.
AV	1265728.	73621.	1793138.	4712345.
MONTHLY SUMMARY (FEB)				
MN	15616.	1374.	24498.	4712348.
MX	4712348.	103672.	5654817.	4712348.
SM	757747008.	43139200.	1068134464.	3166695680.
AV	1127600.	64195.	1589486.	4712345.
MONTHLY SUMMARY (MAR)				
MN	15616.	1374.	24498.	4712348.
MX	2520241.	103672.	3353212.	4712348.
SM	496955712.	37184240.	747335360.	3505984256.
AV	667951.	49979.	1004483.	4712345.
MONTHLY SUMMARY (APR)				
MN	15616.	1374.	24498.	4712348.
MX	1867575.	103672.	2630422.	4712348.
SM	149607136.	12449244.	231204752.	3392888064.
AV	207788.	17291.	321118.	4712345.
MONTHLY SUMMARY (MAY)				
MN	0.	0.	0.	0.
MX	316145.	27821.	495961.	4712348.
SM	18507140.	1628628.	29033524.	1696444672.
AV	24875.	2189.	39024.	2280168.
MONTHLY SUMMARY (JUN)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (JUL)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.

	HW-BOILER LOAD BTU/HR ----(1)	HW-BOILER ELECTRIC USE BTU/HR ----(3)	HW-BOILER FUEL USE BTU/HR ----(4)	HW-BOILER CAPACITY RUNNING BTU/HR ----(7)
MONTHLY SUMMARY (AUG)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (SEP)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (OCT)				
MN	0.	0.	0.	0.
MX	835070.	73486.	1310036.	4712348.
SM	28528948.	2510547.	44755484.	1809540992.
AV	38345.	3374.	60155.	2432179.
MONTHLY SUMMARY (NOV)				
MN	15616.	1374.	24498.	4712348.
MX	2366441.	103672.	3184438.	4712348.
SM	333158336.	26324396.	507959936.	3392888064.
AV	462720.	36562.	705500.	4712345.
MONTHLY SUMMARY (DEC)				
MN	15616.	1374.	24498.	4712348.
MX	3005253.	103672.	3879184.	4712348.
SM	806623744.	51001972.	1165970432.	3505984256.
AV	1084172.	68551.	1567165.	4712345.
YEARLY SUMMARY				
MN	0.	0.	0.	0.
MX	4712348.	103672.	5654817.	4712348.
SM	3532829952.	229011888.	5128488960.	23976409088.
AV	403291.	26143.	585444.	2737033.

REPORT- EV-B COST OF FUELS AND UTILITIES

ENERGY SOURCE	ENERGY UNIT (BTU)	UNIFORM COST /UNIT ($)	COST ESCLA-ATION RATE	MIN MNTHLY CHARGE ($)	RATE LIMIT /UNIT ($)	FIXED MNTHLY CHARG1 ($)	FIXED MNTHLY CHARG2 ($)	ASSIGN-SCHEDULE (U-NAME)	ASSIGN-CHARGE1 (U-NAME)	ASSIGN-CHARGE2 (U-NAME)
ELECTRIC	3413.00	0.0000	5.000	0.00	1000000.000	0.00	0.00	YELEC1		
FUEL-OIL	138690.00	0.5900	5.000	0.00	1000000.000	0.00	0.00			

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/12/1996 10:22:54 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1

REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

MONTH	ELECTRIC UNIT= 3413.00	FUEL-OIL UNIT= 138690.00
JAN		
ENERGY CONSUMPTION (UNIT/MO)	492409.	9619.
PEAK DEMAND (UNIT/HR)	1462.	37.
TOTAL COST ($)	47932.06	5675.37
FEB		
ENERGY CONSUMPTION (UNIT/MO)	443235.	7702.
PEAK DEMAND (UNIT/HR)	1462.	41.
TOTAL COST ($)	44396.45	4543.95
MAR		
ENERGY CONSUMPTION (UNIT/MO)	507936.	5389.
PEAK DEMAND (UNIT/HR)	1460.	24.
TOTAL COST ($)	49035.91	3179.24
APR		
ENERGY CONSUMPTION (UNIT/MO)	471645.	1667.
PEAK DEMAND (UNIT/HR)	1450.	19.
TOTAL COST ($)	46338.28	983.57
MAY		
ENERGY CONSUMPTION (UNIT/MO)	569592.	209.
PEAK DEMAND (UNIT/HR)	1922.	4.
TOTAL COST ($)	57425.30	123.51
JUN		
ENERGY CONSUMPTION (UNIT/MO)	700162.	0.
PEAK DEMAND (UNIT/HR)	1992.	0.
TOTAL COST ($)	72601.06	0.00
JUL		
ENERGY CONSUMPTION (UNIT/MO)	706795.	0.
PEAK DEMAND (UNIT/HR)	1987.	0.
TOTAL COST ($)	72757.86	0.00
AUG		
ENERGY CONSUMPTION (UNIT/MO)	736074.	0.
PEAK DEMAND (UNIT/HR)	1989.	0.
TOTAL COST ($)	75352.55	0.00
SEP		
ENERGY CONSUMPTION (UNIT/MO)	661846.	0.
PEAK DEMAND (UNIT/HR)	1929.	0.
TOTAL COST ($)	68981.09	0.00
OCT		
ENERGY CONSUMPTION (UNIT/MO)	540036.	323.
PEAK DEMAND (UNIT/HR)	1831.	9.
TOTAL COST ($)	54517.98	190.39
NOV		
ENERGY CONSUMPTION (UNIT/MO)	465371.	3663.
PEAK DEMAND (UNIT/HR)	1459.	23.
TOTAL COST ($)	45967.96	2160.91
DEC		
ENERGY CONSUMPTION (UNIT/MO)	491305.	8407.
PEAK DEMAND (UNIT/HR)	1462.	28.
TOTAL COST ($)	47852.72	4960.15
TOTAL		
ENERGY CONSUMPTION (UNIT/YR)	6786406.	36978.
PEAK DEMAND (UNIT/HR)	1992.	41.
TOTAL COST ($)	683159.25	21817.08

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
JAN								
	4OFPKKWH	744	492409.	35404.21	1462.	1462.	0.00	
	EONPKDMHTG	252	299165.	0.00	1462.	1462.	12527.85	
								47932.06
FEB								
	4OFPKKWH	672	443235.	31868.59	1462.	1462.	0.00	
	EONPKDMHTG	228	269534.	0.00	1462.	1462.	12527.85	
								44396.45
MAR								
	4OFPKKWH	744	507936.	36520.62	1460.	1460.	0.00	
	EONPKDMHTG	276	325872.	0.00	1460.	1460.	12515.29	
								49035.91
APR								
	4OFPKKWH	720	471645.	33911.25	1450.	1450.	0.00	
	EONPKDMHTG	252	296759.	0.00	1450.	1450.	12427.03	
								46338.28
MAY								
	4OFPKKWH	744	569592.	40953.69	1922.	1922.	0.00	
	EONPKDMHTG	252	337720.	0.00	1922.	1922.	16471.62	
								57425.30
JUN								
	4OFPKKWH	456	286503.	20599.54	1091.	1091.	0.00	
	EONPKDMCL	264	413660.	0.00	1992.	1992.	18867.39	
	EONPKKWH	264	413660.	33134.14	1992.	1992.	0.00	
								72601.06
JUL								
	4OFPKKWH	504	325586.	23409.62	1076.	1076.	0.00	
	EONPKDMCL	240	381209.	0.00	1987.	1987.	18813.38	
	EONPKKWH	240	381209.	30534.86	1987.	1987.	0.00	
								72757.86
AUG								
	4OFPKKWH	468	297774.	21409.93	1099.	1099.	0.00	
	EONPKDMCL	276	438300.	0.00	1989.	1989.	18834.75	
	EONPKKWH	276	438300.	35107.86	1989.	1989.	0.00	
								75352.55
SEP								
	4OFPKKWH	468	280945.	20199.94	1069.	1069.	0.00	
	EONPKDMCL	252	380901.	0.00	1929.	1929.	18270.95	
	EONPKKWH	252	380901.	30510.20	1929.	1929.	0.00	
								68981.09
OCT								
	4OFPKKWH	744	540036.	38828.57	1831.	1831.	0.00	
	EONPKDMHTG	240	310258.	0.00	1831.	1831.	15689.41	
								54517.98
NOV								
	4OFPKKWH	720	465371.	33460.16	1459.	1459.	0.00	
	EONPKDMHTG	240	283017.	0.00	1459.	1459.	12507.81	
								45967.96

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

CONTINUED

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
DEC								
	4OFPKKWH	744	491305.	35324.86	1462.	1462.	0.00	
	EONPKDMHTG	252	298773.	0.00	1462.	1462.	12527.85	
								47852.72
TOTAL			6786406.	501178.03			181981.19	683159.25

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INPUT LOADS  ..

                $-------------------------------------$
                $ E Z - D O E   L O A D S   I N P U T $
                $-------------------------------------$

                   $ GENERAL PROJECT DATA

TITLE  LINE-1 *          ENTECH  ENGINEERING          *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
       LINE-3 *     READING,       PA       19603     *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24* ..

ABORT                ERRORS  ..
DIAGNOSTIC           WARNINGS ..
LOADS-REPORT         SUMMARY=(LS-F)  ..
BUILDING-LOCATION    ALTITUDE = 15.
                     X-REF = 0.0
                     Y-REF = 0.0  ..
RUN-PERIOD           JAN 1 1994 THRU DEC 31 1994  ..


                   $ SCHEDULES

D24FULON    =DAY-SCHEDULE  (1,24) (1.) ..

D24FULON12 =DAY-SCHEDULE  (1,6) (0.)
                          (7,18) (1.)
                          (19,24) (0.) ..

D24FULOFF   =DAY-SCHEDULE  (1,24) (0.) ..

DOCCUP01    =DAY-SCHEDULE  (1,6) (0.07)
                          (7,8) (0.7,0.9)
                          (9,14) (1.)
                          (15,18) (0.9,0.7,0.25,0.15)
                          (19,24) (0.07) ..

d24occofhr =DAY-SCHEDULE  (1,24) (0.07) ..

DWKLITE1    =DAY-SCHEDULE  (1,6) (0.1)
                          (7,8) (0.5,0.9)
                          (9,14) (1.)
                          (15,18) (0.9,0.7,0.25,0.15)
                          (19,24) (0.1) ..

DNOTLITE1   =DAY-SCHEDULE  (1,24) (0.1) ..

DINFILWIN1 =DAY-SCHEDULE  (1,24) (0.8) ..

DINFILSUM1 =DAY-SCHEDULE  (1,24) (0.8) ..

DEQPAWKDAY =DAY-SCHEDULE  (1,7) (0.15)
                          (8,19) (0.5)
                          (20,24) (0.15) ..
```

```
DEQPAWKEND =DAY-SCHEDULE   (1,24) (0.15) ..


W24FULON7D =WEEK-SCHEDULE   (ALL) D24FULON   ..

W[redacted]01      =WEEK-SCHEDULE   (WD)  DOCCUP01
                                    (WEH) d24occofhr  ..

WLITE1      =WEEK-SCHEDULE   (WD)  DWKLITE1
                                    (WEH) DNOTLITE1   ..

WINFILWIN1 =WEEK-SCHEDULE   (ALL) DINFILWIN1   ..

WINFILSUM1 =WEEK-SCHEDULE   (ALL) DINFILSUM1   ..

WEQUIPSCHA =WEEK-SCHEDULE   (WD)  DEQPAWKDAY
                                    (WEH) DEQPAWKEND   ..


$ 24 HR FULON 7D/WK WK1
Y24FULON7D =SCHEDULE THRU DEC 31 W24FULON7D   ..

$ Y LOADS OCCUP SCH 01
YOCC01      =SCHEDULE THRU DEC 31 WOCC01   ..

$ YR LIGHTING SCH 1/.1
YLITE1      =SCHEDULE THRU DEC 31 WLITE1   ..

$ YR INFIL SCHD 1
Y[redacted]IL1     =SCHEDULE THRU MAY 15 WINFILWIN1
                     THRU OCT 15 WINFILSUM1
                     THRU DEC 31 WINFILWIN1   ..

$ YR SCH EQUIP SCHA 50/15
YEQUIPSCHA =SCHEDULE THRU DEC 31 WEQUIPSCHA   ..


                    $ CONSTRUCTION TYPES



 $ ROOF CON1 MAIN ROOF
ROOFCON1 =CONSTRUCTION    U-VALUE =   0.100   ..

 $ EXTERIOR WAL1 TYP
EXWAL1    =CONSTRUCTION    U-VALUE =   0.080   ..

 $ INTERIOR WALL 1 TYP
INTWAL1   =CONSTRUCTION    U-VALUE =   0.480
                            ABSORPTANCE = 0.000   ..

 $ EXTERIOR DOOR TYP 01 U=.4
E[redacted]OR01   =CONSTRUCTION    U-VALUE =   0.400   ..

 $ UNDERGRND WALL 1
UWAL1     =CONSTRUCTION    U-VALUE =   0.100
                            ABSORPTANCE = 0.500   ..
```

```
GLTYP1    =GLASS-TYPE      SHADING-COEF = 0.560
                           PANES = 1
                           GLASS-CONDUCTANCE =  0.520   ..

                    $ SPACE DESCRIPTION

0STMUH      =SPACE     AREA = 23230.0  VOLUME = 185840.0
                       TEMPERATURE = (68.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                       PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                       LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 1.0
                       LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                       EQUIP-SCHEDULE = YEQUIPSCHA  INF-METHOD = AIR-CHANGE
                       AIR-CHANGES/HR = 1.0  INF-SCHEDULE = YINFIL1   ..

             E-W         HEIGHT = 14.0  WIDTH = 105.0  CONS = EXWAL1
                         AZIMUTH = 90   ..

             E-W         HEIGHT = 14.0  WIDTH = 100.0  CONS = EXWAL1
                         AZIMUTH = 270   ..

           U-W          HEIGHT = 14.0  WIDTH = 344.0  CONS = UWAL1 ..

           U-W          HEIGHT = 232.3  WIDTH = 100.0  CONS = UWAL1 ..


1STMUH      =SPACE     AREA = 17842.0  VOLUME = 298854.0
                       TEMPERATURE = (68.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                       PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                       LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 1.0
                       LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                       EQUIP-SCHEDULE = YEQUIPSCHA  INF-METHOD = AIR-CHANGE
                       AIR-CHANGES/HR = 1.0  INF-SCHEDULE = YINFIL1   ..

             E-W         HEIGHT = 22.3  WIDTH = 10.0  CONS = EXWAL1
                         AZIMUTH = 0   ..

             E-W         HEIGHT = 22.3  WIDTH = 167.0  CONS = EXWAL1
                         AZIMUTH = 270   ..

               WINDOW HEIGHT = 2.7  WIDTH = 135.3  G-T = GLTYP1 ..

             E-W         HEIGHT = 22.3  WIDTH = 24.0  CONS = EXWAL1
                         AZIMUTH = 225   ..

               WINDOW HEIGHT = 2.7  WIDTH = 19.4  G-T = GLTYP1 ..

             E-W         HEIGHT = 22.3  WIDTH = 30.0  CONS = EXWAL1
                         AZIMUTH = 135   ..

               WINDOW HEIGHT = 2.7  WIDTH = 16.2  G-T = GLTYP1 ..


1STMDX      =SPACE     AREA = 15561.0  VOLUME = 550167.0
                       TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
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```
                    PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                    LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 2.0
                    LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                    EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 1.0
                    INF-METHOD = NONE    ..

               E-W      HEIGHT = 22.3  WIDTH = 24.0  CONS = EXWAL1
                        AZIMUTH = 45    ..

                 WINDOW HEIGHT = 2.7  WIDTH = 19.4  G-T = GLTYP1 ..

               E-W      HEIGHT = 22.3  WIDTH = 364.0  CONS = EXWAL1
                        AZIMUTH = 315    ..

                 WINDOW HEIGHT = 2.7  WIDTH = 295.0  G-T = GLTYP1 ..

               E-W      HEIGHT = 22.3  WIDTH = 20.0  CONS = EXWAL1
                        AZIMUTH = 135    ..

                 WINDOW HEIGHT = 2.7  WIDTH = 16.2  G-T = GLTYP1 ..

               E-W      HEIGHT = 37.6  WIDTH = 112.0  CONS = EXWAL1
                        AZIMUTH = 90    ..

               E-W      HEIGHT = 37.6  WIDTH = 90.0  CONS = EXWAL1
                        AZIMUTH = 135    ..         .

                 DOOR   HEIGHT = 7.0  WIDTH = 5.0  CONS = EXTDR01 ..

               E-W      HEIGHT = 37.6  WIDTH = 112.0  CONS = EXWAL1
                        AZIMUTH = 270    ..

                 DOOR   HEIGHT = 7.0  WIDTH = 5.0  CONS = EXTDR01 ..

               ROOF     HEIGHT = 110.0  WIDTH = 70.0  CONS = ROOFCON1
                        TILT = 0    ..


2STMDX      =SPACE     AREA = 17634.0  VOLUME = 171932.0
                       TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                       PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                       LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 4.0
                       LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                       EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 15.0
                       INF-METHOD = NONE    ..


3STMDX      =SPACE     AREA = 11911.0  VOLUME = 115179.0
                       TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                       PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                       LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 5.0
                       LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                       EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 10.0
                       INF-METHOD = NONE    ..


4STMDXCLNR =SPACE      AREA = 6966.0  VOLUME = 67361.0
                       TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
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                    PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                    PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                    LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 5.0
                    LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                    EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 15.0
                    INF-METHOD = NONE    ..

               ROOF   HEIGHT = 162.0  WIDTH = 43.0  CONS = ROOFCON1
                      TILT = 0    ..


4STMOFFCLB =SPACE   AREA = 5117.0  VOLUME = 49481.4
                    TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                    PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                    PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                    LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 5.0
                    LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                    EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 5.0
                    INF-METHOD = NONE    ..

               ROOF   HEIGHT = 119.0  WIDTH = 43.0  CONS = ROOFCON1
                      TILT = 0    ..


0LSTMDX    =SPACE   AREA = 20043.0  VOLUME = 160344.0
                    TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                    PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                    PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                    LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 2.0
                    LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                    EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 2.0
                    INF-METHOD = NONE    ..

               E-W    HEIGHT = 14.0  WIDTH = 60.0  CONS = EXWAL1
                      AZIMUTH = 225    ..

                 WINDOW HEIGHT = 2.7  WIDTH = 48.6  G-T = GLTYP1 ..

                 WINDOW HEIGHT = 2.7  WIDTH = 162.0  G-T = GLTYP1 ..

               E-W    HEIGHT = 14.0  WIDTH = 132.0  CONS = EXWAL1
                      AZIMUTH = 90    ..

               E-W    HEIGHT = 14.0  WIDTH = 96.0  CONS = EXWAL1
                      AZIMUTH = 180    ..

                 WINDOW HEIGHT = 2.7  WIDTH = 68.0  G-T = GLTYP1 ..

               E-W    HEIGHT = 14.0  WIDTH = 60.0  CONS = EXWAL1
                      AZIMUTH = 225    ..

                 WINDOW HEIGHT = 2.7  WIDTH = 226.8  G-T = GLTYP1 ..

                 WINDOW HEIGHT = 2.7  WIDTH = 48.6  G-T = GLTYP1 ..

               E-W    HEIGHT = 14.0  WIDTH = 60.0  CONS = EXWAL1
                      AZIMUTH = 225    ..

                 WINDOW HEIGHT = 2.7  WIDTH = 226.8  G-T = GLTYP1 ..
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              WINDOW HEIGHT = 2.7  WIDTH = 48.6  G-T = GLTYP1 ..

            ROOF      HEIGHT = 200.0  WIDTH = 60.5  CONS = ROOFCON1
                      TILT = 0   ..

            E-W       HEIGHT = 14.0  WIDTH = 84.0  CONS = EXWAL1
                      AZIMUTH = 90   ..

              WINDOW HEIGHT = 2.7  WIDTH = 68.0  G-T = GLTYP1 ..

            E-W       HEIGHT = 14.0  WIDTH = 60.0  CONS = EXWAL1
                      AZIMUTH = 45   ..

              WINDOW HEIGHT = 2.7  WIDTH = 226.8  G-T = GLTYP1 ..

              WINDOW HEIGHT = 2.7  WIDTH = 48.6  G-T = GLTYP1 ..

            E-W       HEIGHT = 14.0  WIDTH = 200.0  CONS = EXWAL1
                      AZIMUTH = 135   ..

              WINDOW HEIGHT = 2.7  WIDTH = 48.6  G-T = GLTYP1 ..

              WINDOW HEIGHT = 2.7  WIDTH = 162.0  G-T = GLTYP1 ..

          U-W       HEIGHT = 14.0  WIDTH = 73.0  CONS = UWAL1 ..

          U-W       HEIGHT = 399.6  WIDTH = 100.0  CONS = UWAL1 ..

            E-W       HEIGHT = 14.0  WIDTH = 60.0  CONS = EXWAL1
                      AZIMUTH = 45   ..

              WINDOW HEIGHT = 2.7  WIDTH = 48.6  G-T = GLTYP1 ..

            E-W       HEIGHT = 14.0  WIDTH = 132.0  CONS = EXWAL1
                      AZIMUTH = 90   ..

              WINDOW HEIGHT = 2.7  WIDTH = 106.9  G-T = GLTYP1 ..

            ROOF      HEIGHT = 399.6  WIDTH = 100.0  CONS = ROOFCON1
                      TILT = 0   ..

          U-W       HEIGHT = 14.0  WIDTH = 73.0  CONS = UWAL1 ..

          U-W       HEIGHT = 399.6  WIDTH = 100.0  CONS = UWAL1 ..


END  ..
COMPUTE LOADS  ..

INPUT SYSTEMS  ..


              $----------------------------------------$
              $ E Z - D O E   S Y S T E M S  I N P U T $
              $----------------------------------------$

                 $ GENERAL PROJECT DATA

TITLE  LINE-1 *          ENTECH  ENGINEERING          *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
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       LINE-3 *     READING,       PA        19603     *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24* ..
A[redacted]RT                ERRORS  ..
D[redacted]GNOSTIC           WARNINGS ..
SYSTEMS-REPORT      VERIFICATION=(SV-A)
                    SUMMARY=(SS-A,SS-B,SS-D)
                    REPORT-FREQUENCY = MONTHLY  ..

                     $ SCHEDULES

DS24ON1     =DAY-SCHEDULE  (1,24) (1.) ..
DS24OFF0    =DAY-SCHEDULE  (1,24) (0.) ..
DLOTMPNOHT  =DAY-SCHEDULE  (1,24) (0.) ..
DHITMPNOCL  =DAY-SCHEDULE  (1,24) (130.) ..
DSHTSET1    =DAY-SCHEDULE  (1,24) (72.) ..
DSCLGSET1   =DAY-SCHEDULE  (1,24) (75.) ..
D4CLNRMT68  =DAY-SCHEDULE  (1,24) (68.) ..
OFFPK_D     =DAY-SCHEDULE  (1,7) (1.)
                           (8,19) (0.)
                           (20,24) (1.) ..
ONPK_D      =DAY-SCHEDULE  (1,7) (0.)
                           (8,19) (1.)
                           (20,24) (0.) ..
OFFPK_END   =DAY-SCHEDULE  (1,24) (1.) ..

W24FULON    =WEEK-SCHEDULE   (ALL) DS24ON1   ..

W[redacted]SET1     =WEEK-SCHEDULE   (ALL) DSHTSET1   ..

WCLSET1     =WEEK-SCHEDULE   (ALL) DSCLGSET1   ..

WLOTMPNOHT  =WEEK-SCHEDULE   (ALL) DLOTMPNOHT   ..

WHITMPNOCL  =WEEK-SCHEDULE   (ALL) DHITMPNOCL   ..

W24FULOFF   =WEEK-SCHEDULE   (ALL) DS24OFF0   ..

W4CLNRMT68  =WEEK-SCHEDULE   (ALL) D4CLNRMT68   ..

OFFPK_W     =WEEK-SCHEDULE   (WD)  OFFPK_D
                             (WEH) OFFPK_END   ..

ONPK_W      =WEEK-SCHEDULE   (WD)  ONPK_D
                             (WEH) DS24OFF0   ..


$ YR SCHD FULON 24HRS 7D
YSON247D    =SCHEDULE THRU DEC 31 W24FULON   ..

$ YR SCHD HEATING SEAS 1
YSHTSEAS1   =SCHEDULE THRU MAY 15 W24FULON
                      THRU OCT 15 W24FULOFF
                      THRU DEC 31 W24FULON   ..

$ YR SCH COOL SEASON 1
YSCLSEAS1   =SCHEDULE THRU MAY 15 W24FULOFF
                      THRU OCT 15 W24FULON
                      THRU DEC 31 W24FULOFF   ..
```

```
$ YRSCH HTSET1 72 /NON0
YHTSET1     =SCHEDULE THRU MAY 15 WHTSET1
                      THRU OCT 15 WHTSET1
                      THRU DEC 31 WHTSET1   ..

$ YRSCH COLSET 72/NON 130
YCLSET1     =SCHEDULE THRU MAY 15 WCLSET1
                      THRU OCT 15 WCLSET1
                      THRU DEC 31 WCLSET1   ..

$ YR SCHD 4THCLNRM T=68
Y4CLNRMT68 =SCHEDULE THRU DEC 31 W4CLNRMT68   ..

OFFPK_YR    =SCHEDULE THRU DEC 31 OFFPK_W   ..

ONPK_YR     =SCHEDULE THRU DEC 31 ONPK_W   ..



                      $ ZONE DESCRIPTION

0STMUH      =ZONE     DESIGN-HEAT-T = 68.0  DESIGN-COOL-T = 90.0
                      HEAT-TEMP-SCH = Y4CLNRMT68  ZONE-TYPE = CONDITIONED
                      THERMOSTAT-TYPE = PROPORTIONAL
                      SIZING-OPTION = FROM-LOADS  ...

1STMUH      =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 90.0
                      HEAT-TEMP-SCH = YHTSET1  ZONE-TYPE = CONDITIONED
                      THERMOSTAT-TYPE = PROPORTIONAL
                      SIZING-OPTION = FROM-LOADS   ..

1STMDX      =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                      HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                      ZONE-TYPE = CONDITIONED
                      THERMOSTAT-TYPE = PROPORTIONAL
                      SIZING-OPTION = FROM-LOADS   ..

2STMDX      =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                      HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                      ZONE-TYPE = CONDITIONED
                      THERMOSTAT-TYPE = PROPORTIONAL
                      SIZING-OPTION = FROM-LOADS   ..

3STMDX      =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                      HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                      ZONE-TYPE = CONDITIONED
                      THERMOSTAT-TYPE = PROPORTIONAL
                      SIZING-OPTION = FROM-LOADS   ..

4STMDXCLNR =ZONE      DESIGN-HEAT-T = 68.0  DESIGN-COOL-T = 68.0
                      HEAT-TEMP-SCH = Y4CLNRMT68  COOL-TEMP-SCH = Y4CLNRMT68
                      ZONE-TYPE = CONDITIONED
                      THERMOSTAT-TYPE = PROPORTIONAL  ASSIGNED-CFM = 50000.
                      OUTSIDE-AIR-CFM = 10000.  SIZING-OPTION = FROM-LOADS
                      HEATING-CAPACITY = -1000000.0   ..

4STMOFFCLB =ZONE      DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                      HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                      ZONE-TYPE = CONDITIONED
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```
                    THERMOSTAT-TYPE = PROPORTIONAL
                    SIZING-OPTION = FROM-LOADS    ..

0LSTMDX     =ZONE   DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    BASEBOARD-CTRL = THERMOSTATIC
                    BASEBOARD-RATING = -240750.
                    SIZING-OPTION = FROM-LOADS    ..


                    $ SYSTEM DESCRIPTION

0SSTMUH     =SYSTEM   SYSTEM-TYPE = UHT
                      MAX-SUPPLY-T = 100.0  HEATING-SCHEDULE = Y4CLNRMT68
                      FAN-SCHEDULE = YSHTSEAS1  SUPPLY-DELTA-T = 0.18
                      SUPPLY-KW = 0.000059
                      NIGHT-CYCLE-CTRL = CYCLE-ON-ANY
                      ZONE-NAMES = (0STMUH)   ..

0SSTMDX     =SYSTEM   SYSTEM-TYPE = SZRH
                      MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                      HEATING-SCHEDULE = YSON247D
                      COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 190.0
                      PREHEAT-T = 0.0  OA-CONTROL = FIXED
                      MIN-OUTSIDE-AIR = 0.2  MAX-OA-FRACTION = 0.2
                      FAN-SCHEDULE = YSON247D  SUPPLY-DELTA-T = 2.4
                      SUPPLY-KW = 0.00078  NIGHT-CYCLE-CTRL = STAY-OFF
                      NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                      PREHEAT-SOURCE = HOT-WATER
                      ZONE-NAMES = (0LSTMDX)   ..

1SSTMUH     =SYSTEM   SYSTEM-TYPE = UHT
                      MAX-SUPPLY-T = 120.0  HEATING-SCHEDULE = YSON247D
                      FAN-SCHEDULE = YSON247D  SUPPLY-DELTA-T = 0.18
                      SUPPLY-KW = 0.000059
                      NIGHT-CYCLE-CTRL = CYCLE-ON-ANY
                      ZONE-NAMES = (1STMUH)   ..

1SSTMDX     =SYSTEM   SYSTEM-TYPE = SZRH
                      MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                      HEATING-SCHEDULE = YSON247D
                      COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 190.0
                      PREHEAT-T = 0.0  OA-CONTROL = FIXED
                      MIN-OUTSIDE-AIR = 0.15  MAX-OA-FRACTION = 0.15
                      FAN-SCHEDULE = YSON247D  SUPPLY-DELTA-T = 2.4
                      SUPPLY-KW = 0.00078  NIGHT-CYCLE-CTRL = STAY-OFF
                      NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                      PREHEAT-SOURCE = HOT-WATER
                      ZONE-NAMES = (1STMDX)   ..

2SSTMDX     =SYSTEM   SYSTEM-TYPE = SZRH
                      MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                      HEATING-SCHEDULE = YSON247D
                      COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 190.0
                      PREHEAT-T = 0.0  OA-CONTROL = FIXED
                      MIN-OUTSIDE-AIR = 0.15  MAX-OA-FRACTION = 0.15
                      FAN-SCHEDULE = YSON247D  SUPPLY-DELTA-T = 2.4
                      SUPPLY-KW = 0.00078  NIGHT-CYCLE-CTRL = STAY-OFF
```

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                    NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                    PREHEAT-SOURCE = HOT-WATER
                    ZONE-NAMES = (2STMDX)  ..

3SSTMDX     =SYSTEM     SYSTEM-TYPE = SZRH
                        MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                        HEATING-SCHEDULE = YSON247D
                        COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 190.0
                        PREHEAT-T = 0.0  ECONO-LIMIT-T = 55.0
                        OA-CONTROL = FIXED  MIN-OUTSIDE-AIR = 0.15
                        MAX-OA-FRACTION = 0.15  FAN-SCHEDULE = YSON247D
                        SUPPLY-DELTA-T = 2.4  SUPPLY-KW = 0.00078
                        NIGHT-CYCLE-CTRL = STAY-OFF  NIGHT-VENT-DT = 0.0
                        MIN-CFM-RATIO = 1.0  PREHEAT-SOURCE = HOT-WATER
                        ZONE-NAMES = (3STMDX)  ..

4SSTMDXCLN =SYSTEM      SYSTEM-TYPE = RHFS
                        MAX-SUPPLY-T = 70.0  MIN-SUPPLY-T = 50.0
                        HEATING-SCHEDULE = YSON247D
                        COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 50.0
                        PREHEAT-T = 0.0  MAX-HUMIDITY = 55.0
                        ECONO-LIMIT-T = 55.0  OA-CONTROL = FIXED
                        SUPPLY-CFM = 50000.  MIN-OUTSIDE-AIR = 0.2
                        MAX-OA-FRACTION = 0.2  FAN-SCHEDULE = YSON247D
                        SUPPLY-DELTA-T = 3.1  SUPPLY-KW = 0.00101
                        NIGHT-CYCLE-CTRL = STAY-OFF  NIGHT-VENT-DT = 0.0
                        REHEAT-DELTA-T = 16.  SIZING-OPTION = COINCIDENT
                        RETURN-AIR-PATH = DIRECT
                        ZONE-NAMES = (4STMDXCLNR)  ..

4STMDXOFC =SYSTEM       SYSTEM-TYPE = SZRH
                        MAX-SUPPLY-T = 120.0  MIN-SUPPLY-T = 55.0
                        HEATING-SCHEDULE = YSON247D
                        COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 190.0
                        OA-CONTROL = FIXED  MIN-OUTSIDE-AIR = 0.15
                        MAX-OA-FRACTION = 0.15  FAN-SCHEDULE = YSON247D
                        SUPPLY-DELTA-T = 2.42  SUPPLY-KW = 0.000783
                        NIGHT-CYCLE-CTRL = STAY-OFF  NIGHT-VENT-DT = 0.0
                        MIN-CFM-RATIO = 1.0  PREHEAT-SOURCE = HOT-WATER
                        ZONE-NAMES = (4STMOFFCLB)  ..


                    $ HOURLY REPORT DESCRIPTION

S_1         =REPORT-BLOCK VARIABLE-TYPE = 0SSTMDX
                          VARIABLE-LIST = (33) ..
S_2         =REPORT-BLOCK VARIABLE-TYPE = 1SSTMDX
                          VARIABLE-LIST = (33) ..
S_3         =REPORT-BLOCK VARIABLE-TYPE = 2SSTMDX
                          VARIABLE-LIST = (33) ..
S_4         =REPORT-BLOCK VARIABLE-TYPE = 3SSTMDX
                          VARIABLE-LIST = (33) ..
S_5         =REPORT-BLOCK VARIABLE-TYPE = 4SSTMDXCLN
                          VARIABLE-LIST = (33) ..
SR_1        = HOURLY-REPORT  REPORT-SCHEDULE = OFFPK_YR
                          REPORT-BLOCK = (S_1,S_2,S_3,S_4,S_5)
  ..
END  ..
COMPUTE SYSTEMS  ..
```

```
INPUT PLANT  ..

                $----------------------------------------$
                $ E Z - D O E   P L A N T S  I N P U T $
                $----------------------------------------$

                   $ GENERAL PROJECT DATA

TITLE  LINE-1 *          ENTECH  ENGINEERING           *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
       LINE-3 *     READING,       PA        19603     *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24* ..

ABORT                ERRORS  ..
DIAGNOSTIC           WARNINGS ..
PLANT-REPORT         VERIFICATION=(PV-A)
                     SUMMARY=(PS-D,PS-H,BEPS)
                     REPORT-FREQUENCY = MONTHLY  ..

                     $ SCHEDULES

D24FULON    =DAY-SCHEDULE   (1,24) (1.) ..

D24FULOF    =DAY-SCHEDULE   (1,24) (0.) ..

OFFPK_PD    =DAY-SCHEDULE   (1,7) (1.)
                            (8,19) (0.)
                            (20,24) (1.) ..

ONPK_PD     =DAY-SCHEDULE   (1,7) (0.)
                            (8,19) (1.)
                            (20,24) (0.) ..

OFFPK_PEND =DAY-SCHEDULE    (1,24) (1.) ..


W24FULON7D =WEEK-SCHEDULE    (ALL) D24FULON  ..

W24FULOF7D =WEEK-SCHEDULE    (ALL) D24FULOF  ..

OFFPK_PW    =WEEK-SCHEDULE   (WD)  OFFPK_PD
                             (WEH) OFFPK_PEND  ..

ONPK_PW     =WEEK-SCHEDULE   (WD)  ONPK_PD
                             (WEH) D24FULOF  ..


$ YRSCH FUL ON 24HR/7D
Y24FULON7D =SCHEDULE THRU DEC 31 W24FULON7D  ..

$ YRSCH HEATING SEAS1
YHTSEAS1    =SCHEDULE THRU MAY 15 W24FULON7D
                      THRU OCT 15 W24FULOF7D
                      THRU DEC 31 W24FULON7D  ..

$ YRSCH COOL SEAS1
YCLSEAS1    =SCHEDULE THRU MAY 15 W24FULOF7D
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                    THRU OCT 15 W24FULON7D
                    THRU DEC 31 W24FULOF7D  ..

OFFPK_PYR  =SCHEDULE THRU DEC 31 OFFPK_PW  ..

ONPK_PYR   =SCHEDULE THRU DEC 31 ONPK_PW  ..


                  $ EQUIPMENT DESCRIPTION

PLSTMBLR   =PLANT-EQUIPMENT   TYPE = STM-BOILER
                    SIZE = -999.  ..

PLHRCCH1   =PLANT-EQUIPMENT   TYPE = HERM-REC-CHLR
                    SIZE = -999.  ..

PLDHW      =PLANT-EQUIPMENT   TYPE = DHW-HEATER
                    SIZE = -999.  ..

PLANT-PARAMETERS      BOILER-CONTROL = STANDBY  HW-BOILER-HIR = 1.2
                      TWR-WTR-SET-POINT = 85.  TWR-CELL-MAX-GPM = 1.0
                      TWR-FAN-OFF-CFM = 0.1  CHILLER-CONTROL = STANDBY
                      HERM-REC-COND-TYPE = AIR  HERM-REC-COND-PWR = 0.15
                      CHILL-WTR-T = 55.  CCIRC-HEAD = 100.0
                      CCIRC-DESIGN-T-DROP = 5.0 .HCIRC-HEAD = 90.0
                      HCIRC-DESIGN-T-DROP = 25.0    ..


PART-LOAD-RATIO  TYPE = HERM-REC-CHLR
                 MIN-RATIO        =  0.2500  MAX-RATIO        =  1.0000
                 OPERATING-RATIO  =  1.0000  ELEC-INPUT-RATIO =  0.1600  ..

ENERGY-RESOURCE       RESOURCE = FUEL-OIL  ..
ENERGY-RESOURCE       RESOURCE = ELECTRICITY  ..
ENERGY-RESOURCE       RESOURCE = NATURAL-GAS  ..


                  $ HOURLY REPORT DESCRIPTION

P_1        =REPORT-BLOCK VARIABLE-TYPE = HERM-REC-CHLR
                         VARIABLE-LIST = (1,3,18) ..
P_2        =REPORT-BLOCK VARIABLE-TYPE = STM-BOILER
                         VARIABLE-LIST = (1,3) ..
PR_1       = HOURLY-REPORT  REPORT-SCHEDULE = OFFPK_PYR
                         REPORT-BLOCK = (P_1,P_2)
 ..
END  ..
COMPUTE PLANT ..
STOP ..
```

REPORT- LS-F BUILDING MONTHLY LOAD COMPONENTS IN MBTU WEATHER FILE- NEWARK, NJ

(UNITS=MBTU)		WALLS	ROOFS	INT SUR	UND SUR	INFIL	GL CON	GL SOL	OCCUP	LIGHTS	EQUIP	SOURCE	TOTAL
	HEATNG	-83.862	-188.593	0.000	-212.447	-217.365	-82.468	36.261	14.151	85.750	36.517	0.000	-612.056
JAN	SEN CL	-6.310	-38.603	0.000	0.000	-0.119	-1.870	0.652	9.539	168.409	351.052	0.000	482.750
	LAT CL					0.000			7.780		0.000	0.000	7.780
	HEATNG	-68.621	-156.563	0.000	-216.734	-189.372	-70.823	42.070	12.426	74.585	32.072	0.000	-540.961
FEB	SEN CL	-7.608	-32.893	0.000	0.000	-0.091	-2.275	0.972	9.050	155.865	318.863	0.000	441.884
	LAT CL					0.000			7.404		0.000	0.000	7.404
	HEATNG	-57.582	-132.071	0.000	-239.948	-174.478	-63.959	52.415	13.678	80.537	33.590	0.000	-487.820
MAR	SEN CL	-9.702	-31.370	0.000	-2.315	-1.199	-3.488	3.867	11.828	191.225	370.952	0.000	529.798
	LAT CL					0.168			9.718		0.000	0.000	9.886
	HEATNG	-30.976	-72.496	0.000	-198.498	-80.367	-37.630	43.543	9.593	57.298	25.313	0.000	-284.222
APR	SEN CL	-6.847	-12.841	0.000	-23.319	-0.521	-5.124	16.926	14.038	195.742	356.615	0.000	534.669
	LAT CL					2.284			11.522		0.000	0.000	13.807
	HEATNG	-16.076	-40.819	0.000	-126.276	-40.044	-21.455	32.337	6.201	38.238	18.118	0.000	-149.777
MAY	SEN CL	-1.600	9.167	0.000	-50.460	12.393	-4.759	37.771	17.499	216.032	369.560	0.000	605.604
	LAT CL					12.124			14.406		0.000	0.000	26.530
	HEATNG	-3.416	-11.764	0.000	-54.526	-3.040	-6.449	13.978	1.972	14.254	8.914	0.000	-40.078
JUN	SEN CL	7.597	38.721	0.000	-65.841	28.412	-1.113	50.550	22.484	246.556	380.475	0.000	707.840
	LAT CL					40.982			18.373		0.000	0.000	59.355
	HEATNG	-1.117	-5.875	0.000	-22.761	-0.707	-3.078	7.168	0.844	6.770	5.469	0.000	-13.288
JUL	SEN CL	12.771	51.167	0.000	-56.196	39.412	1.431	59.045	22.069	240.206	375.222	0.000	745.127
	LAT CL					59.063			17.749		0.000	0.000	76.812
	HEATNG	-2.995	-10.395	0.000	-14.262	-1.734	-4.828	6.946	0.778	6.588	5.698	0.000	-14.203
AUG	SEN CL	9.012	38.144	0.000	-35.886	29.028	-0.898	56.088	24.680	264.587	398.260	0.000	783.014
	LAT CL					59.740			19.868		0.000	0.000	79.608
	HEATNG	-7.149	-20.852	0.000	-18.937	-9.052	-9.301	11.945	1.933	13.893	8.943	0.000	-28.577
SEP	SEN CL	-1.788	6.271	0.000	-27.144	7.229	-7.512	45.710	21.644	238.465	372.306	0.000	655.179
	LAT CL					38.489			17.550		0.000	0.000	56.038
	HEATNG	-24.907	-60.731	0.000	-50.097	-45.698	-27.409	26.462	5.612	37.082	19.063	0.000	-120.623
OCT	SEN CL	-7.365	-18.425	0.000	-20.823	-5.813	-9.031	25.884	17.247	209.216	360.954	0.000	551.844
	LAT CL					5.217			14.410		0.000	0.000	19.627
	HEATNG	-47.953	-113.060	0.000	-103.641	-108.396	-50.682	30.095	10.047	62.190	28.939	0.000	-292.463
NOV	SEN CL	-8.103	-29.199	0.000	-7.730	-1.387	-3.895	5.051	12.646	181.670	344.124	0.000	493.178
	LAT CL					5.465			10.549		0.000	0.000	16.014
	HEATNG	-73.392	-167.684	0.000	-164.480	-204.012	-74.067	31.808	13.554	81.773	34.898	0.000	-521.602
DEC	SEN CL	-7.690	-37.184	0.000	-1.341	-0.627	-2.440	1.479	10.246	173.744	354.021	0.000	490.210
	LAT CL					0.000			8.378		0.000	0.000	8.378
	HEATNG	-418.048	-980.901	0.000	-1422.580	-1074.266	-452.151	335.029	90.788	558.953	257.531	0.000	-3105.646

TOT SEN CL	-27.633	-57.046	0.000	-291.060	106.717	-40.973	303.995	192.964	2481.692	4352.166	0.000	7020.822
LAT CL					223.532			157.675		0.000	0.000	381.207

SYSTEM NAME	ALTITUDE MULTIPLIER
0SSTMUH	1.000

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
13960.	0.000	0.2	0.	0.000	0.0	0.000	0.000	0.000	0.000	0.00	0.00

ZONE NAME	SUPPLY FLOW	EXHAUST FLOW	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
0STMUH	13960.	0.	0.824	1.000	0.	0.00	0.00	0.00	-480.58	-482.35	1.0

SYSTEM NAME	ALTITUDE MULTIPLIER
0SSTMDX	1.000

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
23580.	18.392	2.4	0.	0.000	0.0	0.200	918.407	0.682	-3287.053	0.00	0.00

ZONE NAME	SUPPLY FLOW	EXHAUST FLOW	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
0LSTMDX	23580.	0.	0.000	1.000	4716.	0.00	0.00	509.33	0.00	-1463.14	1.0

SYSTEM NAME	ALTITUDE MULTIPLIER
1SSTMUH	1.000

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
13610.	0.000	0.2	0.	0.000	0.0	0.000	0.000	0.000	0.000	0.00	0.00

ZONE NAME	SUPPLY FLOW	EXHAUST FLOW	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
1STMUH	13610.	0.	0.803	1.000	0.	0.00	0.00	0.00	-698.82	-705.41	1.0

SYSTEM NAME	ALTITUDE MULTIPLIER
1SSTMDX	1.000

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
10240.	7.987	2.4	0.	0.000	0.0	0.150	390.751	0.689	-1387.821	0.00	0.00

ZONE NAME	SUPPLY FLOW	EXHAUST FLOW	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
1STMDX	10240.	0.	0.000	1.000	1536.	0.00	0.00	221.18	0.00	-530.84	1.0

SYSTEM NAME	ALTITUDE MULTIPLIER
2SSTMDX	1.000

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
29420.	22.948	2.4	0.	0.000	0.0	0.150	1116.736	0.691	-3987.275	0.00	0.00

ZONE NAME	SUPPLY FLOW	EXHAUST FLOW	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
2STMDX	29420.	0.	0.000	1.000	4413.	0.00	0.00	635.47	0.00	-1525.13	1.0

SYSTEM NAME	ALTITUDE MULTIPLIER
3SSTMDX	1.000

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
17170.	13.393	2.4	0.	0.000	0.0	0.150	652.451	0.690	-2327.040	0.00	0.00

ZONE NAME	SUPPLY FLOW	EXHAUST FLOW	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
3STMDX	17170.	0.	0.000	1.000	2576.	0.00	0.00	370.87	0.00	-890.09	1.0

SYSTEM NAME	ALTITUDE MULTIPLIER
4SSTMDXCLN	1.000

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
50000.	50.500	3.1	0.	0.000	0.0	0.200	2625.423	0.592	0.000	0.00	0.00

ZONE NAME	SUPPLY FLOW	EXHAUST FLOW	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
4STMDXCLNR	50000.	0.	0.000	1.000	10000.	0.00	0.00	972.00	-864.00	-108.00	1.0

SYSTEM NAME	ALTITUDE MULTIPLIER
4SSTMDXOFC	1.000

SUPPLY FAN (CFM)	ELEC (KW)	DELTA-T (F)	RETURN FAN (CFM)	ELEC (KW)	DELTA-T (F)	OUTSIDE AIR RATIO	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	HEATING CAPACITY (KBTU/HR)	COOLING EIR (BTU/BTU)	HEATING EIR (BTU/BTU)
6640.	5.199	2.4	0.	0.000	0.0	0.150	252.823	0.690	-899.770	0.00	0.00

ZONE NAME	SUPPLY FLOW	EXHAUST FLOW	FAN (KW)	MINIMUM FLOW RATIO	OUTSIDE AIR FLOW	COOLING CAPACITY (KBTU/HR)	SENSIBLE (SHR)	EXTRACTION RATE (KBTU/HR)	HEATING CAPACITY (KBTU/HR)	ADDITION RATE (KBTU/HR)	MULTIPLIER
4STMOFFCLB	6640.	0.	0.000	1.000	996.	0.00	0.00	143.42	0.00	-344.22	1.0

REPORT- SS-D PLANT MONTHLY LOADS SUMMARY FOR DEFAULT-PLANT WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	734.49866	25	14	52.F	41.F	1902.798	-1347.132	5	21	15.F	12.F	-2945.473	276815.	707.161
FEB	689.95953	11	14	52.F	50.F	1947.922	-1197.829	20	3	10.F	7.F	-3142.490	250183.	706.495
MAR	880.38153	15	16	70.F	61.F	2406.023	-1145.207	5	1	29.F	24.F	-2291.763	286502.	706.461
APR	1036.69739	29	16	78.F	67.F	2896.074	-841.243	9	6	30.F	25.F	-2143.264	270995.	706.316
MAY	1283.01001	26	16	86.F	72.F	3639.623	-669.412	21	7	46.F	44.F	-1616.674	276518.	706.014
JUN	1616.68347	13	13	95.F	75.F	4159.959	-503.655	4	6	55.F	50.F	-1014.016	275700.	705.631
JUL	1785.26257	29	13	88.F	73.F	3977.014	-504.090	15	6	62.F	59.F	-850.181	271573.	705.631
AU	1824.01367	18	16	91.F	77.F	4362.844	-504.945	22	5	58.F	57.F	-971.342	286190.	705.631
SEP	1478.22900	20	12	80.F	75.F	3879.487	-517.335	26	6	50.F	46.F	-1149.482	270833.	705.720
OCT	1161.73364	17	15	75.F	65.F	3083.900	-671.035	25	6	41.F	36.F	-1659.976	271631.	705.904
NOV	932.02478	2	15	77.F	70.F	3342.014	-899.365	23	6	31.F	26.F	-1985.155	266124.	706.300
DEC	791.00671	2	14	64.F	53.F	2238.509	-1227.427	8	4	19.F	17.F	-2322.254	276776.	706.508
TOTAL	14213.462						-10028.692						3279762.	
MAX						4362.844						-3142.490		707.161

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 0SSTMUH WEATHER FILE- NEWARK, NJ

	- - - - - - - - C O O L I N G - - - - - - - -					- - - - - - - - - H E A T I N G - - - - - - - - -					- - - E L E C - - -	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	0.00000					0.000	-112.613	5	20	15.F	12.F	-446.126	5924.	23.948
FEB	0.00000					0.000	-105.000	20	3	10.F	7.F	-395.889	5362.	23.643
MAR	0.00000					0.000	-101.294	5	1	29.F	24.F	-265.201	6284.	23.619
APR	0.00000					0.000	-60.669	9	4	32.F	27.F	-236.640	5776.	23.547
MAY	0.00000					0.000	-26.019	21	7	46.F	44.F	-190.399	5773.	23.471
JUN	0.00000					0.000	-0.083	1	5	63.F	55.F	-82.929	5861.	23.220
JUL	0.00000					0.000	0.000					0.000	5536.	23.220
AUG	0.00000					0.000	0.000					0.000	6107.	23.220
SEP	0.00000					0.000	0.000					0.000	5670.	23.220
OCT	0.00000					0.000	-11.518	25	6	41.F	36.F	-140.334	5556.	23.311
NOV	0.00000					0.000	-46.401	25	6	38.F	37.F	-206.371	5561.	23.511
DEC	0.00000					0.000	-95.696	6	19	30.F	26.F	-255.627	5894.	23.618
TOTAL	0.000						-559.292						69300.	
MAX						0.000						-446.126		23.948

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 0SSTMUH WEATHER FILE- NEWARK, NJ

	--ZONE COOLING--		--ZONE HEATING--		--BASEBOARDS--		----PRE-HEAT---	
MONTH	ZONE COIL COOLING ENERGY (MBTU)	MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR)	ZONE COIL HEATING ENERGY (MBTU)	MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR)	BASEBOARD HEATING ENERGY (MBTU)	MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR)	PRE-HEAT COIL ENERGY (MBTU)	MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR)
JAN	0.00000	0.000	-112.61273	-446.126	0.00000	0.000	0.00000	0.000
FEB	0.00000	0.000	-104.99960	-395.889	0.00000	0.000	0.00000	0.000
MAR	0.00000	0.000	-101.29436	-265.201	0.00000	0.000	0.00000	0.000
APR	0.00000	0.000	-60.66871	-236.640	0.00000	0.000	0.00000	0.000
MAY	0.00000	0.000	-26.01891	-190.399	0.00000	0.000	0.00000	0.000
JUN	0.00000	0.000	-0.08293	-82.929	0.00000	0.000	0.00000	0.000
[illegible]	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
AUG	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
SEP	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
OCT	0.00000	0.000	-11.51841	-140.334	0.00000	0.000	0.00000	0.000
NOV	0.00000	0.000	-46.40113	-206.371	0.00000	0.000	0.00000	0.000
DEC	0.00000	0.000	-95.69556	-255.627	0.00000	0.000	0.00000	0.000
TOTAL	0.000		-559.292		0.000		0.000	
MAX		0.000		-446.126		0.000		0.000

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:14:27 SDL RUN 1

READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 0SSTMDX WEATHER FILE- NEWARK, NJ

	- - - - - - - - C O O L I N G - - - - - - - -						- - - - - - - - H E A T I N G - - - - - - - -						- - - E L E C - - -	
MONTH	COOLING ENERGY (MBTU)	TIME OF DY	TIME MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF DY	TIME MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	0.00000					0.000	-424.663	19	5	14.F	12.F	-880.177	31571.	78.496
FEB	0.00000					0.000	-373.413	20	7	8.F	6.F	-957.488	28532.	78.496
MAR	0.10919	16	15	67.F	50.F	45.509	-330.252	25	6	28.F	25.F	-715.535	32565.	78.496
APR	4.85594	15	15	73.F	55.F	234.400	-195.398	9	7	30.F	25.F	-660.360	30889.	78.496
MAY	30.11234	10	15	87.F	69.F	451.981	-94.774	3	6	39.F	33.F	-471.012	31571.	78.496
JUN	92.83858	13	13	95.F	75.F	656.288	-17.941	4	6	55.F	50.F	-245.499	31386.	78.496
JUL	142.83754	12	13	87.F	71.F	624.137	-2.114	15	6	62.F	59.F	-98.983	31074.	78.496
[redacted]	153.36879	18	16	91.F	77.F	730.743	-5.612	22	5	58.F	57.F	-180.556	32565.	78.496
SEP	78.25856	6	14	79.F	69.F	516.576	-13.869	27	6	48.F	46.F	-259.040	30889.	78.496
OCT	16.51519	17	15	75.F	65.F	353.148	-80.379	11	6	40.F	35.F	-408.051	31074.	78.496
NOV	2.23800	2	15	77.F	70.F	262.428	-208.601	9	6	29.F	25.F	-584.202	30392.	78.496
DEC	0.07223	2	14	64.F	53.F	36.576	-353.525	8	6	19.F	17.F	-756.611	31571.	78.496
TOTAL	521.207						-2100.542						374066.	
MAX						730.743						-957.488		78.496

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 0SSTMDX WEATHER FILE- NEWARK, NJ

	--ZONE COOLING--		--ZONE HEATING-		--BASEBOARDS--		----PRE-HEAT---	
MONTH	ZONE COIL COOLING ENERGY (MBTU)	MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR)	ZONE COIL HEATING ENERGY (MBTU)	MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR)	BASEBOARD HEATING ENERGY (MBTU)	MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR)	PRE-HEAT COIL ENERGY (MBTU)	MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR)
JAN	0.00000	0.000	0.00000	0.000	-178.04318	-240.750	0.00000	0.000
FEB	0.00000	0.000	0.00000	0.000	-159.78296	-240.750	0.00000	0.000
MAR	0.00000	0.000	0.00000	0.000	-165.73660	-240.750	0.00000	0.000
APR	0.00000	0.000	0.00000	0.000	-123.67260	-240.750	0.00000	0.000
MAY	0.00000	0.000	0.00000	0.000	-70.97748	-240.750	0.00000	0.000
JUN	0.00000	0.000	0.00000	0.000	-14.39665	-196.853	0.00000	0.000
JUL	0.00000	0.000	0.00000	0.000	-1.69665	-79.436	0.00000	0.000
AUG	0.00000	0.000	0.00000	0.000	-4.50082	-144.519	0.00000	0.000
SEP	0.00000	0.000	0.00000	0.000	-11.11564	-207.168	0.00000	0.000
OCT	0.00000	0.000	0.00000	0.000	-63.09883	-240.750	0.00000	0.000
NOV	0.00000	0.000	0.00000	0.000	-134.81749	-240.750	0.00000	0.000
DEC	0.00000	0.000	0.00000	0.000	-172.49670	-240.750	0.00000	0.000
TOTAL	0.000		0.000		-1100.344		0.000	
MAX		0.000		0.000		-240.750		0.000

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 1SSTMUH WEATHER FILE- NEWARK, NJ

	COOLING					HEATING					ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	0.00000					0.000	-146.391	5	20	15.F	12.F	-703.103	4569.	18.638
FEB	0.00000					0.000	-126.787	20	3	10.F	7.F	-600.042	4125.	18.276
MAR	0.00000					0.000	-115.264	4	16	29.F	27.F	-406.593	4825.	18.267
APR	0.00000					0.000	-51.534	9	4	32.F	27.F	-340.749	4415.	18.193
MAY	0.00000					0.000	-22.072	2	22	50.F	39.F	-230.073	4424.	17.991
JUN	0.00000					0.000	0.000					0.000	4501.	17.835
JUL	0.00000					0.000	0.000					0.000	4252.	17.835
AU	0.00000					0.000	0.000					0.000	4690.	17.835
SEP	0.00000					0.000	-3.802	25	23	57.F	49.F	-90.354	4360.	17.924
OCT	0.00000					0.000	-31.424	25	6	41.F	36.F	-270.992	4288.	18.017
NOV	0.00000					0.000	-73.560	25	6	38.F	37.F	-348.284	4295.	18.213
DEC	0.00000					0.000	-138.700	6	18	31.F	26.F	-416.965	4560.	18.314
TOTAL	0.000						-709.534						53305.	
MAX						0.000						-703.103		18.638

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 1SSTMUH WEATHER FILE- NEWARK, NJ

	- -Z O N E C O O L I N G- -		- -Z O N E H E A T I N G -		- - B A S E B O A R D S - -		- - - -P R E - H E A T - - -	
MONTH	ZONE COIL COOLING ENERGY (MBTU)	MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR)	ZONE COIL HEATING ENERGY (MBTU)	MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR)	BASEBOARD HEATING ENERGY (MBTU)	MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR)	PRE-HEAT COIL ENERGY (MBTU)	MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR)
JAN	0.00000	0.000	-146.39053	-703.103	0.00000	0.000	0.00000	0.000
FEB	0.00000	0.000	-126.78695	-600.042	0.00000	0.000	0.00000	0.000
MAR	0.00000	0.000	-115.26421	-406.593	0.00000	0.000	0.00000	0.000
APR	0.00000	0.000	-51.53436	-340.749	0.00000	0.000	0.00000	0.000
MAY	0.00000	0.000	-22.07189	-230.073	0.00000	0.000	0.00000	0.000
JUN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
[illegible]	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
AUG	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
SEP	0.00000	0.000	-3.80157	-90.354	0.00000	0.000	0.00000	0.000
OCT	0.00000	0.000	-31.42404	-270.992	0.00000	0.000	0.00000	0.000
NOV	0.00000	0.000	-73.56000	-348.284	0.00000	0.000	0.00000	0.000
DEC	0.00000	0.000	-138.69984	-416.965	0.00000	0.000	0.00000	0.000
TOTAL	0.000		-709.534		0.000		0.000	
MAX		0.000		-703.103		0.000		0.000

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 1SSTMDX WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	0.07713	25	14	52.F	41.F	21.796	-77.661	19	5	14.F	12.F	-216.663	16722.	46.873
FEB	0.37390	11	14	52.F	50.F	41.414	-62.654	20	7	8.F	6.F	-235.768	15114.	46.873
MAR	3.60544	16	14	67.F	50.F	112.198	-42.990	25	6	28.F	25.F	-146.981	17363.	46.873
APR	16.78626	21	14	80.F	62.F	172.141	-14.779	9	7	30.F	25.F	-128.313	16399.	46.873
MAY	40.09307	10	15	87.F	69.F	239.649	-3.600	3	6	39.F	33.F	-75.075	16722.	46.873
JUN	76.69411	13	13	95.F	75.F	294.077	-0.001	5	4	59.F	55.F	-0.412	16720.	46.873
JUL	89.18549	29	13	88.F	73.F	271.785	0.000					0.000	16401.	46.873
AUG	84.33113	18	16	91.F	77.F	289.730	-0.027	22	5	58.F	57.F	-15.679	17363.	46.873
SEP	50.85186	20	14	83.F	72.F	231.730	-0.519	27	6	48.F	46.F	-48.776	16399.	46.873
OCT	17.04516	17	15	75.F	65.F	165.225	-8.702	11	6	40.F	35.F	-104.051	16401.	46.873
NOV	7.39196	2	14	77.F	70.F	197.869	-34.639	9	6	29.F	25.F	-143.213	16079.	46.873
DEC	0.68019	2	14	64.F	53.F	83.969	-64.555	8	6	19.F	17.F	-188.395	16722.	46.873
TOTAL	387.116						-310.126						198416.	
MAX						294.077						-235.768		46.873

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 1SSTMDX WEATHER FILE- NEWARK, NJ

	--ZONE COOLING--		--ZONE HEATING-		--BASEBOARDS--		----PRE-HEAT---	
MONTH	ZONE COIL COOLING ENERGY (MBTU)	MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR)	ZONE COIL HEATING ENERGY (MBTU)	MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR)	BASEBOARD HEATING ENERGY (MBTU)	MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR)	PRE-HEAT COIL ENERGY (MBTU)	MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR)
JAN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
FEB	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
APR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAY	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUL	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
AUG	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
SEP	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
OCT	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
NOV	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
DEC	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
TOTAL	0.000		0.000		0.000		0.000	
MAX		0.000		0.000		0.000		0.000

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 2SSTMDX WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	145.87360	25	14	52.F	41.F	578.169	-0.010	17	6	16.F	14.F	-9.415	87286.	225.654
FEB	138.91960	11	14	52.F	50.F	581.270	-1.135	20	7	8.F	6.F	-64.599	78894.	225.654
MAR	191.02383	15	16	70.F	61.F	661.116	0.000					0.000	90664.	225.654
APR	222.28549	29	15	77.F	66.F	748.915	0.000					0.000	85615.	225.654
MAY	265.31262	26	16	86.F	72.F	828.226	0.000					0.000	87286.	225.654
JUN	325.46805	13	13	95.F	75.F	878.494	0.000					0.000	87303.	225.654
JUL	339.99118	19	14	85.F	74.F	874.793	0.000					0.000	85598.	225.654
AUG	356.23941	18	16	91.F	77.F	918.542	0.000					0.000	90664.	225.654
SEP	297.17816	20	12	80.F	75.F	882.966	0.000					0.000	85615.	225.654
OCT	239.78165	17	14	74.F	65.F	728.905	0.000					0.000	85598.	225.654
NOV	195.11839	2	15	77.F	70.F	811.208	0.000					0.000	83926.	225.654
DEC	161.84395	2	14	64.F	53.F	638.487	0.000					0.000	87286.	225.654
TOTAL	2879.038						-1.145						1035801.	
MAX						918.542						-64.599		225.654

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 2SSTMDX WEATHER FILE- NEWARK, NJ

	--ZONE COOLING--		--ZONE HEATING-		--BASEBOARDS--		----PRE-HEAT---	
MONTH	ZONE COIL COOLING ENERGY (MBTU)	MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR)	ZONE COIL HEATING ENERGY (MBTU)	MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR)	BASEBOARD HEATING ENERGY (MBTU)	MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR)	PRE-HEAT COIL ENERGY (MBTU)	MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR)
JAN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
FEB	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
APR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAY	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUL	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
AUG	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
SEP	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
OCT	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
NOV	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
DEC	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
TOTAL	0.000		0.000		0.000		0.000	
MAX		0.000		0.000		0.000		0.000

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 3SSTMDX WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	77.37622	25	14	52.F	41.F	334.590	-0.315	10	6	19.F	17.F	-20.724	48432.	132.453
FEB	74.61213	11	14	52.F	50.F	336.978	-1.440	20	7	8.F	6.F	-49.951	43777.	132.453
MAR	103.42725	16	14	67.F	50.F	379.178	0.000					0.000	50409.	132.453
APR	121.93380	29	15	77.F	66.F	434.784	0.000					0.000	47539.	132.453
MAY	146.75310	26	14	83.F	71.F	480.741	0.000					0.000	48432.	132.453
JUN	182.10710	13	13	95.F	75.F	510.773	0.000					0.000	48528.	132.453
JUL	190.13220	19	14	85.F	74.F	509.947	0.000					0.000	47444.	132.453
AUG	199.60895	18	16	91.F	77.F	524.492	0.000					0.000	50409.	132.453
SEP	165.38913	20	12	80.F	75.F	513.124	0.000					0.000	47539.	132.453
OCT	131.77885	17	14	74.F	65.F	423.871	0.000					0.000	47444.	132.453
NOV	106.03567	2	15	77.F	70.F	472.374	0.000					0.000	46551.	132.453
DEC	86.39047	2	14	64.F	53.F	370.396	0.000	26	5	27.F	26.F	-0.164	48432.	132.453
TOTAL	1585.548						-1.755						574954.	
MAX						524.492						-49.951		132.453

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 3SSTMDX WEATHER FILE- NEWARK, NJ

	--ZONE COOLING--		--ZONE HEATING-		--BASEBOARDS--		----PRE-HEAT---	
MONTH	ZONE COIL COOLING ENERGY (MBTU)	MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR)	ZONE COIL HEATING ENERGY (MBTU)	MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR)	BASEBOARD HEATING ENERGY (MBTU)	MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR)	PRE-HEAT COIL ENERGY (MBTU)	MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR)
JAN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
FEB	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
APR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAY	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUL	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
AUG	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
SEP	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
OCT	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
NOV	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
DEC	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
TOTAL	0.000		0.000		0.000		0.000	
MAX		0.000		0.000		0.000		0.000

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 4SSTMDXCLN WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELECTRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	500.26315	22	2	61.F	60.F	1106.007	-576.953	24	2	21.F	17.F	-872.075	67026.	137.539
FEB	464.38861	13	19	55.F	54.F	950.652	-520.138	20	7	8.F	6.F	-903.224	60563.	137.539
MAR	563.25409	15	16	70.F	61.F	1152.873	-552.842	25	5	28.F	24.F	-834.289	68474.	137.539
APR	641.08441	29	18	73.F	68.F	1367.235	-518.495	10	7	38.F	33.F	-827.410	65354.	137.539
MAY	758.34039	23	17	84.F	73.F	1540.904	-522.946	22	6	45.F	44.F	-807.529	67026.	137.539
JUN	879.61346	13	13	95.F	75.F	1624.603	-485.631	5	6	57.F	55.F	-775.239	66078.	137.539
JUL	958.69739	19	16	88.F	74.F	1588.994	-501.976	5	6	62.F	57.F	-761.236	66302.	137.539
AUG	964.41534	18	16	91.F	77.F	1707.726	-499.306	22	5	58.F	57.F	-775.107	68474.	137.539
SEP	835.92218	20	12	80.F	75.F	1630.641	-499.145	26	6	50.F	46.F	-800.906	65354.	137.539
OCT	723.15112	31	17	65.F	65.F	1287.364	-538.966	11	6	40.F	35.F	-824.686	66302.	137.539
NOV	600.18353	2	13	76.F	70.F	1444.065	-534.818	14	6	31.F	27.F	-843.073	64630.	137.539
DEC	528.75989	2	16	65.F	52.F	1004.819	-569.150	8	6	19.F	17.F	-862.770	67026.	137.539
TOTAL	8418.079						-6320.369						792596.	
MAX						1707.726						-903.224		137.539

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 4SSTMDXCLN WEATHER FILE- NEWARK, NJ

	--ZONE COOLING--		--ZONE HEATING-		--BASEBOARDS--		----PRE-HEAT---	
MONTH	ZONE COIL COOLING ENERGY (MBTU)	MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR)	ZONE COIL HEATING ENERGY (MBTU)	MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR)	BASEBOARD HEATING ENERGY (MBTU)	MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR)	PRE-HEAT COIL ENERGY (MBTU)	MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR)
JAN	0.00000	0.000	-576.95331	-872.075	0.00000	0.000	0.00000	0.000
FEB	0.00000	0.000	-520.13782	-903.224	0.00000	0.000	0.00000	0.000
MAR	0.00000	0.000	-552.84204	-834.289	0.00000	0.000	0.00000	0.000
APR	0.00000	0.000	-518.49457	-827.410	0.00000	0.000	0.00000	0.000
MAY	0.00000	0.000	-522.94629	-807.529	0.00000	0.000	0.00000	0.000
JUN	0.00000	0.000	-485.63052	-775.239	0.00000	0.000	0.00000	0.000
JUL	0.00000	0.000	-501.97604	-761.236	0.00000	0.000	0.00000	0.000
AUG	0.00000	0.000	-499.30630	-775.107	0.00000	0.000	0.00000	0.000
SEP	0.00000	0.000	-499.14542	-800.906	0.00000	0.000	0.00000	0.000
OCT	0.00000	0.000	-538.96558	-824.686	0.00000	0.000	0.00000	0.000
NOV	0.00000	0.000	-534.81830	-843.073	0.00000	0.000	0.00000	0.000
DEC	0.00000	0.000	-569.15021	-862.770	0.00000	0.000	0.00000	0.000
TOTAL	0.000		-6320.369		0.000		0.000	
MAX		0.000		-903.224		0.000		0.000

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 4SSTMDXOFC WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	10.90832	25	14	52.F	41.F	89.179	-8.528	17	6	16.F	14.F	-48.975	15285.	43.561
FEB	11.66591	11	14	52.F	50.F	95.229	-7.263	20	7	8.F	6.F	-63.643	13816.	43.561
MAR	18.96148	16	14	67.F	50.F	121.387	-2.564	27	5	33.F	28.F	-24.500	15919.	43.561
APR	29.75221	19	14	76.F	55.F	143.136	-0.368	10	6	36.F	31.F	-18.001	15006.	43.561
MAY	42.39846	26	14	83.F	71.F	174.839	0.000					0.000	15285.	43.561
JUN	59.96085	13	13	95.F	75.F	195.725	0.000					0.000	15323.	43.561
JUL	64.41993	29	13	88.F	73.F	188.440	0.000					0.000	14967.	43.561
AUG	66.04947	19	14	87.F	75.F	192.594	0.000					0.000	15919.	43.561
SEP	50.62909	20	12	80.F	75.F	179.669	0.000					0.000	15006.	43.561
OCT	33.46150	17	14	74.F	65.F	145.125	-0.047	11	6	40.F	35.F	-12.152	14967.	43.561
NOV	21.05668	2	14	77.F	70.F	163.038	-1.346	14	6	31.F	27.F	-26.696	14689.	43.561
DEC	13.26033	2	14	64.F	53.F	113.413	-5.802	27	6	21.F	19.F	-42.900	15285.	43.561
TOTAL	422.524						-25.917						181474.	
MAX						195.725						-63.643		43.561

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 4SSTMDXOFC WEATHER FILE- NEWARK, NJ

	--ZONE COOLING--		--ZONE HEATING-		--BASEBOARDS--		----PRE-HEAT---	
MONTH	ZONE COIL COOLING ENERGY (MBTU)	MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR)	ZONE COIL HEATING ENERGY (MBTU)	MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR)	BASEBOARD HEATING ENERGY (MBTU)	MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR)	PRE-HEAT COIL ENERGY (MBTU)	MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR)
JAN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
FEB	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
APR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAY	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUL	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
AUG	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
SEP	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
OCT	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
NOV	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
DEC	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
TOTAL	0.000		0.000		0.000		0.000	
MAX		0.000		0.000		0.000		0.000

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
STM-BOILER	3.174	1	1															
DHW-HEATER	0.000	1	1															
HERM-REC-CHLR	4.552	1	1															

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
STM-BOILER	10303.9	100.0
DHW-HEATER	0.0	0.0
LOAD SATISFIED	10303.9	100.0
TOTAL LOAD ON PLANT	10303.9	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-REC-CHLR	15871.3	100.0
LOAD SATISFIED	15871.3	100.0
TOTAL LOAD ON PLANT	15871.3	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	21934.1	100.0
LOAD SATISFIED	21934.1	100.0
TOTAL LOAD ON PLANT	21934.1	

(CONTINUED)

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	10303.9	10303.9	0.000	0.000	0
COOLING LOADS	15871.3	15871.3	0.000	0.000	0
ELECTRICAL LOADS	21934.1	21934.1	0.000	0.000	0

EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON	DAY	HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
STM-BOILER	0.371	3.174	2	20	3	3.174	8760								
DHW-HEATER	0.000	0.000	0	0	0	0.000	0								
HERM-REC-CHLR	0.398	4.552	8	18	16	4.552	8760								

BB1
EXISTING
Off-Peak

MMDDHH	0SSTMDX TOT FAN ELECTRIC KW	1SSTMDX TOT FAN ELECTRIC KW	2SSTMDX TOT FAN ELECTRIC KW	3SSTMDX TOT FAN ELECTRIC KW	4SSTMDXCLN TOT FAN ELECTRIC KW
	----(33)	----(33)	----(33)	----(33)	----(33)
MONTHLY SUMMARY (JAN)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	9049.063	3929.703	11290.217	6589.162	24846.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (FEB)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	8166.226	3546.317	10188.731	5946.316	22422.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (MAR)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	8607.644	3738.010	10739.474	6267.740	23634.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (APR)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	8607.644	3738.010	10739.475	6267.739	23634.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (MAY)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	9049.063	3929.703	11290.217	6589.161	24846.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (JUN)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	8386.935	3642.164	10464.104	6107.028	23028.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (JUL)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	9269.771	4025.550	11565.588	6749.873	25452.000
AV	18.392	7.987	22.948	13.393	50.500

	0SSTMDX TOT FAN ELECTRIC KW	1SSTMDX TOT FAN ELECTRIC KW	2SSTMDX TOT FAN ELECTRIC KW	3SSTMDX TOT FAN ELECTRIC KW	4SSTMDXCLN TOT FAN ELECTRIC KW
	----(33)	----(33)	----(33)	----(33)	----(33)
MONTHLY SUMMARY (AUG)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	8607.644	3738.010	10739.474	6267.739	23634.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (SEP)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	8607.644	3738.010	10739.475	6267.740	23634.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (OCT)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	9269.771	4025.550	11565.588	6749.873	25452.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (NOV)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	8828.353	3833.857	11014.846	6428.450	24240.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (DEC)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	9049.062	3929.703	11290.217	6589.162	24846.000
AV	18.392	7.987	22.948	13.393	50.500
YEARLY SUMMARY					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	105498.813	45814.586	131627.406	76819.984	289668.000
AV	18.392	7.987	22.948	13.393	50.500

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
STM-BOILER	3.174	1	1															
DHW-HEATER	0.000	1	1															
HERM-REC-CHLR	4.552	1	1															

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
STM-BOILER	10303.9	100.0
DHW-HEATER	0.0	0.0
LOAD SATISFIED	10303.9	100.0
TOTAL LOAD ON PLANT	10303.9	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-REC-CHLR	15871.3	100.0
LOAD SATISFIED	15871.3	100.0
TOTAL LOAD ON PLANT	15871.3	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	21934.1	100.0
LOAD SATISFIED	21934.1	100.0
TOTAL LOAD ON PLANT	21934.1	

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	10303.9	10303.9	0.000	0.000	0
COOLING LOADS	15871.3	15871.3	0.000	0.000	0
ELECTRICAL LOADS	21934.1	21934.1	0.000	0.000	0

EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON DAY HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
STM-BOILER	0.371	3.174	2 20 3	3.174	8760								
DHW-HEATER	0.000	0.000	0 0 0	0.000	0								
HERM-REC-CHLR	0.398	4.552	8 18 16	4.552	8760								

ENERGY TYPE IN SITE MBTU - CATEGORY OF USE	ELECTRICITY	FUEL-OIL	NATURAL-GAS
SPACE HEAT	582.98	15721.18	0.00
SPACE COOL	8734.99	0.00	0.00
HVAC AUX	4965.52	0.00	0.00
DOM HOT WTR	0.00	0.00	0.00
AUX SOLAR	0.00	0.00	0.00
LIGHTS	3040.82	0.00	0.00
VERT TRANS	0.00	0.00	0.00
MISC EQUIP	4610.08	0.00	0.00
TOTAL	21934.39	15721.18	0.00

TOTAL SITE ENERGY 37655.27 MBTU 318.3 KBTU/SQFT-YR GROSS-AREA 318.3 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 81589.31 MBTU 689.7 KBTU/SQFT-YR GROSS-AREA 689.7 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 0.0
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-REC -CHLR LOAD BTU/HR ----(1)	HERM-REC -CHLR ELECTRIC USE BTU/HR ----(3)	HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR ----(18)	STM-BOIL ER LOAD BTU/HR ----(1)	STM-BOIL ER ELECTRIC USE BTU/HR ----(3)
MONTHLY SUMMARY (JAN)					
MN	691875.	553860.	415125.	1262853.	69826.
MX	1776538.	1006540.	682813.	2976898.	69826.
SM	478364480.	377932192.	281947008.	974971008.	34354464.
AV	972286.	768155.	573063.	1981648.	69826.
MONTHLY SUMMARY (FEB)					
MN	632960.	506556.	379776.	1151333.	69826.
MX	1413205.	953701.	682813.	3173915.	69826.
SM	438156896.	346102944.	258160144.	892538304.	31002810.
AV	986840.	779511.	581442.	2010221.	69826.
MONTHLY SUMMARY (MAR)					
MN	908338.	727898.	545003.	1053380.	69826.
MX	1901428.	1024457.	682813.	2323188.	69826.
SM	517894272.	404728928.	300986720.	826835776.	32678638.
AV	1106612.	864805.	643134.	1766743.	69826.
MONTHLY SUMMARY (APR)					
MN	937265.	751183.	562359.	747265.	65759.
MX	2109139.	1059606.	682813.	2174689.	69826.
SM	629455552.	438190752.	316353888.	635568704.	32663578.
AV	1344991.	936305.	675970.	1358053.	69794.
MONTHLY SUMMARY (MAY)					
MN	1090128.	874349.	654077.	704509.	61997.
MX	2899371.	1210732.	682813.	1648098.	69826.
SM	789316544.	485240512.	335833568.	511592896.	33919784.
AV	1604302.	986261.	682589.	1039823.	68943.
MONTHLY SUMMARY (JUN)					
MN	1384177.	949434.	682813.	701395.	61723.
MX	3163240.	1274939.	682813.	1045441.	69826.
SM	927032768.	482290688.	311362752.	364100672.	30655348.
AV	2032967.	1057655.	682813.	798466.	67227.
MONTHLY SUMMARY (JUL)					
MN	1542191.	972581.	682813.	703557.	61913.
MX	3262543.	1275740.	682813.	881605.	69826.
SM	1128647808.	551956416.	344137792.	381745984.	33474764.
AV	2239381.	1095152.	682813.	757433.	66418.

	HERM-REC -CHLR LOAD BTU/HR ----(1)	HERM-REC -CHLR ELECTRIC USE BTU/HR ----(3)	HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR ----(18)	STM-BOIL ER LOAD BTU/HR ----(1)	STM-BOIL ER ELECTRIC USE BTU/HR ----(3)
MONTHLY SUMMARY (AUG)					
MN	1432806.	956579.	682813.	655344.	57670.
MX	3592429.	1322721.	682813.	1002767.	69826.
SM	1034400000.	507029920.	319556512.	360379136.	31248418.
AV	2210257.	1083397.	682813.	770041.	66770.
MONTHLY SUMMARY (SEP)					
MN	1217109.	924744.	682813.	719861.	63348.
MX	2931510.	1223276.	682813.	1180907.	69826.
SM	904879552.	484514816.	319556512.	379770752.	31949278.
AV	1933503.	1035288.	682813.	811476.	68268.
MONTHLY SUMMARY (OCT)					
MN	1043358.	836645.	626015.	745039.	65563.
MX	2352478.	1139826.	682813.	1691400.	69826.
SM	753210816.	486767168.	343803584.	521949024.	35091444.
AV	1494466.	965808.	682150.	1035613.	69626.
MONTHLY SUMMARY (NOV)					
MN	892407.	715077.	535444.	731343.	64358.
MX	2334289.	1100857.	682813.	2016580.	69826.
SM	593284160.	435893920.	319190752.	683342848.	33483558.
AV	1236009.	908112.	664981.	1423631.	69757.
MONTHLY SUMMARY (DEC)					
MN	739836.	592389.	443902.	925172.	69826.
MX	1539367.	972169.	682813.	2353679.	69826.
SM	512530048.	400700064.	298113696.	898600512.	34354464.
AV	1041728.	814431.	605922.	1826424.	69826.
YEARLY SUMMARY					
MN	632960.	506556.	379776.	655344.	57670.
MX	3592429.	1322721.	682813.	3173915.	69826.
SM	8707173376.	5401348096.	3749003264.	7431395840.	394876544.
AV	1517987.	941658.	653592.	1295571.	68842.

BB1 EXISTING
ON-PEAK

MMDDHH	0SSTMDX TOT FAN ELECTRIC KW ----(33)	1SSTMDX TOT FAN ELECTRIC KW ----(33)	2SSTMDX TOT FAN ELECTRIC KW ----(33)	3SSTMDX TOT FAN ELECTRIC KW ----(33)	4SSTMDXCLN TOT FAN ELECTRIC KW ----(33)
MONTHLY SUMMARY (JAN)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4634.884	2012.775	5782.794	3374.935	12726.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (FEB)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4193.466	1821.082	5232.052	3053.513	11514.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (MAR)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	5076.302	2204.468	6333.536	3696.357	13938.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (APR)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4634.884	2012.775	5782.794	3374.935	12726.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (MAY)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4634.884	2012.775	5782.794	3374.935	12726.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (JUN)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4855.593	2108.621	6058.165	3535.646	13332.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (JUL)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4414.175	1916.928	5507.423	3214.224	12120.000
AV	18.392	7.987	22.948	13.393	50.500

	0SSTMDX	1SSTMDX	2SSTMDX	3SSTMDX	4SSTMDXCLN
	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW
	----(33)	----(33)	----(33)	----(33)	----(33)
MONTHLY SUMMARY (AUG)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	5076.302	2204.468	6333.536	3696.357	13938.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (SEP)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4634.884	2012.775	5782.794	3374.935	12726.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (OCT)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4414.175	1916.928	5507.423	3214.224	12120.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (NOV)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4414.175	1916.928	5507.423	3214.224	12120.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (DEC)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4634.884	2012.775	5782.794	3374.935	12726.000
AV	18.392	7.987	22.948	13.393	50.500
YEARLY SUMMARY					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	55618.609	24153.299	69393.523	40499.219	152712.000
AV	18.392	7.987	22.948	13.393	50.500

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
STM-BOILER	3.174	1	1															
DHW-HEATER	0.000	1	1															
HERM-REC-CHLR	4.552	1	1															

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
STM-BOILER	10303.9	100.0
DHW-HEATER	0.0	0.0
LOAD SATISFIED	10303.9	100.0
TOTAL LOAD ON PLANT	10303.9	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-REC-CHLR	15871.3	100.0
LOAD SATISFIED	15871.3	100.0
TOTAL LOAD ON PLANT	15871.3	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	21934.1	100.0
LOAD SATISFIED	21934.1	100.0
TOTAL LOAD ON PLANT	21934.1	

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	10303.9	10303.9	0.000	0.000	0
COOLING LOADS	15871.3	15871.3	0.000	0.000	0
ELECTRICAL LOADS	21934.1	21934.1	0.000	0.000	0

EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON DAY HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
STM-BOILER	0.371	3.174	2 20 3	3.174	8760								
DHW-HEATER	0.000	0.000	0 0 0	0.000	0								
HERM-REC-CHLR	0.398	4.552	8 18 16	4.552	8760								

ENERGY TYPE IN SITE MBTU -	ELECTRICITY	FUEL-OIL	NATURAL-GAS
CATEGORY OF USE			
SPACE HEAT	582.98	15721.18	0.00
SPACE COOL	8734.99	0.00	0.00
HVAC AUX	4965.52	0.00	0.00
DOM HOT WTR	0.00	0.00	0.00
AUX SOLAR	0.00	0.00	0.00
LIGHTS	3040.82	0.00	0.00
VERT TRANS	0.00	0.00	0.00
MISC EQUIP	4610.08	0.00	0.00
TOTAL	21934.39	15721.18	0.00

TOTAL SITE ENERGY 37655.27 MBTU 318.3 KBTU/SQFT-YR GROSS-AREA 318.3 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 81589.31 MBTU 689.7 KBTU/SQFT-YR GROSS-AREA 689.7 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 0.0
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-REC -CHLR LOAD BTU/HR ----(1)	HERM-REC -CHLR ELECTRIC USE BTU/HR ----(3)	HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR ----(18)	STM-BOIL ER LOAD BTU/HR ----(1)	STM-BOIL ER ELECTRIC USE BTU/HR ----(3)
MONTHLY SUMMARY (JAN)					
MN	1090060.	874295.	654036.	863170.	69826.
MX	2092040.	1051559.	682813.	2574966.	69826.
SM	396929760.	246212368.	172026960.	395541120.	17596188.
AV	1575118.	977033.	682647.	1569608.	69826.
MONTHLY SUMMARY (FEB)					
MN	1066818.	855555.	640091.	927113.	69826.
MX	2137164.	1057932.	682813.	2179558.	69826.
SM	378973952.	225648704.	155638624.	326407872.	15920361.
AV	1662167.	989687.	682626.	1431614.	69826.
MONTHLY SUMMARY (MAR)					
MN	1409930.	953220.	682813.	606995.	53416.
MX	2595265.	1132922.	682813.	2029272.	69826.
SM	503283328.	279652096.	188456384.	341751648.	19098404.
AV	1823490.	1013232.	682813.	1238231.	69197.
MONTHLY SUMMARY (APR)					
MN	1487801.	964636.	682813.	574664.	50570.
MX	3085316.	1226198.	682813.	1702598.	69826.
SM	543496640.	268037312.	172068864.	228300048.	16277278.
AV	2156733.	1063640.	682813.	905953.	64592.
MONTHLY SUMMARY (MAY)					
MN	1663845.	990265.	682813.	567689.	49957.
MX	3828865.	1365767.	682813.	1323294.	69826.
SM	634489920.	283589248.	172068864.	181199008.	15047886.
AV	2517817.	1125354.	682813.	719044.	59714.
MONTHLY SUMMARY (JUN)					
MN	2060614.	1047111.	682813.	560475.	49322.
MX	4349201.	1502434.	682813.	725163.	63814.
SM	825904000.	324826144.	180262624.	162180864.	14271916.
AV	3128424.	1230402.	682813.	614321.	54060.
MONTHLY SUMMARY (JUL)					
MN	2249004.	1077488.	682813.	559788.	49261.
MX	4166256.	1432733.	682813.	665167.	58535.
SM	797411840.	303306304.	163875104.	145724320.	12823739.
AV	3322549.	1263776.	682813.	607185.	53432.

	HERM-REC -CHLR LOAD BTU/HR ----(1)	HERM-REC -CHLR ELECTRIC USE BTU/HR ----(3)	HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR ----(18)	STM-BOIL ER LOAD BTU/HR ----(1)	STM-BOIL ER ELECTRIC USE BTU/HR ----(3)
MONTHLY SUMMARY (AUG)					
MN	2200348.	1066827.	682813.	558474.	49146.
MX	4552086.	1491854.	682813.	686967.	60453.
SM	930409472.	350816256.	188456384.	167946592.	14779300.
AV	3371049.	1271073.	682813.	608502.	53548.
MONTHLY SUMMARY (SEP)					
MN	1840372.	1015714.	682813.	551735.	48553.
MX	4068729.	1368927.	682813.	899579.	69826.
SM	709604608.	293925536.	172068864.	160190304.	14081494.
AV	2815891.	1166371.	682813.	635676.	55879.
MONTHLY SUMMARY (OCT)					
MN	1639723.	986768.	682813.	595594.	52412.
MX	3273143.	1241670.	682813.	1284848.	69826.
SM	549318592.	259346032.	163875104.	172466240.	14611193.
AV	2288828.	1080609.	682813.	718609.	60880.
MONTHLY SUMMARY (NOV)					
MN	1424527.	955364.	682813.	586544.	51616.
MX	3531256.	1284191.	682813.	1668507.	69826.
SM	474993984.	248784352.	163875104.	238648512.	16093686.
AV	1979142.	1036601.	682813.	994369.	67057.
MONTHLY SUMMARY (DEC)					
MN	1219585.	925111.	682813.	624499.	54956.
MX	2427751.	1098571.	682813.	1991260.	69826.
SM	419273440.	249506352.	172068864.	352206816.	17513208.
AV	1663784.	990105.	682813.	1397646.	69497.
YEARLY SUMMARY					
MN	1066818.	855555.	640091.	551735.	48553.
MX	4552086.	1502434.	682813.	2574966.	69826.
SM	7164089344.	3333650688.	2064741632.	2872563456.	188114656.
AV	2369077.	1102398.	682785.	949922.	62207.

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INPUT LOADS  ..

                $-------------------------------------$
                $ E Z - D O E   L O A D S   I N P U T $
                $-------------------------------------$

                   $ GENERAL PROJECT DATA

TITLE  LINE-1 *          ENTECH  ENGINEERING          *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
       LINE-3 *     READING,       PA        19603     *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH * ..

ABORT                ERRORS  ..
DIAGNOSTIC           WARNINGS ..
LOADS-REPORT         VERIFICATION=(LV-A,LV-B)
                     SUMMARY=(LS-C,LS-D,LS-F)  ..
BUILDING-LOCATION    ALTITUDE = 15.
                     X-REF = 0.0
                     Y-REF = 0.0  ..
RUN-PERIOD           JAN 1 1994 THRU DEC 31 1994  ..
                                                  .

                    $ SCHEDULES

D[redacted]FULON   =DAY-SCHEDULE  (1,24) (1.) ..

DWKFULON12 =DAY-SCHEDULE  (1,6) (0.)
                          (7,18) (1.)
                          (19,24) (0.) ..

D24FULOFF  =DAY-SCHEDULE  (1,24) (0.) ..

DOCCUP01   =DAY-SCHEDULE  (1,6) (0.07)
                          (7,8) (0.7,0.9)
                          (9,14) (1.)
                          (15,18) (0.9,0.7,0.25,0.15)
                          (19,24) (0.07) ..

d24occofhr =DAY-SCHEDULE  (1,24) (0.07) ..

DWKLITE1   =DAY-SCHEDULE  (1,6) (0.1)
                          (7,8) (0.5,0.9)
                          (9,14) (1.)
                          (15,18) (0.9,0.7,0.25,0.15)
                          (19,24) (0.1) ..

DNOTLITE1  =DAY-SCHEDULE  (1,24) (0.1) ..

DINFILWIN1 =DAY-SCHEDULE  (1,24) (0.8) ..

D[redacted]FILSUM1 =DAY-SCHEDULE  (1,24) (0.8) ..

DEQPAWKDAY =DAY-SCHEDULE  (1,7) (0.15)
                          (8,19) (0.5)
                          (20,24) (0.15) ..
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DEQPAWKEND =DAY-SCHEDULE   (1,24) (0.15) ..


W24FULON7D =WEEK-SCHEDULE   (ALL) D24FULON   ..

WOCC01     =WEEK-SCHEDULE   (WD)  DOCCUP01
                            (WEH) d24occofhr  ..

WLITE1     =WEEK-SCHEDULE   (WD)  DWKLITE1
                            (WEH) DNOTLITE1   ..

WINFILWIN1 =WEEK-SCHEDULE   (ALL) DINFILWIN1  ..

WINFILSUM1 =WEEK-SCHEDULE   (ALL) DINFILSUM1  ..

WEQUIPA    =WEEK-SCHEDULE   (WD)  DEQPAWKDAY
                            (WEH) DEQPAWKEND  ..


$ 24 HR FULON 7D/WK WK1
Y24FULON7D =SCHEDULE THRU DEC 31 W24FULON7D  ..

$ Y LOADS OCCUP SCH 01
YOCC01     =SCHEDULE THRU DEC 31 WOCC01   ..

$ YR LIGHTING SCH 1/.1
YLITE1     =SCHEDULE THRU DEC 31 WLITE1   ..

$ YR INFIL SCHD 1
YINFIL1    =SCHEDULE THRU MAY 15 WINFILWIN1
                     THRU OCT 15 WINFILSUM1
                     THRU DEC 31 WINFILWIN1   ..

$ YR SCHD EQUIP A .50/.15
YEQUIPSCHA =SCHEDULE THRU DEC 31 WEQUIPA   ..


                    $ CONSTRUCTION TYPES


 $ ROOF CON1 MAIN ROOF
ROOFCON1 =CONSTRUCTION   U-VALUE =  0.100   ..

 $ EXTERIOR WAL1 TYP
EXWAL1   =CONSTRUCTION   U-VALUE =  0.080   ..

 $ INTERIOR WALL 1 TYP
INTWAL1  =CONSTRUCTION   U-VALUE =  0.480
                          ABSORPTANCE = 0.000   ..

$ EXTERIOR DOOR TYP 01 U=.4
EXDOOR01 =CONSTRUCTION   U-VALUE =  0.400   ..

 $ UNDERGRND WALL 1
UWAL1    =CONSTRUCTION   U-VALUE =  0.100
                          ABSORPTANCE = 0.500   ..
```

```
GLTYP1    =GLASS-TYPE      SHADING-COEF = 0.560
                           PANES = 1
                           GLASS-CONDUCTANCE =  0.520  ..

                    $ SPACE DESCRIPTION

1LDXHT       =SPACE      AREA = 16950.0  VOLUME = 283065.0
                         TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                         PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                         PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                         LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 4.0
                         LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                         EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 10.0
                         INF-METHOD = NONE   ..

                E-W        HEIGHT = 22.3  WIDTH = 356.0  CONS = EXWAL1
                           AZIMUTH = 135   ..

                  WINDOW HEIGHT = 2.7  WIDTH = 288.4  G-T = GLTYP1 ..

                E-W        HEIGHT = 22.3  WIDTH = 266.0  CONS = EXWAL1
                           AZIMUTH = 315   ..

                  WINDOW HEIGHT = 2.7  WIDTH = 215.5  G-T = GLTYP1 ..

                E-W        HEIGHT = 22.3  WIDTH = 71.0  CONS = EXWAL1
                           AZIMUTH = 90   ..

                  WINDOW HEIGHT = 2.7  WIDTH = 57.5  G-T = GLTYP1 ..


1LDXNOHT     =SPACE      AREA = 9601.0  VOLUME = 160336.7
                         TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                         PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                         PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                         LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 4.0
                         LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                         EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 10.0
                         INF-METHOD = NONE   ..

                E-W        HEIGHT = 22.3  WIDTH = 113.0  CONS = EXWAL1
                           AZIMUTH = 315   ..

                  WINDOW HEIGHT = 2.7  WIDTH = 91.5  G-T = GLTYP1 ..

                E-W        HEIGHT = 22.3  WIDTH = 25.0  CONS = EXWAL1
                           AZIMUTH = 225   ..

                  WINDOW HEIGHT = 2.7  WIDTH = 20.3  G-T = GLTYP1 ..

                E-W        HEIGHT = 22.3  WIDTH = 42.0  CONS = EXWAL1
                           AZIMUTH = 315   ..

                  WINDOW HEIGHT = 2.7  WIDTH = 34.0  G-T = GLTYP1 ..

                E-W        HEIGHT = 22.3  WIDTH = 10.0  CONS = EXWAL1
```

```
                    AZIMUTH = 315    ..

               WINDOW HEIGHT = 2.7  WIDTH = 8.1  G-T = GLTYP1 ..

2     =SPACE    AREA = 21192.0  VOLUME = 204927.0
                TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 4.0
                LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 10.0
                INF-METHOD = NONE    ..

3LDX  =SPACE    AREA = 14457.0  VOLUME = 139800.0
                TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 4.0
                LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 10.0
                INF-METHOD = NONE    ..

4LDX  =SPACE    AREA = 35153.0  VOLUME = 339930.0
                TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 5.0
                LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 10.0
                INF-METHOD = NONE    ..

          ROOF    HEIGHT = 817.5  WIDTH = 100.0  CONS = ROOFCON1
                  TILT = 0    ..

1LHWONLY  =SPACE    AREA = 25161.0  VOLUME = 421464.0
                TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 2.0
                LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 0.7
                INF-METHOD = AIR-CHANGE  AIR-CHANGES/HR = 1.0
                INF-SCHEDULE = YINFIL1    ..

          E-W     HEIGHT = 22.3  WIDTH = 192.0  CONS = EXWAL1
                  AZIMUTH = 45    ..

            WINDOW HEIGHT = 2.7  WIDTH = 155.5  G-T = GLTYP1 ..

          E-W     HEIGHT = 22.3  WIDTH = 96.0  CONS = EXWAL1
                  AZIMUTH = 315    ..

            WINDOW HEIGHT = 2.7  WIDTH = 77.8  G-T = GLTYP1 ..

          E-W     HEIGHT = 22.3  WIDTH = 155.0  CONS = EXWAL1
                  AZIMUTH = 270    ..
```

```
              WINDOW HEIGHT = 2.7  WIDTH = 125.6  G-T = GLTYP1 ..

            E-W       HEIGHT = 22.3  WIDTH = 103.0  CONS = EXWAL1
                      AZIMUTH = 225   ..

              WINDOW HEIGHT = 2.7  WIDTH = 83.4  G-T = GLTYP1 ..

            E-W       HEIGHT = 22.3  WIDTH = 60.0  CONS = EXWAL1
                      AZIMUTH = 135   ..

              WINDOW HEIGHT = 2.7  WIDTH = 48.6  G-T = GLTYP1 ..

            E-W       HEIGHT = 22.3  WIDTH = 40.0  CONS = EXWAL1
                      AZIMUTH = 270   ..

              WINDOW HEIGHT = 2.7  WIDTH = 20.0  G-T = GLTYP1 ..

            E-W       HEIGHT = 22.3  WIDTH = 40.0  CONS = EXWAL1
                      AZIMUTH = 225   ..

              WINDOW HEIGHT = 2.7  WIDTH = 20.0  G-T = GLTYP1 ..


03LHWELV    =SPACE    AREA = 250.0  VOLUME = 4189.0
                      MULTIPLIER = 4.0  TEMPERATURE = (73.)
                      ZONE-TYPE = CONDITIONED  PEOPLE-SCHEDULE = YOCC01
                      AREA/PERSON = 294.0  PEOPLE-HG-LAT = 200.0
                      PEOPLE-HG-SENS = 250.0  LIGHTING-TYPE = REC-FLUOR-RV
                      LIGHTING-W/SQFT = 2.0  LIGHT-TO-SPACE = 1.0
                      LIGHTING-SCHEDULE = YLITE1
                      EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 0.7
                      INF-METHOD = AIR-CHANGE  AIR-CHANGES/HR = 1.0
                      INF-SCHEDULE = YINFIL1   ..

              E-W       HEIGHT = 15.3  WIDTH = 40.0  CONS = EXWAL1
                        AZIMUTH = 270   ..

              E-W       HEIGHT = 15.3  WIDTH = 40.0  CONS = EXWAL1
                        AZIMUTH = 225   ..


4LHWELV     =SPACE    AREA = 250.0  VOLUME = 2438.0
                      TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                      PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                      PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                      LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 2.0
                      LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                      EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 0.7
                      INF-METHOD = AIR-CHANGE  AIR-CHANGES/HR = 1.0
                      INF-SCHEDULE = YINFIL1   ..

              E-W       HEIGHT = 15.3  WIDTH = 40.0  CONS = EXWAL1
                        AZIMUTH = 270   ..

              E-W       HEIGHT = 15.3  WIDTH = 40.0  CONS = EXWAL1
                        AZIMUTH = 225   ..

              ROOF      HEIGHT = 25.0  WIDTH = 10.0  CONS = ROOFCON1
                        TILT = 0   ..
```

```
0LDXHT      =SPACE     AREA = 1872.0  VOLUME = 18720.0
                       TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                       PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                       LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 4.0
                       LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                       EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 5.0
                       INF-METHOD = AIR-CHANGE  INF-SCHEDULE = YINFIL1   ..

              E-W        HEIGHT = 14.0  WIDTH = 48.0  CONS = EXWAL1
                         AZIMUTH = 90   ..

                WINDOW HEIGHT = 2.7  WIDTH = 38.4  G-T = GLTYP1 ..

             U-W        HEIGHT = 39.0  WIDTH = 96.0  CONS = UWAL1 ..


0LDXONLY    =SPACE     AREA = 2847.0  VOLUME = 28470.0
                       TEMPERATURE = (73.)  ZONE-TYPE = CONDITIONED
                       PEOPLE-SCHEDULE = YOCC01  AREA/PERSON = 294.0
                       PEOPLE-HG-LAT = 200.0  PEOPLE-HG-SENS = 250.0
                       LIGHTING-TYPE = REC-FLUOR-RV  LIGHTING-W/SQFT = 4.0
                       LIGHT-TO-SPACE = 1.0  LIGHTING-SCHEDULE = YLITE1
                       EQUIP-SCHEDULE = YEQUIPSCHA  EQUIPMENT-W/SQFT = 5.0
                       INF-METHOD = NONE   ..

              E-W        HEIGHT = 14.0  WIDTH = 73.0  CONS = EXWAL1
                         AZIMUTH = 315   ..

                WINDOW HEIGHT = 2.7  WIDTH = 73.0  G-T = GLTYP1 ..

             U-W        HEIGHT = 39.0  WIDTH = 73.0  CONS = UWAL1 ..


END  ..
COMPUTE LOADS  ..

INPUT SYSTEMS  ..


                  $----------------------------------------$
                  $ E Z - D O E   S Y S T E M S  I N P U T $
                  $----------------------------------------$

                     $ GENERAL PROJECT DATA

TITLE  LINE-1 *          ENTECH  ENGINEERING           *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
       LINE-3 *     READING,       PA        19603     *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH * ..
ERRORT                 ERRORS  ..
DIAGNOSTIC             WARNINGS ..
SYSTEMS-REPORT         VERIFICATION=(SV-A)
                       SUMMARY=(SS-A,SS-B,SS-D,SS-F,SS-K)
                       REPORT-FREQUENCY = MONTHLY  ..
```

```
                    $ SCHEDULES

DS24ON1     =DAY-SCHEDULE  (1,24) (1.) ..
DS24OFF0    =DAY-SCHEDULE  (1,24) (0.) ..
DLOTMPNOHT  =DAY-SCHEDULE  (1,24) (55.) ..
DHITMPNOCL  =DAY-SCHEDULE  (1,24) (90.) ..
DSHTSET1    =DAY-SCHEDULE  (1,24) (72.) ..
DSCLGSET1   =DAY-SCHEDULE  (1,24) (75.) ..
DSHTSET270  =DAY-SCHEDULE  (1,24) (70.) ..
OFFPK_SD    =DAY-SCHEDULE  (1,7) (1.)
                           (8,19) (0.)
                           (20,24) (1.) ..
ONPK_SD     =DAY-SCHEDULE  (1,7) (0.)
                           (8,19) (1.)
                           (20,24) (0.) ..
OFFPK_SEND  =DAY-SCHEDULE  (1,24) (1.) ..

W24FULON    =WEEK-SCHEDULE  (ALL) DS24ON1  ..

WHTSET1     =WEEK-SCHEDULE  (ALL) DSHTSET1  ..

WCLSET1     =WEEK-SCHEDULE  (ALL) DSCLGSET1  ..

WLOTMPNOHT  =WEEK-SCHEDULE  (ALL) DLOTMPNOHT  ..

WHITMPNOCL  =WEEK-SCHEDULE  (ALL) DHITMPNOCL  ..

W24FULOFF   =WEEK-SCHEDULE  (ALL) DS24OFF0  ..

WSHTSET270  =WEEK-SCHEDULE  (ALL) DSHTSET270  ..

WSNOCOOL    =WEEK-SCHEDULE  (ALL) DHITMPNOCL  ..

OFFPK_SW    =WEEK-SCHEDULE  (WD)  OFFPK_SD
                            (WEH) OFFPK_SEND  ..

ONPK_SW     =WEEK-SCHEDULE  (WD)  ONPK_SD
                            (WEH) DS24OFF0  ..


$ YR SCHD FULON 24HRS 7D
YSON247D    =SCHEDULE THRU DEC 31 W24FULON  ..

$ YR SCHD HEATING SEAS 1
YSHTSEAS1   =SCHEDULE THRU MAY 15 W24FULON
                      THRU OCT 15 W24FULOFF
                      THRU DEC 31 W24FULON  ..

$ YR SCH COOL SEASON 1
YSCLSEAS1   =SCHEDULE THRU MAY 15 W24FULOFF
                      THRU OCT 15 W24FULON
                      THRU DEC 31 W24FULOFF  ..

$ YRSCH HTSET1 72 /NON0
YHTSET1     =SCHEDULE THRU MAY 15 WHTSET1
                      THRU OCT 15 WHTSET1
                      THRU DEC 31 WHTSET1  ..

$ YRSCH COLSET 72/NON 130
YCLSET1     =SCHEDULE THRU MAY 15 WCLSET1
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                      THRU OCT 15 WCLSET1
                      THRU DEC 31 WCLSET1  ..

$ YR SCHD 24H7D FUL OF
YS[redacted]7DOF   =SCHEDULE THRU DEC 31 W24FULOFF  ..

$ YRSCH HTSET2-70 /NON0
YHTSET2-70 =SCHEDULE THRU MAY 15 WSHTSET270
                      THRU OCT 15 WHITMPNOCL
                      THRU DEC 31 WSHTSET270  ..

$ YRSYS SCH NO COOL SUM
YSHWNOCOOL =SCHEDULE THRU MAY 15 WSHTSET270
                      THRU OCT 15 WSNOCOOL
                      THRU DEC 31 WSHTSET270  ..

OFFPK_SYR  =SCHEDULE THRU DEC 31 OFFPK_SW  ..

ONPK_SYR   =SCHEDULE THRU DEC 31 ONPK_SW  ..



                      $ ZONE DESCRIPTION

1LDXHT     =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                     HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                     ZONE-TYPE = CONDITIONED
                     THERMOSTAT-TYPE = PROPORTIONAL
                     BASEBOARD-CTRL = THERMOSTATIC
                     BASEBOARD-RATING = -466500.
                     SIZING-OPTION = FROM-LOADS   ..

1LDXNOHT   =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                     HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                     ZONE-TYPE = CONDITIONED
                     THERMOSTAT-TYPE = PROPORTIONAL
                     SIZING-OPTION = FROM-LOADS   ..

2LDX       =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                     HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                     ZONE-TYPE = CONDITIONED
                     THERMOSTAT-TYPE = PROPORTIONAL
                     SIZING-OPTION = FROM-LOADS   ..

3LDX       =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                     HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                     ZONE-TYPE = CONDITIONED
                     THERMOSTAT-TYPE = PROPORTIONAL
                     SIZING-OPTION = FROM-LOADS   ..

4LDX       =ZONE     DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                     HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                     ZONE-TYPE = CONDITIONED
                     THERMOSTAT-TYPE = PROPORTIONAL
                     SIZING-OPTION = FROM-LOADS   ..

1LHWONLY   =ZONE     DESIGN-HEAT-T = 70.0  DESIGN-COOL-T = 90.0
                     HEAT-TEMP-SCH = YHTSET2-70  COOL-TEMP-SCH = YSHWNOCOOL
                     ZONE-TYPE = CONDITIONED
                     THERMOSTAT-TYPE = PROPORTIONAL
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                    BASEBOARD-CTRL = THERMOSTATIC
                    BASEBOARD-RATING = -514500.  ASSIGNED-CFM = 1.
                    SIZING-OPTION = FROM-LOADS    ..

02LHWELV    =ZONE   DESIGN-HEAT-T = 70.0  DESIGN-COOL-T = 90.0
                    HEAT-TEMP-SCH = YHTSET2-70  COOL-TEMP-SCH = YSHWNOCOOL
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    BASEBOARD-CTRL = THERMOSTATIC
                    BASEBOARD-RATING = -60000.  ASSIGNED-CFM = 1.
                    SIZING-OPTION = FROM-LOADS    ..

4LHWELV     =ZONE   DESIGN-HEAT-T = 70.0  DESIGN-COOL-T = 90.0
                    HEAT-TEMP-SCH = YHTSET2-70  COOL-TEMP-SCH = YSHWNOCOOL
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    BASEBOARD-CTRL = THERMOSTATIC
                    BASEBOARD-RATING = -60000.  ASSIGNED-CFM = 1.
                    SIZING-OPTION = FROM-LOADS    ..

0LDXHT      =ZONE   DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    BASEBOARD-CTRL = THERMOSTATIC
                    BASEBOARD-RATING = -36000.  $IZING-OPTION = FROM-LOADS    ..

0LDXONLY    =ZONE   DESIGN-HEAT-T = 72.0  DESIGN-COOL-T = 75.0
                    HEAT-TEMP-SCH = YHTSET1  COOL-TEMP-SCH = YCLSET1
                    ZONE-TYPE = CONDITIONED
                    THERMOSTAT-TYPE = PROPORTIONAL
                    SIZING-OPTION = FROM-LOADS    ..


                    $ SYSTEM DESCRIPTION

1SDXHT      =SYSTEM   SYSTEM-TYPE = SZRH
                      MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                      HEATING-SCHEDULE = YSHTSEAS1
                      COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 190.0
                      PREHEAT-T = 0.0  OA-CONTROL = FIXED
                      MAX-OA-FRACTION = 0.0  SUPPLY-DELTA-T = 2.4
                      SUPPLY-KW = 0.00078  NIGHT-CYCLE-CTRL = STAY-OFF
                      NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                      HEATING-CAPACITY = -1.  PREHEAT-SOURCE = HOT-WATER
                      RETURN-AIR-PATH = DUCT
                      ZONE-NAMES = (1LDXHT)  ..

1SDX        =SYSTEM   SYSTEM-TYPE = SZRH
                      MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                      HEATING-SCHEDULE = YS247DOF
                      COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 55.0
                      PREHEAT-T = 0.0  OA-CONTROL = FIXED
                      MAX-OA-FRACTION = 0.0  SUPPLY-DELTA-T = 2.4
                      SUPPLY-KW = 0.00078  NIGHT-CYCLE-CTRL = STAY-OFF
                      NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                      HEATING-CAPACITY = -1.  PREHEAT-SOURCE = HOT-WATER
                      RETURN-AIR-PATH = DUCT
                      ZONE-NAMES = (1LDXNOHT)  ..
```

```
2SDX          =SYSTEM     SYSTEM-TYPE = SZRH
                          MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                          HEATING-SCHEDULE = YS247DOF
                          COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 55.0
                          PREHEAT-T = 0.0  OA-CONTROL = FIXED
                          MAX-OA-FRACTION = 0.0  SUPPLY-DELTA-T = 2.42
                          SUPPLY-KW = 0.000783  NIGHT-CYCLE-CTRL = STAY-OFF
                          NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                          HEATING-CAPACITY = -1.  PREHEAT-SOURCE = HOT-WATER
                          RETURN-AIR-PATH = DUCT
                          ZONE-NAMES = (2LDX)  ..

3SDX          =SYSTEM     SYSTEM-TYPE = SZRH
                          MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                          HEATING-SCHEDULE = YS247DOF
                          COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 55.0
                          PREHEAT-T = 0.0  ECONO-LIMIT-T = 55.0
                          OA-CONTROL = FIXED  MAX-OA-FRACTION = 0.0
                          SUPPLY-DELTA-T = 2.42  SUPPLY-KW = 0.000783
                          NIGHT-CYCLE-CTRL = STAY-OFF  NIGHT-VENT-DT = 0.0
                          MIN-CFM-RATIO = 1.0  HEATING-CAPACITY = -1.
                          PREHEAT-SOURCE = HOT-WATER  RETURN-AIR-PATH = DUCT
                          ZONE-NAMES = (3LDX)  ..

4SDX          =SYSTEM     SYSTEM-TYPE = SZRH
                          MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                          HEATING-SCHEDULE = YS247DOF
                          COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 55.0
                          PREHEAT-T = 0.0  OA-CONTROL = FIXED
                          MAX-OA-FRACTION = 0.0  SUPPLY-DELTA-T = 2.42
                          SUPPLY-KW = 0.000783  NIGHT-CYCLE-CTRL = STAY-OFF
                          NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                          HEATING-CAPACITY = -1.  PREHEAT-SOURCE = HOT-WATER
                          RETURN-AIR-PATH = DUCT
                          ZONE-NAMES = (4LDX)  ..

1SHWONLY      =SYSTEM     SYSTEM-TYPE = SZRH
                          MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                          HEATING-SCHEDULE = YSHTSEAS1
                          COOLING-SCHEDULE = YS247DOF  HEAT-SET-T = 55.0
                          PREHEAT-T = 0.0  OA-CONTROL = FIXED
                          MAX-OA-FRACTION = 0.0  FAN-SCHEDULE = YSHTSEAS1
                          SUPPLY-DELTA-T = 2.4  SUPPLY-KW = 0.00078
                          NIGHT-CYCLE-CTRL = STAY-OFF  NIGHT-VENT-DT = 0.0
                          MIN-CFM-RATIO = 1.0  COOLING-CAPACITY = 1.
                          HEATING-CAPACITY = -1.  PREHEAT-SOURCE = HOT-WATER
                          RETURN-AIR-PATH = DUCT
                          ZONE-NAMES = (1LHWONLY)  ..

04SHWELEV     =SYSTEM     SYSTEM-TYPE = SZRH
                          MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                          HEATING-SCHEDULE = YSHTSEAS1
                          COOLING-SCHEDULE = YS247DOF  HEAT-SET-T = 55.0
                          PREHEAT-T = 0.0  OA-CONTROL = FIXED
                          MAX-OA-FRACTION = 0.0  FAN-SCHEDULE = YSHTSEAS1
                          SUPPLY-DELTA-T = 2.4  SUPPLY-KW = 0.00078
                          NIGHT-CYCLE-CTRL = STAY-OFF  NIGHT-VENT-DT = 0.0
                          MIN-CFM-RATIO = 1.0  COOLING-CAPACITY = 1.
                          HEATING-CAPACITY = -1.  PREHEAT-SOURCE = HOT-WATER
                          RETURN-AIR-PATH = DUCT
```

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                        ZONE-NAMES = (03LHWELV, 4LHWELV)   ..

0SDXHT      =SYSTEM     SYSTEM-TYPE = SZRH
                        MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                        HEATING-SCHEDULE = YSHTSEAS1
                        COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 55.0
                        PREHEAT-T = 0.0  OA-CONTROL = FIXED
                        MAX-OA-FRACTION = 0.0  SUPPLY-DELTA-T = 2.4
                        SUPPLY-KW = 0.00078  NIGHT-CYCLE-CTRL = STAY-OFF
                        NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                        HEATING-CAPACITY = -1.  PREHEAT-SOURCE = HOT-WATER
                        RETURN-AIR-PATH = DUCT
                        ZONE-NAMES = (0LDXHT)   ..

0SDXNOHT    =SYSTEM     SYSTEM-TYPE = SZRH
                        MAX-SUPPLY-T = 190.0  MIN-SUPPLY-T = 55.0
                        HEATING-SCHEDULE = YS247DOF
                        COOLING-SCHEDULE = YSON247D  HEAT-SET-T = 55.0
                        PREHEAT-T = 0.0  OA-CONTROL = FIXED
                        MAX-OA-FRACTION = 0.0  SUPPLY-DELTA-T = 2.4
                        SUPPLY-KW = 0.00078  NIGHT-CYCLE-CTRL = STAY-OFF
                        NIGHT-VENT-DT = 0.0  MIN-CFM-RATIO = 1.0
                        HEATING-CAPACITY = -1.  PREHEAT-SOURCE = HOT-WATER
                        RETURN-AIR-PATH = DUCT
                        ZONE-NAMES = (0LDXONLY)   ..

                    $ HOURLY REPORT DESCRIPTION

S_1         =REPORT-BLOCK VARIABLE-TYPE = 1SDXHT
                        VARIABLE-LIST = (33) ..
S_2         =REPORT-BLOCK VARIABLE-TYPE = 1SDX
                        VARIABLE-LIST = (33) ..
S_3         =REPORT-BLOCK VARIABLE-TYPE = 2SDX
                        VARIABLE-LIST = (33) ..
S_4         =REPORT-BLOCK VARIABLE-TYPE = 3SDX
                        VARIABLE-LIST = (33) ..
S_5         =REPORT-BLOCK VARIABLE-TYPE = 4SDX
                        VARIABLE-LIST = (33) ..
S_6         =REPORT-BLOCK VARIABLE-TYPE = 1SHWONLY
                        VARIABLE-LIST = (33) ..
S_7         =REPORT-BLOCK VARIABLE-TYPE = 04SHWELEV
                        VARIABLE-LIST = (33) ..
S_8         =REPORT-BLOCK VARIABLE-TYPE = 0SDXHT
                        VARIABLE-LIST = (33) ..
S_9         =REPORT-BLOCK VARIABLE-TYPE = 0SDXNOHT
                        VARIABLE-LIST = (33) ..
RS_1        = HOURLY-REPORT  REPORT-SCHEDULE = OFFPK_SYR
                        REPORT-BLOCK = (S_1,S_2,S_3,S_4,S_5,S_6,S_7,S_8,S_9)
  ..
END  ..
COMPUTE SYSTEMS  ..

INPUT PLANT  ..

                $----------------------------------$
                $ E Z - D O E   P L A N T S  I N P U T $
                $----------------------------------$
```

```
                    $ GENERAL PROJECT DATA

TITLE  LINE-1 *          ENTECH  ENGINEERING          *
       LINE-2 *EZDOE - ELITE SOFTWARE DEVELOPMENT INC*
       LINE-3 *     READING,      PA       19603     *

       LINE-4 *4130.05 FT. MONMOUTH - MYER CENTER, NJ  *
       LINE-5 *FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH * ..

ABORT                ERRORS  ..
DIAGNOSTIC           WARNINGS ..
PLANT-REPORT         VERIFICATION=(PV-A)
                     SUMMARY=(PS-D,BEPS)
                     REPORT-FREQUENCY = MONTHLY  ..

                     $ SCHEDULES

D24FULON    =DAY-SCHEDULE  (1,24) (1.) ..

D24FULOF    =DAY-SCHEDULE  (1,24) (0.) ..

OFFPK_PD    =DAY-SCHEDULE  (1,7) (1.)
                           (8,19) (0.)
                           (20,24) (1.) ..

ONPK_PD     =DAY-SCHEDULE  (1,7) (0.)
                           (8,19) (1.)
                           (20,24) (0.) ..

OFFPK_PEND =DAY-SCHEDULE  (1,24) (1.) ..

W24FULON7D =WEEK-SCHEDULE   (ALL) D24FULON  ..

W24FULOF7D =WEEK-SCHEDULE   (ALL) D24FULOF  ..

OFFPK_PW    =WEEK-SCHEDULE  (WD)  OFFPK_PD
                            (WEH) OFFPK_PEND  ..

ONPK_PW     =WEEK-SCHEDULE  (WD)  ONPK_PD
                            (WEH) D24FULOF  ..


$ YRSCH FUL ON 24HR/7D
Y24FULON7D =SCHEDULE THRU DEC 31 W24FULON7D  ..

$ YRSCH HEATING SEAS1
YHTSEAS1    =SCHEDULE THRU MAY 15 W24FULON7D
                      THRU OCT 15 W24FULOF7D
                      THRU DEC 31 W24FULON7D  ..

$ YRSCH COOL SEAS1
YCLSEAS1    =SCHEDULE THRU MAY 15 W24FULOF7D
                      THRU OCT 15 W24FULON7D
                      THRU DEC 31 W24FULOF7D  ..

OFFPK_PYR   =SCHEDULE THRU DEC 31 OFFPK_PW  ..

ONPK_PYR    =SCHEDULE THRU DEC 31 ONPK_PW  ..
```

```
                    $ EQUIPMENT DESCRIPTION

STMBLR1     =PLANT-EQUIPMENT   TYPE = STM-BOILER
                       SIZE = -999.   ..

HRCCH1      =PLANT-EQUIPMENT   TYPE = HERM-REC-CHLR
                       SIZE = -999.   ..

DHW1        =PLANT-EQUIPMENT   TYPE = DHW-HEATER
                       SIZE = -999.   ..

PLANT-PARAMETERS       BOILER-CONTROL = STANDBY  HW-BOILER-HIR = 1.2
                       TWR-WTR-SET-POINT = 85.  TWR-CELL-MAX-GPM = 1.0
                       TWR-FAN-OFF-CFM = 0.1  CHILLER-CONTROL = STANDBY
                       HERM-REC-COND-TYPE = AIR  HERM-REC-COND-PWR = 0.15
                       CHILL-WTR-T = 55.  CCIRC-HEAD = 100.0
                       CCIRC-DESIGN-T-DROP = 5.0  HCIRC-HEAD = 90.0
                       HCIRC-DESIGN-T-DROP = 25.0     ..


PART-LOAD-RATIO  TYPE = HERM-REC-CHLR
                 MIN-RATIO         =  0.2500  MAX-RATIO         =  1.0000
                 OPERATING-RATIO   =  1.0000  ELEC-INPUT-RATIO =  0.1600  ..

ENERGY-RESOURCE        RESOURCE = FUEL-OIL  ..
ENERGY-RESOURCE        RESOURCE = ELECTRICITY  ..
ENERGY-RESOURCE        RESOURCE = NATURAL-GAS  ..


                    $ HOURLY REPORT DESCRIPTION

P_1         =REPORT-BLOCK VARIABLE-TYPE = HERM-REC-CHLR
                          VARIABLE-LIST = (3,18) ..
P_2         =REPORT-BLOCK VARIABLE-TYPE = STM-BOILER
                          VARIABLE-LIST = (3,4) ..
RP_1        = HOURLY-REPORT  REPORT-SCHEDULE = OFFPK_PYR
                          REPORT-BLOCK = (P_1,P_2)

 ..
END  ..
COMPUTE PLANT ..
STOP ..
```

PERIOD OF STUDY

STARTING DATE	ENDING DATE	NUMBER OF DAYS
1 JAN 1994	31 DEC 1994	365

SITE CHARACTERISTIC DATA

STATION NAME	LATITUDE (DEG)	LONGITUDE (DEG)	ALTITUDE (FT)	TIME ZONE	BUILDING AZIMUTH (DEG)
NEWARK, NJ	40.7	74.8	15.	5 EST	0.0

NUMBER OF SPACES 10 EXTERIOR 8 INTERIOR 2

SPACE	SPACE MULT	SPACE TYPE	AZIMUTH	LIGHTING (WATT / SQFT)	PEOPLE	EQUIP (WATT / SQFT)	INFILTRATION METHOD	AIR CHANGES PER HOUR	AREA (SQFT)	VOLUME (CUFT)
1LDXHT	1.0	EXT	0.0	4.00	57.7	10.00	NO-INFILT.	0.00	16950.00	283065.00
1LDXNOHT	1.0	EXT	0.0	4.00	32.7	10.00	NO-INFILT.	0.00	9601.00	160336.70
2LDX	1.0	INT	0.0	4.00	72.1	10.00	NO-INFILT.	0.00	21192.00	204927.00
3LDX	1.0	INT	0.0	4.00	49.2	10.00	NO-INFILT.	0.00	14457.00	139800.00
4LDX	1.0	EXT	0.0	5.00	119.6	10.00	NO-INFILT.	0.00	35153.00	339930.00
1LHWONLY	1.0	EXT	0.0	2.00	85.6	0.70	AIR-CHANGE	1.00	25161.00	421464.00
03LHWELV	4.0	EXT	0.0	2.00	0.9	0.70	AIR-CHANGE	1.00	250.00	4189.00
4LHWELV	1.0	EXT	0.0	2.00	0.9	0.70	AIR-CHANGE	1.00	250.00	2438.00
0LDXHT	1.0	EXT	0.0	4.00	6.4	5.00	AIR-CHANGE	0.00	1872.00	18720.00
0LDXONLY	1.0	EXT	0.0	4.00	9.7	5.00	NO-INFILT.	0.00	2847.00	28470.00
					---				---	---
BUILDING TOTALS					434.5				127733.00	1603339.75

*** BUILDING ***

FLOOR AREA	128483	SQFT	11936	SQMT
VOLUME	1615907	CUFT	45762	CUMT

	COOLING LOAD		HEATING LOAD	
TIME	JUN 13 3PM		FEB 20 3AM	
DRY-BULB TEMP	98F	37C	10F	-12C
WET-BULB TEMP	74F	23C	7F	-14C

	SENSIBLE		LATENT		SENSIBLE	
	(KBTU/H)	(KW)	(KBTU/H)	(KW)	(KBTU/H)	(KW)
WALLS	81.385	23.836	0.000	0.000	-101.427	-29.705
ROOFS	331.822	97.182	0.000	0.000	-492.283	-144.177
GLASS CONDUCTION	29.286	8.577	0.000	0.000	-50.890	-14.905
GLASS SOLAR	96.624	28.299	0.000	0.000	10.021	2.935
DOOR	0.000	0.000	0.000	0.000	0.000	0.000
INTERNAL SURFACES	0.000	0.000	0.000	0.000	0.000	0.000
UNDERGROUND SURFACES	-10.842	-3.175	0.000	0.000	-20.172	-5.908
OCCUPANTS TO SPACE	90.468	26.496	78.663	23.038	4.056	1.188
LIGHT TO SPACE	1367.768	400.585	0.000	0.000	86.459	25.322
EQUIPMENT TO SPACE	1587.170	464.842	0.000	0.000	203.194	59.510
PROCESS TO SPACE	0.000	0.000	0.000	0.000	0.000	0.000
INFILTRATION	232.289	68.032	130.782	38.303	-912.613	-267.282
TOTAL	3805.971	1114.674	209.445	61.341	-1273.655	-373.022
TOTAL LOAD	4015.416 KBTU/H		1176.015 KW		-1273.655 KBTU/H	-373.022 KW
TOTAL LOAD / AREA	31.25BTU/H.SQFT		98.523 W /SQMT		9.913BTU/H.SQFT	31.251 W /SQMT

```
*****************************************************************
*                                                               *
*  NOTE  1)THE ABOVE LOADS EXCLUDE OUTSIDE VENTILATION AIR      *
*  ----    LOADS                                                *
*        2)TIMES GIVEN IN STANDARD TIME FOR THE LOCATION        *
*          IN CONSIDERATION                                     *
*                                                               *
*****************************************************************
```

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	764.87653	28	14	37.F	30.F	2763.208	-263.115	5	20	15.F	12.F	-1183.963	325164.	1003.650
FEB	714.90106	8	14	37.F	30.F	2755.603	-223.215	20	3	10.F	7.F	-1273.655	293965.	1003.650
MAR	897.07300	16	14	67.F	50.F	3146.924	-179.562	5	1	29.F	24.F	-641.753	341826.	1003.650
APR	954.42029	19	13	76.F	55.F	3476.269	-76.586	9	3	32.F	27.F	-584.333	320318.	1003.650
MAY	1076.76624	10	13	87.F	68.F	3674.709	-36.413	2	21	50.F	39.F	-366.646	325163.	1003.650
JUN	1216.21118	13	14	98.F	74.F	3805.970	-3.826	14	23	55.F	54.F	-133.062	328649.	1003.650
JUL	1221.03735	13	13	90.F	73.F	3743.262	-1.478	15	4	63.F	60.F	-72.973	316832.	1003.650
AUG	68.32874	18	13	93.F	72.F	3802.003	-2.790	21	4	60.F	59.F	-110.970	341826.	1003.650
SEP	1096.32874	7	13	82.F	64.F	3559.754	-9.838	23	4	55.F	47.F	-163.770	320318.	1003.650
OCT	956.81537	14	13	75.F	61.F	3399.395	-46.571	25	5	41.F	36.F	-449.884	316832.	1003.650
NOV	834.06848	2	14	77.F	70.F	3269.255	-115.507	25	6	38.F	37.F	-625.698	311987.	1003.650
DEC	791.99347	2	14	64.F	53.F	3031.096	-234.832	26	7	25.F	24.F	-749.837	325163.	1003.650
TOTAL	11792.819						-1193.733						3868043.	
MAX						3805.970						-1273.655		1003.650

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11: 9:52 LDL RUN 1

READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH

REPORT- LS-F BUILDING MONTHLY LOAD COMPONENTS IN MBTU WEATHER FILE- NEWARK, NJ

(UNI BTU)		WALLS	ROOFS	INT SUR	UND SUR	INFIL	GL CON	GL SOL	OCCUP	LIGHTS	EQUIP	SOURCE	TOTAL
	HEATNG	-50.777	-135.520	0.000	-6.446	-221.726	-23.601	7.231	6.149	73.470	88.103	0.000	-263.115
JAN	SEN CL	-47.128	-123.797	0.000	-6.908	-2.359	-33.071	12.208	19.580	343.095	603.255	0.000	764.876
	LAT CL					0.000			15.947		0.000	0.000	15.947
	HEATNG	-42.955	-101.342	0.000	-6.847	-193.664	-20.514	8.985	5.202	59.837	68.081	0.000	-223.215
FEB	SEN CL	-40.029	-114.899	0.000	-6.703	-3.055	-28.634	14.300	18.122	317.869	557.930	0.000	714.901
	LAT CL					0.000			14.684		0.000	0.000	14.684
	HEATNG	-37.025	-56.959	0.000	-6.298	-181.005	-17.754	11.620	4.985	53.073	49.803	0.000	-179.562
MAR	SEN CL	-36.864	-129.589	0.000	-8.841	-7.427	-27.683	20.586	22.716	392.341	671.833	0.000	897.073
	LAT CL					0.215			18.422		0.000	0.000	18.636
	HEATNG	-20.406	-11.900	0.000	-4.267	-85.849	-9.635	8.723	2.761	26.962	17.024	0.000	-76.586
APR	SEN CL	-22.432	-85.502	0.000	-9.628	-11.741	-19.341	28.122	22.903	387.768	664.271	0.000	954.420
	LAT CL					2.501			18.447		0.000	0.000	20.948
	HEATNG	-11.177	-0.673	0.000	-1.390	-47.522	-5.224	6.550	1.637	15.218	6.170	0.000	-36.413
MAY	SEN CL	-10.322	-35.454	0.000	-9.824	-3.783	-12.756	37.890	24.101	401.528	685.384	0.000	1076.765
	LAT CL					12.891			19.453		0.000	0.000	32.344
	HEATNG	-2.526	-0.052	0.000	0.000	-6.224	-0.988	1.270	0.304	3.129	1.260	0.000	-3.826
JUN	N CL	4.149	30.820	0.000	-7.816	9.116	-4.553	40.557	26.256	424.337	693.345	0.000	1216.210
	LAT CL					40.284			21.073		0.000	0.000	61.356
	HEATNG	-0.916	-0.026	0.000	0.000	-2.614	-0.282	0.364	0.123	1.315	0.557	0.000	-1.478
JUL	SEN CL	10.311	51.721	0.000	-5.356	16.391	-1.342	42.541	24.762	403.475	678.534	0.000	1221.037
	LAT CL					53.322			19.795		0.000	0.000	73.117
	HEATNG	-2.013	-0.051	0.000	0.000	-4.074	-0.696	0.654	0.209	2.205	0.975	0.000	-2.790
AUG	SEN CL	5.603	31.722	0.000	-3.630	10.701	-3.647	38.272	27.440	442.248	719.621	0.000	1268.329
	LAT CL					49.949			22.022		0.000	0.000	71.971
	HEATNG	-5.122	-0.107	0.000	0.000	-14.638	-2.014	2.111	0.716	6.753	2.462	0.000	-9.838
SEP	SEN CL	-6.770	-16.536	0.000	-3.366	-7.793	-9.711	31.133	24.889	406.859	677.623	0.000	1096.328
	LAT CL					31.379			20.004		0.000	0.000	51.383
	HEATNG	-15.842	-3.754	0.000	0.000	-54.698	-6.920	5.787	1.944	18.392	8.519	0.000	-46.571
OCT	SEN CL	-20.801	-86.592	0.000	-4.874	-13.309	-17.888	22.742	22.881	385.288	669.369	0.000	956.816
	LAT CL					4.719			18.501		0.000	0.000	23.220
	HEATNG	-29.553	-39.732	0.000	-0.799	-115.842	-13.120	5.834	3.737	39.050	34.918	0.000	-115.507
NOV	SEN CL	-32.104	-122.639	0.000	-6.478	-6.046	-23.729	12.958	20.909	360.634	630.564	0.000	834.069
	LAT CL					5.363			16.901		0.000	0.000	22.265
	HEATNG	-45.484	-100.413	0.000	-3.742	-212.262	-20.903	6.229	5.794	65.101	70.848	0.000	-234.832
DEC	SEN CL	-42.775	-133.418	0.000	-6.818	-2.372	-30.559	11.272	20.054	353.689	622.921	0.000	791.993
	T CL					0.000			16.188		0.000	0.000	16.188
	HEATNG	-263.794	-450.528	0.000	-29.789	-1140.108	-121.650	65.358	33.561	364.507	348.729	0.000	-1193.713
TOT	SEN CL	-239.162	-734.162	0.000	-80.243	-21.678	-212.912	312.581	274.624	4619.205	7874.564	0.000	11792.817

MESSAGE LIST FROM SYSTEMS PROGRAM

WARNING********
SYSTEM 1SDXHT HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION

WARNING********
SYSTEM 1SDX HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION

WARNING********
SYSTEM 1SDX MAY HAVE INADEQUATE HEATING CAPABILIT Y
(CHECK HEATING-CAPACITY,HEAT-SET-T,PRE-HEAT-T AND MAX-SUPPLY-T FOR CONSISTENCY)

WARNING********
SYSTEM 2SDX HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION

WARNING********
SYSTEM 2SDX MAY HAVE INADEQUATE HEATING CAPABILIT Y
(CHECK HEATING-CAPACITY,HEAT-SET-T,PRE-HEAT-T AND MAX-SUPPLY-T FOR CONSISTENCY)

WARNING********
SYSTEM 3SDX HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION

WARNING********
SYSTEM 3SDX MAY HAVE INADEQUATE HEATING CAPABILIT Y
(CHECK HEATING-CAPACITY,HEAT-SET-T,PRE-HEAT-T AND MAX-SUPPLY-T FOR CONSISTENCY)

W NG********
SYSTEM 4SDX HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION

WARNING********
SYSTEM 4SDX MAY HAVE INADEQUATE HEATING CAPABILIT Y
(CHECK HEATING-CAPACITY,HEAT-SET-T,PRE-HEAT-T AND MAX-SUPPLY-T FOR CONSISTENCY)

WARNING********
SYSTEM 1SHWONLY HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION

WARNING********
SYSTEM 1SHWONLY MAY HAVE INADEQUATE COOLING CAPABILITY
(CHECK COOLING-CAPACITY AND MIN-SUPPLY-T FOR CONSISTENCY)

WARNING********
SYSTEM 04SHWELEV HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION

WARNING********
SYSTEM 04SHWELEV MAY HAVE INADEQUATE COOLING CAPABILITY
(CHECK COOLING-CAPACITY AND MIN-SUPPLY-T FOR CONSISTENCY)

WARNING********
SYSTEM 0SDXHT HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION

WARNING********
SYSTEM 0SDXHT MAY HAVE INADEQUATE HEATING CAPABILIT Y
(CHECK HEATING-CAPACITY,HEAT-SET-T,PRE-HEAT-T AND MAX-SUPPLY-T FOR CONSISTENCY)

WARNING********
SYSTEM 0SDXNOHT HAS ZERO OUTSIDE AIR FOR DESIGN CALCULATION

WARNING********

SYSTEM 0SDXNOHT MAY HAVE INADEQUATE HEATING CAPABILIT Y

(CHECK HEATING-CAPACITY,HEAT-SET-T,PRE-HEAT-T AND MAX-SUPPLY-T FOR CONSISTENCY)

REPORT- SS-D PLANT MONTHLY LOADS SUMMARY FOR DEFAULT-PLANT WEATHER FILE- NEWARK, NJ

	- - - - - - - - C O O L I N G - - - - - - - -						- - - - - - - - - H E A T I N G - - - - - - - -						- - - E L E C - - -	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	1030.86877	28	14	37.F	30.F	2990.694	-195.082	5	20	15.F	12.F	-584.666	417931.	1128.341
FEB	958.76001	11	14	52.F	50.F	3034.267	-167.990	20	3	10.F	7.F	-581.473	377755.	1128.341
MAR	1184.26794	16	14	67.F	50.F	3266.959	-140.064	5	1	29.F	24.F	-531.706	434594.	1128.341
APR	1225.55615	15	15	73.F	55.F	3496.059	-48.435	9	4	32.F	27.F	-457.452	410094.	1128.341
MAY	1334.88306	10	13	85.F	68.F	3597.508	-6.228	4	2	40.F	35.F	-227.738	417930.	1128.341
JUN	1431.97034	13	14	96.F	73.F	3710.452	0.000					0.000	418423.	1128.337
JUL	1435.57861	12	13	87.F	71.F	3730.172	0.000					0.000	409597.	1128.337
AUG	1389.34998	12	14	87.F	69.F	3730.011	0.000					0.000	434592.	1128.337
SEP	1342.88159	16	14	76.F	63.F	3545.524	0.000					0.000	410092.	1128.337
OCT	1240.27942	14	14	75.F	61.F	3435.643	-12.581	25	6	41.F	36.F	-322.264	409598.	1128.341
NOV	1113.56702	2	14	77.F	70.F	3359.911	-85.671	25	6	38.F	37.F	-476.418	401762.	1128.341
DEC	1071.41553	2	14	64.F	53.F	3183.396	-183.532	24	13	33.F	29.F	-542.650	417931.	1128.341
TOTAL	14859.358						-839.583						4960114.	
MAX						3730.172						-584.666		1128.341

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 1SDXHT WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	175.76674	28	14	37.F	30.F	508.361	0.000					0.000	65595.	172.688
FEB	164.49419	23	14	39.F	32.F	512.493	0.000					0.000	59288.	172.688
MAR	202.85103	16	14	67.F	50.F	561.898	0.000					0.000	68130.	172.688
APR	210.12144	21	14	80.F	62.F	581.345	0.000					0.000	64338.	172.688
MAY	228.43086	10	14	87.F	68.F	609.368	0.000					0.000	65595.	172.688
JUN	242.29442	30	14	91.F	74.F	610.740	0.000					0.000	65605.	172.688
JUL	243.20132	13	14	90.F	73.F	609.506	0.000					0.000	64328.	172.688
AUG	251.53531	18	14	93.F	72.F	612.498	0.000					0.000	68130.	172.688
SEP	227.46468	7	13	82.F	65.F	594.641	0.000					0.000	64338.	172.688
OCT	211.08777	14	14	75.F	61.F	576.856	0.000					0.000	64328.	172.688
NOV	188.37050	2	14	77.F	70.F	553.353	0.000					0.000	63070.	172.688
DEC	181.37585	2	14	64.F	53.F	542.733	0.000					0.000	65595.	172.688
TOTAL	2526.995						0.000						778322.	
MAX						612.498						0.000		172.688

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 1SDXHT WEATHER FILE- NEWARK, NJ

	--ZONE COOLING--		--ZONE HEATING-		--BASEBOARDS--		----PRE-HEAT---	
MONTH	ZONE COIL COOLING ENERGY (MBTU)	MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR)	ZONE COIL HEATING ENERGY (MBTU)	MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR)	BASEBOARD HEATING ENERGY (MBTU)	MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR)	PRE-HEAT COIL ENERGY (MBTU)	MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR)
JAN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
FEB	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
APR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAY	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUL	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
AUG	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
SEP	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
OCT	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
NOV	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
DEC	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
TOTAL	0.000		0.000		0.000		0.000	
MAX		0.000		0.000		0.000		0.000

	AVERAGE SPACE TEMP					AVERAGE TEMPERATURE DIFFERENCE BETWEEN OUTDOOR& ROOM AIR			SUMMED TEMP DIFFERENCE BETWEEN OUTDOOR& ROOM AIR		HUMIDITY RATIO DIFFERENCE BETWEEN OUTDOOR AND ROOM AIR
MONTH	ALL HOURS (F)	COOLING HOURS (F)	HEATING HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	ALL HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	HEATING HOURS (F)	ALL HOURS (F)	(FRAC.OR MULT.)
JAN	74.81	74.81		74.81	0.00	-43.45	-43.45	0.00		1346.87	0.00000
FEB	74.84	74.84		74.84	0.00	-41.62	-41.62	0.00		1165.24	-0.00003
MAR	74.94	74.94		74.94	0.00	-34.43	-34.43	0.00		1067.33	-0.00002
APR	75.00	75.00		75.00	0.00	-22.10	-22.10	0.00		664.92	0.00012
MAY	75.04	75.04		75.04	0.00	-12.76	-12.76	0.00		444.66	0.00067
JUN	75.13	75.13		75.13	0.00	-2.92	-2.92	0.00		215.17	0.00253
JUL	75.10	75.10		75.10	0.00	0.37	0.37	0.00		169.44	0.00318
AUG	75.14	75.14		75.14	0.00	-1.65	-1.65	0.00		194.02	0.00370
SEP	75.07	75.07		75.07	0.00	-8.08	-8.08	0.00		262.41	0.00236
OCT	74.96	74.96		74.96	0.00	-17.87	-17.87	0.00		558.35	0.00061
NOV	74.89	74.89		74.89	0.00	-28.67	-28.67	0.00		860.40	0.00030
DEC	74.83	74.83		74.83	0.00	-39.29	-39.29	0.00		1217.88	-0.00003
ANNUAL	74.98	74.98	0.00	74.98	0.00	-20.93	-20.93	0.00	0.00	8166.68	0.00112

	----DEMANDS----		--BASEBOARDS--		--TEMPERATURES--		--LOADS NOT MET--	
MONTH	HEAT EXTRACTION ENERGY (MBTU)	HEAT ADDITION ENERGY (MBTU)	BASEBOARD ENERGY (MBTU)	MAXIMUM BASEBOARD LOAD (KBTU/HR)	MAXIMUM ZONE TEMP (F)	MINIMUM ZONE TEMP (F)	HOURS UNDER HEATED	HOURS UNDER COOLED
JAN	124.84687	0.000	0.00000	0.000	75.7	74.3	0	0
FEB	118.50689	0.000	0.00000	0.000	75.7	74.2	0	0
MAR	151.90965	0.000	0.00000	0.000	75.9	74.4	0	0
APR	160.57507	0.000	0.00000	0.000	76.0	74.4	0	0
MAY	176.47926	0.000	0.00000	0.000	76.0	74.5	0	0
JUN	190.88374	0.000	0.00000	0.000	76.0	74.6	0	0
J	190.27350	0.000	0.00000	0.000	76.0	74.6	0	0
AUG	198.23311	0.000	0.00000	0.000	76.2	74.5	0	0
SEP	176.78696	0.000	0.00000	0.000	76.0	74.5	0	0
OCT	159.41942	0.000	0.00000	0.000	75.9	74.4	0	0
NOV	138.75520	0.000	0.00000	0.000	75.9	74.4	0	0
DEC	130.46097	0.000	0.00000	0.000	75.8	74.3	0	0

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 1SDX WEATHER FILE- NEWARK, NJ

	COOLING						HEATING					ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	109.87893	25	14	52.F	41.F	284.854	0.000					0.000	36296.	96.661
FEB	100.79175	11	14	52.F	50.F	287.939	0.000					0.000	32807.	96.661
MAR	120.17087	15	15	65.F	58.F	298.072	0.000					0.000	37732.	96.661
APR	118.69505	22	14	68.F	60.F	304.955	0.000					0.000	35611.	96.661
MAY	125.52036	10	14	87.F	68.F	312.632	0.000					0.000	36296.	96.661
JUN	129.99603	29	14	87.F	69.F	313.938	0.000					0.000	36329.	96.661
JUL	128.70070	12	14	88.F	72.F	312.708	0.000					0.000	35578.	96.661
[illegible]	34.39304	9	14	88.F	71.F	313.318	0.000					0.000	37732.	96.661
SEP	123.55710	15	14	80.F	69.F	310.071	0.000					0.000	35611.	96.661
OCT	118.33138	21	14	68.F	60.F	303.654	0.000					0.000	35578.	96.661
NOV	111.27756	2	14	77.F	70.F	306.192	0.000					0.000	34893.	96.661
DEC	111.83203	2	14	64.F	53.F	293.754	0.000					0.000	36296.	96.661
TOTAL	1433.146						0.000						430762.	
MAX						313.938						0.000		96.661

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 1SDX WEATHER FILE- NEWARK, NJ

	--ZONE COOLING--		--ZONE HEATING-		--BASEBOARDS--		----PRE-HEAT---	
MONTH	ZONE COIL COOLING ENERGY (MBTU)	MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR)	ZONE COIL HEATING ENERGY (MBTU)	MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR)	BASEBOARD HEATING ENERGY (MBTU)	MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR)	PRE-HEAT COIL ENERGY (MBTU)	MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR)
JAN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
FEB	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
APR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAY	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
AUG	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
SEP	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
OCT	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
NOV	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
DEC	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
TOTAL	0.000		0.000		0.000		0.000	
MAX		0.000		0.000		0.000		0.000

	AVERAGE SPACE TEMP					AVERAGE TEMPERATURE DIFFERENCE BETWEEN OUTDOOR& ROOM AIR			SUMMED TEMP DIFFERENCE BETWEEN OUTDOOR& ROOM AIR		
MONTH	ALL HOURS (F)	COOLING HOURS (F)	HEATING HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	ALL HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	HEATING HOURS (F)	ALL HOURS (F)	HUMIDITY RATIO DIFFERENCE BETWEEN OUTDOOR AND ROOM AIR (FRAC.OR MULT.)
JAN	74.99	74.99		74.99	0.00	-43.63	-43.63	0.00		1352.55	-0.00001
FEB	75.00	75.00		75.00	0.00	-41.78	-41.78	0.00		1169.97	-0.00003
MAR	75.08	75.08		75.08	0.00	-34.58	-34.58	0.00		1071.96	-0.00003
APR	75.10	75.10		75.10	0.00	-22.20	-22.20	0.00		668.04	0.00011
MAY	75.12	75.12		75.12	0.00	-12.84	-12.84	0.00		446.93	0.00066
JUN	75.19	75.19		75.19	0.00	-2.98	-2.98	0.00		216.33	0.00251
JUL	75.14	75.14		75.14	0.00	0.33	0.33	0.00		170.21	0.00317
AUG	75.19	75.19		75.19	0.00	-1.70	-1.70	0.00		194.95	0.00368
SEP	75.13	75.13		75.13	0.00	-8.14	-8.14	0.00		264.22	0.00235
OCT	75.06	75.06		75.06	0.00	-17.97	-17.97	0.00		561.32	0.00060
NOV	75.03	75.03		75.03	0.00	-28.81	-28.81	0.00		864.56	0.00029
DEC	75.01	75.01		75.01	0.00	-39.46	-39.46	0.00		1223.30	-0.00003
ANNUAL	75.09	75.09	0.00	75.09	0.00	-21.04	-21.04	0.00	0.00	8204.31	0.00111

	----DEMANDS----		--BASEBOARDS--		--TEMPERATURES--		--LOADS NOT MET--	
MONTH	HEAT EXTRACTION ENERGY (MBTU)	HEAT ADDITION ENERGY (MBTU)	BASEBOARD ENERGY (MBTU)	MAXIMUM BASEBOARD LOAD (KBTU/HR)	MAXIMUM ZONE TEMP (F)	MINIMUM ZONE TEMP (F)	HOURS UNDER HEATED	HOURS UNDER COOLED
JAN	83.94625	0.000	0.00000	0.000	75.9	74.5	0	0
FEB	77.37153	0.000	0.00000	0.000	75.9	74.5	0	0
MAR	94.22594	0.000	0.00000	0.000	76.0	74.5	0	0
APR	93.45490	0.000	0.00000	0.000	76.0	74.5	0	0
MAY	99.00498	0.000	0.00000	0.000	76.1	74.6	0	0
JUN	103.68858	0.000	0.00000	0.000	76.2	74.6	0	0
JUL	101.63277	0.000	0.00000	0.000	76.2	74.6	0	0
AUG	107.10589	0.000	0.00000	0.000	76.2	74.6	0	0
SEP	97.66648	0.000	0.00000	0.000	76.1	74.6	0	0
OCT	91.98180	0.000	0.00000	0.000	76.0	74.5	0	0
NOV	85.99596	0.000	0.00000	0.000	76.0	74.5	0	0
DEC	85.90159	0.000	0.00000	0.000	75.9	74.5	0	0

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 2SDX WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	274.32330	20	14	35.F	35.F	648.640	0.000					0.000	79332.	212.306
FEB	248.51154	9	14	38.F	33.F	653.556	0.000					0.000	71706.	212.306
MAR	286.07492	15	15	65.F	58.F	656.496	0.000					0.000	82501.	212.306
APR	270.78506	29	14	64.F	60.F	658.082	0.000					0.000	77847.	212.306
MAY	275.68390	18	14	67.F	59.F	661.414	0.000					0.000	79332.	212.306
JUN	278.04584	29	14	87.F	69.F	660.947	0.000					0.000	79431.	212.306
JUL	272.46158	26	14	80.F	64.F	662.274	0.000					0.000	77748.	212.306
	288.48929	2	14	78.F	63.F	660.852	0.000					0.000	82501.	212.306
SEP	271.60422	14	14	73.F	62.F	663.940	0.000					0.000	77847.	212.306
OCT	270.24704	21	14	68.F	60.F	662.417	0.000					0.000	77748.	212.306
NOV	264.62100	1	14	71.F	68.F	660.767	0.000					0.000	76262.	212.306
DEC	275.57596	1	14	49.F	43.F	650.005	0.000					0.000	79332.	212.306
TOTAL	3276.426						0.000						941521.	
MAX						663.940						0.000		212.306

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 2SDX WEATHER FILE- NEWARK, NJ

	--ZONE COOLING--		--ZONE HEATING-		--BASEBOARDS--		----PRE-HEAT---	
MONTH	ZONE COIL COOLING ENERGY (MBTU)	MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR)	ZONE COIL HEATING ENERGY (MBTU)	MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR)	BASEBOARD HEATING ENERGY (MBTU)	MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR)	PRE-HEAT COIL ENERGY (MBTU)	MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR)
JAN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
FEB	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
APR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAY	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
AUG	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
SEP	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
OCT	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
NOV	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
DEC	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
TOTAL	0.000		0.000		0.000		0.000	
MAX		0.000		0.000		0.000		0.000

	AVERAGE SPACE TEMP					AVERAGE TEMPERATURE DIFFERENCE BETWEEN OUTDOOR& ROOM AIR			SUMMED TEMP DIFFERENCE BETWEEN OUTDOOR& ROOM AIR		
MONTH	ALL HOURS (F)	COOLING HOURS (F)	HEATING HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	ALL HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	HEATING HOURS (F)	ALL HOURS (F)	HUMIDITY RATIO DIFFERENCE BETWEEN OUTDOOR AND ROOM AIR (FRAC.OR MULT.)
JAN	75.17	75.17		75.17	0.00	-43.81	-43.81	0.00		1358.22	-0.00001
FEB	75.18	75.18		75.18	0.00	-41.96	-41.96	0.00		1174.75	-0.00003
MAR	75.23	75.23		75.23	0.00	-34.73	-34.73	0.00		1076.49	-0.00003
APR	75.20	75.20		75.20	0.00	-22.30	-22.30	0.00		670.89	0.00011
MAY	75.17	75.17		75.17	0.00	-12.89	-12.89	0.00		448.60	0.00066
JUN	75.22	75.22		75.22	0.00	-3.01	-3.01	0.00		217.23	0.00251
JUL	75.15	75.15		75.15	0.00	0.32	0.32	0.00		170.89	0.00318
AUG	75.22	75.22		75.22	0.00	-1.73	-1.73	0.00		195.61	0.00369
SEP	75.19	75.19		75.19	0.00	-8.20	-8.20	0.00		265.65	0.00235
OCT	75.14	75.14		75.14	0.00	-18.06	-18.06	0.00		564.10	0.00060
NOV	75.17	75.17		75.17	0.00	-28.94	-28.94	0.00		868.58	0.00029
DEC	75.18	75.18		75.18	0.00	-39.63	-39.63	0.00		1228.59	-0.00004
ANNUAL	75.19	75.19	0.00	75.19	0.00	-21.14	-21.14	0.00	0.00	8239.62	0.00111

	-DEMANDS-		-BASEBOARDS-		-TEMPERATURES-		-LOADS NOT MET-	
MONTH	HEAT EXTRACTION ENERGY (MBTU)	HEAT ADDITION ENERGY (MBTU)	BASEBOARD ENERGY (MBTU)	MAXIMUM BASEBOARD LOAD (KBTU/HR)	MAXIMUM ZONE TEMP (F)	MINIMUM ZONE TEMP (F)	HOURS UNDER HEATED	HOURS UNDER COOLED
JAN	219.48587	0.000	0.00000	0.000	76.3	74.7	0	0
FEB	198.98672	0.000	0.00000	0.000	76.4	74.7	0	0
MAR	231.21049	0.000	0.00000	0.000	76.5	74.7	0	0
APR	217.41350	0.000	0.00000	0.000	76.4	74.7	0	0
MAY	219.58954	0.000	0.00000	0.000	76.3	74.7	0	0
JUN	222.31543	0.000	0.00000	0.000	76.3	74.7	0	0
JUL	215.12756	0.000	0.00000	0.000	76.3	74.7	0	0
AUG	230.66203	0.000	0.00000	0.000	76.3	74.7	0	0
SEP	216.78177	0.000	0.00000	0.000	76.4	74.7	0	0
OCT	214.50052	0.000	0.00000	0.000	76.3	74.7	0	0
NOV	211.17157	0.000	0.00000	0.000	76.3	74.7	0	0
DEC	220.74312	0.000	0.00000	0.000	76.3	74.7	0	0

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 3SDX WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	187.14217	20	14	35.F	35.F	442.508	0.000					0.000	54120.	144.834
FEB	169.53336	9	14	38.F	33.F	445.851	0.000					0.000	48917.	144.834
MAR	195.15898	15	15	65.F	58.F	447.863	0.000					0.000	56282.	144.834
APR	184.72827	29	14	64.F	60.F	448.949	0.000					0.000	53106.	144.834
MAY	188.07011	18	14	67.F	59.F	451.222	0.000					0.000	54120.	144.834
JUN	189.68146	29	14	87.F	69.F	450.903	0.000					0.000	54187.	144.834
JUL	185.87202	26	14	80.F	64.F	451.809	0.000					0.000	53039.	144.834
AUG	196.80603	2	14	78.F	63.F	450.839	0.000					0.000	56282.	144.834
SEP	185.28709	14	14	73.F	62.F	452.945	0.000					0.000	53106.	144.834
OCT	184.36110	21	14	68.F	60.F	451.906	0.000					0.000	53039.	144.834
NOV	180.52327	1	14	71.F	68.F	450.781	0.000					0.000	52025.	144.834
DEC	187.99649	1	14	49.F	43.F	443.439	0.000					0.000	54120.	144.834
TOTAL	2235.162						0.000						642340.	
MAX						452.945						0.000		144.834

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 3SDX WEATHER FILE- NEWARK, NJ

	--ZONE COOLING--		--ZONE HEATING-		--BASEBOARDS--		----PRE-HEAT---	
MONTH	ZONE COIL COOLING ENERGY (MBTU)	MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR)	ZONE COIL HEATING ENERGY (MBTU)	MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR)	BASEBOARD HEATING ENERGY (MBTU)	MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR)	PRE-HEAT COIL ENERGY (MBTU)	MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR)
JAN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
FEB	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
APR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAY	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUL	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
AUG	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
SEP	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
OCT	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
NOV	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
DEC	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
TOTAL	0.000		0.000		0.000		0.000	
MAX		0.000		0.000		0.000		0.000

	AVERAGE SPACE TEMP					AVERAGE TEMPERATURE DIFFERENCE BETWEEN OUTDOOR& ROOM AIR			SUMMED TEMP DIFFERENCE BETWEEN OUTDOOR& ROOM AIR		
MONTH	ALL HOURS (F)	COOLING HOURS (F)	HEATING HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	ALL HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	HEATING HOURS (F)	ALL HOURS (F)	HUMIDITY RATIO DIFFERENCE BETWEEN OUTDOOR AND ROOM AIR (FRAC.OR MULT.)
JAN	75.17	75.17		75.17	0.00	-43.81	-43.81	0.00		1358.22	-0.00001
FEB	75.18	75.18		75.18	0.00	-41.96	-41.96	0.00		1174.75	-0.00003
MAR	75.23	75.23		75.23	0.00	-34.73	-34.73	0.00		1076.49	-0.00003
APR	75.20	75.20		75.20	0.00	-22.30	-22.30	0.00		670.88	0.00011
MAY	75.17	75.17		75.17	0.00	-12.89	-12.89	0.00		448.60	0.00066
JUN	75.22	75.22		75.22	0.00	-3.01	-3.01	0.00		217.23	0.00251
JUL	75.15	75.15		75.15	0.00	0.32	0.32	0.00		170.89	0.00317
AUG	75.22	75.22		75.22	0.00	-1.73	-1.73	0.00		195.61	0.00369
SEP	75.19	75.19		75.19	0.00	-8.20	-8.20	0.00		265.64	0.00235
OCT	75.14	75.14		75.14	0.00	-18.06	-18.06	0.00		564.09	0.00060
NOV	75.17	75.17		75.17	0.00	-28.94	-28.94	0.00		868.57	0.00029
DEC	75.18	75.18		75.18	0.00	-39.63	-39.63	0.00		1228.58	-0.00004
ANNUAL	75.19	75.19	0.00	75.19	0.00	-21.14	-21.14	0.00	0.00	8239.58	0.00111

	-DEMANDS-		-BASEBOARDS-		-TEMPERATURES-		-LOADS NOT MET-	
MONTH	HEAT EXTRACTION ENERGY (MBTU)	HEAT ADDITION ENERGY (MBTU)	BASEBOARD ENERGY (MBTU)	MAXIMUM BASEBOARD LOAD (KBTU/HR)	MAXIMUM ZONE TEMP (F)	MINIMUM ZONE TEMP (F)	HOURS UNDER HEATED	HOURS UNDER COOLED
JAN	149.73132	0.000	0.00000	0.000	76.3	74.7	0	0
FEB	135.74727	0.000	0.00000	0.000	76.4	74.7	0	0
MAR	157.72980	0.000	0.00000	0.000	76.5	74.7	0	0
APR	148.31773	0.000	0.00000	0.000	76.4	74.7	0	0
MAY	149.80225	0.000	0.00000	0.000	76.3	74.7	0	0
JUN	151.66167	0.000	0.00000	0.000	76.3	74.7	0	0
JUL	146.75827	0.000	0.00000	0.000	76.3	74.7	0	0
AUG	157.35567	0.000	0.00000	0.000	76.3	74.7	0	0
SEP	147.88680	0.000	0.00000	0.000	76.4	74.7	0	0
OCT	146.33066	0.000	0.00000	0.000	76.3	74.7	0	0
NOV	144.05949	0.000	0.00000	0.000	76.3	74.7	0	0
DEC	150.58902	0.000	0.00000	0.000	76.3	74.7	0	0

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 4SDX WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	263.09409	25	14	52.F	41.F	1034.193	0.000					0.000	153775.	405.473
FEB	257.19397	14	14	51.F	41.F	1088.319	0.000					0.000	138988.	405.473
MAR	356.41827	16	14	67.F	50.F	1242.498	0.000					0.000	159607.	405.473
APR	415.84497	15	15	73.F	55.F	1457.977	0.000					0.000	150790.	405.473
MAY	485.99478	25	12	72.F	54.F	1491.360	0.000					0.000	153774.	405.473
JUN	555.14801	13	14	96.F	73.F	1591.747	0.000					0.000	153706.	405.473
JUL	566.44348	25	14	84.F	65.F	1628.274	0.000					0.000	150858.	405.473
AUG	575.93042	12	13	84.F	70.F	1604.572	0.000					0.000	159607.	405.473
SEP	497.02283	7	14	82.F	64.F	1460.793	0.000					0.000	150790.	405.473
OCT	422.63153	14	14	75.F	61.F	1368.694	0.000					0.000	150858.	405.473
NOV	340.81183	2	14	77.F	70.F	1298.614	0.000					0.000	147874.	405.473
DEC	290.52545	2	14	64.F	53.F	1171.184	0.000					0.000	153775.	405.473
TOTAL	5027.062						0.000						1824458.	
MAX						1628.274						0.000		405.473

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 4SDX WEATHER FILE- NEWARK, NJ

	- -Z O N E C O O L I N G- -		- -Z O N E H E A T I N G -		- - B A S E B O A R D S - -		- - - -P R E - H E A T - - -	
MONTH	ZONE COIL COOLING ENERGY (MBTU)	MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR)	ZONE COIL HEATING ENERGY (MBTU)	MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR)	BASEBOARD HEATING ENERGY (MBTU)	MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR)	PRE-HEAT COIL ENERGY (MBTU)	MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR)
JAN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
FEB	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
APR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAY	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUL	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
AUG	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
SEP	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
OCT	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
NOV	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
DEC	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
TOTAL	0.000		0.000		0.000		0.000	
MAX		0.000		0.000		0.000		0.000

REPORT- SS-K SPACE TEMPERATURE SUMMARY 4SDX WEATHER FILE- NEWARK, NJ

	AVERAGE SPACE TEMP					AVERAGE TEMPERATURE DIFFERENCE BETWEEN OUTDOOR& ROOM AIR			SUMMED TEMP DIFFERENCE BETWEEN OUTDOOR& ROOM AIR		HUMIDITY RATIO DIFFERENCE BETWEEN OUTDOOR AND ROOM AIR
MONTH	ALL HOURS (F)	COOLING HOURS (F)	HEATING HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	ALL HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	HEATING HOURS (F)	ALL HOURS (F)	(FRAC.OR MULT.)
JAN	74.44	74.48		74.44	0.00	-43.08	-43.08	0.00		1335.48	0.00000
FEB	74.41	74.54		74.41	0.00	-41.19	-41.19	0.00		1153.42	-0.00002
MAR	74.61	74.61		74.61	0.00	-34.11	-34.11	0.00		1057.39	-0.00001
APR	74.74	74.74		74.74	0.00	-21.84	-21.84	0.00		657.38	0.00013
MAY	74.83	74.83		74.83	0.00	-12.55	-12.55	0.00		439.51	0.00069
JUN	74.98	74.98		74.98	0.00	-2.77	-2.77	0.00		213.07	0.00257
JUL	74.96	74.96		74.96	0.00	0.51	0.51	0.00		168.80	0.00321
AUG	74.98	74.98		74.98	0.00	-1.49	-1.49	0.00		192.79	0.00374
SEP	74.88	74.88		74.88	0.00	-7.89	-7.89	0.00		257.71	0.00239
OCT	74.72	74.72		74.72	0.00	-17.64	-17.64	0.00		551.03	0.00063
NOV	74.61	74.61		74.61	0.00	-28.38	-28.38	0.00		851.84	0.00031
DEC	74.50	74.50		74.50	0.00	-38.95	-38.95	0.00		1207.55	-0.00002
ANNUAL	74.72	74.74	0.00	74.72	0.00	-20.67	-20.67	0.00	0.00	8085.99	0.00114

	-DEMANDS-		-BASEBOARDS-		-TEMPERATURES-		-LOADS NOT MET-	
MONTH	HEAT EXTRACTION ENERGY (MBTU)	HEAT ADDITION ENERGY (MBTU)	BASEBOARD ENERGY (MBTU)	MAXIMUM BASEBOARD LOAD (KBTU/HR)	MAXIMUM ZONE TEMP (F)	MINIMUM ZONE TEMP (F)	HOURS UNDER HEATED	HOURS UNDER COOLED
JAN	158.36589	-31.797	0.00000	0.000	75.3	73.3	0	0
FEB	158.89586	-25.314	0.00000	0.000	75.4	72.1	0	0
MAR	227.06105	-7.621	0.00000	0.000	75.6	74.1	0	0
APR	284.07574	-1.363	0.00000	0.000	75.9	74.1	0	0
MAY	346.84781	-0.013	0.00000	0.000	75.9	74.2	0	0
JUN	418.25571	0.000	0.00000	0.000	76.0	74.4	0	0
JUL	425.31116	0.000	0.00000	0.000	76.0	74.4	0	0
AUG	434.02057	0.000	0.00000	0.000	76.0	74.3	0	0
SEP	361.56223	0.000	0.00000	0.000	75.9	74.3	0	0
OCT	284.46936	-0.378	0.00000	0.000	75.7	74.2	0	0
NOV	212.56813	-4.977	0.00000	0.000	75.6	74.1	0	0
DEC	174.80289	-21.092	0.00000	0.000	75.5	73.7	0	0

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 1SHWONLY WEATHER FILE- NEWARK, NJ

	COOLING					HEATING					ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	0.00000					0.000	-174.148	6	13	22.F	16.F	-514.496	15922.	59.104
FEB	0.00000					0.000	-150.199	21	11	27.F	22.F	-514.496	14397.	59.104
MAR	0.00000					0.000	-124.927	5	1	29.F	24.F	-489.862	16895.	59.104
APR	0.00000					0.000	-41.582	9	4	32.F	27.F	-419.899	15738.	59.104
MAY	0.00000					0.000	-4.892	4	2	40.F	35.F	-204.153	15922.	59.104
JUN	0.00000					0.000	0.000					0.000	16224.	59.104
JUL	0.00000					0.000	0.000					0.000	15435.	59.104
AUG	0.00000					0.000	0.000					0.000	16895.	59.104
SEP	0.00000					0.000	0.000					0.000	15738.	59.104
OCT	0.00000					0.000	-10.179	25	6	41.F	36.F	-293.686	15436.	59.104
NOV	0.00000					0.000	-74.748	25	6	38.F	37.F	-440.567	15252.	59.104
DEC	0.00000					0.000	-164.725	24	13	33.F	29.F	-502.472	15922.	59.104
TOTAL	0.000						-745.399						189781.	
MAX						0.000						-514.496		59.104

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 1SHWONLY WEATHER FILE- NEWARK, NJ

	- -Z O N E C O O L I N G- -		- -Z O N E H E A T I N G -		- - B A S E B O A R D S - -		- - - -P R E - H E A T - - -	
MONTH	ZONE COIL COOLING ENERGY (MBTU)	MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR)	ZONE COIL HEATING ENERGY (MBTU)	MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR)	BASEBOARD HEATING ENERGY (MBTU)	MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR)	PRE-HEAT COIL ENERGY (MBTU)	MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR)
JAN	0.00000	0.000	0.00000	0.000	-174.14850	-514.496	0.00000	0.000
FEB	0.00000	0.000	0.00000	0.000	-150.19852	-514.496	0.00000	0.000
MAR	0.00000	0.000	0.00000	0.000	-124.92693	-489.862	0.00000	0.000
APR	0.00000	0.000	0.00000	0.000	-41.58194	-419.899	0.00000	0.000
MAY	0.00000	0.000	0.00000	0.000	-4.89179	-204.153	0.00000	0.000
JUN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUL	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
AUG	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
SEP	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
OCT	0.00000	0.000	0.00000	0.000	-10.17935	-293.686	0.00000	0.000
NOV	0.00000	0.000	0.00000	0.000	-74.74754	-440.567	0.00000	0.000
DEC	0.00000	0.000	0.00000	0.000	-164.72507	-502.472	0.00000	0.000
TOTAL	0.000		0.000		-745.399		0.000	
MAX		0.000		0.000		-514.496		0.000

	AVERAGE SPACE TEMP					AVERAGE TEMPERATURE DIFFERENCE BETWEEN OUTDOOR& ROOM AIR			SUMMED TEMP DIFFERENCE BETWEEN OUTDOOR& ROOM AIR		
MONTH	ALL HOURS (F)	COOLING HOURS (F)	HEATING HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	ALL HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	HEATING HOURS (F)	ALL HOURS (F)	HUMIDITY RATIO DIFFERENCE BETWEEN OUTDOOR AND ROOM AIR (FRAC.OR MULT.)
JAN	68.65		68.55	68.65	0.00	-37.29	-37.29	0.00	1108.80	1156.08	-0.00024
FEB	69.01		68.90	69.01	0.00	-35.79	-35.79	0.00	948.70	1002.03	-0.00024
MAR	69.56		69.24	69.56	0.00	-29.06	-29.06	0.00	813.52	900.81	-0.00023
APR	72.34		69.47	72.34	0.00	-19.44	-19.44	0.00	312.97	583.31	-0.00024
MAY	75.61		69.62	76.66	74.62	-13.33	-14.00	-12.69	47.79	428.51	-0.00190
JUN	87.78			0.00	87.78	-15.57	0.00	-15.57			-0.00076
JUL	91.21			0.00	91.21	-15.74	0.00	-15.74			0.00019
AUG	91.10			0.00	91.10	-17.61	0.00	-17.61			0.00073
SEP	82.46			0.00	82.46	-15.47	0.00	-15.47			-0.00135
OCT	71.92		69.66	72.43	71.37	-14.83	-14.96	-14.69	89.43	463.25	-0.00240
NOV	70.87		69.43	70.87	0.00	-24.64	-24.64	0.00	563.31	739.34	-0.00028
DEC	69.20		69.09	69.20	0.00	-33.66	-33.66	0.00	1007.61	1043.34	-0.00021
ANNUAL	76.69	0.00	69.09	70.60	85.12	-22.64	-27.71	-15.61	4892.13	8282.66	-0.00058

REPORT- SS-F ZONE DEMAND SUMMARY IN 1SHWONLY FOR 1LHWONLY WEATHER FILE- NEWARK, NJ

	- - - -D E M A N D S- - - - -		- -B A S E B O A R D S- - -		- -T E M P E R A T U R E S- -		- -L O A D S N O T M E T- -	
MONTH	HEAT EXTRACTION ENERGY (MBTU)	HEAT ADDITION ENERGY (MBTU)	BASEBOARD ENERGY (MBTU)	MAXIMUM BASEBOARD LOAD (KBTU/HR)	MAXIMUM ZONE TEMP (F)	MINIMUM ZONE TEMP (F)	HOURS UNDER HEATED	HOURS UNDER COOLED
JAN	0.02220	-0.227	-174.14850	-514.496	72.4	57.2	61	0
FEB	0.02024	-0.227	-150.19852	-514.496	71.9	61.7	30	0
MAR	0.02285	-0.114	-124.92693	-489.862	75.3	68.1	0	0
APR	0.02337	-0.342	-41.58194	-419.899	85.3	68.4	0	0
MAY	0.01259	-0.083	-4.89179	-204.153	91.1*	69.2	0	0
JUN	0.00000	0.000	0.00000	0.000	0.0	200.0	0	0
JUL	0.00000	0.000	0.00000	0.000	0.0	200.0	0	0
AUG	0.00000	0.000	0.00000	0.000	0.0	200.0	0	0
SEP	0.00000	0.000	0.00000	0.000	0.0	200.0	0	0
OCT	0.01288	-0.113	-10.17935	-293.686	81.7	68.9	0	0
NOV	0.02295	-0.053	-74.74754	-440.567	83.8	68.3	0	0
DEC	0.02258	-0.080	-164.72507	-502.472	73.9	68.0	0	0

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 04SHWELEV WEATHER FILE- NEWARK, NJ

	COOLING					HEATING					ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	0.00000					0.000	-20.829	5	20	15.F	12.F	-70.170	794.	2.940
FEB	0.00000					0.000	-17.583	20	3	10.F	7.F	-64.515	718.	2.940
MAR	0.00000					0.000	-15.075	5	1	29.F	24.F	-41.844	842.	2.940
APR	0.00000					0.000	-6.853	9	4	32.F	27.F	-37.553	785.	2.940
MAY	0.00000					0.000	-1.336	4	2	40.F	35.F	-23.584	792.	2.940
JUN	0.00000					0.000	0.000					0.000	806.	2.936
JUL	0.00000					0.000	0.000					0.000	767.	2.936
AUG	0.00000					0.000	0.000					0.000	839.	2.936
SEP	0.00000					0.000	0.000					0.000	782.	2.936
OCT	0.00000					0.000	-2.401	25	6	41.F	36.F	-28.578	768.	2.940
NOV	0.00000					0.000	-10.923	25	6	38.F	37.F	-35.851	760.	2.940
DEC	0.00000					0.000	-18.807	26	7	25.F	24.F	-42.089	794.	2.940
TOTAL	0.000						-93.808						9447.	
MAX						0.000						-70.170		2.940

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 04SHWELEV WEATHER FILE- NEWARK, NJ

	- -Z O N E C O O L I N G- -		- -Z O N E H E A T I N G -		- - B A S E B O A R D S - -		- - - -P R E - H E A T - - -	
MONTH	ZONE COIL COOLING ENERGY (MBTU)	MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR)	ZONE COIL HEATING ENERGY (MBTU)	MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR)	BASEBOARD HEATING ENERGY (MBTU)	MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR)	PRE-HEAT COIL ENERGY (MBTU)	MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR)
JAN	0.00000	0.000	0.00000	0.000	-20.82914	-70.170	0.00000	0.000
FEB	0.00000	0.000	0.00000	0.000	-17.58308	-64.515	0.00000	0.000
MAR	0.00000	0.000	0.00000	0.000	-15.07471	-41.844	0.00000	0.000
APR	0.00000	0.000	0.00000	0.000	-6.85345	-37.553	0.00000	0.000
MAY	0.00000	0.000	0.00000	0.000	-1.33639	-23.584	0.00000	0.000
JUN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUL	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
AUG	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
SEP	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
OCT	0.00000	0.000	0.00000	0.000	-2.40120	-28.578	0.00000	0.000
NOV	0.00000	0.000	0.00000	0.000	-10.92310	-35.851	0.00000	0.000
DEC	0.00000	0.000	0.00000	0.000	-18.80719	-42.089	0.00000	0.000
TOTAL	0.000		0.000		-93.808		0.000	
MAX		0.000		0.000		-70.170		0.000

REPORT- SS-K SPACE TEMPERATURE SUMMARY 04SHWELEV WEATHER FILE- NEWARK, NJ

	AVERAGE SPACE TEMP					AVERAGE TEMPERATURE DIFFERENCE BETWEEN OUTDOOR& ROOM AIR			SUMMED TEMP DIFFERENCE BETWEEN OUTDOOR& ROOM AIR		HUMIDITY RATIO DIFFERENCE BETWEEN OUTDOOR AND ROOM AIR
MONTH	ALL HOURS (F)	COOLING HOURS (F)	HEATING HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	ALL HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	HEATING HOURS (F)	ALL HOURS (F)	(FRAC.OR MULT.)
JAN	69.81		69.81	69.81	0.00	-38.45	-38.45	0.00	1190.08	1192.06	-0.00025
FEB	69.83		69.82	69.83	0.00	-36.61	-36.61	0.00	1022.48	1024.94	-0.00025
MAR	69.92		69.86	69.92	0.00	-29.41	-29.41	0.00	901.01	911.70	-0.00024
APR	70.65		69.91	70.65	0.00	-17.75	-17.75	0.00	467.41	533.82	-0.00025
MAY	70.72		69.94	73.13	68.45	-8.43	-10.47	-6.52	108.25	295.47	-0.00191
JUN	78.85			0.00	78.85	-6.64	0.00	-6.64			-0.00076
JUL	82.32			0.00	82.32	-6.85	0.00	-6.85			0.00019
AUG	80.73			0.00	80.73	-7.24	0.00	-7.24			0.00073
SEP	73.89			0.00	73.89	-6.90	0.00	-6.90			-0.00135
OCT	66.80		69.94	70.58	62.76	-9.71	-13.11	-6.08	168.83	311.97	-0.00241
NOV	70.26		69.89	70.26	0.00	-24.04	-24.04	0.00	696.10	721.09	-0.00029
DEC	69.85		69.83	69.85	0.00	-34.30	-34.30	0.00	1057.10	1063.38	-0.00022
ANNUAL	72.82	0.00	69.86	70.31	76.30	-18.77	-27.42	-6.79	5611.24	6937.85	-0.00059

	---DEMANDS---		--BASEBOARDS--		--TEMPERATURES--		--LOADS NOT MET--	
MONTH	HEAT EXTRACTION ENERGY (MBTU)	HEAT ADDITION ENERGY (MBTU)	BASEBOARD ENERGY (MBTU)	MAXIMUM BASEBOARD LOAD (KBTU/HR)	MAXIMUM ZONE TEMP (F)	MINIMUM ZONE TEMP (F)	HOURS UNDER HEATED	HOURS UNDER COOLED
JAN	0.00364	-0.001	-4.18313	-14.594	70.7	69.5	0	0
FEB	0.00352	-0.001	-3.53836	-13.297	70.1	69.6	0	0
MAR	0.00457	-0.001	-3.04704	-8.564	73.8	69.7	0	0
APR	0.00568	-0.006	-1.38425	-7.710	79.9	69.7	0	0
MAY	0.00331	-0.004	-0.27111	-4.777	87.7*	69.8	0	0
JUN	0.00000	0.000	0.00000	0.000	0.0	200.0	0	0
JUL	0.00000	0.000	0.00000	0.000	0.0	200.0	0	0
AUG	0.00000	0.000	0.00000	0.000	0.0	200.0	0	0
SEP	0.00000	0.000	0.00000	0.000	0.0	200.0	0	0
OCT	0.00326	-0.005	-0.48151	-5.872	78.3	69.8	0	0
NOV	0.00511	-0.001	-2.18267	-7.380	79.2	69.8	0	0
DEC	0.00398	-0.001	-3.78570	-8.592	73.0	69.7	0	0

	- - - -D E M A N D S- - - - -		- -B A S E B O A R D S- - -		- -T E M P E R A T U R E S- -		- -L O A D S N O T M E T- -	
MONTH	HEAT EXTRACTION ENERGY (MBTU)	HEAT ADDITION ENERGY (MBTU)	BASEBOARD ENERGY (MBTU)	MAXIMUM BASEBOARD LOAD (KBTU/HR)	MAXIMUM ZONE TEMP (F)	MINIMUM ZONE TEMP (F)	HOURS UNDER HEATED	HOURS UNDER COOLED
JAN	0.00367	-0.001	-4.09665	-11.793	70.4	69.6	0	0
FEB	0.00358	-0.001	-3.42965	-11.325	70.1	69.6	0	0
MAR	0.00468	-0.001	-2.88654	-7.587	74.5	69.7	0	0
APR	0.00585	-0.006	-1.31647	-6.750	81.1	69.8	0	0
MAY	0.00344	-0.004	-0.25195	-4.475	88.6	69.9	0	0
JUN	0.00000	0.000	0.00000	0.000	0.0	200.0	0	0
JUL	0.00000	0.000	0.00000	0.000	0.0	200.0	0	0
AUG	0.00000	0.000	0.00000	0.000	0.0	200.0	0	0
SEP	0.00000	0.000	0.00000	0.000	0.0	200.0	0	0
OCT	0.00328	-0.004	-0.47515	-5.090	78.9	69.8	0	0
NOV	0.00506	-0.002	-2.19242	-6.589	79.1	69.8	0	0
DEC	0.00404	-0.001	-3.66441	-8.111	73.2	69.7	0	0

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 0SDXHT WEATHER FILE- NEWARK, NJ

	COOLING						HEATING						ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELECTRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	6.29961	14	14	40.F	32.F	28.470	-0.104	17	6	16.F	14.F	-2.105	4812.	13.637
FEB	5.40456	18	14	42.F	34.F	27.983	-0.208	7	6	14.F	12.F	-3.249	4350.	13.637
MAR	7.11239	16	14	67.F	50.F	30.886	-0.063	21	6	38.F	33.F	-1.730	5013.	13.637
APR	7.92157	21	14	80.F	62.F	33.024	0.000					0.000	4725.	13.637
MAY	10.49622	10	14	87.F	68.F	37.916	0.000					0.000	4812.	13.637
JUN	13.25140	30	14	91.F	74.F	40.430	0.000					0.000	4826.	13.637
JUL	14.51261	13	14	90.F	73.F	42.417	0.000					0.000	4711.	13.637
AUG	16.16099	18	14	93.F	72.F	43.749	0.000					0.000	5013.	13.637
SEP	14.58331	7	13	82.F	65.F	41.812	0.000					0.000	4725.	13.637
OCT	12.71041	14	14	75.F	61.F	38.581	0.000					0.000	4711.	13.637
NOV	10.02704	2	14	77.F	70.F	36.445	0.000					0.000	4624.	13.637
DEC	7.99638	2	14	64.F	53.F	32.338	0.000					0.000	4812.	13.637
TOTAL	126.476						-0.375						57132.	
MAX						43.749						-3.249		13.637

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 0SDXHT WEATHER FILE- NEWARK, NJ

	- -Z O N E C O O L I N G- -		- -Z O N E H E A T I N G -		- - B A S E B O A R D S - -		- - - -P R E - H E A T - - -	
MONTH	ZONE COIL COOLING ENERGY (MBTU)	MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR)	ZONE COIL HEATING ENERGY (MBTU)	MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR)	BASEBOARD HEATING ENERGY (MBTU)	MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR)	PRE-HEAT COIL ENERGY (MBTU)	MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR)
JAN	0.00000	0.000	0.00000	0.000	-0.10418	-2.105	0.00000	0.000
FEB	0.00000	0.000	0.00000	0.000	-0.20847	-3.249	0.00000	0.000
MAR	0.00000	0.000	0.00000	0.000	-0.06263	-1.730	0.00000	0.000
APR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAY	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUL	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
AUG	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
SEP	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
OCT	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
NOV	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
DEC	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
TOTAL	0.000		0.000		-0.375		0.000	
MAX		0.000		0.000		-3.249		0.000

REPORT- SS-K SPACE TEMPERATURE SUMMARY 0SDXHT WEATHER FILE- NEWARK, NJ

	AVERAGE SPACE TEMP					AVERAGE TEMPERATURE DIFFERENCE BETWEEN OUTDOOR& ROOM AIR			SUMMED TEMP DIFFERENCE BETWEEN OUTDOOR& ROOM AIR		
MONTH	ALL HOURS (F)	COOLING HOURS (F)	HEATING HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	ALL HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	HEATING HOURS (F)	ALL HOURS (F)	HUMIDITY RATIO DIFFERENCE BETWEEN OUTDOOR AND ROOM AIR (FRAC.OR MULT.)
JAN	74.15	74.30	72.94	74.15	0.00	-42.79	-42.79	0.00	185.63	1326.57	-0.00002
FEB	74.10	74.19	72.91	74.10	0.00	-40.87	-40.87	0.00	253.13	1144.49	-0.00006
MAR	74.27	74.41	72.95	74.27	0.00	-33.77	-33.77	0.00	100.98	1046.77	-0.00004
APR	74.48	74.56		74.48	0.00	-21.58	-21.58	0.00		649.89	0.00010
MAY	74.65	74.65		74.65	0.00	-12.37	-12.37	0.00		436.12	0.00066
JUN	74.84	74.84		74.84	0.00	-2.63	-2.63	0.00		212.96	0.00254
JUL	74.89	74.89		74.89	0.00	0.58	0.58	0.00		169.67	0.00319
AUG	74.99	74.99		74.99	0.00	-1.50	-1.50	0.00		193.28	0.00371
SEP	74.93	74.93		74.93	0.00	-7.94	-7.94	0.00		259.54	0.00236
OCT	74.79	74.79		74.79	0.00	-17.70	-17.70	0.00		553.23	0.00060
NOV	74.64	74.64		74.64	0.00	-28.42	-28.42	0.00		853.02	0.00028
DEC	74.49	74.51		74.49	0.00	-38.95	-38.95	0.00		1207.38	-0.00005
ANNUAL	74.61	74.66	72.93	74.61	0.00	-20.56	-20.56	0.00	539.74	8052.93	0.00111

	-DEMANDS-		-BASEBOARDS-		-TEMPERATURES-		-LOADS NOT MET-	
MONTH	HEAT EXTRACTION ENERGY (MBTU)	HEAT ADDITION ENERGY (MBTU)	BASEBOARD ENERGY (MBTU)	MAXIMUM BASEBOARD LOAD (KBTU/HR)	MAXIMUM ZONE TEMP (F)	MINIMUM ZONE TEMP (F)	HOURS UNDER HEATED	HOURS UNDER COOLED
JAN	4.30086	-1.720	-0.10418	-2.105	75.3	72.9	0	0
FEB	3.73289	-1.690	-0.20847	-3.249	75.3	72.8	0	0
MAR	4.94455	-1.548	-0.06263	-1.730	75.4	72.9	0	0
APR	5.30856	-1.001	0.00000	0.000	75.5	73.2	0	0
MAY	6.90018	-0.242	0.00000	0.000	75.7	74.1	0	0
JUN	9.41340	0.000	0.00000	0.000	75.8	74.2	0	0
JUL	10.56290	0.000	0.00000	0.000	75.9	74.3	0	0
AUG	12.17193	0.000	0.00000	0.000	75.9	74.4	0	0
SEP	10.82609	0.000	0.00000	0.000	75.9	74.3	0	0
OCT	8.91010	0.000	0.00000	0.000	75.8	74.3	0	0
NOV	6.55245	-0.159	0.00000	0.000	75.7	74.1	0	0
DEC	5.26215	-0.974	0.00000	0.000	75.5	73.7	0	0

REPORT- SS-A SYSTEM MONTHLY LOADS SUMMARY FOR 0SDXNOHT WEATHER FILE- NEWARK, NJ

	COOLING						HEATING					ELEC	
MONTH	COOLING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM COOLING LOAD (KBTU/HR)	HEATING ENERGY (MBTU)	TIME OF MAX DY	TIME OF MAX HR	DRY-BULB TEMP	WET-BULB TEMP	MAXIMUM HEATING LOAD (KBTU/HR)	ELEC-TRICAL ENERGY (KWH)	MAXIMUM ELEC LOAD (KW)
JAN	14.36400	25	14	52.F	41.F	50.562	0.000					0.000	7287.	20.697
FEB	12.83054	11	14	52.F	50.F	50.644	0.000					0.000	6586.	20.697
MAR	16.48144	15	15	65.F	58.F	53.329	0.000					0.000	7593.	20.697
APR	17.45968	22	14	68.F	60.F	56.450	0.000					0.000	7155.	20.697
MAY	20.68633	10	14	87.F	68.F	61.186	0.000					0.000	7287.	20.697
JUN	23.55266	14	14	88.F	74.F	63.584	0.000					0.000	7308.	20.697
JUL	24.38587	13	14	90.F	73.F	65.283	0.000					0.000	7133.	20.697
AUG	26.03597	18	14	93.F	72.F	66.099	0.000					0.000	7593.	20.697
SEP	23.36196	20	14	83.F	72.F	64.302	0.000					0.000	7155.	20.697
OCT	20.90982	21	14	68.F	60.F	60.739	0.000					0.000	7133.	20.697
NOV	17.93601	2	14	77.F	70.F	60.514	0.000					0.000	7002.	20.697
DEC	16.11394	2	14	64.F	53.F	54.170	0.000					0.000	7287.	20.697
TOTAL	234.119						0.000						86517.	
MAX						66.099						0.000		20.697

REPORT- SS-B SYSTEM MONTHLY LOADS SUMMARY FOR 0SDXNOHT WEATHER FILE- NEWARK, NJ

	--ZONE COOLING--		--ZONE HEATING-		--BASEBOARDS--		----PRE-HEAT---	
MONTH	ZONE COIL COOLING ENERGY (MBTU)	MAXIMUM ZONE COIL COOLING LOAD (KBTU/HR)	ZONE COIL HEATING ENERGY (MBTU)	MAXIMUM ZONE COIL HEATING LOAD (KBTU/HR)	BASEBOARD HEATING ENERGY (MBTU)	MAXIMUM BASEBOARD HEATING LOAD (KBTU/HR)	PRE-HEAT COIL ENERGY (MBTU)	MAXIMUM PRE-HEAT COIL LOAD (KBTU/HR)
JAN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
FEB	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
APR	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
MAY	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUN	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
JUL	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
AUG	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
SEP	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
OCT	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
NOV	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
DEC	0.00000	0.000	0.00000	0.000	0.00000	0.000	0.00000	0.000
TOTAL	0.000		0.000		0.000		0.000	
MAX		0.000		0.000		0.000		0.000

	AVERAGE SPACE TEMP					AVERAGE TEMPERATURE DIFFERENCE BETWEEN OUTDOOR& ROOM AIR			SUMMED TEMP DIFFERENCE BETWEEN OUTDOOR& ROOM AIR		HUMIDITY RATIO DIFFERENCE BETWEEN OUTDOOR AND ROOM AIR
MONTH	ALL HOURS (F)	COOLING HOURS (F)	HEATING HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	ALL HOURS (F)	FAN ON HOURS (F)	FAN OFF HOURS (F)	HEATING HOURS (F)	ALL HOURS (F)	(FRAC.OR MULT.)
JAN	74.60	74.60		74.60	0.00	-43.24	-43.24	0.00		1340.47	-0.00002
FEB	74.59	74.59		74.59	0.00	-41.37	-41.37	0.00		1158.46	-0.00005
MAR	74.69	74.69		74.69	0.00	-34.19	-34.19	0.00		1059.80	-0.00004
APR	74.76	74.76		74.76	0.00	-21.86	-21.86	0.00		657.86	0.00010
MAY	74.86	74.86		74.86	0.00	-12.58	-12.58	0.00		440.84	0.00066
JUN	75.00	75.00		75.00	0.00	-2.79	-2.79	0.00		214.41	0.00283
JUL	75.00	75.00		75.00	0.00	0.47	0.47	0.00		169.89	0.00319
AUG	75.07	75.07		75.07	0.00	-1.58	-1.58	0.00		194.01	0.00370
SEP	75.00	75.00		75.00	0.00	-8.01	-8.01	0.00		261.06	0.00236
OCT	74.87	74.87		74.87	0.00	-17.78	-17.78	0.00		555.71	0.00060
NOV	74.78	74.78		74.78	0.00	-28.55	-28.55	0.00		856.88	0.00028
DEC	74.68	74.68		74.68	0.00	-39.13	-39.13	0.00		1212.97	-0.00005
ANNUAL	74.83	74.83	0.00	74.83	0.00	-20.78	-20.78	0.00	0.00	8122.36	0.00111

	-DEMANDS-		-BASEBOARDS-		-TEMPERATURES-		-LOADS NOT MET-	
MONTH	HEAT EXTRACTION ENERGY (MBTU)	HEAT ADDITION ENERGY (MBTU)	BASEBOARD ENERGY (MBTU)	MAXIMUM BASEBOARD LOAD (KBTU/HR)	MAXIMUM ZONE TEMP (F)	MINIMUM ZONE TEMP (F)	HOURS UNDER HEATED	HOURS UNDER COOLED
JAN	9.40461	-0.585	0.00000	0.000	75.6	74.1	0	0
FEB	8.52285	-0.699	0.00000	0.000	75.6	74.0	0	0
MAR	11.21039	-0.276	0.00000	0.000	75.7	74.1	0	0
APR	12.09204	-0.049	0.00000	0.000	75.8	74.2	0	0
MAY	14.96230	0.000	0.00000	0.000	75.8	74.3	0	0
JUN	17.82047	0.000	0.00000	0.000	75.9	74.4	0	0
JUL	18.48841	0.000	0.00000	0.000	76.0	74.5	0	0
AUG	20.07511	0.000	0.00000	0.000	76.0	74.4	0	0
SEP	17.75377	0.000	0.00000	0.000	75.9	74.4	0	0
OCT	15.23885	0.000	0.00000	0.000	75.8	74.3	0	0
NOV	12.51310	0.000	0.00000	0.000	75.8	74.2	0	0
DEC	10.74324	-0.172	0.00000	0.000	75.7	74.1	0	0

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
STM-BOILER	869.3	100.0
DHW-HEATER	0.0	0.0
LOAD SATISFIED	869.3	100.0
TOTAL LOAD ON PLANT	869.3	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-REC-CHLR	16276.7	100.0
LOAD SATISFIED	16276.7	100.0
TOTAL LOAD ON PLANT	16276.7	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	26099.9	100.0
LOAD SATISFIED	26099.9	100.0
TOTAL LOAD ON PLANT	26099.9	

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	869.3	869.3	0.000	0.000	0
COOLING LOADS	16276.7	16276.7	0.027	0.018	2
ELECTRICAL LOADS	26099.9	26099.9	0.000	0.000	0

CA3
EXISTING
ON PEAK

MMDDHH	1SDXHT	1SDX	2SDX	3SDX	4SDX	1SHWONLY	04SHWELEV	0SDXHT	0SDXNOHT
	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW
	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)
MONTHLY SUMMARY (JAN)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	5090.904	2592.626	5457.761	3723.353	13630.595	0.197	0.983	371.498	554.299
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (FEB)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	4606.056	2345.709	4937.974	3368.748	12332.442	0.178	0.889	336.118	501.509
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (MAR)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	5575.751	2839.543	5977.548	4077.958	14928.747	0.215	1.076	406.879	607.090
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (APR)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	5090.904	2592.626	5457.761	3723.353	13630.595	0.197	0.983	371.498	554.299
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (MAY)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	5090.904	2592.626	5457.761	3723.353	13630.595	0.094	0.468	371.498	554.299
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.002	1.474	2.200
MONTHLY SUMMARY (JUN)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
SM	5333.328	2716.085	5717.655	3900.655	14279.671	0.000	0.000	389.189	580.694
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MONTHLY SUMMARY (JUL)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
SM	4848.480	2469.168	5197.868	3546.050	12981.519	0.000	0.000	353.808	527.904
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200

	1SDXHT	1SDX	2SDX	3SDX	4SDX	1SHWONLY	04SHWELE V	0SDXHT	0SDXNOHT
	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW
	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)
MONTHLY SUMMARY (AUG)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
SM	5575.751	2839.543	5977.548	4077.958	14928.747	0.000	0.000	406.879	607.090
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MONTHLY SUMMARY (SEP)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
SM	5090.904	2592.626	5457.761	3723.353	13630.595	0.000	0.000	371.498	554.299
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MONTHLY SUMMARY (OCT)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	4848.480	2469.168	5197.868	3546.050	12981.519	0.103	0.515	353.808	527.904
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.002	1.474	2.200
MONTHLY SUMMARY (NOV)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	4848.480	2469.168	5197.868	3546.050	12981.519	0.187	0.936	353.808	527.904
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (DEC)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	5090.904	2592.626	5457.761	3723.353	13630.595	0.197	0.983	371.498	554.299
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
YEARLY SUMMARY									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	61090.844	31111.520	65493.133	44680.230	163567.141	1.367	6.833	4457.981	6651.591
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.002	1.474	2.200

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
STM-BOILER	0.591	1	1												
DHW-HEATER	0.000	1	1												
HERM-REC-CHLR	3.892	1	1												

MO	UTILITY-	ELECTRICITY	FUEL-OIL	NATURAL-GAS
	TOTAL(MBTU)	2153.016	287.883	0.000
JAN	PEAK(KBTU)	5076.708	767.666	0.000
	DY/HR	13/14	5/20	31/24
	TOTAL(MBTU)	1951.146	248.988	0.000
FEB	PEAK(KBTU)	5085.388	764.186	0.000
	DY/HR	15/14	20/ 3	28/24
	TOTAL(MBTU)	2249.282	217.413	0.000
MAR	PEAK(KBTU)	5114.029	709.479	0.000
	DY/HR	16/14	5/ 1	31/24
	TOTAL(MBTU)	2154.637	82.869	0.000
APR	PEAK(KBTU)	5172.894	626.246	0.000
	DY/HR	21/14	9/ 4	30/ 1
	TOTAL(MBTU)	2219.887	13.871	0.000
MAY	PEAK(KBTU)	5229.586	356.551	0.000
	DY/HR	10/14	4/ 2	31/ 1
	TOTAL(MBTU)	2223.483	0.000	0.000
JUN	PEAK(KBTU)	5290.973	0.000	0.000
	DY/HR	13/14	30/ 1	30/ 1
	TOTAL(MBTU)	2217.316	0.000	0.000
JUL	PEAK(KBTU)	5249.647	0.000	0.000
	DY/HR	13/13	31/ 1	31/ 1
	TOTAL(MBTU)	2308.327	0.000	0.000
AUG	PEAK(KBTU)	5269.803	0.000	0.000
	DY/HR	18/14	31/ 1	31/ 1
	TOTAL(MBTU)	2174.473	0.000	0.000
SEP	PEAK(KBTU)	5198.902	0.000	0.000
	DY/HR	7/14	30/ 1	30/ 1
	TOTAL(MBTU)	2173.409	24.376	0.000
OCT	PEAK(KBTU)	5158.363	469.762	0.000
	DY/HR	14/14	25/ 6	31/24
	TOTAL(MBTU)	2108.344	139.934	0.000
NOV	PEAK(KBTU)	5156.199	647.688	0.000
	DY/HR	2/14	25/ 6	30/24
	TOTAL(MBTU)	2166.566	274.207	0.000
DEC	PEAK(KBTU)	5098.862	721.583	0.000
	DY/HR	2/14	24/13	31/24
	ONE YEAR	26099.888	1289.541	0.000
	USE/PEAK	5290.973	767.666	0.000

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
STM-BOILER	869.3	100.0
DHW-HEATER	0.0	0.0
LOAD SATISFIED	869.3	100.0
TOTAL LOAD ON PLANT	869.3	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-REC-CHLR	16276.7	100.0
LOAD SATISFIED	16276.7	100.0
TOTAL LOAD ON PLANT	16276.7	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	26099.9	100.0
LOAD SATISFIED	26099.9	100.0
TOTAL LOAD ON PLANT	26099.9	

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	869.3	869.3	0.000	0.000	0
COOLING LOADS	16276.7	16276.7	0.027	0.018	2
ELECTRICAL LOADS	26099.9	26099.9	0.000	0.000	0

MMDDHH	HERM-REC -CHLR ELECTRIC USE BTU/HR	HERM-REC -CHLR CONDENSR FAN ELEC USE BTU/HR	STM-BOIL ER ELECTRIC USE BTU/HR	STM-BOIL ER FUEL USE BTU/HR
	----(3)	----(18)	----(3)	----(4)
MONTHLY SUMMARY (JAN)				
MN	937605.	583796.	515.	9936.
MX	1082899.	583796.	12991.	759552.
SM	256205232.	147116464.	2475849.	81060664.
AV	1016687.	583796.	9825.	321669.
MONTHLY SUMMARY (FEB)				
MN	928071.	583796.	515.	9936.
MX	1088467.	583796.	12991.	658489.
SM	233673600.	133105368.	2016624.	52371964.
AV	1024884.	583796.	8845.	229702.
MONTHLY SUMMARY (MAR)				
MN	957016.	583796.	515.	9936.
MX	1122546.	583796.	12991.	674536.
SM	287182592.	161127568.	2031500.	54446080.
AV	1040517.	583796.	7361.	197268.
MONTHLY SUMMARY (APR)				
MN	966029.	583796.	515.	9936.
MX	1183155.	583796.	12991.	488100.
SM	268408896.	147116464.	693315.	15506258.
AV	1065115.	583796.	2751.	61533.
MONTHLY SUMMARY (MAY)				
MN	985677.	583796.	0.	0.
MX	1238328.	583796.	12991.	257973.
SM	275527424.	147116464.	116774.	2262290.
AV	1093363.	583796.	463.	8977.
MONTHLY SUMMARY (JUN)				
MN	1016320.	583796.	0.	0.
MX	1304448.	583796.	0.	0.
SM	298948832.	154122016.	0.	0.
AV	1132382.	583796.	0.	0.
MONTHLY SUMMARY (JUL)				
MN	1026370.	583796.	0.	0.
MX	1258694.	583796.	0.	0.
SM	274606400.	140110912.	0.	0.
AV	1144193.	583795.	0.	0.

	HERM-REC -CHLR ELECTRIC USE BTU/HR ----(3)	HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR ----(18)	STM-BOIL ER ELECTRIC USE BTU/HR ----(3)	STM-BOIL ER FUEL USE BTU/HR ----(4)
MONTHLY SUMMARY (AUG)				
MN	1013925.	583796.	0.	0.
MX	1280765.	583796.	0.	0.
SM	315750784.	161127568.	0.	0.
AV	1144025.	583796.	0.	0.
MONTHLY SUMMARY (SEP)				
MN	993271.	583796.	0.	0.
MX	1207949.	583796.	0.	0.
SM	276855072.	147116464.	0.	0.
AV	1098631.	583796.	0.	0.
MONTHLY SUMMARY (OCT)				
MN	975607.	583796.	0.	0.
MX	1167410.	583796.	12991.	324996.
SM	255514720.	140110912.	241270.	4736180.
AV	1064645.	583795.	1005.	19734.
MONTHLY SUMMARY (NOV)				
MN	963000.	583796.	515.	9936.
MX	1164715.	583796.	12991.	558733.
SM	250589440.	140110912.	1249340.	30270674.
AV	1044123.	583795.	5206.	126128.
MONTHLY SUMMARY (DEC)				
MN	945033.	583796.	515.	9936.
MX	1107379.	583796.	12991.	717930.
SM	257862176.	147116464.	2506830.	71439856.
AV	1023263.	583796.	9948.	283492.
YEARLY SUMMARY				
MN	928071.	583796.	0.	0.
MX	1304448.	583796.	12991.	759552.
SM	3251125248.	1765397376.	11331503.	312093952.
AV	1075108.	583795.	3747.	103206.

CA3

EXISTING

Off-PEAK

MMDDHH	1SDXHT	1SDX	2SDX	3SDX	4SDX	1SHWONLY	04SHWELEV	0SDXHT	0SDXNOHT
	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW
	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)
MONTHLY SUMMARY (JAN)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	9939.382	5061.797	10655.630	7269.405	26612.115	0.384	1.919	725.307	1082.203
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (FEB)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	8969.687	4567.963	9616.056	6560.194	24015.811	0.346	1.732	654.545	976.622
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (MAR)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	9454.534	4814.880	10135.844	6914.800	25313.963	0.365	1.825	689.926	1029.413
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (APR)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	9454.534	4814.880	10135.844	6914.800	25313.963	0.365	1.825	689.926	1029.413
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (MAY)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	9939.382	5061.797	10655.630	7269.404	26612.115	0.187	0.936	725.307	1082.203
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.002	1.474	2.200
MONTHLY SUMMARY (JUN)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
SM	9212.109	4691.421	9875.950	6737.497	24664.885	0.000	0.000	672.235	1003.018
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MONTHLY SUMMARY (JUL)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
SM	10181.806	5185.255	10915.524	7446.708	27261.189	0.000	0.000	742.997	1108.599
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200

	1SDXHT TOT FAN ELECTRIC KW ----(33)	1SDX TOT FAN ELECTRIC KW ----(33)	2SDX TOT FAN ELECTRIC KW ----(33)	3SDX TOT FAN ELECTRIC KW ----(33)	4SDX TOT FAN ELECTRIC KW ----(33)	1SHWONLY TOT FAN ELECTRIC KW ----(33)	04SHWELE V TOT FAN ELECTRIC KW ----(33)	0SDXHT TOT FAN ELECTRIC KW ----(33)	0SDXNOHT TOT FAN ELECTRIC KW ----(33)
MONTHLY SUMMARY (AUG)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
SM	9454.534	4814.880	10135.844	6914.799	25313.963	0.000	0.000	689.926	1029.413
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MONTHLY SUMMARY (SEP)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
SM	9454.534	4814.880	10135.844	6914.800	25313.961	0.000	0.000	689.926	1029.413
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MONTHLY SUMMARY (OCT)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	10181.806	5185.255	10915.524	7446.708	27261.191	0.197	0.983	742.997	1108.598
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.002	1.474	2.200
MONTHLY SUMMARY (NOV)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	9696.958	4938.338	10395.737	7092.102	25963.037	0.374	1.872	707.616	1055.808
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (DEC)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	9939.382	5061.797	10655.631	7269.405	26612.113	0.384	1.919	725.307	1082.203
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
YEARLY SUMMARY									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	115878.648	59013.141	124229.055	84750.625	310258.313	2.602	13.010	8456.014	12616.906
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.002	1.474	2.200

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
STM-BOILER	0.591	1	1															
DHW-HEATER	0.000	1	1															
HERM-REC-CHLR	3.892	1	1															

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
STM-BOILER	869.3	100.0
DHW-HEATER	0.0	0.0
LOAD SATISFIED	869.3	100.0
TOTAL LOAD ON PLANT	869.3	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-REC-CHLR	16276.7	100.0
LOAD SATISFIED	16276.7	100.0
TOTAL LOAD ON PLANT	16276.7	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	26099.9	100.0
LOAD SATISFIED	26099.9	100.0
TOTAL LOAD ON PLANT	26099.9	

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	869.3	869.3	0.000	0.000	0
COOLING LOADS	16276.7	16276.7	0.027	0.018	2
ELECTRICAL LOADS	26099.9	26099.9	0.000	0.000	0

ENERGY TYPE IN SITE MBTU -	ELECTRICITY	FUEL-OIL	NATURAL-GAS
CATEGORY OF USE			
SPACE HEAT	43.20	1289.53	0.00
SPACE COOL	7908.29	0.00	0.00
HVAC AUX	4941.25	0.00	0.00
DOM HOT WTR	0.00	0.00	0.00
AUX SOLAR	0.00	0.00	0.00
LIGHTS	4983.87	0.00	0.00
VERT TRANS	0.00	0.00	0.00
MISC EQUIP	8224.01	0.00	0.00
TOTAL	26100.61	1289.53	0.00

TOTAL SITE ENERGY 27389.43 MBTU 213.2 KBTU/SQFT-YR GROSS-AREA 213.2 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 79667.59 MBTU 620.1 KBTU/SQFT-YR GROSS-AREA 620.1 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 9.6
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-REC -CHLR ELECTRIC USE BTU/HR	HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR	STM-BOIL ER ELECTRIC USE BTU/HR	STM-BOIL ER FUEL USE BTU/HR
	----(3)	----(18)	----(3)	----(4)
MONTHLY SUMMARY (JAN)				
MN	535361.	401088.	1605.	31005.
MX	876201.	583796.	12991.	767666.
SM	358254432.	263037744.	6162833.	206822576.
AV	728159.	534630.	12526.	420371.
MONTHLY SUMMARY (FEB)				
MN	527142.	394952.	1885.	36397.
MX	875766.	583796.	12991.	764186.
SM	327136096.	239127616.	5541246.	196616144.
AV	736793.	538576.	12480.	442829.
MONTHLY SUMMARY (MAR)				
MN	631776.	473001.	731.	14115.
MX	900159.	583796.	12991.	709479.
SM	367624640.	266104240.	5632770.	162967184.
AV	785523.	568599.	12036.	348220.
MONTHLY SUMMARY (APR)				
MN	661938.	495478.	515.	9936.
MX	923082.	583796.	12991.	626246.
SM	382968384.	271392160.	2730110.	67362896.
AV	818309.	579898.	5834.	143938.
MONTHLY SUMMARY (MAY)				
MN	743947.	556541.	0.	0.
MX	975469.	583796.	12991.	356551.
SM	413771104.	287143520.	561445.	11608750.
AV	840998.	583625.	1141.	23595.
MONTHLY SUMMARY (JUN)				
MN	798306.	583796.	0.	0.
MX	1003135.	583796.	0.	0.
SM	396264192.	266210880.	0.	0.
AV	869000.	583796.	0.	0.
MONTHLY SUMMARY (JUL)				
MN	804028.	583796.	0.	0.
MX	992180.	583796.	0.	0.
SM	441250368.	294233088.	0.	0.
AV	875497.	583796.	0.	0.

	HERM-REC -CHLR ELECTRIC USE BTU/HR ----(3)	HERM-REC -CHLR CONDENSR FAN ELEC USE BTU/HR ----(18)	STM-BOIL ER ELECTRIC USE BTU/HR ----(3)	STM-BOIL ER FUEL USE BTU/HR ----(4)
MONTHLY SUMMARY (AUG)				
MN	788823.	583796.	0.	0.
MX	991107.	583796.	0.	0.
SM	405776256.	273216416.	0.	0.
AV	867043.	583796.	0.	0.
MONTHLY SUMMARY (SEP)				
MN	781980.	583796.	0.	0.
MX	948940.	583796.	0.	0.
SM	397793312.	273216416.	0.	0.
AV	849986.	583796.	0.	0.
MONTHLY SUMMARY (OCT)				
MN	683149.	511279.	0.	0.
MX	907671.	583796.	12991.	469762.
SM	415276384.	293634560.	910581.	19639862.
AV	823961.	582608.	1807.	38968.
MONTHLY SUMMARY (NOV)				
MN	626375.	468976.	515.	9936.
MX	922674.	583796.	12991.	647688.
SM	380792512.	274897728.	4323636.	109662880.
AV	793318.	572704.	9008.	228464.
MONTHLY SUMMARY (DEC)				
MN	546128.	409124.	515.	9936.
MX	885942.	583796.	12991.	721583.
SM	370277664.	270221984.	6001262.	202766960.
AV	752597.	549232.	12198.	412128.
YEARLY SUMMARY				
MN	527142.	394952.	0.	0.
MX	1003135.	583796.	12991.	767666.
SM	4657185792.	3272436736.	31863882.	977447296.
AV	811922.	570509.	5555.	170406.

Attachment 8.12

EZDOE ECO Results

ECO-2

MMDDHH	1SMCAHUS ZR SUPPLY ELECTRIC KW	2SPERFC SUPPLY ELECTRIC KW	3SPERFC SUPPLY ELECTRIC KW	4SPERFC SUPPLY ELECTRIC KW
	----(49)	----(49)	----(49)	----(49)
MONTHLY SUMMARY (JAN)				
MN	0.000	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	1262.789	749.415	749.415	878.909
AV	2.567	1.523	1.523	1.786
MONTHLY SUMMARY (FEB)				
MN	0.000	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	1142.523	676.301	676.301	793.162
AV	2.573	1.523	1.523	1.786
MONTHLY SUMMARY (MAR)				
MN	0.000	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	1383.055	712.858	712.858	836.035
AV	2.955	1.523	1.523	1.786
MONTHLY SUMMARY (APR)				
MN	0.000	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	3758.301	712.858	712.858	836.035
AV	8.031	1.523	1.523	1.786
MONTHLY SUMMARY (MAY)				
MN	0.000	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	5923.082	749.415	749.415	878.909
AV	12.039	1.523	1.523	1.786
MONTHLY SUMMARY (JUN)				
MN	0.000	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	4239.363	694.579	694.579	814.599
AV	9.297	1.523	1.523	1.786
MONTHLY SUMMARY (JUL)				
MN	0.000	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	4960.957	767.693	767.693	900.346
AV	9.843	1.523	1.523	1.786

MCA SUMMER SETBACK @ 80°F

OFF PEAK USAGE

	1SMCAHUS ZR SUPPLY ELECTRIC KW ----(49)	2SPERFC SUPPLY ELECTRIC KW ----(49)	3SPERFC SUPPLY ELECTRIC KW ----(49)	4SPERFC SUPPLY ELECTRIC KW ----(49)
MONTHLY SUMMARY (AUG)				
MN	0.000	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	3728.234	712.858	712.858	836.035
AV	7.966	1.523	1.523	1.786
MONTHLY SUMMARY (SEP)				
MN	0.000	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	3427.570	712.858	712.858	836.035
AV	7.324	1.523	1.523	1.786
MONTHLY SUMMARY (OCT)				
MN	0.000	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	3066.773	767.693	767.693	900.346
AV	6.085	1.523	1.523	1.786
MONTHLY SUMMARY (NOV)				
MN	0.000	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	1773.918	731.136	731.136	857.472
AV	3.696	1.523	1.523	1.786
MONTHLY SUMMARY (DEC)				
MN	0.000	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	1292.855	749.415	749.415	878.909
AV	2.628	1.523	1.523	1.786
YEARLY SUMMARY				
MN	0.000	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	35959.418	8737.077	8737.077	10246.794
AV	6.269	1.523	1.523	1.786

MMDDHH	SSZF2MID SUPPLY ELECTRIC KW ----(49)	SSPZ3MID SUPPLY ELECTRIC KW ----(49)	SSZF4MID SUPPLY ELECTRIC KW ----(49)	0SMCAHUS ZR SUPPLY ELECTRIC KW ----(49)
MONTHLY SUMMARY (JAN)				
MN	0.000	0.000	0.000	0.000
MX	23.912	29.253	29.469	17.562
SM	2702.056	3539.614	4420.291	737.587
AV	5.492	7.194	8.984	1.499
MONTHLY SUMMARY (FEB)				
MN	0.000	0.000	0.000	0.000
MX	23.912	29.253	29.469	17.562
SM	2343.376	3071.565	3123.672	667.341
AV	5.278	6.918	7.035	1.503
MONTHLY SUMMARY (MAR)				
MN	0.000	0.000	0.000	0.000
MX	23.912	29.253	29.469	17.562
SM	2725.968	3539.613	2445.894	807.833
AV	5.825	7.563	5.226	1.726
MONTHLY SUMMARY (APR)				
MN	0.000	0.000	0.000	0.000
MX	23.912	29.253	29.469	17.562
SM	4423.720	5558.070	4037.198	2247.885
AV	9.452	11.876	8.626	4.803
MONTHLY SUMMARY (MAY)				
MN	0.000	0.000	0.000	0.000
MX	23.912	29.253	29.469	17.562
SM	5547.584	6815.949	7131.401	3652.813
AV	11.276	13.854	14.495	7.424
MONTHLY SUMMARY (JUN)				
MN	0.000	0.000	0.000	0.000
MX	23.912	29.253	29.469	17.562
SM	3371.592	4153.927	7042.997	3266.458
AV	7.394	9.109	15.445	7.163
MONTHLY SUMMARY (JUL)				
MN	0.000	0.000	0.000	0.000
MX	23.912	29.253	29.469	17.562
SM	4232.424	5177.781	8015.459	4302.592
AV	8.398	10.273	15.904	8.537

	SSZF2MID SUPPLY ELECTRIC KW ----(49)	SSFZ3MID SUPPLY ELECTRIC KW ----(49)	SSZF4MID SUPPLY ELECTRIC KW ----(49)	OSMCAHUS ZR SUPPLY ELECTRIC KW ----(49)
MONTHLY SUMMARY (AUG)				
MN	0.000	0.000	0.000	0.000
MX	23.912	29.253	29.469	17.562
SM	3610.712	4417.204	7101.933	3810.868
AV	7.715	9.438	15.175	8.143
MONTHLY SUMMARY (SEP)				
MN	0.000	0.000	0.000	0.000
MX	23.912	29.253	29.469	17.562
SM	3419.416	4212.433	6512.560	2950.349
AV	7.306	9.001	13.916	6.304
MONTHLY SUMMARY (OCT)				
MN	0.000	0.000	0.000	0.000
MX	23.912	29.253	29.469	17.562
SM	4495.456	5558.070	3889.856	2897.664
AV	8.920	11.028	7.718	5.749
MONTHLY SUMMARY (NOV)				
MN	0.000	0.000	0.000	0.000
MX	23.912	29.253	29.469	17.562
SM	3610.712	4592.721	2652.175	1229.312
AV	7.522	9.568	5.525	2.561
MONTHLY SUMMARY (DEC)				
MN	0.000	0.000	0.000	0.000
MX	23.912	29.253	29.469	17.562
SM	2654.232	3481.108	3477.295	913.203
AV	5.395	7.075	7.068	1.856
YEARLY SUMMARY				
MN	0.000	0.000	0.000	0.000
MX	23.912	29.253	29.469	17.562
SM	43137.242	54118.059	59850.734	27483.906
AV	7.520	9.435	10.434	4.791

MMDDHH	1EXTPER THERMOST SETPOINT F	1EXTPER ZONE TEMP F	1INTPER THERMOST SETPOINT F	1INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	-999.0	69.8	-999.0	69.9
MX	75.0	77.6	75.0	77.7
SM	********	36855.7	********	36702.7
AV	-907.5	74.9	-907.5	74.6
MONTHLY SUMMARY (FEB)				
MN	-999.0	72.6	-999.0	70.7
MX	75.0	78.5	75.0	77.6
SM	********	33718.5	********	33416.2
AV	-907.2	75.9	-907.2	75.3
MONTHLY SUMMARY (MAR)				
MN	-999.0	74.1	-999.0	73.9
MX	75.0	80.1	75.0	79.9
SM	********	35946.3	********	35817.9
AV	-893.4	76.8	-893.4	76.5
MONTHLY SUMMARY (APR)				
MN	-999.0	74.4	-999.0	74.2
MX	80.0	84.7	80.0	84.4
SM	********	36979.7	********	36921.3
AV	-711.3	79.0	-711.3	78.9
MONTHLY SUMMARY (MAY)				
MN	-999.0	74.7	-999.0	75.1
MX	80.0	96.1	80.0	96.0
SM	********	39403.2	********	39635.2
AV	-567.4	80.1	-567.4	80.6
MONTHLY SUMMARY (JUN)				
MN	-999.0	74.9	-999.0	75.5
MX	80.0	82.5	80.0	83.0
SM	********	36183.0	********	36470.4
AV	-665.8	79.3	-665.8	80.0
MONTHLY SUMMARY (JUL)				
MN	-999.0	75.1	-999.0	75.9
MX	80.0	82.7	80.0	83.0
SM	********	40218.2	********	40483.0
AV	-646.2	79.8	-646.2	80.3

	1EXTPER THERMOST SETPOINT F	1EXTPER ZONE TEMP F	1INTPER THERMOST SETPOINT F	1INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	-999.0	74.9	-999.0	75.5
MX	80.0	82.6	80.0	82.4
SM	********	37206.3	********	37386.3
AV	-713.6	79.5	-713.6	79.9
MONTHLY SUMMARY (SEP)				
MN	-999.0	74.8	-999.0	74.9
MX	80.0	82.2	80.0	81.9
SM	********	37055.3	********	37081.8
AV	-736.6	79.2	-736.6	79.2
MONTHLY SUMMARY (OCT)				
MN	-999.0	74.5	-999.0	74.1
MX	80.0	83.9	80.0	82.3
SM	********	39951.6	********	39707.9
AV	-781.0	79.3	-781.7	78.8
MONTHLY SUMMARY (NOV)				
MN	-999.0	74.1	-999.0	74.0
MX	80.0	83.0	80.0	83.6
SM	********	37224.9	********	37056.3
AV	-866.8	77.6	-866.8	77.2
MONTHLY SUMMARY (DEC)				
MN	-999.0	72.7	-999.0	71.6
MX	80.0	81.0	75.0	79.5
SM	********	37427.9	********	37338.4
AV	-905.2	76.1	-905.2	75.9
YEARLY SUMMARY				
MN	-999.0	69.8	-999.0	69.9
MX	80.0	96.1	80.0	96.0
SM	********	448170.7	********	448017.5
AV	-774.5	78.1	-774.6	78.1

MMDDHH	2EXTPER THERMOST SETPOINT F	2EXTPER ZONE TEMP F	2INTPER THERMOST SETPOINT F	2INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	72.0	72.2	72.0	72.2
MX	75.0	75.5	75.0	75.6
SM	35445.0	35818.2	35472.0	35835.6
AV	72.0	72.8	72.1	72.8
MONTHLY SUMMARY (FEB)				
MN	72.0	72.2	72.0	72.2
MX	75.0	75.1	75.0	76.0
SM	32001.0	32337.8	32046.0	32376.2
AV	72.1	72.8	72.2	72.9
MONTHLY SUMMARY (MAR)				
MN	72.0	72.5	72.0	72.5
MX	75.0	79.9	75.0	80.8
SM	33906.0	34308.4	33942.0	34389.8
AV	72.4	73.3	72.5	73.5
MONTHLY SUMMARY (APR)				
MN	72.0	72.7	72.0	72.7
MX	75.0	96.9	75.0	98.5
SM	34662.0	37561.9	34665.0	37913.2
AV	74.1	80.3	74.1	81.0
MONTHLY SUMMARY (MAY)				
MN	72.0	67.8	72.0	67.9
MX	75.0	102.3	75.0	103.7
SM	36561.0	39161.8	36573.0	39429.4
AV	74.3	79.6	74.3	80.1
MONTHLY SUMMARY (JUN)				
MN	72.0	73.5	72.0	73.5
MX	75.0	75.0	75.0	75.1
SM	34161.0	33906.2	34167.0	33916.4
AV	74.9	74.4	74.9	74.4
MONTHLY SUMMARY (JUL)				
MN	72.0	73.8	72.0	73.9
MX	75.0	75.0	75.0	75.0
SM	37794.0	37510.9	37794.0	37520.6
AV	75.0	74.4	75.0	74.4

	2EXTPER THERMOST SETPOINT F ----(7)	2EXTPER ZONE TEMP F ----(6)	2INTPER THERMOST SETPOINT F ----(7)	2INTPER ZONE TEMP F ----(6)
MONTHLY SUMMARY (AUG)				
MN	72.0	72.8	72.0	72.8
MX	75.0	74.9	75.0	75.0
SM	35019.0	34776.7	35034.0	34791.4
AV	74.8	74.3	74.9	74.3
MONTHLY SUMMARY (SEP)				
MN	72.0	71.6	72.0	72.0
MX	75.0	74.6	75.0	74.7
SM	34944.0	34693.5	34968.0	34718.0
AV	74.7	74.1	74.7	74.2
MONTHLY SUMMARY (OCT)				
MN	72.0	67.5	72.0	68.5
MX	75.0	89.9	75.0	92.3
SM	37191.0	38152.6	37338.0	38527.4
AV	73.8	75.7	74.1	76.4
MONTHLY SUMMARY (NOV)				
MN	72.0	72.6	72.0	72.6
MX	75.0	90.0	75.0	90.7
SM	35124.0	36187.5	35172.0	36425.4
AV	73.2	75.4	73.3	75.9
MONTHLY SUMMARY (DEC)				
MN	72.0	72.5	72.0	72.5
MX	75.0	79.3	75.0	80.5
SM	35547.0	35932.1	35568.0	35995.9
AV	72.3	73.0	72.3	73.2
YEARLY SUMMARY				
MN	72.0	67.5	72.0	67.9
MX	75.0	102.3	75.0	103.7
SM	422355.0	430347.5	422739.0	431839.3
AV	73.6	75.0	73.7	75.3

MMDDHH	3EXTPER	3EXTPER	3INTPER	3INTPER
	THERMOST SETPOINT F	ZONE TEMP F	THERMOST SETPOINT F	ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	72.0	72.2	72.0	72.2
MX	75.0	75.5	75.0	75.6
SM	35445.0	35818.2	35472.0	35835.6
AV	72.0	72.8	72.1	72.8
MONTHLY SUMMARY (FEB)				
MN	72.0	72.2	72.0	72.2
MX	75.0	75.1	75.0	76.0
SM	32001.0	32337.8	32046.0	32376.2
AV	72.1	72.8	72.2	72.9
MONTHLY SUMMARY (MAR)				
MN	72.0	72.5	72.0	72.5
MX	75.0	79.9	75.0	80.8
SM	33906.0	34308.3	33942.0	34389.8
AV	72.4	73.3	72.5	73.5
MONTHLY SUMMARY (APR)				
MN	72.0	72.7	72.0	72.7
MX	75.0	96.9	75.0	98.5
SM	34662.0	37561.8	34665.0	37913.2
AV	74.1	80.3	74.1	81.0
MONTHLY SUMMARY (MAY)				
MN	72.0	67.8	72.0	67.9
MX	75.0	102.3	75.0	103.7
SM	36561.0	39161.9	36573.0	39429.4
AV	74.3	79.6	74.3	80.1
MONTHLY SUMMARY (JUN)				
MN	72.0	73.5	72.0	73.5
MX	75.0	75.0	75.0	75.1
SM	34161.0	33906.2	34167.0	33916.4
AV	74.9	74.4	74.9	74.4
MONTHLY SUMMARY (JUL)				
MN	72.0	73.8	72.0	73.9
MX	75.0	75.0	75.0	75.0
SM	37794.0	37510.9	37794.0	37520.6
AV	75.0	74.4	75.0	74.4

	3EXTPER THERMOST SETPOINT F	3EXTPER ZONE TEMP F	3INTPER THERMOST SETPOINT F	3INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	72.0	72.8	72.0	72.8
MX	75.0	74.9	75.0	75.0
SM	35019.0	34776.7	35034.0	34791.4
AV	74.8	74.3	74.9	74.3
MONTHLY SUMMARY (SEP)				
MN	72.0	71.6	72.0	72.0
MX	75.0	74.6	75.0	74.7
SM	34944.0	34693.5	34968.0	34718.0
AV	74.7	74.1	74.7	74.2
MONTHLY SUMMARY (OCT)				
MN	72.0	67.5	72.0	68.5
MX	75.0	89.9	75.0	92.3
SM	37191.0	38152.5	37338.0	38527.4
AV	73.8	75.7	74.1	76.4
MONTHLY SUMMARY (NOV)				
MN	72.0	72.6	72.0	72.6
MX	75.0	90.0	75.0	90.7
SM	35124.0	36187.2	35172.0	36425.4
AV	73.2	75.4	73.3	75.9
MONTHLY SUMMARY (DEC)				
MN	72.0	72.5	72.0	72.5
MX	75.0	79.3	75.0	80.5
SM	35547.0	35932.0	35568.0	35995.9
AV	72.3	73.0	72.3	73.2
YEARLY SUMMARY				
MN	72.0	67.5	72.0	67.9
MX	75.0	102.3	75.0	103.7
SM	422355.0	430347.1	422739.0	431839.3
AV	73.6	75.0	73.7	75.3

MMDDHH	4EXTPER THERMOST SETPOINT F	4EXTPER ZONE TEMP F	4INTPER THERMOST SETPOINT F	4INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	72.0	72.1	72.0	72.2
MX	72.0	72.9	72.0	73.0
SM	35424.0	35761.0	35424.0	35763.6
AV	72.0	72.7	72.0	72.7
MONTHLY SUMMARY (FEB)				
MN	72.0	72.2	72.0	72.2
MX	72.0	73.5	72.0	73.9
SM	31968.0	32276.7	31968.0	32282.9
AV	72.0	72.7	72.0	72.7
MONTHLY SUMMARY (MAR)				
MN	72.0	72.5	72.0	72.5
MX	75.0	76.8	75.0	77.3
SM	33738.0	34102.0	33753.0	34123.1
AV	72.1	72.9	72.1	72.9
MONTHLY SUMMARY (APR)				
MN	72.0	72.6	72.0	72.6
MX	75.0	90.4	75.0	91.4
SM	34434.0	35745.0	34461.0	35950.4
AV	73.6	76.4	73.6	76.8
MONTHLY SUMMARY (MAY)				
MN	72.0	64.0	72.0	64.3
MX	75.0	98.4	75.0	99.5
SM	36351.0	37680.9	36384.0	37852.7
AV	73.9	76.6	74.0	76.9
MONTHLY SUMMARY (JUN)				
MN	72.0	72.3	72.0	72.3
MX	75.0	75.0	75.0	75.1
SM	34017.0	33852.2	34050.0	33866.7
AV	74.6	74.2	74.7	74.3
MONTHLY SUMMARY (JUL)				
MN	72.0	73.1	72.0	73.2
MX	75.0	75.0	75.0	75.1
SM	37767.0	37490.9	37770.0	37501.8
AV	74.9	74.4	74.9	74.4

	4EXTPER THERMOST SETPOINT F	4EXTPER ZONE TEMP F	4INTPER THERMOST SETPOINT F	4INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	72.0	71.2	72.0	71.4
MX	75.0	74.9	75.0	75.0
SM	34881.0	34701.0	34905.0	34721.1
AV	74.5	74.1	74.6	74.2
MONTHLY SUMMARY (SEP)				
MN	72.0	69.5	72.0	69.9
MX	75.0	74.7	75.0	74.8
SM	34650.0	34547.6	34698.0	34589.0
AV	74.0	73.8	74.1	73.9
MONTHLY SUMMARY (OCT)				
MN	72.0	62.5	72.0	63.5
MX	75.0	82.6	75.0	83.8
SM	36774.0	36757.6	36882.0	37036.8
AV	73.0	72.9	73.2	73.5
MONTHLY SUMMARY (NOV)				
MN	72.0	72.6	72.0	72.5
MX	75.0	84.9	75.0	85.3
SM	34740.0	35345.7	34764.0	35386.3
AV	72.4	73.6	72.4	73.7
MONTHLY SUMMARY (DEC)				
MN	72.0	72.5	72.0	72.5
MX	75.0	76.0	75.0	76.7
SM	35448.0	35790.5	35460.0	35803.4
AV	72.0	72.7	72.1	72.8
YEARLY SUMMARY				
MN	72.0	62.5	72.0	63.5
MX	75.0	98.4	75.0	99.5
SM	420192.0	424051.1	420519.0	424877.6
AV	73.3	73.9	73.3	74.1

MMDDHH	2MIDL THERMOST SETPOINT F	2MIDL ZONE TEMP F	3MIDL THERMOST SETPOINT F	3MIDL ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	-999.0	74.7	-999.0	74.8
MX	80.0	81.2	80.0	81.2
SM	********	38946.3	********	38976.9
AV	-751.6	79.2	-734.1	79.2
MONTHLY SUMMARY (FEB)				
MN	-999.0	74.9	-999.0	74.9
MX	80.0	81.2	80.0	81.2
SM	********	35156.7	********	35181.8
AV	-761.5	79.2	-744.4	79.2
MONTHLY SUMMARY (MAR)				
MN	-999.0	74.9	-999.0	75.0
MX	80.0	81.6	80.0	81.6
SM	********	37064.1	********	37082.3
AV	-736.7	79.2	-720.5	79.2
MONTHLY SUMMARY (APR)				
MN	-999.0	75.1	-999.0	75.1
MX	80.0	85.7	80.0	85.7
SM	********	37451.0	********	37460.7
AV	-572.9	80.0	-561.4	80.0
MONTHLY SUMMARY (MAY)				
MN	-999.0	75.1	-999.0	75.2
MX	80.0	97.1	80.0	97.1
SM	********	39786.8	********	39796.0
AV	-490.6	80.9	-488.4	80.9
MONTHLY SUMMARY (JUN)				
MN	-999.0	75.3	-999.0	75.3
MX	80.0	82.0	80.0	82.0
SM	********	36459.3	********	36458.3
AV	-665.8	80.0	-663.5	80.0
MONTHLY SUMMARY (JUL)				
MN	-999.0	75.4	-999.0	75.4
MX	80.0	82.2	80.0	82.1
SM	********	40401.7	********	40399.1
AV	-620.5	80.2	-620.5	80.2

	2MIDL THERMOST SETPOINT F	2MIDL ZONE TEMP F	3MIDL THERMOST SETPOINT F	3MIDL ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	-999.0	75.3	-999.0	75.3
MX	80.0	82.0	80.0	82.0
SM	********	37415.9	********	37419.0
AV	-651.4	79.9	-651.4	80.0
MONTHLY SUMMARY (SEP)				
MN	-999.0	75.2	-999.0	75.2
MX	80.0	81.9	80.0	81.9
SM	********	37350.1	********	37360.1
AV	-669.8	79.8	-667.4	79.8
MONTHLY SUMMARY (OCT)				
MN	-999.0	75.1	-999.0	75.1
MX	80.0	83.8	80.0	83.9
SM	********	40268.3	********	40288.4
AV	-596.9	79.9	-592.6	79.9
MONTHLY SUMMARY (NOV)				
MN	-999.0	74.9	-999.0	75.0
MX	80.0	85.0	80.0	85.1
SM	********	38220.5	********	38242.4
AV	-660.0	79.6	-646.5	79.7
MONTHLY SUMMARY (DEC)				
MN	-999.0	74.8	-999.0	74.8
MX	80.0	81.4	80.0	81.4
SM	********	38965.3	********	38994.3
AV	-756.0	79.2	-738.4	79.3
YEARLY SUMMARY				
MN	-999.0	74.7	-999.0	74.8
MX	80.0	97.1	80.0	97.1
SM	********	457486.1	********	457659.3
AV	-660.1	79.8	-651.4	79.8

MMDDHH	4MIDL THERMOST SETPOINT F	4MIDL ZONE TEMP F	0INTEXTPER THERMOST SETPOINT F	0INTEXTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	-999.0	69.1	-999.0	69.6
MX	72.0	75.3	75.0	79.0
SM	********	35465.8	********	36327.0
AV	-672.5	72.1	-907.6	73.8
MONTHLY SUMMARY (FEB)				
MN	-999.0	68.7	-999.0	69.7
MX	75.0	75.3	75.0	79.6
SM	********	32080.3	********	33099.5
AV	-743.3	72.3	-907.3	74.5
MONTHLY SUMMARY (MAR)				
MN	-999.0	70.4	-999.0	72.9
MX	75.0	77.4	75.0	79.6
SM	********	34170.5	********	35655.5
AV	-809.0	73.0	-893.5	76.2
MONTHLY SUMMARY (APR)				
MN	-999.0	71.7	-999.0	74.1
MX	75.0	80.7	80.0	85.6
SM	********	35104.3	********	37031.0
AV	-684.7	75.0	-704.3	79.1
MONTHLY SUMMARY (MAY)				
MN	-999.0	73.3	-999.0	74.5
MX	75.0	93.6	80.0	98.0
SM	********	37662.0	********	39842.6
AV	-470.7	76.5	-543.3	81.0
MONTHLY SUMMARY (JUN)				
MN	-999.0	74.3	-999.0	74.9
MX	75.0	79.5	80.0	86.3
SM	********	34644.7	********	36727.8
AV	-436.1	76.0	-559.4	80.5
MONTHLY SUMMARY (JUL)				
MN	-999.0	74.4	-999.0	75.1
MX	75.0	79.5	80.0	87.0
SM	********	38382.7	********	40806.6
AV	-419.4	76.2	-474.9	81.0

	4MIDL THERMOST SETPOINT F	4MIDL ZONE TEMP F	0INTEXTP ER THERMOST SETPOINT F	0INTEXTP ER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	-999.0	74.3	-999.0	75.0
MX	75.0	79.1	80.0	87.0
SM	********	35527.9	********	37666.4
AV	-445.9	75.9	-499.2	80.5
MONTHLY SUMMARY (SEP)				
MN	-999.0	74.0	-999.0	74.8
MX	75.0	78.8	80.0	85.9
SM	********	35388.4	********	37624.8
AV	-491.8	75.6	-612.1	80.4
MONTHLY SUMMARY (OCT)				
MN	-999.0	71.5	-999.0	74.5
MX	75.0	80.1	80.0	87.3
SM	********	37973.8	********	40213.3
AV	-717.8	75.3	-646.2	79.8
MONTHLY SUMMARY (NOV)				
MN	-999.0	70.4	-999.0	73.0
MX	75.0	80.3	80.0	85.0
SM	********	35265.7	********	37389.3
AV	-798.0	73.5	-842.1	77.9
MONTHLY SUMMARY (DEC)				
MN	-999.0	69.5	-999.0	71.9
MX	75.0	76.3	80.0	81.9
SM	********	35725.7	********	37041.3
AV	-742.1	72.6	-885.6	75.3
YEARLY SUMMARY				
MN	-999.0	68.7	-999.0	69.6
MX	75.0	93.6	80.0	98.0
SM	********	427391.5	********	449424.8
AV	-619.0	74.5	-705.1	78.4

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
HW-BOILER	4.101	1	1												
HERM-CENT-CHLR	7.800	1	1												
COOLING-TWR	2.379	4	4												

EQUIPMENT	HOURS AT PERCENT PART LOAD RATIO											TOTAL HOURS	ANNUAL LOAD (MBTU)	FALSE LOAD (MBTU)	ELEC USED (MBTU)	THERMAL USED (MBTU)
	0 -- 10	-- 20	-- 30	-- 40	-- 50	-- 60	-- 70	-- 80	-- 90	-- 100	- 110+					
HW-BOILER	2827	616	634	478	311	139	41	28	9	4	1	5088	3096.9	0.0	202.4	4504.8
	2827	616	634	478	311	139	41	28	9	4	1					
HERM-CENT-CHLR	1286	825	408	207	244	352	266	81	3	0	0	3672	8366.2	0.0	1972.7	0.0
	1286	825	408	207	244	352	266	81	3	0	0					
COOLING-TWR	1660	651	227	116	89	77	68	102	125	115	442	3672	10338.9	0.0	807.7	0.0
	1660	651	227	116	89	77	68	102	125	115	442					

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 154.2 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 993.6 MBTU

NOTES TO TABLE
1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HW-BOILER	3096.9	100.0
LOAD SATISFIED	3096.9	100.0
TOTAL LOAD ON PLANT	3096.9	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-CENT-CHLR	8366.2	100.0
LOAD SATISFIED	8366.2	100.0
TOTAL LOAD ON PLANT	8366.2	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	21337.4	100.0
LOAD SATISFIED	21337.4	100.0
TOTAL LOAD ON PLANT	21337.3	

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 1 HOURS
MAXIMUM TOWER EXIT TEMPERATURE = 86.F

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	3096.9	3096.9	0.000	0.000	0
COOLING LOADS	8366.2	8366.2	0.000	0.000	0
ELECTRICAL LOADS	21337.3	21337.4	0.000	0.000	0

EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON	DAY	HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
HW-BOILER	0.148	4.101	2	20	3	4.101	5088								
HERM-CENT-CHLR	0.292	7.613	6	13	15	7.800	3672								
COOLING-TWR	0.296	9.214	6	13	15	2.379	14688								

ENERGY TYPE IN SITE MBTU -	ELECTRICITY	FUEL-OIL
CATEGORY OF USE		
SPACE HEAT	202.45	4504.78
SPACE COOL	2780.41	0.00
HVAC AUX	3574.63	0.00
DOM HOT WTR	0.00	0.00
AUX SOLAR	0.00	0.00
LIGHTS	10258.50	0.00
VERT TRANS	0.00	0.00
MISC EQUIP	4521.37	0.00
TOTAL	21337.36	4504.78

TOTAL SITE ENERGY 25842.22 MBTU 78.4 KBTU/SQFT-YR GROSS-AREA 78.4 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 68581.08 MBTU 208.1 KBTU/SQFT-YR GROSS-AREA 208.1 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 10.1
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	HERM-CEN T-CHLR ENTERING COND TEM F ----(12)	HERM-CEN T-CHLR LEAVING COLD TEM F ----(13)	COOLING-TWR WATER FLOWRATE GAL/MIN ----(8)	COOLING-TWR RANGE R ----(10)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)
MONTHLY SUMMARY (JAN)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (FEB)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (MAR)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (APR)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (MAY)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	4487600.	838479.	77.3	55.3	1950.0	5.5	140410.	90465.
SM	169750432.	65228444.	16614.1	13603.2	491400.0	261.8	28844272.	22797268.
AV	345021.	132578.	33.8	27.6	998.8	0.5	58627.	46336.
MONTHLY SUMMARY (JUN)								
MN	316498.	149259.	65.0	53.9	1950.0	0.6	106748.	90465.
MX	4448608.	852782.	80.0	55.3	1950.0	5.5	140410.	90465.
SM	581556736.	179042656.	31407.7	24709.3	889200.1	817.5	58399344.	41252200.
AV	1275344.	392637.	68.9	54.2	1950.0	1.8	128069.	90465.
MONTHLY SUMMARY (JUL)								
MN	316498.	149259.	65.0	53.9	1950.0	0.6	113014.	90465.
MX	4115743.	783141.	79.6	55.2	1950.0	5.1	140410.	90465.
SM	783858752.	223227600.	35653.1	27358.6	982800.1	1074.1	66740936.	45594536.
AV	1555275.	442912.	70.7	54.3	1950.0	2.1	132422.	90465.

	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	HERM-CEN T-CHLR ENTERING COND TEM F ----(12)	HERM-CEN T-CHLR LEAVING COLD TEM F ----(13)	COOLING-TWR WATER FLOWRATE GAL/MIN ----(8)	COOLING-TWR RANGE R ----(10)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)
MONTHLY SUMMARY (AUG)								
MN	316498.	149259.	64.9	53.9	1950.0	0.6	107897.	90465.
MX	4499745.	878697.	83.6	55.3	1950.0	5.6	140410.	90465.
SM	598733184.	186173856.	33142.3	25360.1	912600.1	843.4	60455884.	42337780.
AV	1279344.	397807.	70.8	54.2	1950.0	1.8	129179.	90465.
MONTHLY SUMMARY (SEP)								
MN	316498.	149259.	65.0	53.9	1950.0	0.6	106748.	90465.
MX	3866649.	757026.	78.0	55.1	1950.0	4.8	140410.	90465.
SM	416302656.	150314016.	32075.6	25297.6	912600.1	619.7	57864784.	42337784.
AV	889536.	321184.	68.5	54.1	1950.0	1.3	123643.	90465.
MONTHLY SUMMARY (OCT)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	2677554.	567950.	70.1	54.7	1950.0	3.4	140410.	90465.
SM	111269232.	48921036.	16451.1	13583.1	491400.0	185.2	28117416.	22797272.
AV	220772.	97066.	32.6	27.0	975.0	0.4	55789.	45233.
MONTHLY SUMMARY (NOV)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (DEC)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
YEARLY SUMMARY								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	4499745.	878697.	83.6	55.3	1950.0	5.6	140410.	90465.
SM	2661470976.	852907584.	165343.9	129911.9	4680000.5	3801.9	300422624.	217116832.
AV	463994.	148694.	28.8	22.6	815.9	0.7	52375.	37852.

MMDDHH	HW-BOILE R LOAD BTU/HR ----(1)	HW-BOILE R ELECTRIC USE BTU/HR ----(3)	HW-BOILE R FUEL USE BTU/HR ----(4)	HW-BOILE R CAPACITY RUNNING BTU/HR ----(7)
MONTHLY SUMMARY (JAN)				
MN	149887.	13190.	235139.	4100792.
MX	3799679.	90217.	4616031.	4100792.
SM	679282560.	38912236.	959069696.	2017589120.
AV	1380656.	79090.	1949329.	4100791.
MONTHLY SUMMARY (FEB)				
MN	13589.	1196.	21318.	4100792.
MX	4100792.	90217.	4920951.	4100792.
SM	590047680.	33164520.	830094208.	1820750976.
AV	1328936.	74695.	1869582.	4100791.
MONTHLY SUMMARY (MAR)				
MN	13589.	1196.	21318.	4100792.
MX	2232132.	90217.	2960639.	4100792.
SM	392289056.	28610828.	586235520.	1919170048.
AV	838225.	61134.	1252640.	4100791.
MONTHLY SUMMARY (APR)				
MN	13589.	1196.	21318.	4100792.
MX	1720228.	90217.	2395328.	4100792.
SM	122128672.	9965951.	187781088.	1919170304.
AV	260959.	21295.	401242.	4100791.
MONTHLY SUMMARY (MAY)				
MN	0.	0.	0.	0.
MX	292716.	25759.	459205.	4100792.
SM	13872808.	1220807.	21763304.	984189952.
AV	28197.	2481.	44234.	2000386.
MONTHLY SUMMARY (JUN)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (JUL)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.

	HW-BOILER LOAD BTU/HR ----(1)	HW-BOILER ELECTRIC USE BTU/HR ----(3)	HW-BOILER FUEL USE BTU/HR ----(4)	HW-BOILER CAPACITY RUNNING BTU/HR ----(7)
MONTHLY SUMMARY (AUG)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (SEP)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (OCT)				
MN	0.	0.	0.	0.
MX	790137.	69532.	1239547.	4100792.
SM	23044680.	2027932.	36151900.	1033399424.
AV	45724.	4024.	71730.	2050396.
MONTHLY SUMMARY (NOV)				
MN	13589.	1196.	21318.	4100792.
MX	2289986.	90217.	3023764.	4100792.
SM	269184288.	20775456.	407937696.	1968379776.
AV	560801.	43282.	849870.	4100791.
MONTHLY SUMMARY (DEC)				
MN	13589.	1196.	21318.	4100792.
MX	2651084.	90217.	3414244.	4100792.
SM	615147904.	37391884.	881645376.	2017588992.
AV	1250301.	76000.	1791962.	4100791.
YEARLY SUMMARY				
MN	0.	0.	0.	0.
MX	4100792.	90217.	4920951.	4100792.
SM	2704997376.	172069616.	3910678784.	13680238592.
AV	471583.	29998.	681778.	2384979.

REPORT- EV-B COST OF FUELS AND UTILITIES

ENERGY SOURCE	ENERGY UNIT (BTU)	UNIFORM COST /UNIT ($)	COST ESCLA-ATION RATE	MIN MNTHLY CHARGE ($)	RATE LIMIT /UNIT ($)	FIXED MNTHLY CHARG1 ($)	FIXED MNTHLY CHARG2 ($)	ASSIGN-SCHEDULE (U-NAME)	ASSIGN-CHARGE1 (U-NAME)	ASSIGN-CHARGE2 (U-NAME)
ELECTRIC	3413.00	0.0000	5.000	0.00	1000000.000	0.00	0.00	YELEC1		
FUEL-OIL	138690.00	0.5900	5.000	0.00	1000000.000	0.00	0.00			

REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

MONTH	ELECTRIC UNIT= 3413.00	FUEL-OIL UNIT= 138690.00
JAN		
ENERGY CONSUMPTION (UNIT/MO)	437963.	8353.
PEAK DEMAND (UNIT/HR)	1457.	33.
TOTAL COST ($)	43972.25	4928.39
FEB		
ENERGY CONSUMPTION (UNIT/MO)	393296.	6604.
PEAK DEMAND (UNIT/HR)	1457.	35.
TOTAL COST ($)	40760.73	3896.21
MAR		
ENERGY CONSUMPTION (UNIT/MO)	455580.	4791.
PEAK DEMAND (UNIT/HR)	1457.	21.
TOTAL COST ($)	45238.93	2826.42
APR		
ENERGY CONSUMPTION (UNIT/MO)	429387.	1519.
PEAK DEMAND (UNIT/HR)	1449.	17.
TOTAL COST ($)	43288.15	896.48
MAY		
ENERGY CONSUMPTION (UNIT/MO)	536732.	198.
PEAK DEMAND (UNIT/HR)	1943.	3.
TOTAL COST ($)	55242.44	116.83
JUN		
ENERGY CONSUMPTION (UNIT/MO)	664362.	0.
PEAK DEMAND (UNIT/HR)	2022.	0.
TOTAL COST ($)	70361.52	0.00
JUL		
ENERGY CONSUMPTION (UNIT/MO)	666001.	0.
PEAK DEMAND (UNIT/HR)	2008.	0.
TOTAL COST ($)	70081.58	0.00
AUG		
ENERGY CONSUMPTION (UNIT/MO)	697341.	0.
PEAK DEMAND (UNIT/HR)	2009.	0.
TOTAL COST ($)	72822.00	0.00
SEP		
ENERGY CONSUMPTION (UNIT/MO)	623481.	0.
PEAK DEMAND (UNIT/HR)	1951.	0.
TOTAL COST ($)	66476.63	0.00
OCT		
ENERGY CONSUMPTION (UNIT/MO)	496446.	310.
PEAK DEMAND (UNIT/HR)	1848.	9.
TOTAL COST ($)	51533.05	183.03
NOV		
ENERGY CONSUMPTION (UNIT/MO)	414840.	3269.
PEAK DEMAND (UNIT/HR)	1457.	22.
TOTAL COST ($)	42309.72	1928.80
DEC		
ENERGY CONSUMPTION (UNIT/MO)	436376.	7437.
PEAK DEMAND (UNIT/HR)	1457.	25.
TOTAL COST ($)	43858.15	4387.78
TOTAL		
ENERGY CONSUMPTION (UNIT/YR)	6251806.	32481.
PEAK DEMAND (UNIT/HR)	2022.	35.
TOTAL COST ($)	645945.13	19163.94

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/26/1996 14:53: 7 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
JAN								
	4OFFPKKWH	744	437963.	31489.53	1457.	1457.	0.00	
	EONPKDMHTG	252	298671.	0.00	1457.	1457.	12482.72	
								43972.25
FEB								
	4OFFPKKWH	672	393296.	28278.01	1457.	1457.	0.00	
	EONPKDMHTG	228	269225.	0.00	1457.	1457.	12482.72	
								40760.73
MAR								
	4OFFPKKWH	744	455580.	32756.21	1457.	1457.	0.00	
	EONPKDMHTG	276	325452.	0.00	1457.	1457.	12482.72	
								45238.93
APR								
	4OFFPKKWH	720	429387.	30872.93	1449.	1449.	0.00	
	EONPKDMHTG	252	296413.	0.00	1449.	1449.	12415.23	
								43288.15
MAY								
	4OFFPKKWH	744	536732.	38591.05	1943.	1943.	0.00	
	EONPKDMHTG	252	340085.	0.00	1943.	1943.	16651.39	
								55242.44
JUN								
	4OFFPKKWH	456	243672.	17520.00	1144.	1144.	0.00	
	EONPKDMCL	264	420690.	0.00	2022.	2022.	19144.21	
	EONPKKWH	264	420690.	33697.30	2022.	2022.	0.00	
								70361.52
JUL								
	4OFFPKKWH	504	277917.	19982.25	1123.	1123.	0.00	
	EONPKDMCL	240	388083.	0.00	2008.	2008.	19013.84	
	EONPKKWH	240	388083.	31085.49	2008.	2008.	0.00	
								70081.58
AUG								
	4OFFPKKWH	468	251131.	18056.33	1151.	1151.	0.00	
	EONPKDMCL	276	446210.	0.00	2009.	2009.	19024.27	
	EONPKKWH	276	446210.	35741.40	2009.	2009.	0.00	
								72822.00
SEP								
	4OFFPKKWH	468	236900.	17033.13	1116.	1116.	0.00	
	EONPKDMCL	252	386581.	0.00	1951.	1951.	18478.37	
	EONPKKWH	252	386581.	30965.12	1951.	1951.	0.00	
								66476.63
OCT								
	4OFFPKKWH	744	496446.	35694.44	1848.	1848.	0.00	
	EONPKDMHTG	240	311527.	0.00	1848.	1848.	15838.62	
								51533.05
NOV								
	4OFFPKKWH	720	414840.	29827.00	1457.	1457.	0.00	
	EONPKDMHTG	240	282675.	0.00	1457.	1457.	12482.72	
								42309.72

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

CONTINUED

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
DEC								
	4OFFPKKWH	744	436376.	31375.43	1457.	1457.	0.00	
	EONPKDMHTG	252	298373.	0.00	1457.	1457.	12482.72	
								43858.15
TOTAL			6251806.	462965.63			182979.52	645945.13

ECO-2

MMDDHH	1SMCAHUS ZR SUPPLY ELECTRIC KW ----(49)	2SPERFC SUPPLY ELECTRIC KW ----(49)	3SPERFC SUPPLY ELECTRIC KW ----(49)	4SPERFC SUPPLY ELECTRIC KW ----(49)
MONTHLY SUMMARY (JAN)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7576.734	383.846	383.846	450.173
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (FEB)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	6855.140	347.290	347.290	407.299
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (MAR)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	8298.327	420.403	420.403	493.046
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (APR)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7576.734	383.846	383.846	450.173
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (MAY)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7576.734	383.846	383.846	450.173
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (JUN)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7937.531	402.125	402.125	471.610
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (JUL)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7215.937	365.568	365.568	428.736
AV	30.066	1.523	1.523	1.786

MCA SUMMER SETBACK @ 80°F

ON-PEAK USAGE

	1SMCAHUS ZR SUPPLY ELECTRIC KW	2SPERFC SUPPLY ELECTRIC KW	3SPERFC SUPPLY ELECTRIC KW	4SPERFC SUPPLY ELECTRIC KW
	----(49)	----(49)	----(49)	----(49)
MONTHLY SUMMARY (AUG)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	8298.327	420.403	420.403	493.046
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (SEP)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7576.734	383.846	383.846	450.173
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (OCT)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7215.937	365.568	365.568	428.736
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (NOV)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7215.937	365.568	365.568	428.736
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (DEC)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7576.734	383.846	383.846	450.173
AV	30.066	1.523	1.523	1.786
YEARLY SUMMARY				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	90920.805	4606.157	4606.157	5402.074
AV	30.066	1.523	1.523	1.786

MMDDHH	SSZF2MID	SSFZ3MID	SSZF4MID	OSMCAHUS ZR
	SUPPLY ELECTRIC KW	SUPPLY ELECTRIC KW	SUPPLY ELECTRIC KW	SUPPLY ELECTRIC KW
	----(49)	----(49)	----(49)	----(49)
MONTHLY SUMMARY (JAN)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	6025.824	7371.756	7426.086	4425.524
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (FEB)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	5451.936	6669.684	6718.840	4004.046
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (MAR)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	6599.711	8073.829	8133.333	4847.002
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (APR)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	6025.824	7371.756	7426.086	4425.524
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (MAY)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	6025.824	7371.756	7426.086	4425.524
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (JUN)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	6312.768	7722.792	7779.709	4636.263
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (JUL)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	5738.880	7020.720	7072.463	4214.785
AV	23.912	29.253	29.469	17.562

	SSZF2MID SUPPLY ELECTRIC KW ----(49)	SSFZ3MID SUPPLY ELECTRIC KW ----(49)	SSZF4MID SUPPLY ELECTRIC KW ----(49)	0SMCAHUS ZR SUPPLY ELECTRIC KW ----(49)
MONTHLY SUMMARY (AUG)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	6599.711	8073.829	8133.333	4847.002
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (SEP)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	6025.824	7371.756	7426.086	4425.524
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (OCT)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	5738.880	7020.720	7072.463	4214.785
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (NOV)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	5738.880	7020.720	7072.463	4214.785
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (DEC)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	6025.824	7371.756	7426.086	4425.524
AV	23.912	29.253	29.469	17.562
YEARLY SUMMARY				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	72309.883	88461.070	89113.039	53106.289
AV	23.912	29.253	29.469	17.562

MMDDHH	1EXTPER THERMOST SETPOINT F	1EXTPER ZONE TEMP F	1INTPER THERMOST SETPOINT F	1INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	72.0	73.4	72.0	73.1
MX	75.0	75.4	75.0	75.9
SM	18891.0	18851.0	18846.0	18835.7
AV	75.0	74.8	74.8	74.7
MONTHLY SUMMARY (FEB)				
MN	75.0	74.1	72.0	73.0
MX	75.0	75.6	75.0	76.0
SM	17100.0	17093.5	16992.0	17050.2
AV	75.0	75.0	74.5	74.8
MONTHLY SUMMARY (MAR)				
MN	75.0	74.3	75.0	74.4
MX	75.0	80.8	75.0	80.7
SM	20700.0	20809.9	20700.0	20825.4
AV	75.0	75.4	75.0	75.5
MONTHLY SUMMARY (APR)				
MN	75.0	74.6	75.0	74.5
MX	75.0	90.7	75.0	90.3
SM	18900.0	19587.4	18900.0	19616.6
AV	75.0	77.7	75.0	77.8
MONTHLY SUMMARY (MAY)				
MN	75.0	74.7	75.0	75.5
MX	75.0	97.5	75.0	97.0
SM	18900.0	19753.6	18900.0	19892.4
AV	75.0	78.4	75.0	78.9
MONTHLY SUMMARY (JUN)				
MN	75.0	75.2	75.0	75.7
MX	75.0	77.9	75.0	78.4
SM	19800.0	20075.2	19800.0	20267.0
AV	75.0	76.0	75.0	76.8
MONTHLY SUMMARY (JUL)				
MN	75.0	75.2	75.0	76.1
MX	75.0	77.5	75.0	77.7
SM	18000.0	18288.4	18000.0	18446.9
AV	75.0	76.2	75.0	76.9

	1EXTPER THERMOST SETPOINT F	1EXTPER ZONE TEMP F	1INTPER THERMOST SETPOINT F	1INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	75.0	75.2	75.0	75.8
MX	75.0	77.6	75.0	77.7
SM	20700.0	21040.6	20700.0	21173.5
AV	75.0	76.2	75.0	76.7
MONTHLY SUMMARY (SEP)				
MN	75.0	75.0	75.0	75.0
MX	75.0	77.3	75.0	77.3
SM	18900.0	19111.7	18900.0	19182.6
AV	75.0	75.8	75.0	76.1
MONTHLY SUMMARY (OCT)				
MN	75.0	74.8	75.0	74.3
MX	75.0	84.6	75.0	83.7
SM	18000.0	18375.1	18000.0	18380.8
AV	75.0	76.6	75.0	76.6
MONTHLY SUMMARY (NOV)				
MN	75.0	74.4	75.0	74.2
MX	75.0	90.8	75.0	91.1
SM	18000.0	18311.1	18000.0	18335.8
AV	75.0	76.3	75.0	76.4
MONTHLY SUMMARY (DEC)				
MN	75.0	74.1	72.0	73.7
MX	75.0	78.2	75.0	78.1
SM	18900.0	18903.1	18879.0	18931.9
AV	75.0	75.0	74.9	75.1
YEARLY SUMMARY				
MN	72.0	73.4	72.0	73.0
MX	75.0	97.5	75.0	97.0
SM	226791.0	230200.5	226617.0	230938.8
AV	75.0	76.1	74.9	76.4

MMDDHH	2EXTPER THERMOST SETPOINT F	2EXTPER ZONE TEMP F	2INTPER THERMOST SETPOINT F	2INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	72.0	72.4	72.0	72.4
MX	75.0	78.6	75.0	79.3
SM	18423.0	18641.9	18435.0	18688.2
AV	73.1	74.0	73.2	74.2
MONTHLY SUMMARY (FEB)				
MN	72.0	72.7	72.0	72.7
MX	75.0	78.8	75.0	79.6
SM	16749.0	16994.1	16764.0	17050.9
AV	73.5	74.5	73.5	74.8
MONTHLY SUMMARY (MAR)				
MN	72.0	72.7	72.0	72.7
MX	75.0	85.1	75.0	86.0
SM	20445.0	21047.0	20451.0	21129.1
AV	74.1	76.3	74.1	76.6
MONTHLY SUMMARY (APR)				
MN	72.0	72.8	72.0	72.8
MX	75.0	100.4	75.0	101.6
SM	18840.0	21316.4	18846.0	21481.7
AV	74.8	84.6	74.8	85.2
MONTHLY SUMMARY (MAY)				
MN	72.0	71.4	72.0	71.5
MX	75.0	104.4	75.0	105.1
SM	18876.0	20721.0	18876.0	20808.5
AV	74.9	82.2	74.9	82.6
MONTHLY SUMMARY (JUN)				
MN	75.0	74.4	75.0	74.4
MX	75.0	75.8	75.0	75.8
SM	19800.0	19824.3	19800.0	19820.9
AV	75.0	75.1	75.0	75.1
MONTHLY SUMMARY (JUL)				
MN	75.0	74.5	75.0	74.5
MX	75.0	75.7	75.0	75.7
SM	18000.0	18036.0	18000.0	18032.6
AV	75.0	75.2	75.0	75.1

	2EXTPER THERMOST SETPOINT F	2EXTPER ZONE TEMP F	2INTPER THERMOST SETPOINT F	2INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	75.0	74.5	75.0	74.5
MX	75.0	75.8	75.0	75.8
SM	20700.0	20741.3	20700.0	20741.6
AV	75.0	75.1	75.0	75.2
MONTHLY SUMMARY (SEP)				
MN	72.0	73.5	72.0	73.9
MX	75.0	75.5	75.0	75.5
SM	18897.0	18872.1	18897.0	18878.9
AV	75.0	74.9	75.0	74.9
MONTHLY SUMMARY (OCT)				
MN	72.0	70.5	72.0	71.4
MX	75.0	92.5	75.0	94.6
SM	17976.0	18930.8	17985.0	19083.1
AV	74.9	78.9	74.9	79.5
MONTHLY SUMMARY (NOV)				
MN	72.0	72.8	72.0	72.8
MX	75.0	94.2	75.0	95.0
SM	17853.0	18945.8	17868.0	19090.0
AV	74.4	78.9	74.4	79.5
MONTHLY SUMMARY (DEC)				
MN	72.0	72.6	72.0	72.6
MX	75.0	82.2	75.0	83.5
SM	18411.0	18695.1	18432.0	18741.0
AV	73.1	74.2	73.1	74.4
YEARLY SUMMARY				
MN	72.0	70.5	72.0	71.4
MX	75.0	104.4	75.0	105.1
SM	224970.0	232766.0	225054.0	233546.4
AV	74.4	77.0	74.4	77.2

MMDDHH	3EXTPER THERMOST SETPOINT F	3EXTPER ZONE TEMP F	3INTPER THERMOST SETPOINT F	3INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	72.0	72.4	72.0	72.4
MX	75.0	78.6	75.0	79.3
SM	18423.0	18641.9	18435.0	18688.2
AV	73.1	74.0	73.2	74.2
MONTHLY SUMMARY (FEB)				
MN	72.0	72.7	72.0	72.7
MX	75.0	78.8	75.0	79.6
SM	16749.0	16994.1	16764.0	17050.9
AV	73.5	74.5	73.5	74.8
MONTHLY SUMMARY (MAR)				
MN	72.0	72.7	72.0	72.7
MX	75.0	85.1	75.0	86.0
SM	20445.0	21047.0	20451.0	21129.1
AV	74.1	76.3	74.1	76.6
MONTHLY SUMMARY (APR)				
MN	72.0	72.8	72.0	72.8
MX	75.0	100.4	75.0	101.6
SM	18840.0	21316.4	18846.0	21481.7
AV	74.8	84.6	74.8	85.2
MONTHLY SUMMARY (MAY)				
MN	72.0	71.4	72.0	71.5
MX	75.0	104.4	75.0	105.1
SM	18876.0	20721.0	18876.0	20808.5
AV	74.9	82.2	74.9	82.6
MONTHLY SUMMARY (JUN)				
MN	75.0	74.4	75.0	74.4
MX	75.0	75.8	75.0	75.8
SM	19800.0	19824.3	19800.0	19820.9
AV	75.0	75.1	75.0	75.1
MONTHLY SUMMARY (JUL)				
MN	75.0	74.5	75.0	74.5
MX	75.0	75.7	75.0	75.7
SM	18000.0	18036.0	18000.0	18032.6
AV	75.0	75.2	75.0	75.1

	3EXTPER THERMOST SETPOINT F	3EXTPER ZONE TEMP F	3INTPER THERMOST SETPOINT F	3INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	75.0	74.5	75.0	74.5
MX	75.0	75.8	75.0	75.8
SM	20700.0	20741.3	20700.0	20741.6
AV	75.0	75.1	75.0	75.2
MONTHLY SUMMARY (SEP)				
MN	72.0	73.5	72.0	73.9
MX	75.0	75.5	75.0	75.5
SM	18897.0	18872.1	18897.0	18878.9
AV	75.0	74.9	75.0	74.9
MONTHLY SUMMARY (OCT)				
MN	72.0	70.5	72.0	71.4
MX	75.0	92.5	75.0	94.6
SM	17976.0	18930.7	17985.0	19083.1
AV	74.9	78.9	74.9	79.5
MONTHLY SUMMARY (NOV)				
MN	72.0	72.8	72.0	72.8
MX	75.0	94.2	75.0	95.0
SM	17853.0	18945.7	17868.0	19090.0
AV	74.4	78.9	74.4	79.5
MONTHLY SUMMARY (DEC)				
MN	72.0	72.6	72.0	72.6
MX	75.0	82.2	75.0	83.5
SM	18411.0	18695.1	18432.0	18741.0
AV	73.1	74.2	73.1	74.4
YEARLY SUMMARY				
MN	72.0	70.5	72.0	71.4
MX	75.0	104.4	75.0	105.1
SM	224970.0	232765.6	225054.0	233546.4
AV	74.4	77.0	74.4	77.2

MMDDHH	4EXTPER THERMOST SETPOINT F	4EXTPER ZONE TEMP F	4INTPER THERMOST SETPOINT F	4INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	72.0	72.4	72.0	72.4
MX	75.0	76.3	75.0	77.2
SM	18234.0	18420.4	18240.0	18440.7
AV	72.4	73.1	72.4	73.2
MONTHLY SUMMARY (FEB)				
MN	72.0	72.6	72.0	72.6
MX	75.0	76.2	75.0	77.0
SM	16533.0	16727.1	16554.0	16757.4
AV	72.5	73.4	72.6	73.5
MONTHLY SUMMARY (MAR)				
MN	72.0	72.6	72.0	72.6
MX	75.0	82.6	75.0	83.1
SM	20268.0	20624.0	20286.0	20662.6
AV	73.4	74.7	73.5	74.9
MONTHLY SUMMARY (APR)				
MN	72.0	72.8	72.0	72.8
MX	75.0	94.4	75.0	95.2
SM	18786.0	20246.1	18786.0	20328.8
AV	74.5	80.3	74.5	80.7
MONTHLY SUMMARY (MAY)				
MN	72.0	69.2	72.0	69.4
MX	75.0	101.1	75.0	101.5
SM	18840.0	20109.5	18846.0	20149.2
AV	74.8	79.8	74.8	80.0
MONTHLY SUMMARY (JUN)				
MN	75.0	74.2	75.0	74.2
MX	75.0	75.8	75.0	75.8
SM	19800.0	19806.8	19800.0	19806.5
AV	75.0	75.0	75.0	75.0
MONTHLY SUMMARY (JUL)				
MN	75.0	74.4	75.0	74.4
MX	75.0	75.7	75.0	75.7
SM	18000.0	18025.5	18000.0	18025.0
AV	75.0	75.1	75.0	75.1

	4EXTPER THERMOST SETPOINT F	4EXTPER ZONE TEMP F	4INTPER THERMOST SETPOINT F	4INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	75.0	74.1	75.0	74.1
MX	75.0	75.8	75.0	75.8
SM	20700.0	20725.5	20700.0	20729.0
AV	75.0	75.1	75.0	75.1
MONTHLY SUMMARY (SEP)				
MN	72.0	71.3	72.0	71.6
MX	75.0	75.4	75.0	75.5
SM	18885.0	18833.6	18885.0	18843.3
AV	74.9	74.7	74.9	74.8
MONTHLY SUMMARY (OCT)				
MN	72.0	65.1	72.0	66.1
MX	75.0	86.0	75.0	87.3
SM	17880.0	18328.5	17892.0	18433.6
AV	74.5	76.4	74.6	76.8
MONTHLY SUMMARY (NOV)				
MN	72.0	72.7	72.0	72.7
MX	75.0	88.5	75.0	89.0
SM	17670.0	18309.8	17685.0	18364.5
AV	73.6	76.3	73.7	76.5
MONTHLY SUMMARY (DEC)				
MN	72.0	72.6	72.0	72.6
MX	75.0	79.8	75.0	80.7
SM	18240.0	18478.9	18243.0	18498.7
AV	72.4	73.3	72.4	73.4
YEARLY SUMMARY				
MN	72.0	65.1	72.0	66.1
MX	75.0	101.1	75.0	101.5
SM	223836.0	228635.7	223917.0	229039.3
AV	74.0	75.6	74.0	75.7

MMDDHH	2MIDL THERMOST SETPOINT F	2MIDL ZONE TEMP F	3MIDL THERMOST SETPOINT F	3MIDL ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	75.0	74.7	75.0	74.8
MX	75.0	76.0	75.0	76.0
SM	18900.0	19049.2	18900.0	19056.2
AV	75.0	75.6	75.0	75.6
MONTHLY SUMMARY (FEB)				
MN	75.0	74.9	75.0	74.9
MX	75.0	76.0	75.0	76.0
SM	17100.0	17239.7	17100.0	17245.3
AV	75.0	75.6	75.0	75.6
MONTHLY SUMMARY (MAR)				
MN	75.0	74.9	75.0	74.9
MX	75.0	82.1	75.0	82.1
SM	20700.0	20961.8	20700.0	20967.7
AV	75.0	75.9	75.0	76.0
MONTHLY SUMMARY (APR)				
MN	75.0	75.1	75.0	75.1
MX	75.0	91.5	75.0	91.5
SM	18900.0	19772.1	18900.0	19780.4
AV	75.0	78.5	75.0	78.5
MONTHLY SUMMARY (MAY)				
MN	75.0	75.1	75.0	75.1
MX	75.0	98.3	75.0	98.3
SM	18900.0	19963.6	18900.0	19973.4
AV	75.0	79.2	75.0	79.3
MONTHLY SUMMARY (JUN)				
MN	75.0	75.4	75.0	75.4
MX	75.0	78.2	75.0	78.2
SM	19800.0	20246.3	19800.0	20254.8
AV	75.0	76.7	75.0	76.7
MONTHLY SUMMARY (JUL)				
MN	75.0	75.6	75.0	75.6
MX	75.0	78.0	75.0	78.0
SM	18000.0	18445.5	18000.0	18451.7
AV	75.0	76.9	75.0	76.9

	2MIDL THERMOST SETPOINT F	2MIDL ZONE TEMP F	3MIDL THERMOST SETPOINT F	3MIDL ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	75.0	75.5	75.0	75.5
MX	75.0	78.0	75.0	78.0
SM	20700.0	21198.8	20700.0	21206.7
AV	75.0	76.8	75.0	76.8
MONTHLY SUMMARY (SEP)				
MN	75.0	75.2	75.0	75.2
MX	75.0	77.9	75.0	77.9
SM	18900.0	19247.4	18900.0	19257.9
AV	75.0	76.4	75.0	76.4
MONTHLY SUMMARY (OCT)				
MN	75.0	75.1	75.0	75.1
MX	75.0	85.2	75.0	85.2
SM	18000.0	18548.7	18000.0	18558.7
AV	75.0	77.3	75.0	77.3
MONTHLY SUMMARY (NOV)				
MN	75.0	74.9	75.0	75.0
MX	75.0	92.8	75.0	92.9
SM	18000.0	18488.1	18000.0	18497.4
AV	75.0	77.0	75.0	77.1
MONTHLY SUMMARY (DEC)				
MN	75.0	74.9	75.0	74.9
MX	75.0	79.6	75.0	79.6
SM	18900.0	19072.6	18900.0	19079.5
AV	75.0	75.7	75.0	75.7
YEARLY SUMMARY				
MN	75.0	74.7	75.0	74.8
MX	75.0	98.3	75.0	98.3
SM	226800.0	232233.6	226800.0	232329.7
AV	75.0	76.8	75.0	76.8

MMDDHH	4MIDL THERMOST SETPOINT F	4MIDL ZONE TEMP F	0INTEXTP ER THERMOST SETPOINT F	0INTEXTP ER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	72.0	72.8	72.0	72.8
MX	75.0	74.8	75.0	74.9
SM	18543.0	18602.9	18642.0	18654.2
AV	73.6	73.8	74.0	74.0
MONTHLY SUMMARY (FEB)				
MN	72.0	72.8	72.0	72.8
MX	75.0	75.0	75.0	75.3
SM	16908.0	16894.1	16986.0	16941.0
AV	74.2	74.1	74.5	74.3
MONTHLY SUMMARY (MAR)				
MN	72.0	73.0	72.0	73.0
MX	75.0	78.7	75.0	79.9
SM	20652.0	20604.3	20682.0	20670.1
AV	74.8	74.7	74.9	74.9
MONTHLY SUMMARY (APR)				
MN	72.0	73.9	75.0	74.2
MX	75.0	88.3	75.0	91.1
SM	18894.0	19260.0	18900.0	19420.7
AV	75.0	76.4	75.0	77.1
MONTHLY SUMMARY (MAY)				
MN	75.0	74.3	75.0	74.4
MX	75.0	95.5	75.0	99.4
SM	18900.0	19482.7	18900.0	19677.8
AV	75.0	77.3	75.0	78.1
MONTHLY SUMMARY (JUN)				
MN	75.0	74.8	75.0	75.0
MX	75.0	76.0	75.0	77.9
SM	19800.0	19925.6	19800.0	20004.4
AV	75.0	75.5	75.0	75.8
MONTHLY SUMMARY (JUL)				
MN	75.0	74.9	75.0	75.1
MX	75.0	76.0	75.0	77.7
SM	18000.0	18132.0	18000.0	18208.3
AV	75.0	75.5	75.0	75.9

	4MIDL THERMOST SETPOINT F	4MIDL ZONE TEMP F	0INTEXTP ER THERMOST SETPOINT F	0INTEXTP ER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	75.0	74.8	75.0	75.1
MX	75.0	76.0	75.0	77.4
SM	20700.0	20845.3	20700.0	20946.6
AV	75.0	75.5	75.0	75.9
MONTHLY SUMMARY (SEP)				
MN	75.0	74.6	75.0	74.9
MX	75.0	75.8	75.0	76.7
SM	18900.0	18974.8	18900.0	19056.8
AV	75.0	75.3	75.0	75.6
MONTHLY SUMMARY (OCT)				
MN	75.0	74.1	75.0	74.6
MX	75.0	82.4	75.0	84.9
SM	18000.0	18120.0	18000.0	18260.2
AV	75.0	75.5	75.0	76.1
MONTHLY SUMMARY (NOV)				
MN	72.0	73.0	75.0	74.0
MX	75.0	87.9	75.0	91.0
SM	17958.0	18066.4	18000.0	18191.2
AV	74.8	75.3	75.0	75.8
MONTHLY SUMMARY (DEC)				
MN	72.0	72.9	72.0	72.9
MX	75.0	76.5	75.0	77.4
SM	18678.0	18675.6	18783.0	18745.8
AV	74.1	74.1	74.5	74.4
YEARLY SUMMARY				
MN	72.0	72.8	72.0	72.8
MX	75.0	95.5	75.0	99.4
SM	225933.0	227583.6	226293.0	228777.0
AV	74.7	75.3	74.8	75.7

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
HW-BOILER	4.101	1	1												
HERM-CENT-CHLR	7.800	1	1												
COOLING-TWR	2.379	4	4												

EQUIPMENT	HOURS AT PERCENT PART LOAD RATIO											TOTAL HOURS	ANNUAL LOAD (MBTU)	FALSE LOAD (MBTU)	ELEC USED (MBTU)	THERMAL USED (MBTU)
	0 -- 10	-- 20	-- 30	-- 40	-- 50	-- 60	-- 70	-- 80	-- 90	-- 100	- 110+	-----	------	------	------	------
HW-BOILER	2827	616	634	478	311	139	41	28	9	4	1	5088	3096.9	0.0	202.4	4504.8
	2827	616	634	478	311	139	41	28	9	4	1					
HERM-CENT-CHLR	1286	825	408	207	244	352	266	81	3	0	0	3672	8366.2	0.0	1972.7	0.0
	1286	825	408	207	244	352	266	81	3	0	0					
COOLING-TWR	1660	651	227	116	89	77	68	102	125	115	442	3672	10338.9	0.0	807.7	0.0
	1660	651	227	116	89	77	68	102	125	115	442					

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 154.2 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 993.6 MBTU

NOTES TO TABLE
1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HW-BOILER	3096.9	100.0
LOAD SATISFIED	3096.9	100.0
TOTAL LOAD ON PLANT	3096.9	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-CENT-CHLR	8366.2	100.0
LOAD SATISFIED	8366.2	100.0
TOTAL LOAD ON PLANT	8366.2	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	21337.4	100.0
LOAD SATISFIED	21337.4	100.0
TOTAL LOAD ON PLANT	21337.3	

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 1 HOURS
MAXIMUM TOWER EXIT TEMPERATURE = 86.F

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	3096.9	3096.9	0.000	0.000	0
COOLING LOADS	8366.2	8366.2	0.000	0.000	0
ELECTRICAL LOADS	21337.3	21337.4	0.000	0.000	0

EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON DAY HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
HW-BOILER	0.148	4.101	2 20 3	4.101	5088								
HERM-CENT-CHLR	0.292	7.613	6 13 15	7.800	3672								
COOLING-TWR	0.296	9.214	6 13 15	2.379	14688								

ENERGY TYPE IN SITE MBTU - CATEGORY OF USE	ELECTRICITY	FUEL-OIL
SPACE HEAT	202.45	4504.78
SPACE COOL	2780.41	0.00
HVAC AUX	3574.63	0.00
DOM HOT WTR	0.00	0.00
AUX SOLAR	0.00	0.00
LIGHTS	10258.50	0.00
VERT TRANS	0.00	0.00
MISC EQUIP	4521.37	0.00
TOTAL	21337.36	4504.78

TOTAL SITE ENERGY 25842.22 MBTU 78.4 KBTU/SQFT-YR GROSS-AREA 78.4 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 68581.08 MBTU 208.1 KBTU/SQFT-YR GROSS-AREA 208.1 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 10.1
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	HERM-CEN T-CHLR ENTERING COND TEM F ----(12)	HERM-CEN T-CHLR LEAVING COLD TEM F ----(13)	COOLING-TWR WATER FLOWRATE GAL/MIN ----(8)	COOLING-TWR RANGE R ----(10)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)
MONTHLY SUMMARY (JAN)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (FEB)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (MAR)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (APR)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (MAY)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	6615459.	1322150.	80.8	56.0	1950.0	8.2	140410.	90465.
SM	437461248.	88799120.	8996.5	7244.9	257400.0	550.3	17564832.	11941428.
AV	1735957.	352377.	35.7	28.7	1021.4	2.2	69702.	47387.
MONTHLY SUMMARY (JUN)								
MN	1269013.	409250.	64.4	54.2	1950.0	1.8	121511.	90465.
MX	7613137.	1600753.	84.6	56.3	1950.0	9.5	140410.	90465.
SM	1311711104.	253112768.	19315.1	14639.3	514800.0	1625.7	36907224.	23882852.
AV	4968603.	958761.	73.2	55.5	1950.0	6.2	139800.	90465.
MONTHLY SUMMARY (JUL)								
MN	2474031.	532226.	65.0	54.6	1950.0	3.2	138581.	90465.
MX	7280946.	1500438.	82.9	56.2	1950.0	9.1	140410.	90465.
SM	1299012736.	249199456.	17977.1	13345.1	468000.0	1606.7	33696456.	21711684.
AV	5412553.	1038331.	74.9	55.6	1950.0	6.7	140402.	90465.

	HERM-CEN T-CHLR LOAD	HERM-CEN T-CHLR ELECTRIC USE	HERM-CEN T-CHLR ENTERING COND TEM	HERM-CEN T-CHLR LEAVING COLD TEM	COOLING-TWR WATER FLOWRATE	COOLING-TWR RANGE	COOLING-TWR FAN ELEC	COOLING-TWR PUMP ELEC
	BTU/HR	BTU/HR	F	F	GAL/MIN	R	BTU/HR	BTU/HR
	----(1)	----(3)	----(12)	----(13)	----(8)	----(10)	----(20)	----(21)
MONTHLY SUMMARY (AUG)								
MN	1954105.	474979.	65.0	54.4	1950.0	2.6	130798.	90465.
MX	7520791.	1567125.	86.1	56.3	1950.0	9.4	140410.	90465.
SM	1480035840.	286303264.	20711.9	15342.0	538200.1	1833.2	38732536.	24968436.
AV	5362449.	1037331.	75.0	55.6	1950.0	6.6	140335.	90465.
MONTHLY SUMMARY (SEP)								
MN	369178.	174163.	64.4	53.9	1950.0	0.6	107886.	90465.
MX	6498493.	1307453.	82.9	56.0	1950.0	8.1	140410.	90465.
SM	968593152.	191210848.	17492.8	13876.9	491400.0	1209.6	34474932.	22797268.
AV	3843624.	758773.	69.4	55.1	1950.0	4.8	136805.	90465.
MONTHLY SUMMARY (OCT)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	5270618.	974010.	71.5	55.6	1950.0	6.5	140410.	90465.
SM	207899664.	51166644.	7064.5	5876.2	210600.0	274.5	13714714.	9770260.
AV	866249.	213194.	29.4	24.5	877.5	1.1	57145.	40709.
MONTHLY SUMMARY (NOV)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (DEC)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
YEARLY SUMMARY								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	7613137.	1600753.	86.1	56.3	1950.0	9.5	140410.	90465.
SM	5704714240.	1119792000.	91557.9	70324.4	2480400.3	7100.0	175090704.	115071920.
AV	1886480.	370302.	30.3	23.3	820.2	2.3	57900.	38053.

MMDDHH	HW-BOILER LOAD BTU/HR ----(1)	HW-BOILER ELECTRIC USE BTU/HR ----(3)	HW-BOILER FUEL USE BTU/HR ----(4)	HW-BOILER CAPACITY RUNNING BTU/HR ----(7)
MONTHLY SUMMARY (JAN)				
MN	13589.	1196.	21318.	4100792.
MX	3021471.	90217.	3808477.	4100792.
SM	137028992.	8995817.	199436112.	1033399296.
AV	543766.	35698.	791413.	4100791.
MONTHLY SUMMARY (FEB)				
MN	13589.	1196.	21318.	4100792.
MX	1723249.	90217.	2398700.	4100792.
SM	55065024.	4721942.	85777768.	934980352.
AV	241513.	20710.	376218.	4100791.
MONTHLY SUMMARY (MAR)				
MN	13589.	1196.	21318.	4100792.
MX	1656957.	90217.	2324611.	4100792.
SM	50730196.	4173791.	78165096.	1131818240.
AV	183805.	15122.	283207.	4100791.
MONTHLY SUMMARY (APR)				
MN	13589.	1196.	21318.	4100792.
MX	1020145.	89773.	1600378.	4100792.
SM	14631465.	1287569.	22953464.	1033399296.
AV	58061.	5109.	91085.	4100791.
MONTHLY SUMMARY (MAY)				
MN	0.	0.	0.	0.
MX	178783.	15733.	280470.	4100792.
SM	3633134.	319716.	5699565.	492095040.
AV	14417.	1269.	22617.	1952758.
MONTHLY SUMMARY (JUN)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (JUL)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.

	HW-BOILER LOAD BTU/HR ----(1)	HW-BOILER ELECTRIC USE BTU/HR ----(3)	HW-BOILER FUEL USE BTU/HR ----(4)	HW-BOILER CAPACITY RUNNING BTU/HR ----(7)
MONTHLY SUMMARY (AUG)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (SEP)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (OCT)				
MN	0.	0.	0.	0.
MX	196390.	17282.	308091.	4100792.
SM	4380862.	385516.	6872583.	541304576.
AV	18254.	1606.	28636.	2255436.
MONTHLY SUMMARY (NOV)				
MN	13589.	1196.	21318.	4100792.
MX	1254786.	90217.	1870762.	4100792.
SM	29133240.	2513368.	45460880.	984189824.
AV	121389.	10472.	189420.	4100791.
MONTHLY SUMMARY (DEC)				
MN	13589.	1196.	21318.	4100792.
MX	1863299.	90217.	2554551.	4100792.
SM	97294448.	7980622.	149779536.	1033399296.
AV	386089.	31669.	594363.	4100791.
YEARLY SUMMARY				
MN	0.	0.	0.	0.
MX	3021471.	90217.	3808477.	4100792.
SM	391897344.	30378340.	594144960.	7184585728.
AV	129596.	10046.	196477.	2375855.

REPORT- EV-B COST OF FUELS AND UTILITIES

ENERGY SOURCE	ENERGY UNIT (BTU)	UNIFORM COST /UNIT ($)	COST ESCLA-ATION RATE	MIN MNTHLY CHARGE ($)	RATE LIMIT /UNIT ($)	FIXED MNTHLY CHARG1 ($)	FIXED MNTHLY CHARG2 ($)	ASSIGN-SCHEDULE (U-NAME)	ASSIGN-CHARGE1 (U-NAME)	ASSIGN-CHARGE2 (U-NAME)
ELECTRIC	3413.00	0.0000	5.000	0.00	1000000.000	0.00	0.00	YELEC1		
FUEL-OIL	138690.00	0.5900	5.000	0.00	1000000.000	0.00	0.00			

REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

MONTH	ELECTRIC UNIT= 3413.00	FUEL-OIL UNIT= 138690.00
JAN		
ENERGY CONSUMPTION (UNIT/MO)	437963.	8353.
PEAK DEMAND (UNIT/HR)	1457.	33.
TOTAL COST ($)	43972.25	4928.39
FEB		
ENERGY CONSUMPTION (UNIT/MO)	393296.	6604.
PEAK DEMAND (UNIT/HR)	1457.	35.
TOTAL COST ($)	40760.73	3896.21
MAR		
ENERGY CONSUMPTION (UNIT/MO)	455580.	4791.
PEAK DEMAND (UNIT/HR)	1457.	21.
TOTAL COST ($)	45238.93	2826.42
APR		
ENERGY CONSUMPTION (UNIT/MO)	429387.	1519.
PEAK DEMAND (UNIT/HR)	1449.	17.
TOTAL COST ($)	43288.15	896.48
MAY		
ENERGY CONSUMPTION (UNIT/MO)	536732.	198.
PEAK DEMAND (UNIT/HR)	1943.	3.
TOTAL COST ($)	55242.44	116.83
JUN		
ENERGY CONSUMPTION (UNIT/MO)	664362.	0.
PEAK DEMAND (UNIT/HR)	2022.	0.
TOTAL COST ($)	70361.52	0.00
JUL		
ENERGY CONSUMPTION (UNIT/MO)	666001.	0.
PEAK DEMAND (UNIT/HR)	2008.	0.
TOTAL COST ($)	70081.58	0.00
AUG		
ENERGY CONSUMPTION (UNIT/MO)	697341.	0.
PEAK DEMAND (UNIT/HR)	2009.	0.
TOTAL COST ($)	72822.00	0.00
SEP		
ENERGY CONSUMPTION (UNIT/MO)	623481.	0.
PEAK DEMAND (UNIT/HR)	1951.	0.
TOTAL COST ($)	66476.63	0.00
OCT		
ENERGY CONSUMPTION (UNIT/MO)	496446.	310.
PEAK DEMAND (UNIT/HR)	1848.	9.
TOTAL COST ($)	51533.05	183.03
NOV		
ENERGY CONSUMPTION (UNIT/MO)	414840.	3269.
PEAK DEMAND (UNIT/HR)	1457.	22.
TOTAL COST ($)	42309.72	1928.80
DEC		
ENERGY CONSUMPTION (UNIT/MO)	436376.	7437.
PEAK DEMAND (UNIT/HR)	1457.	25.
TOTAL COST ($)	43858.15	4387.78
TOTAL		
ENERGY CONSUMPTION (UNIT/YR)	6251806.	32481.
PEAK DEMAND (UNIT/HR)	2022.	35.
TOTAL COST ($)	645945.13	19163.94

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
JAN								
	4OFPKKWH	744	437963.	31489.53	1457.	1457.	0.00	
	EONPKDMHTG	252	298671.	0.00	1457.	1457.	12482.72	
								43972.25
FEB								
	4OFPKKWH	672	393296.	28278.01	1457.	1457.	0.00	
	EONPKDMHTG	228	269225.	0.00	1457.	1457.	12482.72	
								40760.73
MAR								
	4OFPKKWH	744	455580.	32756.21	1457.	1457.	0.00	
	EONPKDMHTG	276	325452.	0.00	1457.	1457.	12482.72	
								45238.93
APR								
	4OFPKKWH	720	429387.	30872.93	1449.	1449.	0.00	
	EONPKDMHTG	252	296413.	0.00	1449.	1449.	12415.23	
								43288.15
MAY								
	4OFPKKWH	744	536732.	38591.05	1943.	1943.	0.00	
	EONPKDMHTG	252	340085.	0.00	1943.	1943.	16651.39	
								55242.44
JUN								
	4OFPKKWH	456	243672.	17520.00	1144.	1144.	0.00	
	EONPKDMCL	264	420690.	0.00	2022.	2022.	19144.21	
	EONPKKWH	264	420690.	33697.30	2022.	2022.	0.00	
								70361.52
JUL								
	4OFPKKWH	504	277917.	19982.25	1123.	1123.	0.00	
	EONPKDMCL	240	388083.	0.00	2008.	2008.	19013.84	
	EONPKKWH	240	388083.	31085.49	2008.	2008.	0.00	
								70081.58
AUG								
	4OFPKKWH	468	251131.	18056.33	1151.	1151.	0.00	
	EONPKDMCL	276	446210.	0.00	2009.	2009.	19024.27	
	EONPKKWH	276	446210.	35741.40	2009.	2009.	0.00	
								72822.00
SEP								
	4OFPKKWH	468	236900.	17033.13	1116.	1116.	0.00	
	EONPKDMCL	252	386581.	0.00	1951.	1951.	18478.37	
	EONPKKWH	252	386581.	30965.12	1951.	1951.	0.00	
								66476.63
OCT								
	4OFPKKWH	744	496446.	35694.44	1848.	1848.	0.00	
	EONPKDMHTG	240	311527.	0.00	1848.	1848.	15838.62	
								51533.05
NOV								
	4OFPKKWH	720	414840.	29827.00	1457.	1457.	0.00	
	EONPKDMHTG	240	282675.	0.00	1457.	1457.	12482.72	
								42309.72

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

-CONTINUED-

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
DEC								
	4OFPKKWH	744	436376.	31375.43	1457.	1457.	0.00	
	EONPKDMHTG	252	298373.	0.00	1457.	1457.	12482.72	
								43858.15
TOTAL			6251806.	462965.63			182979.52	645945.13

ECO-3

ENTECH ENGINEERING
READING, PA 19603
REPORT- PV-A EQUIPMENT SIZES

EZDOE - ELITE SOFTWARE DEVELOPMENT INC
4130.05 FT. MONMOUTH - MYER CENTER, NJ

DOE-2.1D 7/ 1/1996 11:18:57 PDL RUN 1
FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
WEATHER FILE- NEWARK, NJ

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
HW-BOILER	4.038	1	1												
HERM-CENT-CHLR	7.800	1	1												
COOLING-TWR	2.379	4	4												

MODEL OAC
INFILTRATION W/ 25% REDUCTION

OFF-PEAK USAGE

EQUIPMENT	HOURS AT PERCENT PART LOAD RATIO											TOTAL HOURS	ANNUAL LOAD (MBTU)	FALSE LOAD (MBTU)	ELEC USED (MBTU)	THERMAL USED (MBTU)
	0 -- 10	-- 20	-- 30	-- 40	-- 50	-- 60	-- 70	-- 80	-- 90	-- 100	- 110+					
HW-BOILER	3062	568	512	430	294	110	62	36	9	4	1	5088	2807.1	0.0	180.1	4064.9
	3062	568	512	430	294	110	62	36	9	4	1					
HERM-CENT-CHLR	1071	521	766	463	318	343	166	24	0	0	0	3672	8780.1	0.0	1989.2	0.0
	1071	521	766	463	318	343	166	24	0	0	0					
COOLING-TWR	1226	601	570	302	134	112	124	124	116	87	276	3672	10769.3	0.0	813.8	0.0
	1226	601	570	302	134	112	124	124	116	87	276					

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 151.9 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 924.7 MBTU

NOTES TO TABLE
1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HW-BOILER	2807.1	100.0
LOAD SATISFIED	2807.1	100.0
TOTAL LOAD ON PLANT	2807.1	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-CENT-CHLR	8780.1	100.0
LOAD SATISFIED	8780.1	100.0
TOTAL LOAD ON PLANT	8780.1	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	23047.1	100.0
LOAD SATISFIED	23047.1	100.0
TOTAL LOAD ON PLANT	23047.5	

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 1 HOURS *
MAXIMUM TOWER EXIT TEMPERATURE = 85.F

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	2807.1	2807.1	0.000	0.000	0
COOLING LOADS	8780.1	8780.1	0.000	0.000	0
ELECTRICAL LOADS	23047.5	23047.1	0.000	0.000	0

EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON DAY HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
HW-BOILER	0.137	4.038	2 20 3	4.038	5088								
HERM-CENT-CHLR	0.307	7.085	8 18 15	7.800	3672								
COOLING-TWR	0.308	8.543	6 13 15	2.379	14688								

ENERGY TYPE IN SITE MBTU -	ELECTRICITY	FUEL-OIL
CATEGORY OF USE		
SPACE HEAT	180.11	4064.88
SPACE COOL	2802.93	0.00
HVAC AUX	5283.90	0.00
DOM HOT WTR	0.00	0.00
AUX SOLAR	0.00	0.00
LIGHTS	10258.25	0.00
VERT TRANS	0.00	0.00
MISC EQUIP	4521.26	0.00
TOTAL	23046.46	4064.88

TOTAL SITE ENERGY 27111.97 MBTU 82.3 KBTU/SQFT-YR GROSS-AREA 82.3 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 73275.33 MBTU 222.4 KBTU/SQFT-YR GROSS-AREA 222.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 3.8
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	HERM-CEN T-CHLR ENTERING COND TEM F ----(12)	HERM-CEN T-CHLR LEAVING COLD TEM F ----(13)	COOLING-TWR WATER FLOWRATE GAL/MIN ----(8)	COOLING-TWR RANGE R ----(10)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)
MONTHLY SUMMARY (JAN)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (FEB)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (MAR)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (APR)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (MAY)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	5606697.	1057932.	76.9	55.8	1950.0	6.9	140410.	90465.
SM	207910800.	69468808.	16621.7	13621.5	491400.0	305.3	29105650.	22797268.
AV	422583.	141197.	33.8	27.7	998.8	0.6	59158.	46336.
MONTHLY SUMMARY (JUN)								
MN	294536.	138901.	64.5	53.9	1950.0	0.5	106265.	90465.
MX	4273526.	834695.	80.0	55.3	1950.0	5.3	140410.	90465.
SM	795309120.	202452688.	31423.1	24802.8	889200.1	1060.6	59769016.	41252200.
AV	1744099.	443975.	68.9	54.4	1950.0	2.3	131072.	90465.
MONTHLY SUMMARY (JUL)								
MN	329479.	155419.	65.0	53.9	1950.0	0.6	113415.	90465.
MX	4229558.	830064.	79.0	55.3	1950.0	5.3	140410.	90465.
SM	1073095552.	255829792.	35678.5	27485.1	982800.1	1404.0	68536032.	45594536.
AV	2129158.	507599.	70.8	54.5	1950.0	2.8	135984.	90465.

	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	HERM-CEN T-CHLR ENTERING COND TEM F ----(12)	HERM-CEN T-CHLR LEAVING COLD TEM F ----(13)	COOLING-TWR WATER FLOWRATE GAL/MIN ----(8)	COOLING-TWR RANGE R ----(10)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)
MONTHLY SUMMARY (AUG)								
MN	294536.	138901.	64.5	53.9	1950.0	0.5	108054.	90465.
MX	4478983.	904651.	82.9	55.4	1950.0	5.6	140410.	90465.
SM	865315712.	217927440.	33142.3	25473.6	912600.1	1149.2	62408340.	42337780.
AV	1848965.	465657.	70.8	54.4	1950.0	2.5	133351.	90465.
MONTHLY SUMMARY (SEP)								
MN	294536.	138901.	65.0	53.9	1950.0	0.5	106265.	90465.
MX	3308904.	665170.	78.0	55.0	1950.0	4.2	140410.	90465.
SM	562664832.	169260320.	32074.6	25362.2	912600.1	789.1	59067972.	42337784.
AV	1202275.	361667.	68.5	54.2	1950.0	1.7	126214.	90465.
MONTHLY SUMMARY (OCT)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	2625922.	562344.	70.1	54.7	1950.0	3.4	140410.	90465.
SM	115559568.	49308716.	16451.3	13587.5	491400.0	190.0	28136252.	22797272.
AV	229285.	97835.	32.6	27.0	975.0	0.4	55826.	45233.
MONTHLY SUMMARY (NOV)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (DEC)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
YEARLY SUMMARY								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	5606697.	1057932.	82.9	55.8	1950.0	6.9	140410.	90465.
SM	3619855616.	964247744.	165391.5	130332.7	4680000.5	4898.1	307023264.	217116832.
AV	631077.	168105.	28.8	22.7	815.9	0.9	53526.	37852.

MMDDHH	HW-BOILER LOAD BTU/HR ----(1)	HW-BOILER ELECTRIC USE BTU/HR ----(3)	HW-BOILER FUEL USE BTU/HR ----(4)	HW-BOILER CAPACITY RUNNING BTU/HR ----(7)
MONTHLY SUMMARY (JAN)				
MN	47751.	4202.	74911.	4038225.
MX	3423144.	88841.	4218392.	4038225.
SM	688620416.	38225324.	966023552.	1986806912.
AV	1399635.	77694.	1963463.	4038226.
MONTHLY SUMMARY (FEB)				
MN	13382.	1178.	20993.	4038225.
MX	4038225.	88841.	4845870.	4038225.
SM	584812672.	31672012.	815745856.	1792971904.
AV	1317146.	71333.	1837266.	4038225.
MONTHLY SUMMARY (MAR)				
MN	13382.	1178.	20993.	4038225.
MX	2094475.	88841.	2802037.	4038225.
SM	342445536.	25682196.	515275392.	1889889536.
AV	731721.	54876.	1101016.	4038226.
MONTHLY SUMMARY (APR)				
MN	13382.	1178.	20993.	4038225.
MX	1511768.	88841.	2154608.	4038225.
SM	93022688.	7940094.	144736848.	1889889536.
AV	198766.	16966.	309267.	4038226.
MONTHLY SUMMARY (MAY)				
MN	0.	0.	0.	0.
MX	178219.	15683.	279585.	4038225.
SM	11111955.	977852.	17432148.	969173824.
AV	22585.	1988.	35431.	1969866.
MONTHLY SUMMARY (JUN)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (JUL)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.

	HW-BOILER LOAD BTU/HR ----(1)	HW-BOILER ELECTRIC USE BTU/HR ----(3)	HW-BOILER FUEL USE BTU/HR ----(4)	HW-BOILER CAPACITY RUNNING BTU/HR ----(7)
MONTHLY SUMMARY (AUG)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (SEP)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (OCT)				
MN	0.	0.	0.	0.
MX	460250.	40502.	722028.	4038225.
SM	16346390.	1438483.	25643796.	1017632512.
AV	32433.	2854.	50881.	2019112.
MONTHLY SUMMARY (NOV)				
MN	13382.	1178.	20993.	4038225.
MX	1976723.	88841.	2672497.	4038225.
SM	237940112.	18795102.	362754432.	1938348032.
AV	495709.	39156.	755738.	4038225.
MONTHLY SUMMARY (DEC)				
MN	13382.	1178.	20993.	4038225.
MX	2628322.	88841.	3381122.	4038225.
SM	591915264.	35614160.	846545600.	1986806912.
AV	1203080.	72387.	1720621.	4038226.
YEARLY SUMMARY				
MN	0.	0.	0.	0.
MX	4038225.	88841.	4845870.	4038225.
SM	2566215168.	160345232.	3694157568.	13471519744.
AV	447388.	27954.	644030.	2348591.

REPORT- EV-B COST OF FUELS AND UTILITIES

ENERGY SOURCE	ENERGY UNIT (BTU)	UNIFORM COST /UNIT ($)	COST ESCLA-ATION RATE	MIN MNTHLY CHARGE ($)	RATE LIMIT /UNIT ($)	FIXED MNTHLY CHARG1 ($)	FIXED MNTHLY CHARG2 ($)	ASSIGN-SCHEDULE (U-NAME)	ASSIGN-CHARGE1 (U-NAME)	ASSIGN-CHARGE2 (U-NAME)
ELECTRIC	3413.00	0.0000	5.000	0.00	1000000.000	0.00	0.00	YELEC1		
FUEL-OIL	138690.00	0.5900	5.000	0.00	1000000.000	0.00	0.00			

REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

MONTH	ELECTRIC UNIT= 3413.00	FUEL-OIL UNIT= 138690.00
JAN		
ENERGY CONSUMPTION (UNIT/MO)	487961.	7925.
PEAK DEMAND (UNIT/HR)	1455.	30.
TOTAL COST ($)	47557.54	4675.68
FEB		
ENERGY CONSUMPTION (UNIT/MO)	439306.	6237.
PEAK DEMAND (UNIT/HR)	1453.	35.
TOTAL COST ($)	44037.77	3680.07
MAR		
ENERGY CONSUMPTION (UNIT/MO)	503776.	4040.
PEAK DEMAND (UNIT/HR)	1446.	20.
TOTAL COST ($)	48611.83	2383.83
APR		
ENERGY CONSUMPTION (UNIT/MO)	469111.	1157.
PEAK DEMAND (UNIT/HR)	1437.	16.
TOTAL COST ($)	46045.34	682.53
MAY		
ENERGY CONSUMPTION (UNIT/MO)	568819.	164.
PEAK DEMAND (UNIT/HR)	1914.	2.
TOTAL COST ($)	57299.05	96.77
JUN		
ENERGY CONSUMPTION (UNIT/MO)	697866.	0.
PEAK DEMAND (UNIT/HR)	1981.	0.
TOTAL COST ($)	72316.75	0.00
JUL		
ENERGY CONSUMPTION (UNIT/MO)	703851.	0.
PEAK DEMAND (UNIT/HR)	1972.	0.
TOTAL COST ($)	72397.58	0.00
AUG		
ENERGY CONSUMPTION (UNIT/MO)	733290.	0.
PEAK DEMAND (UNIT/HR)	1974.	0.
TOTAL COST ($)	75002.72	0.00
SEP		
ENERGY CONSUMPTION (UNIT/MO)	660800.	0.
PEAK DEMAND (UNIT/HR)	1918.	0.
TOTAL COST ($)	68798.25	0.00
OCT		
ENERGY CONSUMPTION (UNIT/MO)	539103.	229.
PEAK DEMAND (UNIT/HR)	1829.	5.
TOTAL COST ($)	54434.82	135.25
NOV		
ENERGY CONSUMPTION (UNIT/MO)	462145.	2814.
PEAK DEMAND (UNIT/HR)	1447.	19.
TOTAL COST ($)	45628.25	1660.25
DEC		
ENERGY CONSUMPTION (UNIT/MO)	486706.	6742.
PEAK DEMAND (UNIT/HR)	1450.	24.
TOTAL COST ($)	47423.10	3978.03
TOTAL		
ENERGY CONSUMPTION (UNIT/YR)	6752735.	29309.
PEAK DEMAND (UNIT/HR)	1981.	35.
TOTAL COST ($)	679553.06	17292.41

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
JAN								
	4OFPKKWH	744	487961.	35084.43	1455.	1455.	0.00	
	EONPKDMHTG	252	297777.	0.00	1455.	1455.	12473.11	
								47557.54
FEB								
	4OFPKKWH	672	439306.	31586.13	1453.	1453.	0.00	
	EONPKDMHTG	228	268484.	0.00	1453.	1453.	12451.63	
								44037.77
MAR								
	4OFPKKWH	744	503776.	36221.48	1446.	1446.	0.00	
	EONPKDMHTG	276	324761.	0.00	1446.	1446.	12390.35	
								48611.83
APR								
	4OFPKKWH	720	469111.	33729.11	1437.	1437.	0.00	
	EONPKDMHTG	252	296112.	0.00	1437.	1437.	12316.23	
								46045.34
MAY								
	4OFPKKWH	744	568819.	40898.05	1914.	1914.	0.00	
	EONPKDMHTG	252	337596.	0.00	1914.	1914.	16400.99	
								57299.05
JUN								
	4OFPKKWH	456	285499.	20527.35	1088.	1088.	0.00	
	EONPKDMCL	264	412368.	0.00	1981.	1981.	18758.73	
	EONPKKWH	264	412368.	33030.67	1981.	1981.	0.00	
								72316.75
JUL								
	4OFPKKWH	504	323908.	23288.99	1072.	1072.	0.00	
	EONPKDMCL	240	379942.	0.00	1972.	1972.	18675.21	
	EONPKKWH	240	379942.	30433.38	1972.	1972.	0.00	
								72397.58
AUG								
	4OFPKKWH	468	296469.	21316.14	1095.	1095.	0.00	
	EONPKDMCL	276	436821.	0.00	1974.	1974.	18697.22	
	EONPKKWH	276	436821.	34989.35	1974.	1974.	0.00	
								75002.72
SEP								
	4OFPKKWH	468	280414.	20161.77	1066.	1066.	0.00	
	EONPKDMCL	252	380386.	0.00	1918.	1918.	18167.58	
	EONPKKWH	252	380386.	30468.90	1918.	1918.	0.00	
								68798.25
OCT								
	4OFPKKWH	744	539103.	38761.54	1829.	1829.	0.00	
	EONPKDMHTG	240	310190.	0.00	1829.	1829.	15673.28	
								54434.82
NOV								
	4OFPKKWH	720	462145.	33228.25	1447.	1447.	0.00	
	EONPKDMHTG	240	282218.	0.00	1447.	1447.	12400.00	
								45628.25

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

-CONTINUED-

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
DEC								
	4OFFPKKWH	744	486706.	34994.19	1450.	1450.	0.00	
	EONPKDMHTG	252	297287.	0.00	1450.	1450.	12428.91	
								47423.10
TOTAL			6752735.	498719.72			180833.25	679553.06

ECO-3

ENTECH ENGINEERING
READING, PA 19603
REPORT- PV-A EQUIPMENT SIZES

EZDOE - ELITE SOFTWARE DEVELOPMENT INC
4130.05 FT. MONMOUTH - MYER CENTER, NJ

DOE-2.1D 7/ 1/1996 11: 5: 6 PDL RUN 1
FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
WEATHER FILE- NEWARK, NJ

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
HW-BOILER	4.038	1	1															
HERM-CENT-CHLR	7.800	1	1															
COOLING-TWR	2.379	4	4															

MODEL OAC
INFILTRATION W/25% REDUCTION

ON-PEAK USAGE

EQUIPMENT	HOURS AT PERCENT PART LOAD RATIO											TOTAL HOURS	ANNUAL LOAD (MBTU)	FALSE LOAD (MBTU)	ELEC USED (MBTU)	THERMAL USED (MBTU)
	0 -- 10	-- 20	-- 30	-- 40	-- 50	-- 60	-- 70	-- 80	-- 90	-- 100	- 110+					
HW-BOILER	3062	568	512	430	294	110	62	36	9	4	1	5088	2807.1	0.0	180.1	4064.9
	3062	568	512	430	294	110	62	36	9	4	1					
HERM-CENT-CHLR	1071	521	766	463	318	343	166	24	0	0	0	3672	8780.1	0.0	1989.2	0.0
	1071	521	766	463	318	343	166	24	0	0	0					
COOLING-TWR	1226	601	570	302	134	112	124	124	116	87	276	3672	10769.3	0.0	813.8	0.0
	1226	601	570	302	134	112	124	124	116	87	276					

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 151.9 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 924.7 MBTU

NOTES TO TABLE
1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HW-BOILER	2807.1	100.0
LOAD SATISFIED	2807.1	100.0
TOTAL LOAD ON PLANT	2807.1	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-CENT-CHLR	8780.1	100.0
LOAD SATISFIED	8780.1	100.0
TOTAL LOAD ON PLANT	8780.1	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	23047.1	100.0
LOAD SATISFIED	23047.1	100.0
TOTAL LOAD ON PLANT	23047.5	

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 1 HOURS
MAXIMUM TOWER EXIT TEMPERATURE = 85.F

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	2807.1	2807.1	0.000	0.000	0
COOLING LOADS	8780.1	8780.1	0.000	0.000	0
ELECTRICAL LOADS	23047.5	23047.1	0.000	0.000	0

EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON	DAY	HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
HW-BOILER	0.137	4.038	2	20	3	4.038	5088								
HERM-CENT-CHLR	0.307	7.085	8	18	15	7.800	3672								
COOLING-TWR	0.308	8.543	6	13	15	2.379	14688								

ENERGY TYPE IN SITE MBTU - CATEGORY OF USE	ELECTRICITY	FUEL-OIL
SPACE HEAT	180.11	4064.88
SPACE COOL	2802.93	0.00
HVAC AUX	5283.90	0.00
DOM HOT WTR	0.00	0.00
AUX SOLAR	0.00	0.00
LIGHTS	10258.25	0.00
VERT TRANS	0.00	0.00
MISC EQUIP	4521.26	0.00
TOTAL	23046.46	4064.88

TOTAL SITE ENERGY 27111.97 MBTU 82.3 KBTU/SQFT-YR GROSS-AREA 82.3 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 73275.33 MBTU 222.4 KBTU/SQFT-YR GROSS-AREA 222.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 3.8
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	HERM-CEN T-CHLR ENTERING COND TEM F ----(12)	HERM-CEN T-CHLR LEAVING COLD TEM F ----(13)	COOLING-TWR WATER FLOWRATE GAL/MIN ----(8)	COOLING-TWR RANGE R ----(10)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)
MONTHLY SUMMARY (JAN)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (FEB)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (MAR)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (APR)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (MAY)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	6223559.	1230971.	80.2	56.0	1950.0	7.7	140410.	90465.
SM	399675968.	83401216.	8952.6	7242.1	257400.0	506.1	17523364.	11941428.
AV	1586016.	330957.	35.5	28.7	1021.4	2.0	69537.	47387.
MONTHLY SUMMARY (JUN)								
MN	896833.	378281.	64.8	54.1	1950.0	1.4	117254.	90465.
MX	7082872.	1460502.	83.9	56.3	1950.0	8.8	140410.	90465.
SM	1184410880.	230279856.	19148.2	14625.9	514800.0	1471.8	36816312.	23882852.
AV	4486405.	872272.	72.5	55.4	1950.0	5.6	139456.	90465.
MONTHLY SUMMARY (JUL)								
MN	1535604.	433877.	64.4	54.3	1950.0	2.1	133925.	90465.
MX	6885006.	1399159.	82.3	56.3	1950.0	8.6	140410.	90465.
SM	1179970176.	226407168.	17793.3	13334.4	468000.0	1461.3	33685460.	21711684.
AV	4916543.	943363.	74.1	55.6	1950.0	6.1	140356.	90465.

	HERM-CEN T-CHLR LOAD BTU/HR	HERM-CEN T-CHLR ELECTRIC USE BTU/HR	HERM-CEN T-CHLR ENTERING COND TEM F	HERM-CEN T-CHLR LEAVING COLD TEM F	COOLING-TWR WATER FLOWRATE GAL/MIN	COOLING-TWR RANGE R	COOLING-TWR FAN ELEC BTU/HR	COOLING-TWR PUMP ELEC BTU/HR
	----(1)	----(3)	----(12)	----(13)	----(8)	----(10)	----(20)	----(21)
MONTHLY SUMMARY (AUG)								
MN	825230.	372638.	65.0	54.1	1950.0	1.3	125451.	90465.
MX	7084853.	1452633.	85.4	56.3	1950.0	8.8	140410.	90465.
SM	1341466752.	260021408.	20505.1	15328.7	538200.1	1664.3	38699644.	24968436.
AV	4860387.	942107.	74.3	55.5	1950.0	6.0	140216.	90465.
MONTHLY SUMMARY (SEP)								
MN	348085.	164218.	64.4	53.9	1950.0	0.6	107434.	90465.
MX	6108622.	1216208.	82.2	56.0	1950.0	7.6	140410.	90465.
SM	866196288.	175526368.	17387.1	13863.9	491400.0	1088.6	34247308.	22797268.
AV	3437287.	696533.	69.0	55.0	1950.0	4.3	135902.	90465.
MONTHLY SUMMARY (OCT)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	5008464.	925952.	71.0	55.6	1950.0	6.2	140410.	90465.
SM	188528128.	49286748.	7055.9	5874.4	210600.0	252.7	13638067.	9770260.
AV	785534.	205361.	29.4	24.5	877.5	1.1	56825.	40709.
MONTHLY SUMMARY (NOV)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (DEC)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
YEARLY SUMMARY								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	7084853.	1460502.	85.4	56.3	1950.0	8.8	140410.	90465.
SM	5160248320.	1024922816.	90842.2	70269.4	2480400.3	6444.8	174610160.	115071920.
AV	1706431.	338930.	30.0	23.2	820.2	2.1	57741.	38053.

MMDDHH	HW-BOILER LOAD BTU/HR ----(1)	HW-BOILER ELECTRIC USE BTU/HR ----(3)	HW-BOILER FUEL USE BTU/HR ----(4)	HW-BOILER CAPACITY RUNNING BTU/HR ----(7)
MONTHLY SUMMARY (JAN)				
MN	13382.	1178.	20993.	4038225.
MX	2270410.	88841.	2994365.	4038225.
SM	88794392.	6561223.	133078104.	1017632512.
AV	352359.	26037.	528088.	4038224.
MONTHLY SUMMARY (FEB)				
MN	13382.	1178.	20993.	4038225.
MX	1250150.	88841.	1858722.	4038225.
SM	31503676.	2751152.	49319672.	920715136.
AV	138174.	12066.	216314.	4038224.
MONTHLY SUMMARY (MAR)				
MN	13382.	1178.	20993.	4038225.
MX	1219736.	88841.	1824115.	4038225.
SM	28890218.	2493562.	45086800.	1114549888.
AV	104675.	9035.	163358.	4038224.
MONTHLY SUMMARY (APR)				
MN	13382.	1178.	20993.	4038225.
MX	697945.	61419.	1094918.	4038225.
SM	10010116.	880890.	15703610.	1017632512.
AV	39723.	3496.	62316.	4038224.
MONTHLY SUMMARY (MAY)				
MN	0.	0.	0.	0.
MX	153350.	13495.	240572.	4038225.
SM	3387980.	298142.	5314975.	484586912.
AV	13444.	1183.	21091.	1922964.
MONTHLY SUMMARY (JUN)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (JUL)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.

	HW-BOILER LOAD BTU/HR ----(1)	HW-BOILER ELECTRIC USE BTU/HR ----(3)	HW-BOILER FUEL USE BTU/HR ----(4)	HW-BOILER CAPACITY RUNNING BTU/HR ----(7)
MONTHLY SUMMARY (AUG)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (SEP)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (OCT)				
MN	0.	0.	0.	0.
MX	125740.	11065.	197258.	4038225.
SM	3920211.	344979.	6149925.	533045600.
AV	16334.	1437.	25625.	2221023.
MONTHLY SUMMARY (NOV)				
MN	13382.	1178.	20993.	4038225.
MX	876386.	77122.	1374852.	4038225.
SM	17540670.	1543579.	27517352.	969173824.
AV	73086.	6432.	114656.	4038224.
MONTHLY SUMMARY (DEC)				
MN	13382.	1178.	20993.	4038225.
MX	1373219.	88841.	1998314.	4038225.
SM	56776184.	4891657.	88561568.	1017632512.
AV	225302.	19411.	351435.	4038224.
YEARLY SUMMARY				
MN	0.	0.	0.	0.
MX	2270410.	88841.	2994365.	4038225.
SM	240823456.	19765184.	370732000.	7074969600.
AV	79637.	6536.	122597.	2339606.

REPORT- EV-B COST OF FUELS AND UTILITIES

ENERGY SOURCE	ENERGY UNIT (BTU)	UNIFORM COST /UNIT ($)	COST ESCLA- ATION RATE	MIN MNTHLY CHARGE ($)	RATE LIMIT /UNIT ($)	FIXED MNTHLY CHARG1 ($)	FIXED MNTHLY CHARG2 ($)	ASSIGN- SCHEDULE (U-NAME)	ASSIGN- CHARGE1 (U-NAME)	ASSIGN- CHARGE2 (U-NAME)
ELECTRIC	3413.00	0.0000	5.000	0.00	1000000.000	0.00	0.00	YELEC1		
FUEL-OIL	138690.00	0.5900	5.000	0.00	1000000.000	0.00	0.00			

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 1/1996 11: 5: 6 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

MONTH	ELECTRIC UNIT=	FUEL-OIL UNIT=
	3413.00	138690.00
JAN		
ENERGY CONSUMPTION (UNIT/MO)	487961.	7925.
PEAK DEMAND (UNIT/HR)	1455.	30.
TOTAL COST ($)	47557.54	4675.68
FEB		
ENERGY CONSUMPTION (UNIT/MO)	439306.	6237.
PEAK DEMAND (UNIT/HR)	1453.	35.
TOTAL COST ($)	44037.77	3680.07
MAR		
ENERGY CONSUMPTION (UNIT/MO)	503776.	4040.
PEAK DEMAND (UNIT/HR)	1446.	20.
TOTAL COST ($)	48611.83	2383.83
APR		
ENERGY CONSUMPTION (UNIT/MO)	469111.	1157.
PEAK DEMAND (UNIT/HR)	1437.	16.
TOTAL COST ($)	46045.34	682.53
MAY		
ENERGY CONSUMPTION (UNIT/MO)	568819.	164.
PEAK DEMAND (UNIT/HR)	1914.	2.
TOTAL COST ($)	57299.05	96.77
JUN		
ENERGY CONSUMPTION (UNIT/MO)	697866.	0.
PEAK DEMAND (UNIT/HR)	1981.	0.
TOTAL COST ($)	72316.75	0.00
JUL		
ENERGY CONSUMPTION (UNIT/MO)	703851.	0.
PEAK DEMAND (UNIT/HR)	1972.	0.
TOTAL COST ($)	72397.58	0.00
AUG		
ENERGY CONSUMPTION (UNIT/MO)	733290.	0.
PEAK DEMAND (UNIT/HR)	1974.	0.
TOTAL COST ($)	75002.72	0.00
SEP		
ENERGY CONSUMPTION (UNIT/MO)	660800.	0.
PEAK DEMAND (UNIT/HR)	1918.	0.
TOTAL COST ($)	68798.25	0.00
OCT		
ENERGY CONSUMPTION (UNIT/MO)	539103.	229.
PEAK DEMAND (UNIT/HR)	1829.	5.
TOTAL COST ($)	54434.82	135.25
NOV		
ENERGY CONSUMPTION (UNIT/MO)	462145.	2814.
PEAK DEMAND (UNIT/HR)	1447.	19.
TOTAL COST ($)	45628.25	1660.25
DEC		
ENERGY CONSUMPTION (UNIT/MO)	486706.	6742.
PEAK DEMAND (UNIT/HR)	1450.	24.
TOTAL COST ($)	47423.10	3978.03
TOTAL		
ENERGY CONSUMPTION (UNIT/YR)	6752735.	29309.
PEAK DEMAND (UNIT/HR)	1981.	35.
TOTAL COST ($)	679553.06	17292.41

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
JAN								
	4OFFPKKWH	744	487961.	35084.43	1455.	1455.	0.00	
	EONPKDMHTG	252	297777.	0.00	1455.	1455.	12473.11	
								47557.54
FEB								
	4OFFPKKWH	672	439306.	31586.13	1453.	1453.	0.00	
	EONPKDMHTG	228	268484.	0.00	1453.	1453.	12451.63	
								44037.77
MAR								
	4OFFPKKWH	744	503776.	36221.48	1446.	1446.	0.00	
	EONPKDMHTG	276	324761.	0.00	1446.	1446.	12390.35	
								48611.83
APR								
	4OFFPKKWH	720	469111.	33729.11	1437.	1437.	0.00	
	EONPKDMHTG	252	296112.	0.00	1437.	1437.	12316.23	
								46045.34
MAY								
	4OFFPKKWH	744	568819.	40898.05	1914.	1914.	0.00	
	EONPKDMHTG	252	337596.	0.00	1914.	1914.	16400.99	
								57299.05
JUN								
	4OFFPKKWH	456	285499.	20527.35	1088.	1088.	0.00	
	EONPKDMCL	264	412368.	0.00	1981.	1981.	18758.73	
	EONPKKWH	264	412368.	33030.67	1981.	1981.	0.00	
								72316.75
JUL								
	4OFFPKKWH	504	323908.	23288.99	1072.	1072.	0.00	
	EONPKDMCL	240	379942.	0.00	1972.	1972.	18675.21	
	EONPKKWH	240	379942.	30433.38	1972.	1972.	0.00	
								72397.58
AUG								
	4OFFPKKWH	468	296469.	21316.14	1095.	1095.	0.00	
	EONPKDMCL	276	436821.	0.00	1974.	1974.	18697.22	
	EONPKKWH	276	436821.	34989.35	1974.	1974.	0.00	
								75002.72
SEP								
	4OFFPKKWH	468	280414.	20161.77	1066.	1066.	0.00	
	EONPKDMCL	252	380386.	0.00	1918.	1918.	18167.58	
	EONPKKWH	252	380386.	30468.90	1918.	1918.	0.00	
								68798.25
OCT								
	4OFFPKKWH	744	539103.	38761.54	1829.	1829.	0.00	
	EONPKDMHTG	240	310190.	0.00	1829.	1829.	15673.28	
								54434.82
NOV								
	4OFFPKKWH	720	462145.	33228.25	1447.	1447.	0.00	
	EONPKDMHTG	240	282218.	0.00	1447.	1447.	12400.00	
								45628.25

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

CONTINUED

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
DEC								
	4OFFPKKWH	744	486706.	34994.19	1450.	1450.	0.00	
	EONPKDMHTG	252	297287.	0.00	1450.	1450.	12428.91	
								47423.10
TOTAL			6752735.	498719.72			180833.25	679553.06

ECO-3 BB1 25% reduction in Int. Ltration off-peak

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:24: 2 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
SR_1 = HOURLY-REPORT PAGE 1- 1

MMDDHH	0SSTMDX TOT FAN ELECTRIC KW	1SSTMDX TOT FAN ELECTRIC KW	2SSTMDX TOT FAN ELECTRIC KW	3SSTMDX TOT FAN ELECTRIC KW	4SSTMDXCLN TOT FAN ELECTRIC KW
	----(33)	----(33)	----(33)	----(33)	----(33)
MONTHLY SUMMARY (JAN)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	9049.063	3929.703	11290.217	6589.162	24846.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (FEB)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	8166.226	3546.317	10188.731	5946.316	22422.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (MAR)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	8607.644	3738.010	10739.474	6267.740	23634.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (APR)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	8607.644	3738.010	10739.475	6267.739	23634.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (MAY)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	9049.063	3929.703	11290.217	6589.161	24846.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (JUN)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	8386.935	3642.164	10464.104	6107.028	23028.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (JUL)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	9269.771	4025.550	11565.588	6749.873	25452.000
AV	18.392	7.987	22.948	13.393	50.500

MODEL BB1 INFILTRATION W/25% REDUCTION

	0SSTMDX	1SSTMDX	2SSTMDX	3SSTMDX	4SSTMDXCLN
	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW
	----(33)	----(33)	----(33)	----(33)	----(33)
MONTHLY SUMMARY (AUG)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	8607.644	3738.010	10739.474	6267.739	23634.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (SEP)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	8607.644	3738.010	10739.475	6267.740	23634.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (OCT)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	9269.771	4025.550	11565.588	6749.873	25452.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (NOV)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	8828.353	3833.857	11014.846	6428.450	24240.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (DEC)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	9049.062	3929.703	11290.217	6589.162	24846.000
AV	18.392	7.987	22.948	13.393	50.500
YEARLY SUMMARY					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	105498.813	45814.586	131627.406	76819.984	289668.000
AV	18.392	7.987	22.948	13.393	50.500

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
STM-BOILER	2.939	1	1												
DHW-HEATER	0.000	1	1												
HERM-REC-CHLR	4.552	1	1												

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
STM-BOILER	9985.1	100.0
DHW-HEATER	0.0	0.0
LOAD SATISFIED	9985.1	100.0
TOTAL LOAD ON PLANT	9985.1	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-REC-CHLR	15871.3	100.0
LOAD SATISFIED	15871.3	100.0
TOTAL LOAD ON PLANT	15871.3	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	21900.3	100.0
LOAD SATISFIED	21900.3	100.0
TOTAL LOAD ON PLANT	21900.3	

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISPIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	9985.1	9985.1	0.000	0.000	0
COOLING LOADS	15871.3	15871.3	0.000	0.000	0
ELECTRICAL LOADS	21900.3	21900.3	0.000	0.000	0

EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON DAY HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
STM-BOILER	0.388	2.939	2 20 5	2.939	8760								
DHW-HEATER	0.000	0.000	0 0 0	0.000	0								
HERM-REC-CHLR	0.398	4.552	8 18 16	4.552	8760								

ENERGY TYPE IN SITE MBTU - CATEGORY OF USE	ELECTRICITY	FUEL-OIL	NATURAL-GAS
SPACE HEAT	550.53	15151.64	0.00
SPACE COOL	8734.99	0.00	0.00
HVAC AUX	4964.14	0.00	0.00
DOM HOT WTR	0.00	0.00	0.00
AUX SOLAR	0.00	0.00	0.00
LIGHTS	3040.82	0.00	0.00
VERT TRANS	0.00	0.00	0.00
MISC EQUIP	4610.08	0.00	0.00
TOTAL	21900.56	15151.64	0.00

TOTAL SITE ENERGY 37051.90 MBTU 313.2 KBTU/SQFT-YR GROSS-AREA 313.2 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 80918.21 MBTU 684.0 KBTU/SQFT-YR GROSS-AREA 684.0 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 0.0
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-REC -CHLR LOAD BTU/HR ----(1)	HERM-REC -CHLR ELECTRIC USE BTU/HR ----(3)	HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR ----(18)	STM-BOIL ER LOAD BTU/HR ----(1)	STM-BOIL ER ELECTRIC USE BTU/HR ----(3)
MONTHLY SUMMARY (JAN)					
MN	691875.	553860.	415125.	1228144.	64648.
MX	1776538.	1006540.	682813.	2701256.	64648.
SM	478364480.	377932192.	281947008.	936999104.	31806630.
AV	972286.	768155.	573063.	1904470.	64648.
MONTHLY SUMMARY (FEB)					
MN	632960.	506556.	379776.	1132605.	64648.
MX	1413205.	953701.	682813.	2938528.	64648.
SM	438156896.	346102944.	258160144.	855444544.	28703540.
AV	986840.	779511.	581442.	1926677.	64648.
MONTHLY SUMMARY (MAR)					
MN	908338.	727898.	545003.	1020715.	64648.
MX	1901428.	1024457.	682813.	2175210.	64648.
SM	517894272.	404728928.	300986720.	795071552.	30255086.
AV	1106612.	864805.	643134.	1698871.	64648.
MONTHLY SUMMARY (APR)					
MN	937265.	751183.	562359.	751731.	64648.
MX	2109139.	1059606.	682813.	2051875.	64648.
SM	629455552.	438190752.	316353888.	617490240.	30255086.
AV	1344991.	936305.	675970.	1319424.	64648.
MONTHLY SUMMARY (MAY)					
MN	1090128.	874349.	654077.	702179.	61792.
MX	2899371.	1210732.	682813.	1576256.	64648.
SM	789316544.	485240512.	335833568.	501597984.	31776204.
AV	1604302.	986261.	682589.	1019508.	64586.
MONTHLY SUMMARY (JUN)					
MN	1384177.	949434.	682813.	699064.	61518.
MX	3163240.	1274939.	682813.	1043111.	64648.
SM	927032768.	482290688.	311362752.	363033088.	29382352.
AV	2032967.	1057655.	682813.	796125.	64435.
MONTHLY SUMMARY (JUL)					
MN	1542191.	972581.	682813.	701226.	61708.
MX	3262543.	1275740.	682813.	879275.	64648.
SM	1128647808.	551956416.	344137792.	380571360.	32485686.
AV	2239381.	1095152.	682813.	755102.	64456.

	HERM-REC -CHLR LOAD BTU/HR ----(1)	HERM-REC -CHLR ELECTRIC USE BTU/HR ----(3)	HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR ----(18)	STM-BOIL ER LOAD BTU/HR ----(1)	STM-BOIL ER ELECTRIC USE BTU/HR ----(3)
MONTHLY SUMMARY (AUG)					
MN	1432806.	956579.	682813.	653014.	57465.
MX	3592429.	1322721.	682813.	1000436.	64648.
SM	1034400000.	507029920.	319556512.	359288448.	30136386.
AV	2210257.	1083397.	682813.	767710.	64394.
MONTHLY SUMMARY (SEP)					
MN	1217109.	924744.	682813.	717531.	63143.
MX	2931510.	1223276.	682813.	1161363.	64648.
SM	904879552.	484514816.	319556512.	376723680.	30240616.
AV	1933503.	1035288.	682813.	804965.	64617.
MONTHLY SUMMARY (OCT)					
MN	1043358.	836645.	626015.	742708.	64648.
MX	2352478.	1139826.	682813.	1579706.	64648.
SM	753210816.	486767168.	343803584.	508558848.	32582402.
AV	1494466.	965808.	682150.	1009045.	64648.
MONTHLY SUMMARY (NOV)					
MN	892407.	715077.	535444.	729012.	64153.
MX	2334289.	1100857.	682813.	1910953.	64648.
SM	593284160.	435893920.	319190752.	661522880.	31030004.
AV	1236009.	908112.	664981.	1378173.	64646.
MONTHLY SUMMARY (DEC)					
MN	739836.	592389.	443902.	913630.	64648.
MX	1539367.	972169.	682813.	2237186.	64648.
SM	512530048.	400700064.	298113696.	860915136.	31806628.
AV	1041728.	814431.	605922.	1749828.	64648.
YEARLY SUMMARY					
MN	632960.	506556.	379776.	653014.	57465.
MX	3592429.	1322721.	682813.	2938528.	64648.
SM	8707173376.	5401348096.	3749003264.	7217216512.	370460608.
AV	1517987.	941658.	653592.	1258232.	64585.

ECO-3 BB1 Reduced Infiltration 25% Summer

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 10:10:51 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOBB0-STM(UH&AHU W/DX)4CLN REHT&HTON24
SR_1 = HOURLY-REPORT PAGE 1- 1

MMDDHH	0SSTMDX TOT FAN ELECTRIC KW ----(33)	1SSTMDX TOT FAN ELECTRIC KW ----(33)	2SSTMDX TOT FAN ELECTRIC KW ----(33)	3SSTMDX TOT FAN ELECTRIC KW ----(33)	4SSTMDXCLN TOT FAN ELECTRIC KW ----(33)
MONTHLY SUMMARY (JAN)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4634.884	2012.775	5782.794	3374.935	12726.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (FEB)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4193.466	1821.082	5232.052	3053.513	11514.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (MAR)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	5076.302	2204.468	6333.536	3696.357	13938.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (APR)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4634.884	2012.775	5782.794	3374.935	12726.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (MAY)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4634.884	2012.775	5782.794	3374.935	12726.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (JUN)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4855.593	2108.621	6058.165	3535.646	13332.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (JUL)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4414.175	1916.928	5507.423	3214.224	12120.000
AV	18.392	7.987	22.948	13.393	50.500

MODEL BB1
INFILTRATION W/25%
REDUCTION
ON-PEAK USAGE

	0SSTMDX	1SSTMDX	2SSTMDX	3SSTMDX	4SSTMDXCLN
	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW
	----(33)	----(33)	----(33)	----(33)	----(33)
MONTHLY SUMMARY (AUG)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	5076.302	2204.468	6333.536	3696.357	13938.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (SEP)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4634.884	2012.775	5782.794	3374.935	12726.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (OCT)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4414.175	1916.928	5507.423	3214.224	12120.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (NOV)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4414.175	1916.928	5507.423	3214.224	12120.000
AV	18.392	7.987	22.948	13.393	50.500
MONTHLY SUMMARY (DEC)					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	4634.884	2012.775	5782.794	3374.935	12726.000
AV	18.392	7.987	22.948	13.393	50.500
YEARLY SUMMARY					
MN	18.392	7.987	22.948	13.393	50.500
MX	18.392	7.987	22.948	13.393	50.500
SM	55618.609	24153.299	69393.523	40499.219	152712.000
AV	18.392	7.987	22.948	13.393	50.500

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
STM-BOILER	2.939	1	1												
DHW-HEATER	0.000	1	1												
HERM-REC-CHLR	4.552	1	1												

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
STM-BOILER	9985.1	100.0
DHW-HEATER	0.0	0.0
LOAD SATISFIED	9985.1	100.0
TOTAL LOAD ON PLANT	9985.1	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-REC-CHLR	15871.3	100.0
LOAD SATISFIED	15871.3	100.0
TOTAL LOAD ON PLANT	15871.3	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	21900.3	100.0
LOAD SATISFIED	21900.3	100.0
TOTAL LOAD ON PLANT	21900.3	

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	9985.1	9985.1	0.000	0.000	0
COOLING LOADS	15871.3	15871.3	0.000	0.000	0
ELECTRICAL LOADS	21900.3	21900.3	0.000	0.000	0

EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON	DAY	HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
STM-BOILER	0.388	2.939	2	20	5	2.939	8760								
DHW-HEATER	0.000	0.000	0	0	0	0.000	0								
HERM-REC-CHLR	0.398	4.552	8	18	16	4.552	8760								

ENERGY TYPE IN SITE MBTU -	ELECTRICITY	FUEL-OIL	NATURAL-GAS
CATEGORY OF USE			
SPACE HEAT	550.53	15151.64	0.00
SPACE COOL	8734.99	0.00	0.00
HVAC AUX	4964.14	0.00	0.00
DOM HOT WTR	0.00	0.00	0.00
AUX SOLAR	0.00	0.00	0.00
LIGHTS	3040.82	0.00	0.00
VERT TRANS	0.00	0.00	0.00
MISC EQUIP	4610.08	0.00	0.00
TOTAL	21900.56	15151.64	0.00

TOTAL SITE ENERGY 37051.90 MBTU 313.2 KBTU/SQFT-YR GROSS-AREA 313.2 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 80918.21 MBTU 684.0 KBTU/SQFT-YR GROSS-AREA 684.0 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 0.0
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-REC -CHLR LOAD BTU/HR ----(1)	HERM-REC -CHLR ELECTRIC USE BTU/HR ----(3)	HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR ----(18)	STM-BOIL ER LOAD BTU/HR ----(1)	STM-BOIL ER ELECTRIC USE BTU/HR ----(3)
MONTHLY SUMMARY (JAN)					
MN	1090060.	874295.	654036.	843995.	64648.
MX	2092040.	1051559.	682813.	2331893.	64648.
SM	396929760.	246212368.	172026960.	373617344.	16291196.
AV	1575118.	977033.	682647.	1482609.	64648.
MONTHLY SUMMARY (FEB)					
MN	1066818.	855555.	640091.	879423.	64648.
MX	2137164.	1057932.	682813.	2028587.	64648.
SM	378973952.	225648704.	155638624.	310870944.	14739654.
AV	1662167.	989687.	682626.	1363469.	64648.
MONTHLY SUMMARY (MAR)					
MN	1409930.	953220.	682813.	603527.	53110.
MX	2595265.	1132922.	682813.	1882990.	64648.
SM	503283328.	279652096.	188456384.	323352768.	17740418.
AV	1823490.	1013232.	682813.	1171568.	64277.
MONTHLY SUMMARY (APR)					
MN	1487801.	964636.	682813.	572333.	50365.
MX	3085316.	1226198.	682813.	1603004.	64648.
SM	543496640.	268037312.	172068864.	220453056.	15467528.
AV	2156733.	1063640.	682813.	874814.	61379.
MONTHLY SUMMARY (MAY)					
MN	1663845.	990265.	682813.	565358.	49752.
MX	3828865.	1365767.	682813.	1221351.	64648.
SM	634489920.	283589248.	172068864.	177477984.	14619943.
AV	2517817.	1125354.	682813.	704278.	58016.
MONTHLY SUMMARY (JUN)					
MN	2060614.	1047111.	682813.	558144.	49117.
MX	4349201.	1502434.	682813.	722833.	63609.
SM	825904000.	324826144.	180262624.	161565600.	14217774.
AV	3128424.	1230402.	682813.	611991.	53855.
MONTHLY SUMMARY (JUL)					
MN	2249004.	1077488.	682813.	557458.	49056.
MX	4166256.	1432733.	682813.	662837.	58330.
SM	797411840.	303306304.	163875104.	145165008.	12774517.
AV	3322549.	1263776.	682813.	604854.	53227.

	HERM-REC -CHLR LOAD BTU/HR ----(1)	HERM-REC -CHLR ELECTRIC USE BTU/HR ----(3)	HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR ----(18)	STM-BOIL ER LOAD BTU/HR ----(1)	STM-BOIL ER ELECTRIC USE BTU/HR ----(3)
MONTHLY SUMMARY (AUG)					
MN	2200348.	1066827.	682813.	556143.	48941.
MX	4552086.	1491854.	682813.	684637.	60248.
SM	930409472.	350816256.	188456384.	167303344.	14722696.
AV	3371049.	1271073.	682813.	606172.	53343.
MONTHLY SUMMARY (SEP)					
MN	1840372.	1015714.	682813.	549405.	48348.
MX	4068729.	1368927.	682813.	866564.	64648.
SM	709604608.	293925536.	172068864.	159246352.	13988820.
AV	2815891.	1166371.	682813.	631930.	55511.
MONTHLY SUMMARY (OCT)					
MN	1639723.	986768.	682813.	593263.	52207.
MX	3273143.	1241670.	682813.	1187933.	64648.
SM	549318592.	259346032.	163875104.	168493280.	14202739.
AV	2288828.	1080609.	682813.	702055.	59178.
MONTHLY SUMMARY (NOV)					
MN	1424527.	955364.	682813.	584214.	51411.
MX	3531256.	1284191.	682813.	1557907.	64648.
SM	474993984.	248784352.	163875104.	227616032.	15094358.
AV	1979142.	1036601.	682813.	948400.	62893.
MONTHLY SUMMARY (DEC)					
MN	1219585.	925111.	682813.	622168.	54751.
MX	2427751.	1098571.	682813.	1835065.	64648.
SM	419273440.	249506352.	172068864.	332685888.	16242543.
AV	1663784.	990105.	682813.	1320182.	64455.
YEARLY SUMMARY					
MN	1066818.	855555.	640091.	549405.	48348.
MX	4552086.	1502434.	682813.	2331893.	64648.
SM	7164089344.	3333650688.	2064741632.	2767847424.	180102176.
AV	2369077.	1102398.	682785.	915293.	59558.

ECO-3 CA3 Reduced Infiltration 25% off peak

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 11:12:21 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
RS_1 = HOURLY-REPORT PAGE 1- 1

MMDDHH	1SDXHT	1SDX	2SDX	3SDX	4SDX	1SHWONLY	04SHWELEV	0SDXHT	0SDXNOHT
	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW
	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)
MONTHLY SUMMARY (JAN)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	9939.382	5061.797	10655.630	7269.405	26612.115	0.384	1.919	725.307	1082.203
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (FEB)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	8969.687	4567.963	9616.056	6560.194	24015.811	0.346	1.732	654.545	976.622
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (MAR)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	9454.534	4814.880	10135.844	6914.800	25313.963	0.365	1.825	689.926	1029.413
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (APR)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	9454.534	4814.880	10135.844	6914.800	25313.963	0.365	1.825	689.926	1029.413
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (MAY)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	9939.382	5061.797	10655.630	7269.404	26612.115	0.187	0.936	725.307	1082.203
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.002	1.474	2.200
MONTHLY SUMMARY (JUN)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
SM	9212.109	4691.421	9875.950	6737.497	24664.885	0.000	0.000	672.235	1003.018
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MONTHLY SUMMARY (JUL)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
SM	10181.806	5185.255	10915.524	7446.708	27261.189	0.000	0.000	742.997	1108.599
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200

MODEL CA3 INFILTRATION W/25% REDUCTION OFF-PEAK USAGE

	1SDXHT TOT FAN ELECTRIC KW ----(33)	1SDX TOT FAN ELECTRIC KW ----(33)	2SDX TOT FAN ELECTRIC KW ----(33)	3SDX TOT FAN ELECTRIC KW ----(33)	4SDX TOT FAN ELECTRIC KW ----(33)	1SHWONLY TOT FAN ELECTRIC KW ----(33)	04SHWELEV TOT FAN ELECTRIC KW ----(33)	0SDXHT TOT FAN ELECTRIC KW ----(33)	0SDXNOHT TOT FAN ELECTRIC KW ----(33)
MONTHLY SUMMARY (AUG)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
SM	9454.534	4814.880	10135.844	6914.799	25313.963	0.000	0.000	689.926	1029.413
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MONTHLY SUMMARY (SEP)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
SM	9454.534	4814.880	10135.844	6914.800	25313.961	0.000	0.000	689.926	1029.413
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MONTHLY SUMMARY (OCT)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	10181.806	5185.255	10915.524	7446.708	27261.191	0.197	0.983	742.997	1108.598
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.002	1.474	2.200
MONTHLY SUMMARY (NOV)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	9696.958	4938.338	10395.737	7092.102	25963.037	0.374	1.872	707.616	1055.808
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (DEC)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	9939.382	5061.797	10655.631	7269.405	26612.113	0.384	1.919	725.307	1082.203
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
YEARLY SUMMARY									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	115878.648	59013.141	124229.055	84750.625	310258.313	2.602	13.010	8456.014	12616.906
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.002	1.474	2.200

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
STM-BOILER	0.579	1	1												
DHW-HEATER	0.000	1	1												
HERM-REC-CHLR	3.892	1	1												

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
STM-BOILER	644.6	100.0
DHW-HEATER	0.0	0.0
LOAD SATISFIED	644.6	100.0
TOTAL LOAD ON PLANT	644.6	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-REC-CHLR	16276.7	100.0
LOAD SATISFIED	16276.7	100.0
TOTAL LOAD ON PLANT	16276.7	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	26094.1	100.0
LOAD SATISFIED	26094.1	100.0
TOTAL LOAD ON PLANT	26094.1	

(CONTINUED)

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	644.6	644.6	0.000	0.000	0
COOLING LOADS	16276.7	16276.7	0.027	0.018	2
ELECTRICAL LOADS	26094.1	26094.1	0.000	0.000	0

ENERGY TYPE IN SITE MBTU -	ELECTRICITY	FUEL-OIL	NATURAL-GAS
CATEGORY OF USE			
SPACE HEAT	37.39	988.18	0.00
SPACE COOL	7908.28	0.00	0.00
HVAC AUX	4941.25	0.00	0.00
DOM HOT WTR	0.00	0.00	0.00
AUX SOLAR	0.00	0.00	0.00
LIGHTS	4983.86	0.00	0.00
VERT TRANS	0.00	0.00	0.00
MISC EQUIP	8224.01	0.00	0.00
TOTAL	26094.79	988.18	0.00

TOTAL SITE ENERGY 27082.28 MBTU 210.8 KBTU/SQFT-YR GROSS-AREA 210.8 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 79348.79 MBTU 617.6 KBTU/SQFT-YR GROSS-AREA 617.6 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 11.6
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-REC -CHLR ELECTRIC USE BTU/HR	HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR	STM-BOIL ER ELECTRIC USE BTU/HR	STM-BOIL ER FUEL USE BTU/HR
	----(3)	----(18)	----(3)	----(4)
MONTHLY SUMMARY (JAN)				
MN	535361.	401088.	1453.	28067.
MX	876201.	583796.	12738.	752714.
SM	358254432.	263037744.	5812172.	171351728.
AV	728159.	534630.	11813.	348276.
MONTHLY SUMMARY (FEB)				
MN	527142.	394952.	504.	9743.
MX	875766.	583796.	12738.	751541.
SM	327136096.	239127616.	5195205.	159578688.
AV	736793.	538576.	11701.	359411.
MONTHLY SUMMARY (MAR)				
MN	631776.	473001.	504.	9743.
MX	900159.	583796.	12738.	572733.
SM	367624640.	266104240.	5025957.	127170360.
AV	785523.	568599.	10739.	271732.
MONTHLY SUMMARY (APR)				
MN	661938.	495478.	504.	9743.
MX	923082.	583796.	12738.	499937.
SM	382968384.	271392160.	2160246.	48507240.
AV	818309.	579898.	4616.	103648.
MONTHLY SUMMARY (MAY)				
MN	743947.	556541.	0.	0.
MX	975469.	583796.	12738.	263479.
SM	413771104.	287143520.	379107.	7338990.
AV	840998.	583625.	771.	14917.
MONTHLY SUMMARY (JUN)				
MN	798306.	583796.	0.	0.
MX	1003135.	583796.	0.	0.
SM	396264192.	266210880.	0.	0.
AV	869000.	583796.	0.	0.
MONTHLY SUMMARY (JUL)				
MN	804028.	583796.	0.	0.
MX	992180.	583796.	0.	0.
SM	441250368.	294233088.	0.	0.
AV	875497.	583796.	0.	0.

	HERM-REC -CHLR ELECTRIC USE BTU/HR ----(3)	HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR ----(18)	STM-BOIL ER ELECTRIC USE BTU/HR ----(3)	STM-BOIL ER FUEL USE BTU/HR ----(4)
MONTHLY SUMMARY (AUG)				
MN	788823.	583796.	0.	0.
MX	991107.	583796.	0.	0.
SM	405776256.	273216416.	0.	0.
AV	867043.	583796.	0.	0.
MONTHLY SUMMARY (SEP)				
MN	781980.	583796.	0.	0.
MX	948940.	583796.	0.	0.
SM	397793312.	273216416.	0.	0.
AV	849986.	583796.	0.	0.
MONTHLY SUMMARY (OCT)				
MN	683149.	511279.	0.	0.
MX	907671.	583796.	12738.	331199.
SM	415276384.	293634560.	641723.	12790114.
AV	823961.	582608.	1273.	25377.
MONTHLY SUMMARY (NOV)				
MN	626375.	468976.	504.	9743.
MX	922674.	583796.	12738.	526275.
SM	380792512.	274897728.	3636822.	83659400.
AV	793318.	572704.	7577.	174290.
MONTHLY SUMMARY (DEC)				
MN	546128.	409124.	504.	9743.
MX	885942.	583796.	12738.	580262.
SM	370277664.	270221984.	5661317.	163917632.
AV	752597.	549232.	11507.	333166.
YEARLY SUMMARY				
MN	527142.	394952.	0.	0.
MX	1003135.	583796.	12738.	752714.
SM	4657185792.	3272436736.	28512548.	774314176.
AV	811922.	570509.	4971.	134992.

ECO-3

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 7/ 2/1996 10:31:40 SDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOCA3 - DX COOL W/HW & PER HW -.1BTUH
RS_1 = HOURLY-REPORT PAGE 1- 1

MMDDHH	1SDXHT	1SDX	2SDX	3SDX	4SDX	1SHWONLY	04SHWELEV	0SDXHT	0SDXNOHT
	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW
	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)
MONTHLY SUMMARY (JAN)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	5090.904	2592.626	5457.761	3723.353	13630.595	0.197	0.983	371.498	554.299
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (FEB)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	4606.056	2345.709	4937.974	3368.748	12332.442	0.178	0.889	336.118	501.509
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (MAR)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	5575.751	2839.543	5977.548	4077.958	14928.747	0.215	1.076	406.879	607.090
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (APR)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	5090.904	2592.626	5457.761	3723.353	13630.595	0.197	0.983	371.498	554.299
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (MAY)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	5090.904	2592.626	5457.761	3723.353	13630.595	0.094	0.468	371.498	554.299
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.002	1.474	2.200
MONTHLY SUMMARY (JUN)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
SM	5333.328	2716.085	5717.655	3900.655	14279.671	0.000	0.000	389.189	580.694
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MONTHLY SUMMARY (JUL)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
SM	4848.480	2469.168	5197.868	3546.050	12981.519	0.000	0.000	353.808	527.904
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200

MODEL BBI
INFILTRATION
W/25% REDUCTION
ON-PEAK
USAGE

	1SDXHT	1SDX	2SDX	3SDX	4SDX	1SHWONLY	04SHWELEV	0SDXHT	0SDXNOHT
	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW	TOT FAN ELECTRIC KW
	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)	----(33)
MONTHLY SUMMARY (AUG)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
SM	5575.751	2839.543	5977.548	4077.958	14928.747	0.000	0.000	406.879	607.090
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MONTHLY SUMMARY (SEP)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
SM	5090.904	2592.626	5457.761	3723.353	13630.595	0.000	0.000	371.498	554.299
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MONTHLY SUMMARY (OCT)									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	4848.480	2469.168	5197.868	3546.050	12981.519	0.103	0.515	353.808	527.904
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.002	1.474	2.200
MONTHLY SUMMARY (NOV)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	4848.480	2469.168	5197.868	3546.050	12981.519	0.187	0.936	353.808	527.904
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MONTHLY SUMMARY (DEC)									
MN	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	5090.904	2592.626	5457.761	3723.353	13630.595	0.197	0.983	371.498	554.299
AV	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
YEARLY SUMMARY									
MN	20.202	10.288	21.658	14.775	54.090	0.000	0.000	1.474	2.200
MX	20.202	10.288	21.658	14.775	54.090	0.001	0.004	1.474	2.200
SM	61090.844	31111.520	65493.133	44680.230	163567.141	1.367	6.833	4457.981	6651.591
AV	20.202	10.288	21.658	14.775	54.090	0.000	0.002	1.474	2.200

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
STM-BOILER	0.579	1	1												
DHW-HEATER	0.000	1	1												
HERM-REC-CHLR	3.892	1	1												

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
STM-BOILER	644.6	100.0
DHW-HEATER	0.0	0.0
LOAD SATISFIED	644.6	100.0
TOTAL LOAD ON PLANT	644.6	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-REC-CHLR	16276.7	100.0
LOAD SATISFIED	16276.7	100.0
TOTAL LOAD ON PLANT	16276.7	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	26094.1	100.0
LOAD SATISFIED	26094.1	100.0
TOTAL LOAD ON PLANT	26094.1	

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	644.6	644.6	0.000	0.000	0
COOLING LOADS	16276.7	16276.7	0.027	0.018	2
ELECTRICAL LOADS	26094.1	26094.1	0.000	0.000	0

ENERGY TYPE IN SITE MBTU - CATEGORY OF USE	ELECTRICITY	FUEL-OIL	NATURAL-GAS
SPACE HEAT	37.39	988.18	0.00
SPACE COOL	7908.28	0.00	0.00
HVAC AUX	4941.25	0.00	0.00
DOM HOT WTR	0.00	0.00	0.00
AUX SOLAR	0.00	0.00	0.00
LIGHTS	4983.86	0.00	0.00
VERT TRANS	0.00	0.00	0.00
MISC EQUIP	8224.01	0.00	0.00
TOTAL	26094.79	988.18	0.00

TOTAL SITE ENERGY 27082.28 MBTU 210.8 KBTU/SQFT-YR GROSS-AREA 210.8 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 79348.79 MBTU 617.6 KBTU/SQFT-YR GROSS-AREA 617.6 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 11.6
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-REC -CHLR ELECTRIC USE BTU/HR	HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR	STM-BOIL ER ELECTRIC USE BTU/HR	STM-BOIL ER FUEL USE BTU/HR
	----(3)	----(18)	----(3)	----(4)
MONTHLY SUMMARY (JAN)				
MN	937605.	583796.	504.	9743.
MX	1082899.	583796.	12738.	743884.
SM	256205232.	147116464.	2096942.	59470712.
AV	1016687.	583796.	8321.	235995.
MONTHLY SUMMARY (FEB)				
MN	928071.	583796.	504.	9743.
MX	1088467.	583796.	12738.	507220.
SM	233673600.	133105368.	1585027.	35263052.
AV	1024884.	583796.	6952.	154663.
MONTHLY SUMMARY (MAR)				
MN	957016.	583796.	504.	9743.
MX	1122546.	583796.	12738.	512098.
SM	287182592.	161127568.	1530656.	35519956.
AV	1040517.	583796.	5546.	128695.
MONTHLY SUMMARY (APR)				
MN	966029.	583796.	504.	9743.
MX	1183155.	583796.	12738.	355173.
SM	268408896.	147116464.	477441.	9757922.
AV	1065115.	583796.	1895.	38722.
MONTHLY SUMMARY (MAY)				
MN	985677.	583796.	0.	0.
MX	1238328.	583796.	4407.	85109.
SM	275527424.	147116464.	78084.	1508007.
AV	1093363.	583796.	310.	5984.
MONTHLY SUMMARY (JUN)				
MN	1016320.	583796.	0.	0.
MX	1304448.	583796.	0.	0.
SM	298948832.	154122016.	0.	0.
AV	1132382.	583796.	0.	0.
MONTHLY SUMMARY (JUL)				
MN	1026370.	583796.	0.	0.
MX	1258694.	583796.	0.	0.
SM	274606400.	140110912.	0.	0.
AV	1144193.	583795.	0.	0.

	HERM-REC -CHLR ELECTRIC USE BTU/HR ----(3)	HERM-REC -CHLR CONDENSR FAN ELEC BTU/HR ----(18)	STM-BOIL ER ELECTRIC USE BTU/HR ----(3)	STM-BOIL ER FUEL USE BTU/HR ----(4)
MONTHLY SUMMARY (AUG)				
MN	1013925.	583796.	0.	0.
MX	1280765.	583796.	0.	0.
SM	315750784.	161127568.	0.	0.
AV	1144025.	583796.	0.	0.
MONTHLY SUMMARY (SEP)				
MN	993271.	583796.	0.	0.
MX	1207949.	583796.	0.	0.
SM	276855072.	147116464.	0.	0.
AV	1098631.	583796.	0.	0.
MONTHLY SUMMARY (OCT)				
MN	975607.	583796.	0.	0.
MX	1167410.	583796.	8246.	159243.
SM	255514720.	140110912.	124763.	2409484.
AV	1064645.	583795.	520.	10040.
MONTHLY SUMMARY (NOV)				
MN	963000.	583796.	504.	9743.
MX	1164715.	583796.	12738.	428717.
SM	250589440.	140110912.	926197.	19805388.
AV	1044123.	583795.	3859.	82522.
MONTHLY SUMMARY (DEC)				
MN	945033.	583796.	504.	9743.
MX	1107379.	583796.	12738.	563442.
SM	257862176.	147116464.	2059144.	50143764.
AV	1023263.	583796.	8171.	198983.
YEARLY SUMMARY				
MN	928071.	583796.	0.	0.
MX	1304448.	583796.	12738.	743884.
SM	3251125248.	1765397376.	8878254.	213878272.
AV	1075108.	583795.	2936.	70727.

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EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON DAY HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
HW-BOILER	0.147	4.712	2 20 3	4.712	5088								
HERM-CENT-CHLR	0.307	7.282	8 18 15	7.800	3672								
COOLING-TWR	0.306	8.784	8 18 15	2.400	14688								

Tower Fan
On-Peak Usage

ENERGY TYPE IN SITE MBTU - CATEGORY OF USE	ELECTRICITY	FUEL-OIL
SPACE HEAT	229.01	5128.55
SPACE COOL	2659.66	0.00
HVAC AUX	5352.53	0.00
DOM HOT WTR	0.00	0.00
AUX SOLAR	0.00	0.00
LIGHTS	10258.61	0.00
VERT TRANS	0.00	0.00
MISC EQUIP	4521.42	0.00
TOTAL	23021.24	5128.55

TOTAL SITE ENERGY 28149.62 MBTU 85.4 KBTU/SQFT-YR GROSS-AREA 85.4 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 74261.00 MBTU 225.4 KBTU/SQFT-YR GROSS-AREA 225.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 3.7
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING- TWR FAN ELEC BTU/HR ----(20)	COOLING- TWR PUMP ELEC BTU/HR ----(21)
MONTHLY SUMMARY (MAY)				
MN	302722.	142762.	15251.	90465.
MX	6348487.	1258375.	141426.	90465.
SM	392043168.	81835792.	12712080.	11941428.
AV	2970024.	619968.	96304.	90465.
MONTHLY SUMMARY (JUN)				
MN	830509.	372988.	16700.	90465.
MX	7271629.	1507925.	141426.	90465.
SM	1194551552.	232249792.	35530404.	23882852.
AV	4524817.	879734.	134585.	90465.
MONTHLY SUMMARY (JUL)				
MN	1498392.	430245.	94161.	90465.
MX	7050099.	1439141.	141426.	90465.
SM	1191595264.	228490976.	33845808.	21711684.
AV	4964981.	952046.	141024.	90465.
MONTHLY SUMMARY (AUG)				
MN	815628.	371830.	32452.	90465.
MX	7281769.	1502584.	141426.	90465.
SM	1354552192.	262494784.	38635008.	24968436.
AV	4907798.	951068.	139982.	90465.
MONTHLY SUMMARY (SEP)				
MN	355402.	167667.	15417.	90465.
MX	6235474.	1243838.	141426.	90465.
SM	863843136.	175046640.	28207500.	22797268.
AV	3427949.	694630.	111935.	90465.
MONTHLY SUMMARY (OCT)				
MN	357490.	168654.	15424.	90465.
MX	5014499.	925695.	141426.	90465.
SM	179807184.	47662560.	6271389.	9770260.
AV	1664881.	441320.	58068.	90465.
YEARLY SUMMARY				
MN	302722.	142762.	15251.	90465.
MX	7281769.	1507925.	141426.	90465.
SM	5176392704.	1027780480.	155202192.	115071920.
AV	4069491.	808004.	122014.	90465.

ECO-8

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
HW-BOILER	4.712	1	1															
HERM-CENT-CHLR	7.800	1	1															
COOLING-TWR	2.400	4	4															

TOWER FAN
OFF-PEAK USAGE

EQUIPMENT	HOURS AT PERCENT PART LOAD RATIO											TOTAL HOURS	ANNUAL LOAD (MBTU)	FALSE LOAD (MBTU)	ELEC USED (MBTU)	THERMAL USED (MBTU)
	0 -- 10	-- 20	-- 30	-- 40	-- 50	-- 60	-- 70	-- 80	-- 90	-- 100	- 110+					
HW-BOILER	2851	617	617	459	307	134	57	32	9	4	1	5088	3532.8	0.0	229.0	5128.5
	2851	617	617	459	307	134	57	32	9	4	1					
HERM-CENT-CHLR	1092	504	749	469	313	339	170	36	0	0	0	3672	8802.2	0.0	1986.8	0.0
	1092	504	749	469	313	339	170	36	0	0	0					
COOLING-TWR	1170	657	551	317	141	109	119	125	111	87	285	3672	10789.1	0.0	672.8	0.0
	1170	657	551	317	141	109	119	125	111	87	285					

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 177.2 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 950.4 MBTU

NOTES TO TABLE
1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HW-BOILER	3532.8	100.0
LOAD SATISFIED	3532.8	100.0
TOTAL LOAD ON PLANT	3532.8	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-CENT-CHLR	8802.2	100.0
LOAD SATISFIED	8802.2	100.0
TOTAL LOAD ON PLANT	8802.2	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	23021.1	100.0
LOAD SATISFIED	23021.1	100.0
TOTAL LOAD ON PLANT	23020.8	

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 1 HOURS
MAXIMUM TOWER EXIT TEMPERATURE = 86.F

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	3532.8	3532.8	0.000	0.000	0
COOLING LOADS	8802.2	8802.2	0.000	0.000	0
ELECTRICAL LOADS	23020.8	23021.1	0.000	0.000	0

EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON	DAY	HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
HW-BOILER	0.147	4.712	2	20	3	4.712	5088								
HERM-CENT-CHLR	0.307	7.282	8	18	15	7.800	3672								
COOLING-TWR	0.306	8.784	8	18	15	2.400	14688								

ENERGY TYPE IN SITE MBTU - CATEGORY OF USE	ELECTRICITY	FUEL-OIL
SPACE HEAT	229.01	5128.55
SPACE COOL	2659.66	0.00
HVAC AUX	5352.53	0.00
DOM HOT WTR	0.00	0.00
AUX SOLAR	0.00	0.00
LIGHTS	10258.61	0.00
VERT TRANS	0.00	0.00
MISC EQUIP	4521.42	0.00
TOTAL	23021.24	5128.55

TOTAL SITE ENERGY 28149.62 MBTU 85.4 KBTU/SQFT-YR GROSS-AREA 85.4 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 74261.00 MBTU 225.4 KBTU/SQFT-YR GROSS-AREA 225.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 3.7
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING- TWR FAN ELEC BTU/HR ----(20)	COOLING- TWR PUMP ELEC BTU/HR ----(21)
MONTHLY SUMMARY (MAY)				
MN	302722.	142762.	15251.	90465.
MX	5349443.	1003505.	141426.	90465.
SM	200589872.	67524968.	8439609.	22797268.
AV	795992.	267956.	33491.	90465.
MONTHLY SUMMARY (JUN)				
MN	302722.	142762.	15251.	90465.
MX	4387579.	852452.	141426.	90465.
SM	799004608.	201814432.	41061692.	41252200.
AV	1752203.	442576.	90048.	90465.
MONTHLY SUMMARY (JUL)				
MN	302722.	142762.	16165.	90465.
MX	4323691.	845941.	141426.	90465.
SM	1085108224.	256985568.	55622060.	45594536.
AV	2152993.	509892.	110361.	90465.
MONTHLY SUMMARY (AUG)				
MN	302722.	142762.	15419.	90465.
MX	4581775.	923552.	141426.	90465.
SM	870181440.	218158096.	44604648.	42337780.
AV	1859362.	466150.	95309.	90465.
MONTHLY SUMMARY (SEP)				
MN	302722.	142762.	15251.	90465.
MX	3330085.	669181.	141426.	90465.
SM	558887744.	166953456.	29791260.	42337784.
AV	1194205.	356738.	63657.	90465.
MONTHLY SUMMARY (OCT)				
MN	302722.	142762.	15251.	90465.
MX	2663557.	566678.	141426.	90465.
SM	112066016.	47639172.	5857014.	22797272.
AV	444706.	189044.	23242.	90465.
YEARLY SUMMARY				
MN	302722.	142762.	15251.	90465.
MX	5349443.	1003505.	141426.	90465.
SM	3625837824.	959075712.	185376272.	217116832.
AV	1510766.	399615.	77240.	90465.

ECO-8

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/18/1996 2: 7:39 PDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE WEATHER FILE- NEWARK, NJ

Hourly Single Speed Results

ENERGY TYPE IN SITE MBTU - CATEGORY OF USE	ELECTRICITY	FUEL-OIL
SPACE HEAT	229.01	5128.55
SPACE COOL	2803.02	0.00
HVAC AUX	5352.51	0.00
DOM HOT WTR	0.00	0.00
AUX SOLAR	0.00	0.00
LIGHTS	10258.58	0.00
VERT TRANS	0.00	0.00
MISC EQUIP	4521.41	0.00
TOTAL	23164.53	5128.55

TOTAL SITE ENERGY 28292.98 MBTU 85.9 KBTU/SQFT-YR GROSS-AREA 85.9 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 74691.53 MBTU 226.7 KBTU/SQFT-YR GROSS-AREA 226.7 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 3.7
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING-TWR LOAD BTU/HR ----(1)	COOLING-TWR SIZES RUNNING ----(6)	COOLING-TWR MINIMUM CELL NO. ----(9)	COOLING-TWR TOWER TEMP F ----(19)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)	COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23)
525 1	618332.	292245.	910577.	4.	4.	65.0	113321.	90465.	0.8013
525 2	411510.	194213.	605723.	4.	4.	65.0	109160.	90465.	0.7718
525 3	437646.	206585.	644231.	4.	4.	65.0	109710.	90465.	0.7757
525 4	459344.	216860.	676205.	4.	4.	65.0	110161.	90465.	0.7789
525 5	431755.	203796.	635551.	4.	4.	65.0	109586.	90465.	0.7749
525 6	631318.	298410.	929728.	4.	4.	65.0	113568.	90465.	0.8030
525 7	1706845.	450241.	2157086.	4.	4.	65.0	126525.	90465.	0.8946
525 8	2762013.	567236.	3329249.	4.	4.	65.0	134911.	90465.	0.9539
525 9	3854814.	716778.	4571592.	4.	4.	65.0	141038.	90465.	0.9973
52510	4301003.	786343.	5087345.	4.	4.	65.1	141426.	90465.	1.0000
52511	4666796.	847285.	5514080.	4.	4.	65.8	141426.	90465.	1.0000
52512	4869973.	884564.	5754538.	4.	4.	66.3	141426.	90465.	1.0000
52513	5409071.	984728.	6393799.	4.	4.	68.6	141426.	90465.	1.0000
52514	4793663.	879746.	5673409.	4.	4.	67.3	141426.	90465.	1.0000
52515	4132488.	765379.	4897868.	4.	4.	64.7	141426.	90465.	1.0000
52516	3212557.	624823.	3837380.	4.	4.	65.0	139695.	90465.	0.9878
52517	2672214.	556242.	3228457.	4.	4.	65.0	138876.	90465.	0.9820
52518	2226339.	504528.	2730867.	4.	4.	65.0	138668.	90465.	0.9805
52519	1382371.	419556.	1801927.	4.	4.	65.0	132897.	90465.	0.9397
52520	1186833.	402250.	1589082.	4.	4.	65.0	131311.	90465.	0.9285
52521	1013197.	387625.	1400821.	4.	4.	65.0	126306.	90465.	0.8931
52522	848518.	374397.	1222915.	4.	4.	65.0	124635.	90465.	0.8813
52523	762992.	360986.	1123978.	4.	4.	65.0	123661.	90465.	0.8744
52524	654281.	309315.	963596.	4.	4.	65.0	114002.	90465.	0.8061
DAILY SUMMARY (MAY 25)									
MN	411510.	194213.	605723.	4.	4.	64.7	109160.	90465.	0.7718
MX	5409071.	984728.	6393799.	4.	4.	68.6	141426.	90465.	1.0000
SM	53445864.	12234129.	65680004.	96.	96.	1567.8	3086590.	2171169.	21.8247
AV	2226911.	509755.	2736667.	4.	4.	65.3	128608.	90465.	0.9094

	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING-TWR LOAD BTU/HR ----(1)	COOLING-TWR SIZES RUNNING ----(6)	COOLING-TWR MINIMUM CELL NO. ----(9)	COOLING-TWR TOWER TEMP F ----(19)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)	COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23)
526 1	624341.	295098.	919438.	4.	4.	65.0	113436.	90465.	0.8021
526 2	578325.	273260.	851585.	4.	4.	65.0	112549.	90465.	0.7958
526 3	470532.	222160.	692692.	4.	4.	65.0	110392.	90465.	0.7806
526 4	427352.	201711.	629063.	4.	4.	65.0	109494.	90465.	0.7742
526 5	436795.	206182.	642977.	4.	4.	65.0	109692.	90465.	0.7756
526 6	838944.	373647.	1212591.	4.	4.	65.0	124535.	90465.	0.8806
526 7	3627962.	683317.	4311280.	4.	4.	68.7	141426.	90465.	1.0000
526 8	4515940.	832542.	5348482.	4.	4.	72.3	141426.	90465.	1.0000
526 9	4959050.	925133.	5884183.	4.	4.	74.5	141426.	90465.	1.0000
52610	5139727.	970342.	6110069.	4.	4.	75.6	141426.	90465.	1.0000
52611	5441774.	1035158.	6476932.	4.	4.	76.8	141426.	90465.	1.0000
52612	5838525.	1124508.	6963033.	4.	4.	78.2	141426.	90465.	1.0000
52613	6225351.	1218847.	7444198.	4.	4.	79.6	141426.	90465.	1.0000
52614	6348487.	1258375.	7606862.	4.	4.	79.8	141426.	90465.	1.0000
52615	6132609.	1211687.	7344296.	4.	4.	80.3	141426.	90465.	1.0000
52616	5372993.	1054609.	6427603.	4.	4.	79.1	141426.	90465.	1.0000
52617	4961285.	965807.	5927092.	4.	4.	77.7	141426.	90465.	1.0000
52618	4347851.	846228.	5194078.	4.	4.	76.9	141426.	90465.	1.0000
52619	3761942.	745937.	4507880.	4.	4.	76.2	141426.	90465.	1.0000
52620	3355095.	681606.	4036701.	4.	4.	76.0	140809.	90465.	0.9956
52621	3099357.	644638.	3743995.	4.	4.	75.0	140207.	90465.	0.9914
52622	3000988.	627077.	3628066.	4.	4.	75.0	139680.	90465.	0.9877
52623	2668355.	583710.	3252065.	4.	4.	74.0	138604.	90465.	0.9800
52624	2508545.	560278.	3068822.	4.	4.	74.0	137656.	90465.	0.9733
DAILY SUMMARY (MAY 26)									
MN	427352.	201711.	629063.	4.	4.	65.0	109494.	90465.	0.7742
MX	6348487.	1258375.	7606862.	4.	4.	80.3	141426.	90465.	1.0000
SM	84682128.	17541858.	102223976.	96.	96.	1759.9	3215597.	2171169.	22.7369
AV	3528422.	730911.	4259333.	4.	4.	73.3	133983.	90465.	0.9474
MONTHLY SUMMARY (MAY)									
MN	411510.	194213.	605723.	4.	4.	64.7	109160.	90465.	0.7718
MX	6348487.	1258375.	7606862.	4.	4.	80.3	141426.	90465.	1.0000
SM	138128000.	29775988.	167903984.	192.	192.	3327.7	6302187.	4342338.	44.5616
AV	2877667.	620333.	3498000.	4.	4.	69.3	131296.	90465.	0.9284

	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING-TWR LOAD BTU/HR ----(1)	COOLING-TWR SIZES RUNNING ----(6)	COOLING-TWR MINIMUM CELL NO. ----(9)	COOLING-TWR TOWER TEMP F ----(19)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)	COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23)
613 1	1978521.	499272.	2477793.	4.	4.	74.0	134203.	90465.	0.9489
613 2	1961302.	497405.	2458708.	4.	4.	74.0	134081.	90465.	0.9481
613 3	1876837.	488353.	2365190.	4.	4.	74.0	133470.	90465.	0.9437
613 4	1812907.	481616.	2294523.	4.	4.	74.0	132996.	90465.	0.9404
613 5	1836007.	484039.	2320046.	4.	4.	75.0	132231.	90465.	0.9350
613 6	2841241.	605906.	3447147.	4.	4.	75.0	138819.	90465.	0.9816
613 7	4415719.	842722.	5258441.	4.	4.	77.0	141426.	90465.	1.0000
613 8	5238986.	1004274.	6243259.	4.	4.	78.9	141426.	90465.	1.0000
613 9	5833208.	1139176.	6972384.	4.	4.	80.6	141426.	90465.	1.0000
61310	6349579.	1267680.	7617259.	4.	4.	82.2	141426.	90465.	1.0000
61311	6600368.	1341880.	7942248.	4.	4.	82.6	141426.	90465.	1.0000
61312	7022062.	1448864.	8470926.	4.	4.	84.0	141426.	90465.	1.0000
61313	6994234.	1458491.	8452724.	4.	4.	82.4	141426.	90465.	1.0000
61314	7271629.	1507925.	8779554.	4.	4.	83.6	141426.	90465.	1.0000
61315	6310310.	1287850.	7598160.	4.	4.	79.0	141426.	90465.	1.0000
61316	5762688.	1125281.	6887969.	4.	4.	78.1	141426.	90465.	1.0000
61317	5415416.	1047087.	6462502.	4.	4.	80.0	141426.	90465.	1.0000
61318	4953252.	970333.	5923585.	4.	4.	78.5	141426.	90465.	1.0000
61319	4347997.	851085.	5199081.	4.	4.	77.7	141426.	90465.	1.0000
61320	3921492.	775505.	4696997.	4.	4.	77.2	141426.	90465.	1.0000
61321	3655017.	731102.	4386119.	4.	4.	76.9	141426.	90465.	1.0000
61322	3392706.	690490.	4083196.	4.	4.	76.0	141003.	90465.	0.9970
61323	3221664.	661677.	3883340.	4.	4.	76.0	140147.	90465.	0.9910
61324	3054979.	638549.	3693528.	4.	4.	76.0	139284.	90465.	0.9849
DAILY SUMMARY (JUN 13)									
MN	1812907.	481616.	2294523.	4.	4.	74.0	132231.	90465.	0.9350
MX	7271629.	1507925.	8779554.	4.	4.	84.0	141426.	90465.	1.0000
SM	106068112.	21846556.	127914696.	96.	96.	1872.8	3347633.	2171169.	23.6705
AV	4419505.	910273.	5329779.	4.	4.	78.0	139485.	90465.	0.9863

	HERM-CEN T-CHLR LOAD BTU/HR	HERM-CEN T-CHLR ELECTRIC USE BTU/HR	COOLING-TWR LOAD BTU/HR	COOLING-TWR SIZES RUNNING	COOLING-TWR MINIMUM CELL NO.	COOLING-TWR TOWER TEMP F	COOLING-TWR FAN ELEC BTU/HR	COOLING-TWR PUMP ELEC BTU/HR	COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT.
	----(1)	----(3)	----(1)	----(6)	----(9)	----(19)	----(20)	----(21)	----(23)
614 1	2812733.	606183.	3418916.	4.	4.	76.0	137946.	90465.	0.9754
614 2	2660563.	586604.	3247167.	4.	4.	75.0	137811.	90465.	0.9744
614 3	2611037.	576516.	3187552.	4.	4.	76.0	136729.	90465.	0.9668
614 4	2477601.	563827.	3041428.	4.	4.	76.0	135914.	90465.	0.9610
614 5	2410466.	555678.	2966144.	4.	4.	76.0	135480.	90465.	0.9580
614 6	3401448.	687409.	4088857.	4.	4.	77.0	140390.	90465.	0.9927
614 7	4922452.	944387.	5866839.	4.	4.	79.3	141426.	90465.	1.0000
614 8	5780206.	1130959.	6911166.	4.	4.	81.3	141426.	90465.	1.0000
614 9	5858298.	1165021.	7023318.	4.	4.	79.9	141426.	90465.	1.0000
61410	6107864.	1206654.	7314518.	4.	4.	80.2	141426.	90465.	1.0000
61411	6083711.	1204473.	7288184.	4.	4.	79.4	141426.	90465.	1.0000
61412	6466565.	1283649.	7750214.	4.	4.	80.8	141426.	90465.	1.0000
61413	6792395.	1373430.	8165825.	4.	4.	82.8	141426.	90465.	1.0000
61414	6678760.	1367614.	8046374.	4.	4.	81.9	141426.	90465.	1.0000
61415	5432629.	1080210.	6512839.	4.	4.	78.4	141426.	90465.	1.0000
61416	4474579.	872512.	5347091.	4.	4.	73.9	141426.	90465.	1.0000
61417	3608903.	708528.	4317432.	4.	4.	69.5	141426.	90465.	1.0000
61418	1875511.	476006.	2351517.	4.	4.	65.0	136517.	90465.	0.9653
61419	1116705.	396259.	1512964.	4.	4.	65.0	123847.	90465.	0.8757
61420	874478.	376441.	1250918.	4.	4.	65.0	124904.	90465.	0.8832
61421	734309.	347344.	1081653.	4.	4.	65.0	123235.	90465.	0.8714
61422	476221.	224855.	701076.	4.	4.	65.0	119112.	90465.	0.8422
61423	311525.	146922.	458447.	4.	4.	65.0	106988.	90465.	0.7565
61424	396137.	186937.	583074.	4.	4.	65.0	108833.	90465.	0.7695
DAILY SUMMARY (JUN 14)									
MN	311525.	146922.	458447.	4.	4.	65.0	106988.	90465.	0.7565
MX	6792395.	1373430.	8165825.	4.	4.	82.8	141426.	90465.	1.0000
SM	84365104.	18068416.	102433504.	96.	96.	1778.5	3223398.	2171169.	22.7920
AV	3515213.	752851.	4268063.	4.	4.	74.1	134308.	90465.	0.9497
MONTHLY SUMMARY (JUN)									
MN	311525.	146922.	458447.	4.	4.	65.0	106988.	90465.	0.7565
MX	7271629.	1507925.	8779554.	4.	4.	84.0	141426.	90465.	1.0000
SM	190433216.	39914972.	230348192.	192.	192.	3651.2	6571031.	4342338.	46.4625
AV	3967359.	831562.	4798921.	4.	4.	76.1	136896.	90465.	0.9680

	HERM-CEN T-CHLR LOAD BTU/HR	HERM-CEN T-CHLR ELECTRIC USE BTU/HR	COOLING-TWR LOAD BTU/HR	COOLING-TWR SIZES RUNNING	COOLING-TWR MINIMUM CELL NO.	COOLING-TWR TOWER TEMP F	COOLING-TWR FAN ELEC BTU/HR	COOLING-TWR PUMP ELEC BTU/HR	COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT.
	----(1)	----(3)	----(1)	----(6)	----(9)	----(19)	----(20)	----(21)	----(23)
818 1	2536384.	563673.	3100056.	4.	4.	74.0	137821.	90465.	0.9745
818 2	2334174.	539448.	2873622.	4.	4.	73.0	137421.	90465.	0.9717
818 3	2237630.	525018.	2762648.	4.	4.	73.0	136803.	90465.	0.9673
818 4	2064430.	505578.	2570008.	4.	4.	72.0	136575.	90465.	0.9657
818 5	1877811.	482605.	2360416.	4.	4.	71.0	136255.	90465.	0.9634
818 6	2772317.	583158.	3355475.	4.	4.	72.0	140631.	90465.	0.9944
818 7	4335458.	815039.	5150497.	4.	4.	75.2	141426.	90465.	1.0000
818 8	5256840.	996690.	6253530.	4.	4.	78.1	141426.	90465.	1.0000
818 9	5808053.	1127677.	6935730.	4.	4.	79.0	141426.	90465.	1.0000
81810	6218376.	1223490.	7441865.	4.	4.	80.4	141426.	90465.	1.0000
81811	6601525.	1324143.	7925668.	4.	4.	81.8	141426.	90465.	1.0000
81812	6680344.	1356615.	8036959.	4.	4.	81.1	141426.	90465.	1.0000
81813	7079866.	1446835.	8526701.	4.	4.	81.7	141426.	90465.	1.0000
81814	7281769.	1502584.	8784353.	4.	4.	83.6	141426.	90465.	1.0000
81815	6946938.	1441591.	8388528.	4.	4.	85.5	141426.	90465.	1.0000
81816	5940299.	1224131.	7164430.	4.	4.	84.1	141426.	90465.	1.0000
81817	5673811.	1151062.	6824874.	4.	4.	83.7	141426.	90465.	1.0000
81818	5161632.	1040863.	6202494.	4.	4.	83.0	141426.	90465.	1.0000
81819	4581775.	923552.	5505327.	4.	4.	82.3	141426.	90465.	1.0000
81820	4249036.	858486.	5107522.	4.	4.	81.0	141426.	90465.	1.0000
81821	4032552.	813154.	4845706.	4.	4.	81.0	141164.	90465.	0.9981
81822	3817701.	777868.	4595569.	4.	4.	81.0	140182.	90465.	0.9912
81823	3615632.	745860.	4361492.	4.	4.	81.0	139195.	90465.	0.9842
81824	3410250.	714421.	4124671.	4.	4.	81.0	138126.	90465.	0.9767
DAILY SUMMARY (AUG 18)									
MN	1877811.	482605.	2360416.	4.	4.	71.0	136255.	90465.	0.9634
MX	7281769.	1502584.	8784353.	4.	4.	85.5	141426.	90465.	1.0000
SM	110514592.	22683538.	133198136.	96.	96.	1899.6	3364144.	2171169.	23.7872
AV	4604775.	945147.	5549923.	4.	4.	79.1	140173.	90465.	0.9911

	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING-TWR LOAD BTU/HR ----(1)	COOLING-TWR SIZES RUNNING ----(6)	COOLING-TWR MINIMUM CELL NO. ----(9)	COOLING-TWR TOWER TEMP F ----(19)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)	COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23)
819 1	3153977.	676731.	3830708.	4.	4.	80.0	137306.	90465.	0.9709
819 2	3031609.	654113.	3685723.	4.	4.	80.0	136567.	90465.	0.9656
819 3	2824754.	625788.	3450542.	4.	4.	79.0	135979.	90465.	0.9615
819 4	2751367.	611254.	3362621.	4.	4.	79.0	135493.	90465.	0.9580
819 5	2710398.	605888.	3316286.	4.	4.	79.0	135231.	90465.	0.9562
819 6	3472536.	712725.	4185261.	4.	4.	79.0	139575.	90465.	0.9869
819 7	4895288.	952448.	5847736.	4.	4.	80.1	141426.	90465.	1.0000
819 8	5613660.	1102562.	6716222.	4.	4.	80.3	141426.	90465.	1.0000
819 9	6122802.	1213702.	7336503.	4.	4.	81.0	141426.	90465.	1.0000
81910	6208665.	1239796.	7448460.	4.	4.	80.4	141426.	90465.	1.0000
81911	6379204.	1272526.	7651730.	4.	4.	81.4	141426.	90465.	1.0000
81912	6527596.	1316968.	7844564.	4.	4.	81.7	141426.	90465.	1.0000
81913	6886882.	1405727.	8292609.	4.	4.	83.8	141426.	90465.	1.0000
81914	6712683.	1386316.	8098998.	4.	4.	82.8	141426.	90465.	1.0000
81915	6310945.	1279852.	7590797.	4.	4.	81.4	141426.	90465.	1.0000
81916	5313110.	1051291.	6364402.	4.	4.	79.9	141426.	90465.	1.0000
81917	4922273.	963622.	5885894.	4.	4.	80.1	141426.	90465.	1.0000
81918	4453642.	879778.	5333420.	4.	4.	77.9	141426.	90465.	1.0000
81919	3853985.	765521.	4619506.	4.	4.	77.1	141426.	90465.	1.0000
81920	3572672.	718228.	4290899.	4.	4.	75.2	141426.	90465.	1.0000
81921	3253499.	662527.	3916027.	4.	4.	73.2	141426.	90465.	1.0000
81922	2999245.	619772.	3619017.	4.	4.	72.1	141426.	90465.	1.0000
81923	2720708.	580004.	3300711.	4.	4.	71.0	141146.	90465.	0.9980
81924	2453723.	544165.	2997888.	4.	4.	69.0	141355.	90465.	0.9995
DAILY SUMMARY (AUG 19)									
MN	2453723.	544165.	2997888.	4.	4.	69.0	135231.	90465.	0.9562
MX	6886882.	1405727.	8292609.	4.	4.	83.8	141426.	90465.	1.0000
SM	107145208.	21841304.	128986520.	96.	96.	1884.3	3365477.	2171169.	23.7967
AV	4464384.	910054.	5374439.	4.	4.	78.5	140228.	90465.	0.9915
MONTHLY SUMMARY (AUG)									
MN	1877811.	482605.	2360416.	4.	4.	69.0	135231.	90465.	0.9562
MX	7281769.	1502584.	8784353.	4.	4.	85.5	141426.	90465.	1.0000
SM	217659808.	44524840.	262184656.	192.	192.	3783.8	6729621.	4342338.	47.5839
AV	4534580.	927601.	5462181.	4.	4.	78.8	140200.	90465.	0.9913

	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING-TWR LOAD BTU/HR ----(1)	COOLING-TWR SIZES RUNNING ----(6)	COOLING-TWR MINIMUM CELL NO. ----(9)	COOLING-TWR TOWER TEMP F ----(19)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)	COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23)
10 9 1	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
10 9 2	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
10 9 3	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
10 9 4	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
10 9 5	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
10 9 6	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
10 9 7	310268.	146328.	456596.	4.	4.	65.0	106960.	90465.	0.7563
10 9 8	350550.	165372.	515923.	4.	4.	65.0	107849.	90465.	0.7626
10 9 9	361058.	170342.	531399.	4.	4.	65.0	108078.	90465.	0.7642
10 910	375266.	177062.	552328.	4.	4.	65.0	108385.	90465.	0.7664
10 911	335382.	158200.	493581.	4.	4.	65.0	107516.	90465.	0.7602
10 912	322481.	152101.	474582.	4.	4.	65.0	107231.	90465.	0.7582
10 913	343681.	162124.	505805.	4.	4.	65.0	107698.	90465.	0.7615
10 914	379552.	179090.	558643.	4.	4.	65.0	108478.	90465.	0.7670
10 915	347345.	163856.	511201.	4.	4.	65.0	107779.	90465.	0.7621
10 916	387722.	182955.	570677.	4.	4.	65.0	108653.	90465.	0.7683
10 917	339555.	160173.	499728.	4.	4.	65.0	107608.	90465.	0.7609
10 918	341501.	161093.	502594.	4.	4.	65.0	107651.	90465.	0.7612
10 919	311592.	146954.	458545.	4.	4.	65.0	106989.	90465.	0.7565
10 920	321309.	151547.	472857.	4.	4.	65.0	107205.	90465.	0.7580
10 921	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
10 922	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
10 923	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
10 924	309472.	145952.	455424.	4.	4.	65.0	106942.	90465.	0.7562
DAILY SUMMARY (OCT 9)									
MN	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
MX	387722.	182955.	570677.	4.	4.	65.0	108653.	90465.	0.7683
SM	7861235.	3708009.	11569244.	96.	96.	1560.0	2576145.	2171169.	18.2154
AV	327551.	154500.	482052.	4.	4.	65.0	107339.	90465.	0.7590

	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING-TWR LOAD BTU/HR ----(1)	COOLING-TWR SIZES RUNNING ----(6)	COOLING-TWR MINIMUM CELL NO. ----(9)	COOLING-TWR TOWER TEMP F ----(19)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)	COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23)
1010 1	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
1010 2	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
1010 3	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
1010 4	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
1010 5	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
1010 6	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
1010 7	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
1010 8	353627.	166827.	520455.	4.	4.	65.0	107916.	90465.	0.7631
1010 9	410347.	193662.	604009.	4.	4.	65.0	109135.	90465.	0.7717
101010	317377.	149688.	467065.	4.	4.	65.0	107118.	90465.	0.7574
101011	396127.	186932.	583059.	4.	4.	65.0	108833.	90465.	0.7695
101012	353404.	166722.	520126.	4.	4.	65.0	107911.	90465.	0.7630
101013	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
101014	310630.	146499.	457129.	4.	4.	65.0	106968.	90465.	0.7564
101015	333411.	157268.	490679.	4.	4.	65.0	107473.	90465.	0.7599
101016	316320.	149189.	465509.	4.	4.	65.0	107095.	90465.	0.7572
101017	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
101018	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
101019	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
101020	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
101021	303316.	143043.	446359.	4.	4.	65.0	106805.	90465.	0.7552
101022	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
101023	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
101024	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
DAILY SUMMARY (OCT 10)									
MN	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
MX	410347.	193662.	604009.	4.	4.	65.0	109135.	90465.	0.7717
SM	7635397.	3601262.	11236656.	96.	96.	1560.0	2571125.	2171169.	18.1799
AV	318142.	150053.	468194.	4.	4.	65.0	107130.	90465.	0.7575
MONTHLY SUMMARY (OCT)									
MN	302722.	142762.	445485.	4.	4.	65.0	106791.	90465.	0.7551
MX	410347.	193662.	604009.	4.	4.	65.0	109135.	90465.	0.7717
SM	15496632.	7309271.	22805900.	192.	192.	3120.0	5147270.	4342338.	36.3954
AV	322847.	152276.	475123.	4.	4.	65.0	107235.	90465.	0.7582
YEARLY SUMMARY									
MN	302722.	142762.	445485.	4.	4.	64.7	106791.	90465.	0.7551
MX	7281769.	1507925.	8784353.	4.	4.	85.5	141426.	90465.	1.0000
SM	561717696.	121525072.	683242688.	768.	768.	13882.7	24750108.	17369352.	175.0034
AV	2925613.	632943.	3558556.	4.	4.	72.3	128907.	90465.	0.9115

ECO-8

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/18/1996 2:10:24 PDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- BEPS ESTIMATED BUILDING ENERGY PERFORMANCE WEATHER FILE- NEWARK, NJ

Hourly
2-Speed
Results

ENERGY TYPE IN SITE MBTU -	ELECTRICITY	FUEL-OIL
CATEGORY OF USE		
SPACE HEAT	229.01	5128.55
SPACE COOL	2659.66	0.00
HVAC AUX	5352.53	0.00
DOM HOT WTR	0.00	0.00
AUX SOLAR	0.00	0.00
LIGHTS	10258.61	0.00
VERT TRANS	0.00	0.00
MISC EQUIP	4521.42	0.00
TOTAL	23021.24	5128.55

TOTAL SITE ENERGY 28149.62 MBTU 85.4 KBTU/SQFT-YR GROSS-AREA 85.4 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 74261.00 MBTU 225.4 KBTU/SQFT-YR GROSS-AREA 225.4 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 3.7
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING-TWR LOAD BTU/HR ----(1)	COOLING-TWR SIZES RUNNING ----(6)	COOLING-TWR MINIMUM CELL NO. ----(9)	COOLING-TWR TOWER TEMP F ----(19)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)	COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23)
525 1	618332.	292245.	910577.	4.	4.	65.0	16184.	90465.	0.9155
525 2	411510.	194213.	605723.	4.	4.	65.0	15590.	90465.	0.8818
525 3	437646.	206585.	644231.	4.	4.	65.0	15668.	90465.	0.8863
525 4	459344.	216860.	676205.	4.	4.	65.0	15732.	90465.	0.8899
525 5	431755.	203796.	635551.	4.	4.	65.0	15650.	90465.	0.8853
525 6	631318.	298410.	929728.	4.	4.	65.0	16219.	90465.	0.9175
525 7	1706845.	450241.	2157086.	4.	4.	65.0	36892.	90465.	0.1553
525 8	2762013.	567236.	3329249.	4.	4.	65.0	95720.	90465.	0.6306
525 9	3854814.	716778.	4571592.	4.	4.	65.0	138699.	90465.	0.9780
52510	4301003.	786343.	5087345.	4.	4.	65.1	141426.	90465.	1.0000
52511	4666796.	847285.	5514080.	4.	4.	65.8	141426.	90465.	1.0000
52512	4869973.	884564.	5754538.	4.	4.	66.3	141426.	90465.	1.0000
52513	5409071.	984728.	6393799.	4.	4.	68.6	141426.	90465.	1.0000
52514	4793663.	879746.	5673409.	4.	4.	67.3	141426.	90465.	1.0000
52515	4132488.	765379.	4897868.	4.	4.	64.7	141426.	90465.	1.0000
52516	3212557.	624823.	3837380.	4.	4.	65.0	129284.	90465.	0.9019
52517	2672214.	556242.	3228457.	4.	4.	65.0	123537.	90465.	0.8554
52518	2226339.	504528.	2730867.	4.	4.	65.0	122077.	90465.	0.8436
52519	1382371.	419556.	1801927.	4.	4.	65.0	81590.	90465.	0.5165
52520	1186833.	402250.	1589082.	4.	4.	65.0	70469.	90465.	0.4266
52521	1013197.	387625.	1400821.	4.	4.	65.0	35360.	90465.	0.1429
52522	848518.	374397.	1222915.	4.	4.	65.0	23634.	90465.	0.0481
52523	762992.	360986.	1123978.	4.	4.	65.0	17661.	90465.	0.9990
52524	654281.	309315.	963596.	4.	4.	65.0	16281.	90465.	0.9210
DAILY SUMMARY (MAY 25)									
MN	411510.	194213.	605723.	4.	4.	64.7	15590.	90465.	0.0481
MX	5409071.	984728.	6393799.	4.	4.	68.6	141426.	90465.	1.0000
SM	53445864.	12234129.	65680004.	96.	96.	1567.8	1834806.	2171169.	18.7951
AV	2226911.	509755.	2736667.	4.	4.	65.3	76450.	90465.	0.7831

	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING-TWR LOAD BTU/HR ----(1)	COOLING-TWR SIZES RUNNING ----(6)	COOLING-TWR MINIMUM CELL NO. ----(9)	COOLING-TWR TOWER TEMP F ----(19)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)	COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23)
526 1	624341.	295098.	919438.	4.	4.	65.0	16200.	90465.	0.9164
526 2	578325.	273260.	851585.	4.	4.	65.0	16074.	90465.	0.9092
526 3	470532.	222160.	692692.	4.	4.	65.0	15765.	90465.	0.8918
526 4	427352.	201711.	629063.	4.	4.	65.0	15637.	90465.	0.8845
526 5	436795.	206182.	642977.	4.	4.	65.0	15666.	90465.	0.8861
526 6	838944.	373647.	1212591.	4.	4.	65.0	22932.	90465.	0.0425
526 7	3627962.	683317.	4311280.	4.	4.	68.7	141426.	90465.	1.0000
526 8	4515940.	832542.	5348482.	4.	4.	72.3	141426.	90465.	1.0000
526 9	4959050.	925133.	5884183.	4.	4.	74.5	141426.	90465.	1.0000
52610	5139727.	970342.	6110069.	4.	4.	75.6	141426.	90465.	1.0000
52611	5441774.	1035158.	6476932.	4.	4.	76.8	141426.	90465.	1.0000
52612	5838525.	1124508.	6963033.	4.	4.	78.2	141426.	90465.	1.0000
52613	6225351.	1218847.	7444198.	4.	4.	79.6	141426.	90465.	1.0000
52614	6348487.	1258375.	7606862.	4.	4.	79.8	141426.	90465.	1.0000
52615	6132609.	1211687.	7344296.	4.	4.	80.3	141426.	90465.	1.0000
52616	5372993.	1054609.	6427603.	4.	4.	79.1	141426.	90465.	1.0000
52617	4961285.	965807.	5927092.	4.	4.	77.7	141426.	90465.	1.0000
52618	4347851.	846228.	5194078.	4.	4.	76.9	141426.	90465.	1.0000
52619	3761942.	745937.	4507880.	4.	4.	76.2	141426.	90465.	1.0000
52620	3355095.	681606.	4036701.	4.	4.	76.0	137092.	90465.	0.9650
52621	3099357.	644638.	3743995.	4.	4.	75.0	132873.	90465.	0.9309
52622	3000988.	627077.	3628066.	4.	4.	75.0	129175.	90465.	0.9010
52623	2668355.	583710.	3252065.	4.	4.	74.0	121628.	90465.	0.8400
52624	2508545.	560278.	3068822.	4.	4.	74.0	114977.	90465.	0.7863
DAILY SUMMARY (MAY 26)									
MN	427352.	201711.	629063.	4.	4.	65.0	15637.	90465.	0.0425
MX	6348487.	1258375.	7606862.	4.	4.	80.3	141426.	90465.	1.0000
SM	84682128.	17541858.	102223976.	96.	96.	1759.9	2576562.	2171169.	21.9537
AV	3528422.	730911.	4259333.	4.	4.	73.3	107357.	90465.	0.9147
MONTHLY SUMMARY (MAY)									
MN	411510.	194213.	605723.	4.	4.	64.7	15590.	90465.	0.0425
MX	6348487.	1258375.	7606862.	4.	4.	80.3	141426.	90465.	1.0000
SM	138128000.	29775988.	167903984.	192.	192.	3327.7	4411369.	4342338.	40.7488
AV	2877667.	620333.	3498000.	4.	4.	69.3	91904.	90465.	0.8489

	HERM-CEN T-CHLR LOAD BTU/HR	HERM-CEN T-CHLR ELECTRIC USE BTU/HR	COOLING-TWR LOAD BTU/HR	COOLING-TWR SIZES RUNNING	COOLING-TWR MINIMUM CELL NO.	COOLING-TWR TOWER TEMP F	COOLING-TWR FAN ELEC BTU/HR	COOLING-TWR PUMP ELEC BTU/HR	COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT.
	----(1)	----(3)	----(1)	----(6)	----(9)	----(19)	----(20)	----(21)	----(23)
613 1	1978521.	499272.	2477793.	4.	4.	74.0	90758.	90465.	0.5905
613 2	1961302.	497405.	2458708.	4.	4.	74.0	89898.	90465.	0.5836
613 3	1876837.	488353.	2365190.	4.	4.	74.0	85612.	90465.	0.5490
613 4	1812907.	481616.	2294523.	4.	4.	74.0	82288.	90465.	0.5221
613 5	1836007.	484039.	2320046.	4.	4.	75.0	76921.	90465.	0.4787
613 6	2841241.	605906.	3447147.	4.	4.	75.0	123138.	90465.	0.8522
613 7	4415719.	842722.	5258441.	4.	4.	77.0	141426.	90465.	1.0000
613 8	5238986.	1004274.	6243259.	4.	4.	78.9	141426.	90465.	1.0000
613 9	5833208.	1139176.	6972384.	4.	4.	80.6	141426.	90465.	1.0000
61310	6349579.	1267680.	7617259.	4.	4.	82.2	141426.	90465.	1.0000
61311	6600368.	1341880.	7942248.	4.	4.	82.6	141426.	90465.	1.0000
61312	7022062.	1448864.	8470926.	4.	4.	84.0	141426.	90465.	1.0000
61313	6994234.	1458491.	8452724.	4.	4.	82.4	141426.	90465.	1.0000
61314	7271629.	1507925.	8779554.	4.	4.	83.6	141426.	90465.	1.0000
61315	6310310.	1287850.	7598160.	4.	4.	79.0	141426.	90465.	1.0000
61316	5762688.	1125281.	6887969.	4.	4.	78.1	141426.	90465.	1.0000
61317	5415416.	1047087.	6462502.	4.	4.	80.0	141426.	90465.	1.0000
61318	4953252.	970333.	5923585.	4.	4.	78.5	141426.	90465.	1.0000
61319	4347997.	851085.	5199081.	4.	4.	77.7	141426.	90465.	1.0000
61320	3921492.	775505.	4696997.	4.	4.	77.2	141426.	90465.	1.0000
61321	3655017.	731102.	4386119.	4.	4.	76.9	141426.	90465.	1.0000
61322	3392706.	690490.	4083196.	4.	4.	76.0	138458.	90465.	0.9760
61323	3221664.	661677.	3883340.	4.	4.	76.0	132449.	90465.	0.9275
61324	3054979.	638549.	3693528.	4.	4.	76.0	126400.	90465.	0.8786
DAILY SUMMARY (JUN 13)									
MN	1812907.	481616.	2294523.	4.	4.	74.0	76921.	90465.	0.4787
MX	7271629.	1507925.	8779554.	4.	4.	84.0	141426.	90465.	1.0000
SM	106068112.	21846556.	127914696.	96.	96.	1872.8	3067319.	2171169.	21.3582
AV	4419505.	910273.	5329779.	4.	4.	78.0	127805.	90465.	0.8899

	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING-TWR LOAD BTU/HR ----(1)	COOLING-TWR SIZES RUNNING ----(6)	COOLING-TWR MINIMUM CELL NO. ----(9)	COOLING-TWR TOWER TEMP F ----(19)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)	COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23)
614 1	2812733.	606183.	3418916.	4.	4.	76.0	117013.	90465.	0.8027
614 2	2660563.	586604.	3247167.	4.	4.	75.0	116068.	90465.	0.7951
614 3	2611037.	576516.	3187552.	4.	4.	76.0	108472.	90465.	0.7337
614 4	2477601.	563827.	3041428.	4.	4.	76.0	102758.	90465.	0.6875
614 5	2410466.	555678.	2966144.	4.	4.	76.0	99712.	90465.	0.6629
614 6	3401448.	687409.	4088857.	4.	4.	77.0	134156.	90465.	0.9412
614 7	4922452.	944387.	5866839.	4.	4.	79.3	141426.	90465.	1.0000
614 8	5780206.	1130959.	6911166.	4.	4.	81.3	141426.	90465.	1.0000
614 9	5858298.	1165021.	7023318.	4.	4.	79.9	141426.	90465.	1.0000
61410	6107864.	1206654.	7314518.	4.	4.	80.2	141426.	90465.	1.0000
61411	6083711.	1204473.	7288184.	4.	4.	79.4	141426.	90465.	1.0000
61412	6466565.	1283649.	7750214.	4.	4.	80.8	141426.	90465.	1.0000
61413	6792395.	1373430.	8165825.	4.	4.	82.8	141426.	90465.	1.0000
61414	6678760.	1367614.	8046374.	4.	4.	81.9	141426.	90465.	1.0000
61415	5432629.	1080210.	6512839.	4.	4.	78.4	141426.	90465.	1.0000
61416	4474579.	872512.	5347091.	4.	4.	73.9	141426.	90465.	1.0000
61417	3608903.	708528.	4317432.	4.	4.	69.5	141426.	90465.	1.0000
61418	1875511.	476006.	2351517.	4.	4.	65.0	106984.	90465.	0.7217
61419	1116705.	396259.	1512964.	4.	4.	65.0	18110.	90465.	0.0035
61420	874478.	376441.	1250918.	4.	4.	65.0	25526.	90465.	0.0634
61421	734309.	347344.	1081653.	4.	4.	65.0	17600.	90465.	0.9955
61422	476221.	224855.	701076.	4.	4.	65.0	17011.	90465.	0.9622
61423	311525.	146922.	458447.	4.	4.	65.0	15279.	90465.	0.8643
61424	396137.	186937.	583074.	4.	4.	65.0	15543.	90465.	0.8792
DAILY SUMMARY (JUN 14)									
MN	311525.	146922.	458447.	4.	4.	65.0	15279.	90465.	0.0035
MX	6792395.	1373430.	8165825.	4.	4.	82.8	141426.	90465.	1.0000
SM	84365104.	18068416.	102433504.	96.	96.	1778.5	2449923.	2171169.	20.1131
AV	3515213.	752851.	4268063.	4.	4.	74.1	102080.	90465.	0.8380
MONTHLY SUMMARY (JUN)									
MN	311525.	146922.	458447.	4.	4.	65.0	15279.	90465.	0.0035
MX	7271629.	1507925.	8779554.	4.	4.	84.0	141426.	90465.	1.0000
SM	190433216.	39914972.	230348192.	192.	192.	3651.2	5517242.	4342338.	41.4713
AV	3967359.	831562.	4798921.	4.	4.	76.1	114943.	90465.	0.8640

	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING-TWR LOAD BTU/HR ----(1)	COOLING-TWR SIZES RUNNING ----(6)	COOLING-TWR MINIMUM CELL NO. ----(9)	COOLING-TWR TOWER TEMP F ----(19)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)	COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23)
818 1	2536384.	563673.	3100056.	4.	4.	74.0	116137.	90465.	0.7956
818 2	2334174.	539448.	2873622.	4.	4.	73.0	113332.	90465.	0.7730
818 3	2237630.	525018.	2762648.	4.	4.	73.0	108996.	90465.	0.7379
818 4	2064430.	505578.	2570008.	4.	4.	72.0	107394.	90465.	0.7250
818 5	1877811.	482605.	2360416.	4.	4.	71.0	105148.	90465.	0.7068
818 6	2772317.	583158.	3355475.	4.	4.	72.0	135843.	90465.	0.9549
818 7	4335458.	815039.	5150497.	4.	4.	75.2	141426.	90465.	1.0000
818 8	5256840.	996690.	6253530.	4.	4.	78.1	141426.	90465.	1.0000
818 9	5808053.	1127677.	6935730.	4.	4.	79.0	141426.	90465.	1.0000
81810	6218376.	1223490.	7441865.	4.	4.	80.4	141426.	90465.	1.0000
81811	6601525.	1324143.	7925668.	4.	4.	81.8	141426.	90465.	1.0000
81812	6680344.	1356615.	8036959.	4.	4.	81.1	141426.	90465.	1.0000
81813	7079866.	1446835.	8526701.	4.	4.	81.7	141426.	90465.	1.0000
81814	7281769.	1502584.	8784353.	4.	4.	83.6	141426.	90465.	1.0000
81815	6946938.	1441591.	8388528.	4.	4.	85.5	141426.	90465.	1.0000
81816	5940299.	1224131.	7164430.	4.	4.	84.1	141426.	90465.	1.0000
81817	5673811.	1151062.	6824874.	4.	4.	83.7	141426.	90465.	1.0000
81818	5161632.	1040863.	6202494.	4.	4.	83.0	141426.	90465.	1.0000
81819	4581775.	923552.	5505327.	4.	4.	82.3	141426.	90465.	1.0000
81820	4249036.	858486.	5107522.	4.	4.	81.0	141426.	90465.	1.0000
81821	4032552.	813154.	4845706.	4.	4.	81.0	139584.	90465.	0.9851
81822	3817701.	777868.	4595569.	4.	4.	81.0	132694.	90465.	0.9294
81823	3615632.	745860.	4361492.	4.	4.	81.0	125774.	90465.	0.8735
81824	3410250.	714421.	4124671.	4.	4.	81.0	118273.	90465.	0.8129
DAILY SUMMARY (AUG 18)									
MN	1877811.	482605.	2360416.	4.	4.	71.0	105148.	90465.	0.7068
MX	7281769.	1502584.	8784353.	4.	4.	85.5	141426.	90465.	1.0000
SM	110514592.	22683538.	133198136.	96.	96.	1899.6	3183145.	2171169.	22.2942
AV	4604775.	945147.	5549923.	4.	4.	79.1	132631.	90465.	0.9289

	HERM-CEN T-CHLR LOAD BTU/HR	HERM-CEN T-CHLR ELECTRIC USE BTU/HR	COOLING-TWR LOAD BTU/HR	COOLING-TWR SIZES RUNNING	COOLING-TWR MINIMUM CELL NO.	COOLING-TWR TOWER TEMP F	COOLING-TWR FAN ELEC BTU/HR	COOLING-TWR PUMP ELEC BTU/HR	COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT.
	----(1)	----(3)	----(1)	----(6)	----(9)	----(19)	----(20)	----(21)	----(23)
819 1	3153977.	676731.	3830708.	4.	4.	80.0	112520.	90465.	0.7664
819 2	3031609.	654113.	3685723.	4.	4.	80.0	107338.	90465.	0.7245
819 3	2824754.	625788.	3450542.	4.	4.	79.0	103213.	90465.	0.6912
819 4	2751367.	611254.	3362621.	4.	4.	79.0	99803.	90465.	0.6636
819 5	2710398.	605888.	3316286.	4.	4.	79.0	97969.	90465.	0.6488
819 6	3472536.	712725.	4185261.	4.	4.	79.0	128439.	90465.	0.8950
819 7	4895288.	952448.	5847736.	4.	4.	80.1	141426.	90465.	1.0000
819 8	5613660.	1102562.	6716222.	4.	4.	80.3	141426.	90465.	1.0000
819 9	6122802.	1213702.	7336503.	4.	4.	81.0	141426.	90465.	1.0000
81910	6208665.	1239796.	7448460.	4.	4.	80.4	141426.	90465.	1.0000
81911	6379204.	1272526.	7651730.	4.	4.	81.4	141426.	90465.	1.0000
81912	6527596.	1316968.	7844564.	4.	4.	81.7	141426.	90465.	1.0000
81913	6886882.	1405727.	8292609.	4.	4.	83.8	141426.	90465.	1.0000
81914	6712683.	1386316.	8098998.	4.	4.	82.8	141426.	90465.	1.0000
81915	6310945.	1279852.	7590797.	4.	4.	81.4	141426.	90465.	1.0000
81916	5313110.	1051291.	6364402.	4.	4.	79.9	141426.	90465.	1.0000
81917	4922273.	963622.	5885894.	4.	4.	80.1	141426.	90465.	1.0000
81918	4453642.	879778.	5333420.	4.	4.	77.9	141426.	90465.	1.0000
81919	3853985.	765521.	4619506.	4.	4.	77.1	141426.	90465.	1.0000
81920	3572672.	718228.	4290899.	4.	4.	75.2	141426.	90465.	1.0000
81921	3253499.	662527.	3916027.	4.	4.	73.2	141426.	90465.	1.0000
81922	2999245.	619772.	3619017.	4.	4.	72.1	141426.	90465.	1.0000
81923	2720708.	580004.	3300711.	4.	4.	71.0	139462.	90465.	0.9841
81924	2453723.	544165.	2997888.	4.	4.	69.0	140928.	90465.	0.9960
DAILY SUMMARY (AUG 19)									
MN	2453723.	544165.	2997888.	4.	4.	69.0	97969.	90465.	0.6488
MX	6886882.	1405727.	8292609.	4.	4.	83.8	141426.	90465.	1.0000
SM	107145208.	21841304.	128986520.	96.	96.	1884.3	3192497.	2171169.	22.3698
AV	4464384.	910054.	5374439.	4.	4.	78.5	133021.	90465.	0.9321
MONTHLY SUMMARY (AUG)									
MN	1877811.	482605.	2360416.	4.	4.	69.0	97969.	90465.	0.6488
MX	7281769.	1502584.	8784353.	4.	4.	85.5	141426.	90465.	1.0000
SM	217659808.	44524840.	262184656.	192.	192.	3783.8	6375641.	4342338.	44.6640
AV	4534580.	927601.	5462181.	4.	4.	78.8	132826.	90465.	0.9305

	HERM-CEN T-CHLR LOAD BTU/HR	HERM-CEN T-CHLR ELECTRIC USE BTU/HR	COOLING-TWR LOAD BTU/HR	COOLING-TWR SIZES RUNNING	COOLING-TWR MINIMUM CELL NO.	COOLING-TWR TOWER TEMP F	COOLING-TWR FAN ELEC BTU/HR	COOLING-TWR PUMP ELEC BTU/HR	COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT.
	----(1)	----(3)	----(1)	----(6)	----(9)	----(19)	----(20)	----(21)	----(23)
10 9 1	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
10 9 2	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
10 9 3	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
10 9 4	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
10 9 5	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
10 9 6	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
10 9 7	310268.	146328.	456596.	4.	4.	65.0	15275.	90465.	0.8641
10 9 8	350550.	165372.	515923.	4.	4.	65.0	15402.	90465.	0.8713
10 9 9	361058.	170342.	531399.	4.	4.	65.0	15435.	90465.	0.8731
10 910	375266.	177062.	552328.	4.	4.	65.0	15479.	90465.	0.8756
10 911	335382.	158200.	493581.	4.	4.	65.0	15355.	90465.	0.8686
10 912	322481.	152101.	474582.	4.	4.	65.0	15314.	90465.	0.8663
10 913	343681.	162124.	505805.	4.	4.	65.0	15381.	90465.	0.8700
10 914	379552.	179090.	558643.	4.	4.	65.0	15492.	90465.	0.8763
10 915	347345.	163856.	511201.	4.	4.	65.0	15392.	90465.	0.8707
10 916	387722.	182955.	570677.	4.	4.	65.0	15517.	90465.	0.8778
10 917	339555.	160173.	499728.	4.	4.	65.0	15368.	90465.	0.8693
10 918	341501.	161093.	502594.	4.	4.	65.0	15374.	90465.	0.8697
10 919	311592.	146954.	458545.	4.	4.	65.0	15280.	90465.	0.8643
10 920	321309.	151547.	472857.	4.	4.	65.0	15310.	90465.	0.8661
10 921	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
10 922	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
10 923	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
10 924	309472.	145952.	455424.	4.	4.	65.0	15273.	90465.	0.8639
DAILY SUMMARY (OCT 9)									
MN	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
MX	387722.	182955.	570677.	4.	4.	65.0	15517.	90465.	0.8778
SM	7861235.	3708009.	11569244.	96.	96.	1560.0	367909.	2171169.	20.8113
AV	327551.	154500.	482052.	4.	4.	65.0	15330.	90465.	0.8671

	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING-TWR LOAD BTU/HR ----(1)	COOLING-TWR SIZES RUNNING ----(6)	COOLING-TWR MINIMUM CELL NO. ----(9)	COOLING-TWR TOWER TEMP F ----(19)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)	COOLING-TWR FRAC HR FANS RUN FRAC.OR MULT. ----(23)
1010 1	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
1010 2	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
1010 3	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
1010 4	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
1010 5	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
1010 6	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
1010 7	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
1010 8	353627.	166827.	520455.	4.	4.	65.0	15412.	90465.	0.8718
1010 9	410347.	193662.	604009.	4.	4.	65.0	15586.	90465.	0.8816
101010	317377.	149688.	467065.	4.	4.	65.0	15298.	90465.	0.8654
101011	396127.	186932.	583059.	4.	4.	65.0	15543.	90465.	0.8792
101012	353404.	166722.	520126.	4.	4.	65.0	15411.	90465.	0.8718
101013	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
101014	310630.	146499.	457129.	4.	4.	65.0	15277.	90465.	0.8641
101015	333411.	157268.	490679.	4.	4.	65.0	15349.	90465.	0.8682
101016	316320.	149189.	465509.	4.	4.	65.0	15295.	90465.	0.8652
101017	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
101018	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
101019	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
101020	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
101021	303316.	143043.	446359.	4.	4.	65.0	15253.	90465.	0.8628
101022	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
101023	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
101024	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
DAILY SUMMARY (OCT 10)									
MN	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
MX	410347.	193662.	604009.	4.	4.	65.0	15586.	90465.	0.8816
SM	7635397.	3601262.	11236656.	96.	96.	1560.0	367192.	2171169.	20.7708
AV	318142.	150053.	468194.	4.	4.	65.0	15300.	90465.	0.8654
MONTHLY SUMMARY (OCT)									
MN	302722.	142762.	445485.	4.	4.	65.0	15251.	90465.	0.8627
MX	410347.	193662.	604009.	4.	4.	65.0	15586.	90465.	0.8816
SM	15496632.	7309271.	22805900.	192.	192.	3120.0	735101.	4342338.	41.5821
AV	322847.	152276.	475123.	4.	4.	65.0	15315.	90465.	0.8663
YEARLY SUMMARY									
MN	302722.	142762.	445485.	4.	4.	64.7	15251.	90465.	0.0035
MX	7281769.	1507925.	8784353.	4.	4.	85.5	141426.	90465.	1.0000
SM	561717696.	121525072.	683242688.	768.	768.	13882.7	17039352.	17369352.	168.4661
AV	2925613.	632943.	3558556.	4.	4.	72.3	88747.	90465.	0.8774

ECO-9

MMDDHH	1SMCAHUS ZR SUPPLY ELECTRIC KW	2SPERFC SUPPLY ELECTRIC KW	3SPERFC SUPPLY ELECTRIC KW	4SPERFC SUPPLY ELECTRIC KW
	----(49)	----(49)	----(49)	----(49)
MONTHLY SUMMARY (JAN)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	14792.671	749.415	749.415	878.909
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (FEB)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	13349.483	676.301	676.301	793.162
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (MAR)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	14071.077	712.858	712.858	836.035
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (APR)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	14071.077	712.858	712.858	836.035
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (MAY)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	14792.671	749.415	749.415	878.909
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (JUN)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	13710.280	694.579	694.579	814.599
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (JUL)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	15153.468	767.693	767.693	900.346
AV	30.066	1.523	1.523	1.786

MCA System Reset
OFF-PEAK

	1SMCAHUS ZR SUPPLY ELECTRIC KW ----(49)	2SPERFC SUPPLY ELECTRIC KW ----(49)	3SPERFC SUPPLY ELECTRIC KW ----(49)	4SPERFC SUPPLY ELECTRIC KW ----(49)
MONTHLY SUMMARY (AUG)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	14071.077	712.858	712.858	836.035
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (SEP)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	14071.077	712.858	712.858	836.035
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (OCT)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	15153.468	767.693	767.693	900.346
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (NOV)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	14431.874	731.136	731.136	857.472
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (DEC)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	14792.671	749.415	749.415	878.909
AV	30.066	1.523	1.523	1.786
YEARLY SUMMARY				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	172460.891	8737.077	8737.077	10246.794
AV	30.066	1.523	1.523	1.786

MMDDHH	SSZF2MID SUPPLY ELECTRIC KW ----(49)	SSPZ3MID SUPPLY ELECTRIC KW ----(49)	SSZF4MID SUPPLY ELECTRIC KW ----(49)	0SMCAHUS ZR SUPPLY ELECTRIC KW ----(49)
MONTHLY SUMMARY (JAN)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	11764.703	14392.478	14498.549	8640.309
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (FEB)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	10616.927	12988.333	13084.057	7797.351
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (MAR)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	11190.815	13690.405	13791.303	8218.829
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (APR)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	11190.814	13690.405	13791.305	8218.830
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (MAY)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	11764.703	14392.479	14498.549	8640.308
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (JUN)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	10903.871	13339.369	13437.680	8008.090
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (JUL)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	12051.646	14743.514	14852.172	8851.047
AV	23.912	29.253	29.469	17.562

	SSZF2MID SUPPLY ELECTRIC KW ----(49)	SSPZ3MID SUPPLY ELECTRIC KW ----(49)	SSZF4MID SUPPLY ELECTRIC KW ----(49)	0SMCAHUS ZR SUPPLY ELECTRIC KW ----(49)
MONTHLY SUMMARY (AUG)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	11190.815	13690.406	13791.303	8218.829
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (SEP)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	11190.815	13690.405	13791.303	8218.829
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (OCT)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	12051.646	14743.514	14852.174	8851.047
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (NOV)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	11477.759	14041.441	14144.926	8429.568
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (DEC)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	11764.702	14392.478	14498.549	8640.308
AV	23.912	29.253	29.469	17.562
YEARLY SUMMARY				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	137159.203	167795.234	169031.859	100733.344
AV	23.912	29.253	29.469	17.562

MMDDHH	1EXTPER THERMOST SETPOINT F	1EXTPER ZONE TEMP F	1INTPER THERMOST SETPOINT F	1INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	71.5	73.0	71.5	72.6
MX	75.5	74.7	75.5	75.0
SM	35510.0	36101.0	35574.0	36066.1
AV	72.2	73.4	72.3	73.3
MONTHLY SUMMARY (FEB)				
MN	71.5	72.9	71.5	72.2
MX	75.5	74.4	75.5	74.8
SM	32182.0	32597.3	32318.0	32519.3
AV	72.5	73.4	72.8	73.2
MONTHLY SUMMARY (MAR)				
MN	71.5	73.2	71.5	72.7
MX	75.5	76.0	75.5	76.4
SM	34330.0	34462.2	34462.0	34458.2
AV	73.4	73.6	73.6	73.6
MONTHLY SUMMARY (APR)				
MN	71.5	73.3	71.5	72.9
MX	75.5	80.6	75.5	80.6
SM	35110.0	34876.8	35018.0	34910.4
AV	75.0	74.5	74.8	74.6
MONTHLY SUMMARY (MAY)				
MN	71.5	73.2	71.5	73.5
MX	75.5	94.5	75.5	94.4
SM	37126.0	37292.4	37142.0	37430.1
AV	75.5	75.8	75.5	76.1
MONTHLY SUMMARY (JUN)				
MN	75.5	74.1	75.5	74.3
MX	75.5	75.9	75.5	76.8
SM	34428.0	34157.5	34428.0	34331.0
AV	75.5	74.9	75.5	75.3
MONTHLY SUMMARY (JUL)				
MN	75.5	74.2	75.5	74.4
MX	75.5	75.9	75.5	76.7
SM	38052.0	37801.7	38052.0	37965.0
AV	75.5	75.0	75.5	75.3

	1EXTPER THERMOST SETPOINT F	1EXTPER ZONE TEMP F	1INTPER THERMOST SETPOINT F	1INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	75.5	73.9	75.5	74.1
MX	75.5	76.0	75.5	76.4
SM	35334.0	35068.0	35334.0	35191.7
AV	75.5	74.9	75.5	75.2
MONTHLY SUMMARY (SEP)				
MN	75.5	73.7	75.5	73.5
MX	75.5	75.6	75.5	76.3
SM	35334.0	34967.9	35334.0	35012.0
AV	75.5	74.7	75.5	74.8
MONTHLY SUMMARY (OCT)				
MN	71.5	72.2	71.5	71.9
MX	75.5	78.5	75.5	77.4
SM	37988.0	37540.6	37848.0	37485.4
AV	75.4	74.5	75.1	74.4
MONTHLY SUMMARY (NOV)				
MN	71.5	73.2	71.5	73.1
MX	75.5	81.5	75.5	81.9
SM	35488.0	35502.4	35356.0	35494.0
AV	73.9	74.0	73.7	73.9
MONTHLY SUMMARY (DEC)				
MN	71.5	73.1	71.5	72.7
MX	75.5	75.0	75.5	75.0
SM	35782.0	36155.9	36082.0	36148.0
AV	72.7	73.5	73.3	73.5
YEARLY SUMMARY				
MN	71.5	72.2	71.5	71.9
MX	75.5	94.5	75.5	94.4
SM	426664.0	426523.8	426948.0	427011.3
AV	74.4	74.4	74.4	74.4

MMDDHH	2EXTPER THERMOST SETPOINT F	2EXTPER ZONE TEMP F	2INTPER THERMOST SETPOINT F	2INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	71.5	71.9	71.5	71.9
MX	75.5	75.7	75.5	75.9
SM	35246.0	35940.1	35274.0	35960.8
AV	71.6	73.0	71.7	73.1
MONTHLY SUMMARY (FEB)				
MN	71.5	72.0	71.5	72.0
MX	75.5	75.4	75.5	76.3
SM	31858.0	32447.7	31938.0	32486.7
AV	71.8	73.1	71.9	73.2
MONTHLY SUMMARY (MAR)				
MN	71.5	72.6	71.5	72.6
MX	75.5	80.1	75.5	81.0
SM	33826.0	34445.8	33898.0	34527.9
AV	72.3	73.6	72.4	73.8
MONTHLY SUMMARY (APR)				
MN	71.5	72.9	71.5	72.9
MX	75.5	97.0	75.5	98.5
SM	34778.0	37635.9	34810.0	37986.0
AV	74.3	80.4	74.4	81.2
MONTHLY SUMMARY (MAY)				
MN	71.5	67.7	71.5	67.8
MX	75.5	102.3	75.5	103.7
SM	36750.0	39135.3	36766.0	39408.5
AV	74.7	79.5	74.7	80.1
MONTHLY SUMMARY (JUN)				
MN	71.5	73.4	71.5	73.4
MX	75.5	75.6	75.5	75.8
SM	34420.0	33889.8	34420.0	33909.2
AV	75.5	74.3	75.5	74.4
MONTHLY SUMMARY (JUL)				
MN	75.5	73.6	75.5	73.6
MX	75.5	75.5	75.5	75.6
SM	38052.0	37521.9	38052.0	37540.6
AV	75.5	74.4	75.5	74.5

	2EXTPER THERMOST SETPOINT F	2EXTPER ZONE TEMP F	2INTPER THERMOST SETPOINT F	2INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	71.5	72.5	71.5	72.5
MX	75.5	75.5	75.5	75.6
SM	35282.0	34749.0	35282.0	34777.0
AV	75.4	74.2	75.4	74.3
MONTHLY SUMMARY (SEP)				
MN	71.5	71.4	71.5	71.8
MX	75.5	74.9	75.5	75.0
SM	35194.0	34609.1	35222.0	34646.9
AV	75.2	74.0	75.3	74.0
MONTHLY SUMMARY (OCT)				
MN	71.5	67.4	71.5	68.4
MX	75.5	89.9	75.5	92.3
SM	37412.0	38115.1	37536.0	38482.9
AV	74.2	75.6	74.5	76.4
MONTHLY SUMMARY (NOV)				
MN	71.5	72.7	71.5	72.7
MX	75.5	90.0	75.5	90.7
SM	35128.0	36305.1	35228.0	36532.8
AV	73.2	75.6	73.4	76.1
MONTHLY SUMMARY (DEC)				
MN	71.5	72.6	71.5	72.6
MX	75.5	79.5	75.5	80.7
SM	35366.0	36052.0	35406.0	36115.1
AV	71.9	73.3	72.0	73.4
YRARLY SUMMARY				
MN	71.5	67.4	71.5	67.8
MX	75.5	102.3	75.5	103.7
SM	423312.0	430846.8	423832.0	432374.6
AV	73.8	75.1	73.9	75.4

MMDDHH	3EXTPER	3EXTPER	3INTPER	3INTPER
	THERMOST SETPOINT F	ZONE TEMP F	THERMOST SETPOINT F	ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	71.5	71.9	71.5	71.9
MX	75.5	75.7	75.5	75.9
SM	35246.0	35940.1	35274.0	35960.8
AV	71.6	73.0	71.7	73.1
MONTHLY SUMMARY (FEB)				
MN	71.5	72.0	71.5	72.0
MX	75.5	75.4	75.5	76.3
SM	31858.0	32447.7	31938.0	32486.7
AV	71.8	73.1	71.9	73.2
MONTHLY SUMMARY (MAR)				
MN	71.5	72.6	71.5	72.6
MX	75.5	80.1	75.5	81.0
SM	33826.0	34445.8	33898.0	34527.9
AV	72.3	73.6	72.4	73.8
MONTHLY SUMMARY (APR)				
MN	71.5	72.9	71.5	72.9
MX	75.5	97.0	75.5	98.5
SM	34778.0	37635.8	34810.0	37986.0
AV	74.3	80.4	74.4	81.2
MONTHLY SUMMARY (MAY)				
MN	71.5	67.7	71.5	67.8
MX	75.5	102.3	75.5	103.7
SM	36750.0	39135.4	36766.0	39408.5
AV	74.7	79.5	74.7	80.1
MONTHLY SUMMARY (JUN)				
MN	71.5	73.4	71.5	73.4
MX	75.5	75.6	75.5	75.8
SM	34420.0	33889.8	34420.0	33909.2
AV	75.5	74.3	75.5	74.4
MONTHLY SUMMARY (JUL)				
MN	75.5	73.6	75.5	73.6
MX	75.5	75.5	75.5	75.6
SM	38052.0	37522.0	38052.0	37540.6
AV	75.5	74.4	75.5	74.5

	3EXTPER THERMOST SETPOINT F	3EXTPER ZONE TEMP F	3INTPER THERMOST SETPOINT F	3INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	71.5	72.5	71.5	72.5
MX	75.5	75.5	75.5	75.6
SM	35282.0	34749.0	35282.0	34777.0
AV	75.4	74.2	75.4	74.3
MONTHLY SUMMARY (SEP)				
MN	71.5	71.4	71.5	71.8
MX	75.5	74.9	75.5	75.0
SM	35194.0	34609.1	35222.0	34646.9
AV	75.2	74.0	75.3	74.0
MONTHLY SUMMARY (OCT)				
MN	71.5	67.4	71.5	68.4
MX	75.5	89.9	75.5	92.3
SM	37412.0	38115.0	37536.0	38482.9
AV	74.2	75.6	74.5	76.4
MONTHLY SUMMARY (NOV)				
MN	71.5	72.7	71.5	72.7
MX	75.5	90.0	75.5	90.7
SM	35128.0	36304.9	35228.0	36532.8
AV	73.2	75.6	73.4	76.1
MONTHLY SUMMARY (DEC)				
MN	71.5	72.6	71.5	72.6
MX	75.5	79.5	75.5	80.7
SM	35366.0	36051.9	35406.0	36115.1
AV	71.9	73.3	72.0	73.4
YEARLY SUMMARY				
MN	71.5	67.4	71.5	67.8
MX	75.5	102.3	75.5	103.7
SM	423312.0	430846.5	423832.0	432374.6
AV	73.8	75.1	73.9	75.4

MMDDHH	4EXTPER THERMOST SETPOINT F	4EXTPER ZONE TEMP F	4INTPER THERMOST SETPOINT F	4INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	71.5	71.8	71.5	71.8
MX	71.5	73.4	71.5	73.4
SM	35178.0	35849.9	35178.0	35855.1
AV	71.5	72.9	71.5	72.9
MONTHLY SUMMARY (FEB)				
MN	71.5	71.9	71.5	71.9
MX	75.5	73.8	75.5	74.2
SM	31754.0	32359.5	31766.0	32368.8
AV	71.5	72.9	71.5	72.9
MONTHLY SUMMARY (MAR)				
MN	71.5	72.5	71.5	72.5
MX	75.5	77.0	75.5	77.5
SM	33542.0	34226.3	33578.0	34248.9
AV	71.7	73.1	71.7	73.2
MONTHLY SUMMARY (APR)				
MN	71.5	72.7	71.5	72.7
MX	75.5	90.5	75.5	91.5
SM	34514.0	35842.1	34566.0	36040.7
AV	73.7	76.6	73.9	77.0
MONTHLY SUMMARY (MAY)				
MN	71.5	64.0	71.5	64.3
MX	75.5	98.4	75.5	99.5
SM	36486.0	37680.8	36530.0	37855.1
AV	74.2	76.6	74.2	76.9
MONTHLY SUMMARY (JUN)				
MN	71.5	72.2	71.5	72.2
MX	75.5	75.6	75.5	75.7
SM	34292.0	33824.8	34312.0	33847.2
AV	75.2	74.2	75.2	74.2
MONTHLY SUMMARY (JUL)				
MN	71.5	73.0	71.5	73.1
MX	75.5	75.5	75.5	75.6
SM	38036.0	37484.3	38040.0	37505.3
AV	75.5	74.4	75.5	74.4

	4EXTPER THERMOST SETPOINT F	4EXTPER ZONE TEMP F	4INTPER THERMOST SETPOINT F	4INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	71.5	71.1	71.5	71.3
MX	75.5	75.4	75.5	75.6
SM	35130.0	34658.8	35154.0	34689.6
AV	75.1	74.1	75.1	74.1
MONTHLY SUMMARY (SEP)				
MN	71.5	69.3	71.5	69.7
MX	75.5	74.8	75.5	75.0
SM	34906.0	34459.6	34994.0	34506.8
AV	74.6	73.6	74.8	73.7
MONTHLY SUMMARY (OCT)				
MN	71.5	62.4	71.5	63.5
MX	75.5	82.7	75.5	83.9
SM	36836.0	36782.7	36960.0	37049.1
AV	73.1	73.0	73.3	73.5
MONTHLY SUMMARY (NOV)				
MN	71.5	72.6	71.5	72.6
MX	75.5	85.0	75.5	85.4
SM	34612.0	35485.2	34648.0	35525.7
AV	72.1	73.9	72.2	74.0
MONTHLY SUMMARY (DEC)				
MN	71.5	72.5	71.5	72.5
MX	75.5	76.3	75.5	77.0
SM	35226.0	35889.2	35246.0	35903.3
AV	71.6	72.9	71.6	73.0
YEARLY SUMMARY				
MN	71.5	62.4	71.5	63.5
MX	75.5	98.4	75.5	99.5
SM	420512.0	424543.3	420972.0	425395.6
AV	73.3	74.0	73.4	74.2

MMDDHH	2MIDL THERMOST SETPOINT F	2MIDL ZONE TEMP F	3MIDL THERMOST SETPOINT F	3MIDL ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	71.5	73.3	71.5	73.3
MX	75.5	75.3	75.5	75.4
SM	36454.0	36298.1	36534.0	36313.4
AV	74.1	73.8	74.3	73.8
MONTHLY SUMMARY (FEB)				
MN	71.5	73.2	71.5	73.2
MX	75.5	74.9	75.5	75.0
SM	32970.0	32778.8	33002.0	32791.7
AV	74.3	73.8	74.3	73.9
MONTHLY SUMMARY (MAR)				
MN	71.5	73.4	71.5	73.4
MX	75.5	76.5	75.5	76.6
SM	35190.0	34672.1	35214.0	34685.3
AV	75.2	74.1	75.2	74.1
MONTHLY SUMMARY (APR)				
MN	71.5	73.5	71.5	73.5
MX	75.5	81.3	75.5	81.3
SM	35326.0	35059.6	35326.0	35068.4
AV	75.5	74.9	75.5	74.9
MONTHLY SUMMARY (MAY)				
MN	75.5	73.8	75.5	73.8
MX	75.5	95.1	75.5	95.1
SM	37146.0	37408.5	37146.0	37411.0
AV	75.5	76.0	75.5	76.0
MONTHLY SUMMARY (JUN)				
MN	75.5	74.2	75.5	74.3
MX	75.5	75.9	75.5	75.9
SM	34428.0	34197.1	34428.0	34197.2
AV	75.5	75.0	75.5	75.0
MONTHLY SUMMARY (JUL)				
MN	75.5	74.3	75.5	74.3
MX	75.5	75.9	75.5	75.9
SM	38052.0	37830.5	38052.0	37829.3
AV	75.5	75.1	75.5	75.1

	2MIDL	2MIDL	3MIDL	3MIDL
	THERMOST SETPOINT F	ZONE TEMP F	THERMOST SETPOINT F	ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	75.5	74.2	75.5	74.2
MX	75.5	76.0	75.5	76.0
SM	35334.0	35123.2	35334.0	35124.1
AV	75.5	75.0	75.5	75.1
MONTHLY SUMMARY (SEP)				
MN	75.5	74.0	75.5	74.0
MX	75.5	75.8	75.5	75.8
SM	35334.0	35029.4	35334.0	35032.2
AV	75.5	74.8	75.5	74.9
MONTHLY SUMMARY (OCT)				
MN	75.5	73.6	75.5	73.6
MX	75.5	77.8	75.5	77.8
SM	38052.0	37700.6	38052.0	37708.9
AV	75.5	74.8	75.5	74.8
MONTHLY SUMMARY (NOV)				
MN	71.5	73.4	71.5	73.4
MX	75.5	83.3	75.5	83.4
SM	36204.0	35745.0	36220.0	35760.0
AV	75.4	74.5	75.5	74.5
MONTHLY SUMMARY (DEC)				
MN	71.5	73.3	71.5	73.3
MX	75.5	75.5	75.5	75.5
SM	36554.0	36370.6	36606.0	36385.4
AV	74.3	73.9	74.4	74.0
YEARLY SUMMARY				
MN	71.5	73.2	71.5	73.2
MX	75.5	95.1	75.5	95.1
SM	431044.0	428213.5	431248.0	428306.9
AV	75.1	74.7	75.2	74.7

MMDDHH	4MIDL THERMOST SETPOINT F	4MIDL ZONE TEMP F	0INTEXTP ER THERMOST SETPOINT F	0INTEXTP ER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	71.5	72.8	71.5	73.0
MX	75.5	74.2	75.5	74.7
SM	35234.0	35984.3	35338.0	36065.6
AV	71.6	73.1	71.8	73.3
MONTHLY SUMMARY (FEB)				
MN	71.5	72.7	71.5	72.9
MX	75.5	73.8	75.5	74.4
SM	31802.0	32483.2	31978.0	32558.7
AV	71.6	73.2	72.0	73.3
MONTHLY SUMMARY (MAR)				
MN	71.5	73.1	71.5	73.2
MX	75.5	75.6	75.5	75.9
SM	33654.0	34320.2	34014.0	34409.7
AV	71.9	73.3	72.7	73.5
MONTHLY SUMMARY (APR)				
MN	71.5	73.1	71.5	73.3
MX	75.5	79.0	75.5	80.0
SM	34670.0	34669.6	35038.0	34865.2
AV	74.1	74.1	74.9	74.5
MONTHLY SUMMARY (MAY)				
MN	71.5	71.1	71.5	73.4
MX	75.5	93.6	75.5	96.4
SM	36922.0	37044.4	37134.0	37482.6
AV	75.0	75.3	75.5	76.2
MONTHLY SUMMARY (JUN)				
MN	75.5	73.8	75.5	74.3
MX	75.5	75.8	75.5	76.1
SM	34428.0	34062.1	34428.0	34270.7
AV	75.5	74.7	75.5	75.2
MONTHLY SUMMARY (JUL)				
MN	75.5	74.0	75.5	74.5
MX	75.5	75.7	75.5	76.1
SM	38052.0	37725.7	38052.0	37963.9
AV	75.5	74.9	75.5	75.3

	4MIDL THERMOST SETPOINT F	4MIDL ZONE TEMP F	0INTEXTP ER THERMOST SETPOINT F	0INTEXTP ER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	75.5	73.6	75.5	74.2
MX	75.5	75.9	75.5	76.2
SM	35334.0	34970.3	35334.0	35203.5
AV	75.5	74.7	75.5	75.2
MONTHLY SUMMARY (SEP)				
MN	71.5	72.6	75.5	73.9
MX	75.5	75.4	75.5	75.9
SM	35298.0	34828.8	35334.0	35090.8
AV	75.4	74.4	75.5	75.0
MONTHLY SUMMARY (OCT)				
MN	71.5	68.6	71.5	72.5
MX	75.5	78.8	75.5	82.6
SM	37560.0	37208.1	38020.0	37663.4
AV	74.5	73.8	75.4	74.7
MONTHLY SUMMARY (NOV)				
MN	71.5	73.1	71.5	73.2
MX	75.5	80.4	75.5	81.4
SM	34772.0	35340.7	35460.0	35499.5
AV	72.4	73.6	73.9	74.0
MONTHLY SUMMARY (DEC)				
MN	71.5	72.9	71.5	73.1
MX	75.5	74.4	75.5	75.4
SM	35334.0	36026.2	35518.0	36129.8
AV	71.8	73.2	72.2	73.4
YEARLY SUMMARY				
MN	71.5	68.6	71.5	72.5
MX	75.5	93.6	75.5	96.4
SM	423060.0	424663.5	425648.0	427203.4
AV	73.8	74.0	74.2	74.5

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
HW-BOILER	4.648	1	1															
HERM-CENT-CHLR	7.800	1	1															
COOLING-TWR	2.379	4	4															

EQUIPMENT	HOURS AT PERCENT PART LOAD RATIO											TOTAL HOURS	ANNUAL LOAD (MBTU)	FALSE LOAD (MBTU)	ELEC USED (MBTU)	THERMAL USED (MBTU)
	0 -- 10	-- 20	-- 30	-- 40	-- 50	-- 60	-- 70	-- 80	-- 90	-- 100	- 110+					
HW-BOILER	2736	641	642	475	338	142	64	33	12	4	1	5088	3673.8	0.0	236.0	5321.7
	2736	641	642	475	338	142	64	33	12	4	1					
HERM-CENT-CHLR	1064	511	805	487	340	337	117	11	0	0	0	3672	8597.3	0.0	1960.2	0.0
	1064	511	805	487	340	337	117	11	0	0	0					
COOLING-TWR	1229	566	601	328	161	118	149	126	106	100	188	3672	10557.6	0.0	814.0	0.0
	1229	566	601	328	161	118	149	126	106	100	188					

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 174.8 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 907.9 MBTU

NOTES TO TABLE
1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HW-BOILER	3673.8	100.0
LOAD SATISFIED	3673.8	100.0
TOTAL LOAD ON PLANT	3673.8	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-CENT-CHLR	8597.3	100.0
LOAD SATISFIED	8597.3	100.0
TOTAL LOAD ON PLANT	8597.3	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	23097.8	100.0
LOAD SATISFIED	23097.8	100.0
TOTAL LOAD ON PLANT	23097.5	

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 1 HOURS
MAXIMUM TOWER EXIT TEMPERATURE = 85.F

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	3673.8	3673.8	0.000	0.000	0
COOLING LOADS	8597.3	8597.3	0.000	0.000	0
ELECTRICAL LOADS	23097.5	23097.8	0.000	0.000	0

EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON DAY HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
HW-BOILER	0.155	4.648	2 20 3	4.648	5088								
HERM-CENT-CHLR	0.300	6.956	8 18 15	7.800	3672								
COOLING-TWR	0.302	8.375	8 18 15	2.379	14688								

ENERGY TYPE IN SITE MBTU -	ELECTRICITY	FUEL-OIL
CATEGORY OF USE		
SPACE HEAT	235.96	5321.68
SPACE COOL	2774.24	0.00
HVAC AUX	5307.58	0.00
DOM HOT WTR	0.00	0.00
AUX SOLAR	0.00	0.00
LIGHTS	10258.56	0.00
VERT TRANS	0.00	0.00
MISC EQUIP	4521.40	0.00
TOTAL	23097.73	5321.68

TOTAL SITE ENERGY 28419.50 MBTU 86.2 KBTU/SQFT-YR GROSS-AREA 86.2 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 74684.37 MBTU 226.6 KBTU/SQFT-YR GROSS-AREA 226.6 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 1.8
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	HERM-CEN T-CHLR ENTERING COND TEM F ----(12)	HERM-CEN T-CHLR LEAVING COLD TEM F ----(13)	COOLING-TWR WATER FLOWRATE GAL/MIN ----(8)	COOLING-TWR RANGE R ----(10)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)
MONTHLY SUMMARY (JAN)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (FEB)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (MAR)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (APR)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (MAY)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	4734563.	885751.	76.9	55.5	1950.0	5.8	140410.	90465.
SM	204805856.	69268752.	16615.6	13621.8	491400.0	301.9	29106086.	22797268.
AV	416272.	140790.	33.8	27.7	998.8	0.6	59159.	46336.
MONTHLY SUMMARY (JUN)								
MN	289191.	136381.	64.5	53.9	1950.0	0.5	106147.	90465.
MX	4389327.	853501.	80.0	55.4	1950.0	5.5	140410.	90465.
SM	815711680.	206956576.	31425.9	24815.9	889200.1	1086.1	59935544.	41252200.
AV	1788841.	453852.	68.9	54.4	1950.0	2.4	131438.	90465.
MONTHLY SUMMARY (JUL)								
MN	341720.	161215.	65.0	53.9	1950.0	0.6	114031.	90465.
MX	4326828.	847222.	79.0	55.4	1950.0	5.4	140410.	90465.
SM	1108698368.	261142528.	35685.2	27505.7	982800.1	1445.9	68744472.	45594536.
AV	2199798.	518140.	70.8	54.6	1950.0	2.9	136398.	90465.

	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	HERM-CEN T-CHLR ENTERING COND TEM F ----(12)	HERM-CEN T-CHLR LEAVING COLD TEM F ----(13)	COOLING-TWR WATER FLOWRATE GAL/MIN ----(8)	COOLING-TWR RANGE R ----(10)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)
MONTHLY SUMMARY (AUG)								
MN	289191.	136381.	64.9	53.9	1950.0	0.5	108731.	90465.
MX	4591155.	926070.	83.0	55.5	1950.0	5.7	140410.	90465.
SM	897506496.	223031584.	33148.2	25491.5	912600.1	1187.4	62609704.	42337780.
AV	1917749.	476563.	70.8	54.5	1950.0	2.5	133781.	90465.
MONTHLY SUMMARY (SEP)								
MN	289191.	136381.	65.0	53.9	1950.0	0.5	106147.	90465.
MX	3365087.	676081.	78.0	55.0	1950.0	4.2	140410.	90465.
SM	577829248.	172632304.	32075.1	25371.7	912600.1	808.1	59208216.	42337784.
AV	1234678.	368872.	68.5	54.2	1950.0	1.7	126513.	90465.
MONTHLY SUMMARY (OCT)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	2556596.	554104.	70.0	54.7	1950.0	3.3	140212.	90465.
SM	114714480.	49044764.	16451.0	13588.0	491400.0	188.9	28122556.	22797272.
AV	227608.	97311.	32.6	27.0	975.0	0.4	55799.	45233.
MONTHLY SUMMARY (NOV)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (DEC)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
YEARLY SUMMARY								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	4734563.	926070.	83.0	55.5	1950.0	5.8	140410.	90465.
SM	3719266048.	982076544.	165401.0	130394.6	4680000.5	5018.3	307726592.	217116832.
AV	648408.	171213.	28.8	22.7	815.9	0.9	53648.	37852.

MMDDHH	HW-BOILER LOAD BTU/HR ----(1)	HW-BOILER ELECTRIC USE BTU/HR ----(3)	HW-BOILER FUEL USE BTU/HR ----(4)	HW-BOILER CAPACITY RUNNING BTU/HR ----(7)
MONTHLY SUMMARY (JAN)				
MN	162239.	14277.	254516.	4648277.
MX	4169796.	102262.	5092058.	4648277.
SM	823017984.	45530488.	1153649792.	2286952448.
AV	1672801.	92542.	2344817.	4648278.
MONTHLY SUMMARY (FEB)				
MN	15403.	1356.	24165.	4648277.
MX	4648277.	102262.	5577933.	4648277.
SM	719964032.	38768240.	1003392000.	2063835008.
AV	1621541.	87316.	2259892.	4648277.
MONTHLY SUMMARY (MAR)				
MN	15403.	1356.	24165.	4648277.
MX	2533265.	102262.	3359322.	4648277.
SM	464817216.	33754812.	693906112.	2175393536.
AV	993199.	72126.	1482705.	4648277.
MONTHLY SUMMARY (APR)				
MN	15403.	1356.	24165.	4648277.
MX	1909794.	102262.	2670332.	4648277.
SM	144827648.	11859749.	222878928.	2175393792.
AV	309461.	25341.	476237.	4648278.
MONTHLY SUMMARY (MAY)				
MN	0.	0.	0.	0.
MX	348861.	30700.	547284.	4648277.
SM	15838597.	1393796.	24847180.	1115586560.
AV	32192.	2833.	50502.	2267452.
MONTHLY SUMMARY (JUN)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (JUL)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.

	HW-BOILER LOAD BTU/HR ----(1)	HW-BOILER ELECTRIC USE BTU/HR ----(3)	HW-BOILER FUEL USE BTU/HR ----(4)	HW-BOILER CAPACITY RUNNING BTU/HR ----(7)
MONTHLY SUMMARY (AUG)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (SEP)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (OCT)				
MN	0.	0.	0.	0.
MX	901315.	79316.	1413960.	4648277.
SM	27343130.	2406196.	42895200.	1171365888.
AV	54252.	4774.	85110.	2324139.
MONTHLY SUMMARY (NOV)				
MN	15403.	1356.	24165.	4648277.
MX	2355515.	102262.	3164516.	4648277.
SM	319433728.	24739036.	484560256.	2231172864.
AV	665487.	51540.	1009501.	4648277.
MONTHLY SUMMARY (DEC)				
MN	15403.	1356.	24165.	4648277.
MX	2979125.	102262.	3842268.	4648277.
SM	727572096.	42909596.	1036092032.	2286952448.
AV	1478805.	87215.	2105878.	4648278.
YEARLY SUMMARY				
MN	0.	0.	0.	0.
MX	4648277.	102262.	5577933.	4648277.
SM	3242814464.	201361920.	4662221312.	15506653184.
AV	565344.	35105.	812800.	2703392.

REPORT- EV-B COST OF FUELS AND UTILITIES

ENERGY SOURCE	ENERGY UNIT (BTU)	UNIFORM COST /UNIT ($)	COST ESCLA-ATION RATE	MIN MNTHLY CHARGE ($)	RATE LIMIT /UNIT ($)	FIXED MNTHLY CHARG1 ($)	FIXED MNTHLY CHARG2 ($)	ASSIGN-SCHEDULE (U-NAME)	ASSIGN-CHARGE1 (U-NAME)	ASSIGN-CHARGE2 (U-NAME)
ELECTRIC	3413.00	0.0000	5.000	0.00	1000000.000	0.00	0.00	YELEC1		
FUEL-OIL	138690.00	0.5900	5.000	0.00	1000000.000	0.00	0.00			

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
JAN								
	4OFPKKWH	744	492626.	35419.79	1461.	1461.	0.00	
	EONPKDMHTG	252	299363.	0.00	1461.	1461.	12523.13	
								47942.91
FEB								
	4OFPKKWH	672	443469.	31885.46	1461.	1461.	0.00	
	EONPKDMHTG	228	269721.	0.00	1461.	1461.	12523.13	
								44408.58
MAR								
	4OFPKKWH	744	508232.	36541.90	1461.	1461.	0.00	
	EONPKDMHTG	276	325960.	0.00	1461.	1461.	12519.40	
								49061.30
APR								
	4OFPKKWH	720	471791.	33921.80	1451.	1451.	0.00	
	EONPKDMHTG	252	296752.	0.00	1451.	1451.	12431.73	
								46353.53
MAY								
	4OFPKKWH	744	567732.	40819.94	1896.	1896.	0.00	
	EONPKDMHTG	252	336181.	0.00	1896.	1896.	16244.95	
								57064.89
JUN								
	4OFPKKWH	456	286522.	20600.94	1087.	1087.	0.00	
	EONPKDMCL	264	409245.	0.00	1959.	1959.	18555.89	
	EONPKKWH	264	409245.	32780.50	1959.	1959.	0.00	
								71937.33
JUL								
	4OFPKKWH	504	325145.	23377.89	1072.	1072.	0.00	
	EONPKDMCL	240	377259.	0.00	1959.	1959.	18549.63	
	EONPKKWH	240	377259.	30218.49	1959.	1959.	0.00	
								72146.01
AUG								
	4OFPKKWH	468	297670.	21402.45	1095.	1095.	0.00	
	EONPKDMCL	276	433414.	0.00	1960.	1960.	18565.50	
	EONPKKWH	276	433414.	34716.47	1960.	1960.	0.00	
								74684.42
SEP								
	4OFPKKWH	468	281089.	20210.29	1064.	1064.	0.00	
	EONPKDMCL	252	377386.	0.00	1903.	1903.	18022.92	
	EONPKKWH	252	377386.	30228.59	1903.	1903.	0.00	
								68461.80
OCT								
	4OFPKKWH	744	538915.	38747.98	1809.	1809.	0.00	
	EONPKDMHTG	240	309509.	0.00	1809.	1809.	15506.68	
								54254.66
NOV								
	4OFPKKWH	720	465642.	33479.64	1460.	1460.	0.00	
	EONPKDMHTG	240	283059.	0.00	1460.	1460.	12515.08	
								45994.72

REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

MONTH	ELECTRIC UNIT= 3413.00	FUEL-OIL UNIT= 138690.00
JAN		
ENERGY CONSUMPTION (UNIT/MO)	492626.	9890.
PEAK DEMAND (UNIT/HR)	1461.	37.
TOTAL COST ($)	47942.91	5835.19
FEB		
ENERGY CONSUMPTION (UNIT/MO)	443469.	7948.
PEAK DEMAND (UNIT/HR)	1461.	40.
TOTAL COST ($)	44408.58	4689.36
MAR		
ENERGY CONSUMPTION (UNIT/MO)	508232.	5637.
PEAK DEMAND (UNIT/HR)	1461.	24.
TOTAL COST ($)	49061.30	3325.66
APR		
ENERGY CONSUMPTION (UNIT/MO)	471791.	1790.
PEAK DEMAND (UNIT/HR)	1451.	19.
TOTAL COST ($)	46353.53	1056.25
MAY		
ENERGY CONSUMPTION (UNIT/MO)	567732.	223.
PEAK DEMAND (UNIT/HR)	1896.	4.
TOTAL COST ($)	57064.89	131.38
JUN		
ENERGY CONSUMPTION (UNIT/MO)	695767.	0.
PEAK DEMAND (UNIT/HR)	1959.	0.
TOTAL COST ($)	71937.33	0.00
JUL		
ENERGY CONSUMPTION (UNIT/MO)	702404.	0.
PEAK DEMAND (UNIT/HR)	1959.	0.
TOTAL COST ($)	72146.01	0.00
AUG		
ENERGY CONSUMPTION (UNIT/MO)	731084.	0.
PEAK DEMAND (UNIT/HR)	1960.	0.
TOTAL COST ($)	74684.42	0.00
SEP		
ENERGY CONSUMPTION (UNIT/MO)	658474.	0.
PEAK DEMAND (UNIT/HR)	1903.	0.
TOTAL COST ($)	68461.80	0.00
OCT		
ENERGY CONSUMPTION (UNIT/MO)	538915.	364.
PEAK DEMAND (UNIT/HR)	1809.	10.
TOTAL COST ($)	54254.66	214.71
NOV		
ENERGY CONSUMPTION (UNIT/MO)	465642.	3862.
PEAK DEMAND (UNIT/HR)	1460.	23.
TOTAL COST ($)	45994.72	2278.46
DEC		
ENERGY CONSUMPTION (UNIT/MO)	491445.	8658.
PEAK DEMAND (UNIT/HR)	1461.	28.
TOTAL COST ($)	47858.02	5108.19
TOTAL		
ENERGY CONSUMPTION (UNIT/YR)	6767581.	38372.
PEAK DEMAND (UNIT/HR)	1960.	40.
TOTAL COST ($)	680168.25	22639.20

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

----------CONTINUED----------

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
DEC								
	4OFFPKKWH	744	491445.	35334.89	1461.	1461.	0.00	
	EONPKDMHTG	252	298950.	0.00	1461.	1461.	12523.13	
								47858.02
TOTAL			6767581.	499687.00			180481.17	680168.25

ECO-9

MMDDHH	1SMCAHUS ZR SUPPLY ELECTRIC KW	2SPERFC SUPPLY ELECTRIC KW	3SPERFC SUPPLY ELECTRIC KW	4SPERFC SUPPLY ELECTRIC KW
	----(49)	----(49)	----(49)	----(49)
MONTHLY SUMMARY (JAN)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7576.734	383.846	383.846	450.173
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (FEB)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	6855.140	347.290	347.290	407.299
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (MAR)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	8298.327	420.403	420.403	493.046
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (APR)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7576.734	383.846	383.846	450.173
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (MAY)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7576.734	383.846	383.846	450.173
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (JUN)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7937.531	402.125	402.125	471.610
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (JUL)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7215.937	365.568	365.568	428.736
AV	30.066	1.523	1.523	1.786

MCA System Reset
On-Peak

	1SMCAHUS ZR SUPPLY ELECTRIC KW	2SPERFC SUPPLY ELECTRIC KW	3SPRRFC SUPPLY ELECTRIC KW	4SPERFC SUPPLY ELECTRIC KW
	----(49)	----(49)	----(49)	----(49)
MONTHLY SUMMARY (AUG)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	8298.327	420.403	420.403	493.046
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (SEP)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7576.734	383.846	383.846	450.173
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (OCT)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7215.937	365.568	365.568	428.736
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (NOV)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7215.937	365.568	365.568	428.736
AV	30.066	1.523	1.523	1.786
MONTHLY SUMMARY (DEC)				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	7576.734	383.846	383.846	450.173
AV	30.066	1.523	1.523	1.786
YEARLY SUMMARY				
MN	30.066	1.523	1.523	1.786
MX	30.066	1.523	1.523	1.786
SM	90920.805	4606.157	4606.157	5402.074
AV	30.066	1.523	1.523	1.786

MMDDHH	SSZF2MID	SSFZ3MID	SSZF4MID	OSMCAHUS ZR
	SUPPLY ELECTRIC KW	SUPPLY ELECTRIC KW	SUPPLY ELECTRIC KW	SUPPLY ELECTRIC KW
	----(49)	----(49)	----(49)	----(49)
MONTHLY SUMMARY (JAN)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	6025.824	7371.756	7426.086	4425.524
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (FEB)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	5451.936	6669.684	6718.840	4004.046
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (MAR)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	6599.711	8073.829	8133.333	4847.002
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (APR)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	6025.824	7371.756	7426.086	4425.524
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (MAY)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	6025.824	7371.756	7426.086	4425.524
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (JUN)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	6312.768	7722.792	7779.709	4636.263
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (JUL)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	5738.880	7020.720	7072.463	4214.785
AV	23.912	29.253	29.469	17.562

	SSZF2MID SUPPLY ELECTRIC KW ----(49)	SSFZ3MID SUPPLY ELECTRIC KW ----(49)	SSZF4MID SUPPLY ELECTRIC KW ----(49)	0SMCAHUS ZR SUPPLY ELECTRIC KW ----(49)
MONTHLY SUMMARY (AUG)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	6599.711	8073.829	8133.333	4847.002
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (SEP)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	6025.824	7371.756	7426.086	4425.524
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (OCT)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	5738.880	7020.720	7072.463	4214.785
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (NOV)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	5738.880	7020.720	7072.463	4214.785
AV	23.912	29.253	29.469	17.562
MONTHLY SUMMARY (DEC)				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	6025.824	7371.756	7426.086	4425.524
AV	23.912	29.253	29.469	17.562
YRARLY SUMMARY				
MN	23.912	29.253	29.469	17.562
MX	23.912	29.253	29.469	17.562
SM	72309.883	88461.070	89113.039	53106.289
AV	23.912	29.253	29.469	17.562

MMDDHH	1EXTPER THERMOST SETPOINT F	1EXTPER ZONE TEMP F	1INTPER THERMOST SETPOINT F	1INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	71.5	73.5	71.5	73.4
MX	75.5	75.8	75.5	76.1
SM	19022.0	18843.1	19018.0	18842.1
AV	75.5	74.8	75.5	74.8
MONTHLY SUMMARY (FEB)				
MN	75.5	73.5	71.5	73.2
MX	75.5	75.9	75.5	76.4
SM	17214.0	17088.2	17206.0	17084.3
AV	75.5	74.9	75.5	74.9
MONTHLY SUMMARY (MAR)				
MN	75.5	74.0	75.5	74.1
MX	75.5	79.8	75.5	79.6
SM	20838.0	20815.9	20838.0	20835.3
AV	75.5	75.4	75.5	75.5
MONTHLY SUMMARY (APR)				
MN	75.5	74.2	75.5	74.3
MX	75.5	88.3	75.5	87.9
SM	19026.0	19448.4	19026.0	19467.6
AV	75.5	77.2	75.5	77.3
MONTHLY SUMMARY (MAY)				
MN	75.5	74.8	75.5	75.2
MX	75.5	95.9	75.5	95.3
SM	19026.0	19697.4	19026.0	19775.9
AV	75.5	78.2	75.5	78.5
MONTHLY SUMMARY (JUN)				
MN	75.5	75.5	75.5	75.7
MX	75.5	77.1	75.5	77.7
SM	19932.0	20168.5	19932.0	20280.0
AV	75.5	76.4	75.5	76.8
MONTHLY SUMMARY (JUL)				
MN	75.5	75.6	75.5	75.8
MX	75.5	77.1	75.5	77.6
SM	18120.0	18354.5	18120.0	18442.9
AV	75.5	76.5	75.5	76.8

	1EXTPER THERMOST SETPOINT F	1EXTPER ZONE TEMP F	1INTPER THERMOST SETPOINT F	1INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	75.5	75.3	75.5	75.6
MX	75.5	77.1	75.5	77.5
SM	20838.0	21107.7	20838.0	21169.1
AV	75.5	76.5	75.5	76.7
MONTHLY SUMMARY (SEP)				
MN	75.5	75.1	75.5	75.1
MX	75.5	77.0	75.5	77.6
SM	19026.0	19208.4	19026.0	19241.1
AV	75.5	76.2	75.5	76.4
MONTHLY SUMMARY (OCT)				
MN	75.5	74.5	75.5	74.2
MX	75.5	82.6	75.5	81.9
SM	18120.0	18330.3	18120.0	18335.0
AV	75.5	76.4	75.5	76.4
MONTHLY SUMMARY (NOV)				
MN	75.5	74.2	75.5	74.2
MX	75.5	88.5	75.5	88.7
SM	18120.0	18257.2	18120.0	18289.7
AV	75.5	76.1	75.5	76.2
MONTHLY SUMMARY (DEC)				
MN	75.5	73.8	75.5	73.6
MX	75.5	77.7	75.5	77.5
SM	19026.0	18889.4	19026.0	18914.2
AV	75.5	75.0	75.5	75.1
YEARLY SUMMARY				
MN	71.5	73.5	71.5	73.2
MX	75.5	95.9	75.5	95.3
SM	228308.0	230209.0	228296.0	230677.3
AV	75.5	76.1	75.5	76.3

MMDDHH	2EXTPER THERMOST SETPOINT F	2EXTPER ZONE TEMP F	2INTPER THERMOST SETPOINT F	2INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	71.5	72.3	71.5	72.3
MX	75.5	78.8	75.5	79.6
SM	18514.0	18715.6	18550.0	18762.4
AV	73.5	74.3	73.6	74.5
MONTHLY SUMMARY (FEB)				
MN	71.5	72.9	71.5	72.9
MX	75.5	79.1	75.5	79.8
SM	16898.0	17067.2	16914.0	17123.0
AV	74.1	74.9	74.2	75.1
MONTHLY SUMMARY (MAR)				
MN	71.5	72.8	71.5	72.8
MX	75.5	85.3	75.5	86.2
SM	20594.0	21122.0	20622.0	21202.6
AV	74.6	76.5	74.7	76.8
MONTHLY SUMMARY (APR)				
MN	71.5	73.1	71.5	73.1
MX	75.5	100.4	75.5	101.6
SM	18978.0	21348.4	18978.0	21513.0
AV	75.3	84.7	75.3	85.4
MONTHLY SUMMARY (MAY)				
MN	71.5	71.3	71.5	71.4
MX	75.5	104.4	75.5	105.1
SM	18998.0	20768.4	19002.0	20857.1
AV	75.4	82.4	75.4	82.8
MONTHLY SUMMARY (JUN)				
MN	75.5	74.5	75.5	74.4
MX	75.5	76.9	75.5	76.9
SM	19932.0	19970.9	19932.0	19964.5
AV	75.5	75.6	75.5	75.6
MONTHLY SUMMARY (JUL)				
MN	75.5	74.5	75.5	74.5
MX	75.5	76.8	75.5	76.7
SM	18120.0	18184.2	18120.0	18177.9
AV	75.5	75.8	75.5	75.7

	2EXTPER THERMOST SETPOINT F	2EXTPER ZONE TEMP F	2INTPER THERMOST SETPOINT F	2INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	75.5	74.4	75.5	74.4
MX	75.5	76.9	75.5	76.9
SM	20838.0	20909.4	20838.0	20910.2
AV	75.5	75.8	75.5	75.8
MONTHLY SUMMARY (SEP)				
MN	71.5	73.3	75.5	73.6
MX	75.5	76.3	75.5	76.4
SM	19022.0	18965.5	19026.0	18977.9
AV	75.5	75.3	75.5	75.3
MONTHLY SUMMARY (OCT)				
MN	71.5	70.4	71.5	71.3
MX	75.5	92.5	75.5	94.6
SM	18096.0	18950.6	18104.0	19103.8
AV	75.4	79.0	75.4	79.6
MONTHLY SUMMARY (NOV)				
MN	71.5	73.0	71.5	73.0
MX	75.5	94.2	75.5	95.0
SM	17964.0	19000.7	17984.0	19138.4
AV	74.8	79.2	74.9	79.7
MONTHLY SUMMARY (DEC)				
MN	71.5	72.7	71.5	72.8
MX	75.5	82.4	75.5	83.7
SM	18522.0	18774.5	18566.0	18819.8
AV	73.5	74.5	73.7	74.7
YEARLY SUMMARY				
MN	71.5	70.4	71.5	71.3
MX	75.5	104.4	75.5	105.1
SM	226476.0	233777.4	226636.0	234550.7
AV	74.9	77.3	74.9	77.6

MMDDHH	3EXTPER THERMOST SETPOINT F	3EXTPER ZONE TEMP F	3INTPER THERMOST SETPOINT F	3INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	71.5	72.3	71.5	72.3
MX	75.5	78.8	75.5	79.6
SM	18514.0	18715.6	18550.0	18762.4
AV	73.5	74.3	73.6	74.5
MONTHLY SUMMARY (FEB)				
MN	71.5	72.9	71.5	72.9
MX	75.5	79.1	75.5	79.8
SM	16898.0	17067.2	16914.0	17123.0
AV	74.1	74.9	74.2	75.1
MONTHLY SUMMARY (MAR)				
MN	71.5	72.8	71.5	72.8
MX	75.5	85.3	75.5	86.2
SM	20594.0	21121.9	20622.0	21202.6
AV	74.6	76.5	74.7	76.8
MONTHLY SUMMARY (APR)				
MN	71.5	73.1	71.5	73.1
MX	75.5	100.4	75.5	101.6
SM	18978.0	21348.4	18978.0	21513.0
AV	75.3	84.7	75.3	85.4
MONTHLY SUMMARY (MAY)				
MN	71.5	71.3	71.5	71.4
MX	75.5	104.4	75.5	105.1
SM	18998.0	20768.4	19002.0	20857.1
AV	75.4	82.4	75.4	82.8
MONTHLY SUMMARY (JUN)				
MN	75.5	74.5	75.5	74.4
MX	75.5	76.9	75.5	76.9
SM	19932.0	19970.9	19932.0	19964.5
AV	75.5	75.6	75.5	75.6
MONTHLY SUMMARY (JUL)				
MN	75.5	74.5	75.5	74.5
MX	75.5	76.8	75.5	76.7
SM	18120.0	18184.3	18120.0	18177.9
AV	75.5	75.8	75.5	75.7

	3EXTPER THERMOST SETPOINT F	3EXTPER ZONE TEMP F	3INTPER THERMOST SETPOINT F	3INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	75.5	74.4	75.5	74.4
MX	75.5	76.9	75.5	76.9
SM	20838.0	20909.4	20838.0	20910.2
AV	75.5	75.8	75.5	75.8
MONTHLY SUMMARY (SEP)				
MN	71.5	73.3	75.5	73.6
MX	75.5	76.3	75.5	76.4
SM	19022.0	18965.5	19026.0	18977.9
AV	75.5	75.3	75.5	75.3
MONTHLY SUMMARY (OCT)				
MN	71.5	70.4	71.5	71.3
MX	75.5	92.5	75.5	94.6
SM	18096.0	18950.5	18104.0	19103.8
AV	75.4	79.0	75.4	79.6
MONTHLY SUMMARY (NOV)				
MN	71.5	73.0	71.5	73.0
MX	75.5	94.2	75.5	95.0
SM	17964.0	19000.6	17984.0	19138.4
AV	74.8	79.2	74.9	79.7
MONTHLY SUMMARY (DEC)				
MN	71.5	72.7	71.5	72.8
MX	75.5	82.4	75.5	83.7
SM	18522.0	18774.4	18566.0	18819.8
AV	73.5	74.5	73.7	74.7
YEARLY SUMMARY				
MN	71.5	70.4	71.5	71.3
MX	75.5	104.4	75.5	105.1
SM	226476.0	233777.1	226636.0	234550.7
AV	74.9	77.3	74.9	77.6

MMDDHH	4EXTPER THERMOST SETPOINT F	4EXTPER ZONE TEMP F	4INTPER THERMOST SETPOINT F	4INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	71.5	72.2	71.5	72.2
MX	75.5	76.5	75.5	77.5
SM	18178.0	18495.3	18218.0	18515.3
AV	72.1	73.4	72.3	73.5
MONTHLY SUMMARY (FEB)				
MN	71.5	72.7	71.5	72.7
MX	75.5	76.5	75.5	77.2
SM	16582.0	16803.2	16618.0	16832.4
AV	72.7	73.7	72.9	73.8
MONTHLY SUMMARY (MAR)				
MN	71.5	72.7	71.5	72.7
MX	75.5	82.8	75.5	83.3
SM	20358.0	20705.7	20378.0	20743.8
AV	73.8	75.0	73.8	75.2
MONTHLY SUMMARY (APR)				
MN	71.5	73.0	71.5	73.0
MX	75.5	94.4	75.5	95.2
SM	18910.0	20293.5	18910.0	20371.9
AV	75.0	80.5	75.0	80.8
MONTHLY SUMMARY (MAY)				
MN	71.5	69.1	71.5	69.3
MX	75.5	101.1	75.5	101.5
SM	18966.0	20157.6	18966.0	20198.7
AV	75.3	80.0	75.3	80.2
MONTHLY SUMMARY (JUN)				
MN	75.5	74.1	75.5	74.0
MX	75.5	77.0	75.5	76.9
SM	19932.0	19938.4	19932.0	19937.5
AV	75.5	75.5	75.5	75.5
MONTHLY SUMMARY (JUL)				
MN	75.5	74.3	75.5	74.3
MX	75.5	76.8	75.5	76.7
SM	18120.0	18164.2	18120.0	18163.3
AV	75.5	75.7	75.5	75.7

	4EXTPER THERMOST SETPOINT F	4EXTPER ZONE TEMP F	4INTPER THERMOST SETPOINT F	4INTPER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	75.5	73.8	75.5	73.8
MX	75.5	76.9	75.5	76.9
SM	20838.0	20880.3	20838.0	20886.4
AV	75.5	75.7	75.5	75.7
MONTHLY SUMMARY (SEP)				
MN	71.5	71.1	71.5	71.5
MX	75.5	76.3	75.5	76.3
SM	19010.0	18901.1	19014.0	18917.6
AV	75.4	75.0	75.5	75.1
MONTHLY SUMMARY (OCT)				
MN	71.5	65.1	71.5	66.0
MX	75.5	86.0	75.5	87.3
SM	17988.0	18348.1	18020.0	18452.7
AV	74.9	76.5	75.1	76.9
MONTHLY SUMMARY (NOV)				
MN	71.5	72.9	71.5	72.9
MX	75.5	88.6	75.5	89.1
SM	17768.0	18376.6	17820.0	18429.6
AV	74.0	76.6	74.3	76.8
MONTHLY SUMMARY (DEC)				
MN	71.5	72.6	71.5	72.7
MX	75.5	80.1	75.5	80.9
SM	18210.0	18560.2	18242.0	18580.1
AV	72.3	73.7	72.4	73.7
YEARLY SUMMARY				
MN	71.5	65.1	71.5	66.0
MX	75.5	101.1	75.5	101.5
SM	224860.0	229624.2	225076.0	230029.4
AV	74.4	75.9	74.4	76.1

MMDDHH	2MIDL THERMOST SETPOINT F	2MIDL ZONE TEMP F	3MIDL THERMOST SETPOINT F	3MIDL ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	75.5	74.5	75.5	74.5
MX	75.5	76.4	75.5	76.4
SM	19026.0	19040.8	19026.0	19051.4
AV	75.5	75.6	75.5	75.6
MONTHLY SUMMARY (FEB)				
MN	75.5	74.4	75.5	74.5
MX	75.5	76.5	75.5	76.5
SM	17214.0	17249.8	17214.0	17258.2
AV	75.5	75.7	75.5	75.7
MONTHLY SUMMARY (MAR)				
MN	75.5	75.0	75.5	75.0
MX	75.5	80.5	75.5	80.6
SM	20838.0	20979.4	20838.0	20987.2
AV	75.5	76.0	75.5	76.0
MONTHLY SUMMARY (APR)				
MN	75.5	75.0	75.5	75.0
MX	75.5	88.7	75.5	88.7
SM	19026.0	19587.6	19026.0	19593.7
AV	75.5	77.7	75.5	77.8
MONTHLY SUMMARY (MAY)				
MN	75.5	75.3	75.5	75.4
MX	75.5	96.2	75.5	96.2
SM	19026.0	19801.2	19026.0	19804.6
AV	75.5	78.6	75.5	78.6
MONTHLY SUMMARY (JUN)				
MN	75.5	75.6	75.5	75.6
MX	75.5	77.1	75.5	77.1
SM	19932.0	20210.1	19932.0	20211.3
AV	75.5	76.6	75.5	76.6
MONTHLY SUMMARY (JUL)				
MN	75.5	75.7	75.5	75.7
MX	75.5	77.1	75.5	77.1
SM	18120.0	18388.3	18120.0	18389.0
AV	75.5	76.6	75.5	76.6

	2MIDL THERMOST SETPOINT F	2MIDL ZONE TEMP F	3MIDL THERMOST SETPOINT F	3MIDL ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	75.5	75.5	75.5	75.6
MX	75.5	77.2	75.5	77.2
SM	20838.0	21141.3	20838.0	21142.3
AV	75.5	76.6	75.5	76.6
MONTHLY SUMMARY (SEP)				
MN	75.5	75.4	75.5	75.4
MX	75.5	77.1	75.5	77.1
SM	19026.0	19254.4	19026.0	19256.8
AV	75.5	76.4	75.5	76.4
MONTHLY SUMMARY (OCT)				
MN	75.5	75.1	75.5	75.2
MX	75.5	83.0	75.5	83.0
SM	18120.0	18439.8	18120.0	18445.7
AV	75.5	76.8	75.5	76.9
MONTHLY SUMMARY (NOV)				
MN	75.5	74.9	75.5	74.9
MX	75.5	90.6	75.5	90.7
SM	18120.0	18446.1	18120.0	18455.2
AV	75.5	76.9	75.5	76.9
MONTHLY SUMMARY (DEC)				
MN	75.5	74.6	75.5	74.7
MX	75.5	78.6	75.5	78.7
SM	19026.0	19079.9	19026.0	19089.6
AV	75.5	75.7	75.5	75.8
YEARLY SUMMARY				
MN	75.5	74.4	75.5	74.5
MX	75.5	96.2	75.5	96.2
SM	228312.0	231618.8	228312.0	231685.0
AV	75.5	76.6	75.5	76.6

MMDDHH	4MIDL THERMOST SETPOINT F	4MIDL ZONE TEMP F	0INTEXTP ER THERMOST SETPOINT F	0INTEXTP ER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (JAN)				
MN	71.5	73.1	71.5	73.2
MX	75.5	75.2	75.5	75.1
SM	18786.0	18645.6	18802.0	18651.6
AV	74.5	74.0	74.6	74.0
MONTHLY SUMMARY (FEB)				
MN	71.5	73.2	71.5	73.3
MX	75.5	75.4	75.5	75.3
SM	17102.0	16920.4	17106.0	16921.6
AV	75.0	74.2	75.0	74.2
MONTHLY SUMMARY (MAR)				
MN	71.5	73.4	71.5	73.4
MX	75.5	78.6	75.5	79.0
SM	20822.0	20633.2	20814.0	20641.6
AV	75.4	74.8	75.4	74.8
MONTHLY SUMMARY (APR)				
MN	75.5	73.6	75.5	73.6
MX	75.5	87.9	75.5	89.2
SM	19026.0	19294.0	19026.0	19329.1
AV	75.5	76.6	75.5	76.7
MONTHLY SUMMARY (MAY)				
MN	75.5	74.2	75.5	74.3
MX	75.5	95.4	75.5	97.7
SM	19026.0	19562.9	19026.0	19652.2
AV	75.5	77.6	75.5	78.0
MONTHLY SUMMARY (JUN)				
MN	75.5	75.0	75.5	75.3
MX	75.5	77.1	75.5	77.1
SM	19932.0	20107.2	19932.0	20134.5
AV	75.5	76.2	75.5	76.3
MONTHLY SUMMARY (JUL)				
MN	75.5	75.2	75.5	75.5
MX	75.5	77.0	75.5	77.1
SM	18120.0	18312.2	18120.0	18336.9
AV	75.5	76.3	75.5	76.4

	4MIDL THERMOST SETPOINT F	4MIDL ZONE TEMP F	0INTEXTP ER THERMOST SETPOINT F	0INTEXTP ER ZONE TEMP F
	----(7)	----(6)	----(7)	----(6)
MONTHLY SUMMARY (AUG)				
MN	75.5	74.9	75.5	75.2
MX	75.5	77.0	75.5	77.1
SM	20838.0	21047.8	20838.0	21089.5
AV	75.5	76.3	75.5	76.4
MONTHLY SUMMARY (SEP)				
MN	75.5	74.5	75.5	74.9
MX	75.5	76.8	75.5	76.9
SM	19026.0	19108.1	19026.0	19166.4
AV	75.5	75.8	75.5	76.1
MONTHLY SUMMARY (OCT)				
MN	71.5	71.8	75.5	74.2
MX	75.5	82.1	75.5	83.3
SM	18112.0	18176.5	18120.0	18255.3
AV	75.5	75.7	75.5	76.1
MONTHLY SUMMARY (NOV)				
MN	71.5	73.5	75.5	73.5
MX	75.5	88.0	75.5	89.1
SM	18116.0	18094.7	18120.0	18126.0
AV	75.5	75.4	75.5	75.5
MONTHLY SUMMARY (DEC)				
MN	71.5	73.3	71.5	73.3
MX	75.5	77.0	75.5	77.2
SM	18886.0	18699.4	18914.0	18709.7
AV	74.9	74.2	75.1	74.2
YEARLY SUMMARY				
MN	71.5	71.8	71.5	73.2
MX	75.5	95.4	75.5	97.7
SM	227792.0	228602.1	227844.0	229014.1
AV	75.3	75.6	75.3	75.7

EQUIPMENT	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL	SIZE (MBTU/H)	NUMBER INSTD	NUMBER AVAIL
HW-BOILER	4.648	1	1															
HERM-CENT-CHLR	7.800	1	1															
COOLING-TWR	2.379	4	4															

EQUIPMENT	HOURS AT PERCENT PART LOAD RATIO											TOTAL HOURS	ANNUAL LOAD (MBTU)	FALSE LOAD (MBTU)	ELEC USED (MBTU)	THERMAL USED (MBTU)
	0 -- 10	-- 20	-- 30	-- 40	-- 50	-- 60	-- 70	-- 80	-- 90	-- 100	- 110+					
HW-BOILER	2736	641	642	475	338	142	64	33	12	4	1	5088	3673.8	0.0	236.0	5321.7
	2736	641	642	475	338	142	64	33	12	4	1					
HERM-CENT-CHLR	1064	511	805	487	340	337	117	11	0	0	0	3672	8597.3	0.0	1960.2	0.0
	1064	511	805	487	340	337	117	11	0	0	0					
COOLING-TWR	1229	566	601	328	161	118	149	126	106	100	188	3672	10557.6	0.0	814.0	0.0
	1229	566	601	328	161	118	149	126	106	100	188					

HOT LOOP CIRCULATION PUMP ELECTRICAL USE = 174.8 MBTU
COLD LOOP CIRCULATION PUMP ELECTRICAL USE = 907.9 MBTU

NOTES TO TABLE
1) THE FIRST PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE HOURLY OPERATING CAPACITY

2) THE SECOND PART LOAD ENTRY FOR EACH PIECE OF EQUIPMENT IS THE HOURLY LOAD DIVIDED BY THE TOTAL INSTALLED CAPACITY

HEATING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HW-BOILER	3673.8	100.0
LOAD SATISFIED	3673.8	100.0
TOTAL LOAD ON PLANT	3673.8	

COOLING LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
HERM-CENT-CHLR	8597.3	100.0
LOAD SATISFIED	8597.3	100.0
TOTAL LOAD ON PLANT	8597.3	

ELECTRICAL LOADS	MBTU SUPPLIED	PCT OF TOTAL LOAD
ELECTRICITY	23097.8	100.0
LOAD SATISFIED	23097.8	100.0
TOTAL LOAD ON PLANT	23097.5	

TOWER ABOVE DESIGN TEMPERATURE OF 85.F 1 HOURS
MAXIMUM TOWER EXIT TEMPERATURE = 85.F

SUMMARY OF LOADS MET

TYPE OF LOAD	TOTAL LOAD (MBTU)	LOAD SATISFIED (MBTU)	TOTAL OVERLOAD (MBTU)	PEAK OVERLOAD (MBTU)	HOURS OVERLOADED
HEATING LOADS	3673.8	3673.8	0.000	0.000	0
COOLING LOADS	8597.3	8597.3	0.000	0.000	0
ELECTRICAL LOADS	23097.5	23097.8	0.000	0.000	0

EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON DAY HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
HW-BOILER	0.155	4.648	2 20 3	4.648	5088								
HERM-CENT-CHLR	0.300	6.956	8 18 15	7.800	3672								
COOLING-TWR	0.302	8.375	8 18 15	2.379	14688								

ENERGY TYPE IN SITE MBTU - CATEGORY OF USE	ELECTRICITY	FUEL-OIL
SPACE HEAT	235.96	5321.68
SPACE COOL	2774.24	0.00
HVAC AUX	5307.58	0.00
DOM HOT WTR	0.00	0.00
AUX SOLAR	0.00	0.00
LIGHTS	10258.56	0.00
VERT TRANS	0.00	0.00
MISC EQUIP	4521.40	0.00
TOTAL	23097.73	5321.68

TOTAL SITE ENERGY 28419.50 MBTU 86.2 KBTU/SQFT-YR GROSS-AREA 86.2 KBTU/SQFT-YR NET-AREA
TOTAL SOURCE ENERGY 74684.37 MBTU 226.6 KBTU/SQFT-YR GROSS-AREA 226.6 KBTU/SQFT-YR NET-AREA

PERCENT OF HOURS ANY SYSTEM ZONE OUTSIDE OF THROTTLING RANGE = 1.8
PERCENT OF HOURS ANY PLANT LOAD NOT SATISFIED = 0.0

NOTE ELECTRICITY AND/OR FUEL USED TO GENERATE ELECTRICITY IS APPORTIONED BASED ON THE YEARLY DEMAND. ALL OTHER ENERGY TYPES ARE APPORTIONED HOURLY.

MMDDHH	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	HERM-CEN T-CHLR ENTERING COND TEM F ----(12)	HERM-CEN T-CHLR LEAVING COLD TEM F ----(13)	COOLING-TWR WATER FLOWRATE GAL/MIN ----(8)	COOLING-TWR RANGE R ----(10)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)
MONTHLY SUMMARY (JAN)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (FEB)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (MAR)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (APR)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (MAY)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	6000451.	1179016.	79.9	56.0	1950.0	7.4	140410.	90465.
SM	365947136.	78225192.	8926.2	7232.2	257400.0	466.2	17391252.	11941428.
AV	1452171.	310417.	35.4	28.7	1021.4	1.9	69013.	47387.
MONTHLY SUMMARY (JUN)								
MN	1015087.	387913.	64.5	54.1	1950.0	1.5	118667.	90465.
MX	6886767.	1408817.	83.5	56.3	1950.0	8.6	140410.	90465.
SM	1127043840.	220363632.	19075.1	14612.5	514800.0	1402.9	36755700.	23882852.
AV	4269106.	834711.	72.3	55.4	1950.0	5.3	139226.	90465.
MONTHLY SUMMARY (JUL)								
MN	1311041.	413325.	64.5	54.2	1950.0	1.9	132391.	90465.
MX	6717490.	1356482.	82.0	56.3	1950.0	8.4	140410.	90465.
SM	1135056768.	217876976.	17724.1	13325.6	468000.0	1406.5	33679548.	21711684.
AV	4729403.	907821.	73.9	55.5	1950.0	5.9	140331.	90465.

	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	HERM-CEN T-CHLR ENTERING COND TEM F ----(12)	HERM-CEN T-CHLR LEAVING COLD TEM F ----(13)	COOLING-TWR WATER FLOWRATE GAL/MIN ----(8)	COOLING-TWR RANGE R ----(10)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)
MONTHLY SUMMARY (AUG)								
MN	894222.	378119.	64.6	54.1	1950.0	1.4	124162.	90465.
MX	6956289.	1418906.	85.3	56.3	1950.0	8.7	140410.	90465.
SM	1282126848.	249123264.	20417.3	15315.6	538200.1	1592.3	38684532.	24968436.
AV	4645387.	902621.	74.0	55.5	1950.0	5.8	140161.	90465.
MONTHLY SUMMARY (SEP)								
MN	439230.	207365.	64.4	53.9	1950.0	0.7	109354.	90465.
MX	5895004.	1166655.	81.9	56.0	1950.0	7.3	140410.	90465.
SM	802535552.	166128400.	17338.8	13845.9	491400.0	1013.7	34057108.	22797268.
AV	3184665.	659240.	68.8	54.9	1950.0	4.0	135147.	90465.
MONTHLY SUMMARY (OCT)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	4687710.	866799.	70.5	55.5	1950.0	5.8	140410.	90465.
SM	165302800.	46462144.	7049.0	5867.0	210600.0	226.0	13478706.	9770260.
AV	688762.	193592.	29.4	24.4	877.5	0.9	56161.	40709.
MONTHLY SUMMARY (NOV)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MONTHLY SUMMARY (DEC)								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	0.	0.	0.0	0.0	0.0	0.0	0.	0.
SM	0.	0.	0.0	0.0	0.0	0.0	0.	0.
AV	0.	0.	0.0	0.0	0.0	0.0	0.	0.
YEARLY SUMMARY								
MN	0.	0.	0.0	0.0	0.0	0.0	0.	0.
MX	6956289.	1418906.	85.3	56.3	1950.0	8.7	140410.	90465.
SM	4878012928.	978179584.	90530.5	70198.9	2480400.3	6107.7	174046832.	115071920.
AV	1613100.	323472.	29.9	23.2	820.2	2.0	57555.	38053.

MMDDHH	HW-BOILER LOAD BTU/HR	HW-BOILER ELECTRIC USE BTU/HR	HW-BOILER FUEL USE BTU/HR	HW-BOILER CAPACITY RUNNING BTU/HR
	----(1)	----(3)	----(4)	----(7)
MONTHLY SUMMARY (JAN)				
MN	15403.	1356.	24165.	4648277.
MX	2978234.	102262.	3841311.	4648277.
SM	147403680.	10336617.	218015296.	1171365760.
AV	584935.	41018.	865140.	4648277.
MONTHLY SUMMARY (FEB)				
MN	15403.	1356.	24165.	4648277.
MX	1744793.	102262.	2485326.	4648277.
SM	63301488.	5492584.	98924976.	1059807168.
AV	277638.	24090.	433881.	4648277.
MONTHLY SUMMARY (MAR)				
MN	15403.	1356.	24165.	4648277.
MX	1683503.	102262.	2416321.	4648277.
SM	56578544.	4792177.	87849896.	1282924416.
AV	204995.	17363.	318297.	4648277.
MONTHLY SUMMARY (APR)				
MN	15403.	1356.	24165.	4648277.
MX	1024598.	90165.	1607362.	4648277.
SM	16198086.	1425432.	25411140.	1171365760.
AV	64278.	5656.	100838.	4648277.
MONTHLY SUMMARY (MAY)				
MN	0.	0.	0.	0.
MX	180877.	15917.	283756.	4648277.
SM	3847751.	338602.	6036252.	557793216.
AV	15269.	1344.	23953.	2213465.
MONTHLY SUMMARY (JUN)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (JUL)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.

	HW-BOILER LOAD BTU/HR ----(1)	HW-BOILER ELECTRIC USE BTU/HR ----(3)	HW-BOILER FUEL USE BTU/HR ----(4)	HW-BOILER CAPACITY RUNNING BTU/HR ----(7)
MONTHLY SUMMARY (AUG)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (SEP)				
MN	0.	0.	0.	0.
MX	0.	0.	0.	0.
SM	0.	0.	0.	0.
AV	0.	0.	0.	0.
MONTHLY SUMMARY (OCT)				
MN	0.	0.	0.	0.
MX	218615.	19238.	342957.	4648277.
SM	4828828.	424937.	7575341.	613572544.
AV	20120.	1771.	31564.	2556552.
MONTHLY SUMMARY (NOV)				
MN	15403.	1356.	24165.	4648277.
MX	1286277.	102262.	1965361.	4648277.
SM	32571738.	2852791.	51032784.	1115586432.
AV	135716.	11887.	212637.	4648277.
MONTHLY SUMMARY (DEC)				
MN	15403.	1356.	24165.	4648277.
MX	1900431.	102262.	2659863.	4648277.
SM	106300208.	8927519.	164678864.	1171365760.
AV	421826.	35427.	653488.	4648277.
YEARLY SUMMARY				
MN	0.	0.	0.	0.
MX	2978234.	102262.	3841311.	4648277.
SM	431030336.	34590656.	659524544.	8143781376.
AV	142536.	11439.	218097.	2693050.

REPORT- EV-B COST OF FUELS AND UTILITIES

ENERGY SOURCE	ENERGY UNIT (BTU)	UNIFORM COST /UNIT ($)	COST ESCLA-ATION RATE	MIN MNTHLY CHARGE ($)	RATE LIMIT /UNIT ($)	FIXED MNTHLY CHARG1 ($)	FIXED MNTHLY CHARG2 ($)	ASSIGN-SCHEDULE (U-NAME)	ASSIGN-CHARGE1 (U-NAME)	ASSIGN-CHARGE2 (U-NAME)
ELECTRIC	3413.00	0.0000	5.000	0.00	1000000.000	0.00	0.00	YELEC1		
FUEL-OIL	138690.00	0.5900	5.000	0.00	1000000.000	0.00	0.00			

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/27/1996 16:27:41 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

MONTH	ELECTRIC UNIT= 3413.00	FUEL-OIL UNIT= 138690.00
JAN		
ENERGY CONSUMPTION (UNIT/MO)	492626.	9890.
PEAK DEMAND (UNIT/HR)	1461.	37.
TOTAL COST ($)	47942.91	5835.19
FEB		
ENERGY CONSUMPTION (UNIT/MO)	443469.	7948.
PEAK DEMAND (UNIT/HR)	1461.	40.
TOTAL COST ($)	44408.58	4689.36
MAR		
ENERGY CONSUMPTION (UNIT/MO)	508232.	5637.
PEAK DEMAND (UNIT/HR)	1461.	24.
TOTAL COST ($)	49061.30	3325.66
APR		
ENERGY CONSUMPTION (UNIT/MO)	471791.	1790.
PEAK DEMAND (UNIT/HR)	1451.	19.
TOTAL COST ($)	46353.53	1056.25
MAY		
ENERGY CONSUMPTION (UNIT/MO)	567732.	223.
PEAK DEMAND (UNIT/HR)	1896.	4.
TOTAL COST ($)	57064.89	131.38
JUN		
ENERGY CONSUMPTION (UNIT/MO)	695767.	0.
PEAK DEMAND (UNIT/HR)	1959.	0.
TOTAL COST ($)	71937.33	0.00
JUL		
ENERGY CONSUMPTION (UNIT/MO)	702404.	0.
PEAK DEMAND (UNIT/HR)	1959.	0.
TOTAL COST ($)	72146.01	0.00
AUG		
ENERGY CONSUMPTION (UNIT/MO)	731084.	0.
PEAK DEMAND (UNIT/HR)	1960.	0.
TOTAL COST ($)	74684.42	0.00
SEP		
ENERGY CONSUMPTION (UNIT/MO)	658474.	0.
PEAK DEMAND (UNIT/HR)	1903.	0.
TOTAL COST ($)	68461.80	0.00
OCT		
ENERGY CONSUMPTION (UNIT/MO)	538915.	364.
PEAK DEMAND (UNIT/HR)	1809.	10.
TOTAL COST ($)	54254.66	214.71
NOV		
ENERGY CONSUMPTION (UNIT/MO)	465642.	3862.
PEAK DEMAND (UNIT/HR)	1460.	23.
TOTAL COST ($)	45994.72	2278.46
DEC		
ENERGY CONSUMPTION (UNIT/MO)	491445.	8658.
PEAK DEMAND (UNIT/HR)	1461.	28.
TOTAL COST ($)	47858.02	5108.19
TOTAL		
ENERGY CONSUMPTION (UNIT/YR)	6767581.	38372.
PEAK DEMAND (UNIT/HR)	1960.	40.
TOTAL COST ($)	680168.25	22639.20

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
JAN								
	4OFFPKKWH	744	492626.	35419.79	1461.	1461.	0.00	
	EONPKDMHTG	252	299363.	0.00	1461.	1461.	12523.13	
								47942.91
FEB								
	4OFFPKKWH	672	443469.	31885.46	1461.	1461.	0.00	
	EONPKDMHTG	228	269721.	0.00	1461.	1461.	12523.13	
								44408.58
MAR								
	4OFFPKKWH	744	508232.	36541.90	1461.	1461.	0.00	
	EONPKDMHTG	276	325960.	0.00	1461.	1461.	12519.40	
								49061.30
APR								
	4OFFPKKWH	720	471791.	33921.80	1451.	1451.	0.00	
	EONPKDMHTG	252	296752.	0.00	1451.	1451.	12431.73	
								46353.53
MAY								
	4OFFPKKWH	744	567732.	40819.94	1896.	1896.	0.00	
	EONPKDMHTG	252	336181.	0.00	1896.	1896.	16244.95	
								57064.89
JUN								
	4OFFPKKWH	456	286522.	20600.94	1087.	1087.	0.00	
	EONPKDMCL	264	409245.	0.00	1959.	1959.	18555.89	
	EONPKKWH	264	409245.	32780.50	1959.	1959.	0.00	
								71937.33
JUL								
	4OFFPKKWH	504	325145.	23377.89	1072.	1072.	0.00	
	EONPKDMCL	240	377259.	0.00	1959.	1959.	18549.63	
	EONPKKWH	240	377259.	30218.49	1959.	1959.	0.00	
								72146.01
AUG								
	4OFFPKKWH	468	297670.	21402.45	1095.	1095.	0.00	
	EONPKDMCL	276	433414.	0.00	1960.	1960.	18565.50	
	EONPKKWH	276	433414.	34716.47	1960.	1960.	0.00	
								74684.42
SEP								
	4OFFPKKWH	468	281089.	20210.29	1064.	1064.	0.00	
	EONPKDMCL	252	377386.	0.00	1903.	1903.	18022.92	
	EONPKKWH	252	377386.	30228.59	1903.	1903.	0.00	
								68461.80
OCT								
	4OFFPKKWH	744	538915.	38747.98	1809.	1809.	0.00	
	EONPKDMHTG	240	309509.	0.00	1809.	1809.	15506.68	
								54254.66
NOV								
	4OFFPKKWH	720	465642.	33479.64	1460.	1460.	0.00	
	EONPKDMHTG	240	283059.	0.00	1460.	1460.	12515.08	
								45994.72

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

----------CONTINUED----------

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
DEC								
	4OFFPKKWH	744	491445.	35334.89	1461.	1461.	0.00	
	EONPKDMHTG	252	298950.	0.00	1461.	1461.	12523.13	
								47858.02
TOTAL			6767581.	499687.00			180481.17	680168.25

ECO-10

EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON DAY HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
HW-BOILER	0.147	4.712	2 20 3	4.712	5088								
HERM-CENT-CHLR	0.583	10.090	5 16 3	8.300	1836								
COOLING-TWR	0.364	12.212	5 16 2	5.063	5800								
CTANK-STORAGE	0.466	7.282	8 18 15	73.200	1836								

MMDDHH	HERM-CEN T-CHLR LOAD BTU/HR	HERM-CEN T-CHLR ELECTRIC USE BTU/HR	COOLING-TWR FAN ELEC BTU/HR	COOLING-TWR PUMP ELEC BTU/HR	CTANK-ST ORAGE ENERGY RELEASED BTU/HR	CTANK-ST ORAGE ENERGY STORED BTU/HR	PLANT SYS COOL LOAD BTU/HR	PLANT TOTAL COOLING BTU/HR
	----(1)	----(3)	----(20)	----(21)	----(1)	----(4)	----(2)	----(9)
816 1	8325560.	1646306.	273323.	96264.	0.	6100000.	1922838.	8325560.
816 2	8069658.	1583426.	273323.	96264.	0.	6100000.	1666936.	8069658.
816 3	7946332.	1547015.	273323.	96264.	0.	6100000.	1543610.	7946332.
816 4	7880016.	1530765.	273323.	96264.	0.	6100000.	1477293.	7880016.
816 5	7816084.	1515485.	273323.	96264.	0.	6100000.	1413361.	7816084.
816 6	4439905.	836564.	202587.	96264.	0.	1881376.	2255807.	4439905.
816 7	4023550.	770823.	198421.	96264.	0.	0.	3720827.	4023550.
816 8	0.	0.	0.	0.	4767894.	0.	4465172.	0.
816 9	0.	0.	0.	0.	5323436.	0.	5020713.	0.
81610	0.	0.	0.	0.	5668898.	0.	5366176.	0.
81611	0.	0.	0.	0.	5932697.	0.	5629975.	0.
81612	0.	0.	0.	0.	6121349.	0.	5818626.	0.
81613	0.	0.	0.	0.	6339592.	0.	6036869.	0.
81614	0.	0.	0.	0.	6301569.	0.	5998846.	0.
81615	0.	0.	0.	0.	6079547.	0.	5776824.	0.
81616	0.	0.	0.	0.	5140494.	0.	4837772.	0.
81617	0.	0.	0.	0.	4859908.	0.	4557186.	0.
81618	0.	0.	0.	0.	4245308.	0.	3942585.	0.
81619	0.	0.	0.	0.	3482335.	0.	3179612.	0.
81620	9436227.	1965759.	273323.	96264.	0.	6100000.	3033505.	9436227.
81621	9203944.	1900504.	273323.	96264.	0.	6100000.	2801221.	9203944.
81622	9033544.	1853528.	273323.	96264.	0.	6100000.	2630822.	9033544.
81623	8886283.	1813667.	273323.	96264.	0.	6100000.	2483561.	8886283.
81624	8670088.	1764909.	273323.	96264.	0.	6100000.	2267366.	8670088.
DAILY SUMMARY (AUG 16)								
MN	0.	0.	0.	0.	0.	0.	1413361.	0.
MX	9436227.	1965759.	273323.	96264.	6339592.	6100000.	6036869.	9436227.
SM	93731184.	18728748.	3134238.	1155173.	64263024.	62881376.	87847512.	93731184.
AV	3905466.	780365.	130593.	48132.	2677626.	2620057.	3660313.	3905466.

	HERM-CEN T-CHLR LOAD BTU/HR	HERM-CEN T-CHLR ELECTRIC USE BTU/HR	COOLING-TWR FAN ELEC BTU/HR	COOLING-TWR PUMP ELEC BTU/HR	CTANK-ST ORAGE ENERGY RELEASED BTU/HR	CTANK-ST ORAGE ENERGY STORED BTU/HR	PLANT SYS COOL LOAD BTU/HR	PLANT TOTAL COOLING BTU/HR
	----(1)	----(3)	----(20)	----(21)	----(1)	----(4)	----(2)	----(9)
817 1	8604961.	1746886.	273323.	96264.	0.	6100000.	2202239.	8604961.
817 2	8334408.	1677937.	273323.	96264.	0.	6100000.	1931685.	8334408.
817 3	8222406.	1640857.	273323.	96264.	0.	6100000.	1819684.	8222406.
817 4	8063390.	1601300.	273323.	96264.	0.	6100000.	1660668.	8063390.
817 5	7997030.	1577434.	273323.	96264.	0.	6100000.	1594308.	7997030.
817 6	6008083.	1135227.	267147.	96264.	0.	3295936.	2409424.	6008083.
817 7	4382274.	835591.	196199.	96264.	0.	0.	4079552.	4382274.
817 8	0.	0.	0.	0.	5224305.	0.	4921582.	0.
817 9	0.	0.	0.	0.	5784334.	0.	5481611.	0.
81710	0.	0.	0.	0.	6005673.	0.	5702950.	0.
81711	0.	0.	0.	0.	6404204.	0.	6101481.	0.
81712	0.	0.	0.	0.	6658178.	0.	6355456.	0.
81713	0.	0.	0.	0.	6764645.	0.	6461923.	0.
81714	0.	0.	0.	0.	6757686.	0.	6454963.	0.
81715	0.	0.	0.	0.	6389315.	0.	6086592.	0.
81716	0.	0.	0.	0.	5430626.	0.	5127904.	0.
81717	0.	0.	0.	0.	5217008.	0.	4914286.	0.
81718	0.	0.	0.	0.	4795852.	0.	4493130.	0.
81719	0.	0.	0.	0.	3885903.	0.	3583180.	0.
81720	9720236.	2067104.	273323.	96264.	0.	6100000.	3317514.	9720236.
81721	9415574.	1978790.	273323.	96264.	0.	6100000.	3012852.	9415574.
81722	9143795.	1893148.	273323.	96264.	0.	6100000.	2741072.	9143795.
81723	8946748.	1830261.	273323.	96264.	0.	6100000.	2544025.	8946748.
81724	8767966.	1782318.	273323.	96264.	0.	6100000.	2365244.	8767966.
DAILY SUMMARY (AUG 17)								
MN	0.	0.	0.	0.	0.	0.	1594308.	0.
MX	9720236.	2067104.	273323.	96264.	6764645.	6100000.	6461923.	9720236.
SM	97606864.	19766854.	3196576.	1155173.	69317720.	64295936.	95363320.	97606864.
AV	4066953.	823619.	133191.	48132.	2888238.	2678997.	3973472.	4066953.

	HERM-CEN T-CHLR LOAD BTU/HR	HERM-CEN T-CHLR ELECTRIC USE BTU/HR	COOLING-TWR FAN ELEC BTU/HR	COOLING-TWR PUMP ELEC BTU/HR	CTANK-ST ORAGE ENERGY RELEASED BTU/HR	CTANK-ST ORAGE ENERGY STORED BTU/HR	PLANT SYS COOL LOAD BTU/HR	PLANT TOTAL COOLING BTU/HR
	----(1)	----(3)	----(20)	----(21)	----(1)	----(4)	----(2)	----(9)
818 1	8636384.	1747349.	273323.	96264.	0.	6100000.	2233661.	8636384.
818 2	8434174.	1695263.	273323.	96264.	0.	6100000.	2031452.	8434174.
818 3	8337630.	1662596.	273323.	96264.	0.	6100000.	1934908.	8337630.
818 4	8164430.	1619410.	273323.	96264.	0.	6100000.	1761707.	8164430.
818 5	7977811.	1566811.	273323.	96264.	0.	6100000.	1575088.	7977811.
818 6	8872317.	1781146.	273323.	96264.	0.	6100000.	2469595.	8872317.
818 7	6590370.	1256014.	269782.	96264.	0.	2254912.	4032736.	6590370.
818 8	0.	0.	0.	0.	5256840.	0.	4954118.	0.
818 9	0.	0.	0.	0.	5808053.	0.	5505331.	0.
81810	0.	0.	0.	0.	6218376.	0.	5915653.	0.
81811	0.	0.	0.	0.	6601525.	0.	6298802.	0.
81812	0.	0.	0.	0.	6680344.	0.	6377622.	0.
81813	0.	0.	0.	0.	7079866.	0.	6777144.	0.
81814	0.	0.	0.	0.	7281769.	0.	6979047.	0.
81815	0.	0.	0.	0.	6946938.	0.	6644215.	0.
81816	0.	0.	0.	0.	5940299.	0.	5637577.	0.
81817	0.	0.	0.	0.	5673811.	0.	5371089.	0.
81818	0.	0.	0.	0.	5161632.	0.	4858909.	0.
81819	0.	0.	0.	0.	4527616.	0.	4279052.	0.
81820	9870811.	2178282.	273323.	96264.	0.	5567617.	3946313.	9870811.
81821	9896245.	2176541.	273323.	96264.	0.	5863693.	3729829.	9896245.
81822	9895917.	2176567.	273323.	96264.	0.	6078216.	3514978.	9895917.
81823	9715632.	2123515.	273323.	96264.	0.	6100000.	3312910.	9715632.
81824	9510250.	2062833.	273323.	96264.	0.	6100000.	3107528.	9510250.
DAILY SUMMARY (AUG 18)								
MN	0.	0.	0.	0.	0.	0.	1575088.	0.
MX	9896245.	2178282.	273323.	96264.	7281769.	6100000.	6979047.	9896245.
SM	105901968.	22046324.	3276335.	1155173.	73177064.	68564432.	103249272.	105901968.
AV	4412582.	918597.	136514.	48132.	3049044.	2856851.	4302053.	4412582.

	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)	CTANK-ST ORAGE ENERGY RELEASED BTU/HR ----(1)	CTANK-ST ORAGE ENERGY STORED BTU/HR ----(4)	PLANT SYS COOL LOAD BTU/HR ----(2)	PLANT TOTAL COOLING BTU/HR ----(9)
819 1	9253977.	1988647.	273323.	96264.	0.	6100000.	2851255.	9253977.
819 2	9131609.	1940816.	273323.	96264.	0.	6100000.	2728887.	9131609.
819 3	8924754.	1883295.	273323.	96264.	0.	6100000.	2522031.	8924754.
819 4	8851367.	1851191.	273323.	96264.	0.	6100000.	2448645.	8851367.
819 5	8810398.	1839693.	273323.	96264.	0.	6100000.	2407676.	8810398.
819 6	9572536.	2049429.	273323.	96264.	0.	6100000.	3169813.	9572536.
819 7	9967083.	2169064.	273323.	96264.	0.	5071795.	4592566.	9967083.
819 8	0.	0.	0.	0.	5613660.	0.	5310938.	0.
819 9	0.	0.	0.	0.	6122802.	0.	5820079.	0.
81910	0.	0.	0.	0.	6208665.	0.	5905942.	0.
81911	0.	0.	0.	0.	6379204.	0.	6076482.	0.
81912	0.	0.	0.	0.	6527596.	0.	6224874.	0.
81913	0.	0.	0.	0.	6886882.	0.	6584160.	0.
81914	0.	0.	0.	0.	6712683.	0.	6409960.	0.
81915	0.	0.	0.	0.	6310945.	0.	6008223.	0.
81916	0.	0.	0.	0.	5313110.	0.	5010388.	0.
81917	0.	0.	0.	0.	4922273.	0.	4619550.	0.
81918	0.	0.	0.	0.	4453642.	0.	4150920.	0.
81919	0.	0.	0.	0.	3853985.	0.	3551262.	0.
81920	9672672.	2043004.	273323.	96264.	0.	6100000.	3269949.	9672672.
81921	9353499.	1951654.	273323.	96264.	0.	6100000.	2950777.	9353499.
81922	9099245.	1863682.	273323.	96264.	0.	6100000.	2696522.	9099245.
81923	8820708.	1781487.	273323.	96264.	0.	6100000.	2417985.	8820708.
81924	8553722.	1705005.	273323.	96264.	0.	6100000.	2151000.	8553722.
DAILY SUMMARY (AUG 19)								
MN	0.	0.	0.	0.	0.	0.	2151000.	0.
MX	9967083.	2169064.	273323.	96264.	6886882.	6100000.	6584160.	9967083.
SM	110011576.	23066968.	3279876.	1155173.	69305440.	72171792.	99879880.	110011576.
AV	4583816.	961124.	136661.	48132.	2887727.	3007158.	4161662.	4583816.

	HERM-CEN T-CHLR LOAD BTU/HR	HERM-CEN T-CHLR ELECTRIC USE BTU/HR	COOLING-TWR FAN ELEC BTU/HR	COOLING-TWR PUMP ELEC BTU/HR	CTANK-ST ORAGE ENERGY RELEASED BTU/HR	CTANK-ST ORAGE ENERGY STORED BTU/HR	PLANT SYS COOL LOAD BTU/HR	PLANT TOTAL COOLING BTU/HR
	----(1)	----(3)	----(20)	----(21)	----(1)	----(4)	----(2)	----(9)
820 1	8096428.	1579772.	273323.	96264.	0.	6100000.	1693705.	8096428.
820 2	7758868.	1484915.	273323.	96264.	0.	6100000.	1356146.	7758868.
820 3	8010178.	1537843.	273323.	96264.	0.	6100000.	1607456.	8010178.
820 4	7221889.	1364512.	273323.	96264.	0.	6100000.	819166.	7221889.
820 5	6973031.	1302047.	273323.	96264.	0.	6100000.	570308.	6973031.
820 6	6775062.	1257684.	273323.	96264.	0.	6100000.	372339.	6775062.
820 7	4922699.	897925.	270555.	96264.	0.	4075616.	544360.	4922699.
820 8	0.	0.	0.	0.	879383.	0.	576661.	0.
820 9	0.	0.	0.	0.	1387981.	0.	1085259.	0.
82010	0.	0.	0.	0.	1558670.	0.	1255947.	0.
82011	0.	0.	0.	0.	1033505.	0.	730782.	0.
82012	0.	0.	0.	0.	1851636.	0.	1548914.	0.
82013	0.	0.	0.	0.	1725235.	0.	1422512.	0.
82014	0.	0.	0.	0.	1687046.	0.	1384324.	0.
82015	0.	0.	0.	0.	1705681.	0.	1402959.	0.
82016	0.	0.	0.	0.	1630507.	0.	1327784.	0.
82017	0.	0.	0.	0.	1463423.	0.	1160700.	0.
82018	0.	0.	0.	0.	493246.	0.	190523.	0.
82019	0.	0.	0.	0.	321140.	0.	18418.	0.
82020	6488580.	1204361.	273323.	96264.	0.	6100000.	85857.	6488580.
82021	6451083.	1195941.	273323.	96264.	0.	6100000.	48360.	6451083.
82022	3914545.	743357.	204145.	96264.	0.	3553600.	58222.	3914545.
82023	348922.	165933.	122609.	96264.	0.	0.	46200.	348922.
82024	302722.	143918.	122012.	96264.	0.	0.	0.	302722.
DAILY SUMMARY (AUG 20)								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	8096428.	1579772.	273323.	96264.	1851636.	6100000.	1693705.	8096428.
SM	67264008.	12878207.	2905905.	1155173.	15737450.	56429216.	19306902.	67264008.
AV	2802667.	536592.	121079.	48132.	655727.	2351217.	804454.	2802667.
MONTHLY SUMMARY (AUG)								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	9967083.	2178282.	273323.	96264.	7281769.	6100000.	6979047.	9967083.
SM	474515584.	96487104.	15792929.	5775866.	291800672.	324342752.	405646880.	474515584.
AV	3954297.	804059.	131608.	48132.	2431672.	2702856.	3380391.	3954297.
YEARLY SUMMARY								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	9967083.	2178282.	273323.	96264.	7281769.	6100000.	6979047.	9967083.
SM	474515584.	96487104.	15792929.	5775866.	291800672.	324342752.	405646880.	474515584.
AV	3954297.	804059.	131608.	48132.	2431672.	2702856.	3380391.	3954297.

ON-peak usage
EXISTING
ECO-10

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE
DEVELOPMENT INC DOE-2.1D 6/13/1996 23: 2:27 PDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
RP_1 = HOURLY-REPORT

MMDDHH	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)
MONTHLY SUMMARY (MAY)				
MN	302722.	142762.	106446.	90465.
MX	6348487.	1259033.	140410.	90465.
SM	392043168.	81851664.	17432774.	11941428.
AV	2970024.	620088.	132066.	90465.
MONTHLY SUMMARY (JUN)				
MN	830509.	372988.	116437.	90465.
MX	7271629.	1508870.	140410.	90465.
SM	1194551552.	232326624.	36807304.	23882852.
AV	4524817.	880025.	139422.	90465.
MONTHLY SUMMARY (JUL)				
MN	1498392.	430245.	133928.	90465.
MX	7050099.	1439969.	140410.	90465.
SM	1191595264.	228574688.	33685284.	21711684.
AV	4964981.	952395.	140355.	90465.
MONTHLY SUMMARY (AUG)				
MN	815628.	371830.	125262.	90465.
MX	7281769.	1503519.	140410.	90465.
SM	1354552192.	262593360.	38698604.	24968436.
AV	4907798.	951425.	140212.	90465.
MONTHLY SUMMARY (SEP)				
MN	355402.	167667.	107591.	90465.
MX	6235474.	1244477.	140410.	90465.
SM	863843136.	175084240.	34185092.	22797268.
AV	3427949.	694779.	135655.	90465.
MONTHLY SUMMARY (OCT)				
MN	357490.	168654.	107636.	90465.
MX	5014499.	925996.	140410.	90465.
SM	179807184.	47664520.	13535717.	9770260.
AV	1664881.	441338.	125331.	90465.

YEARLY SUMMARY

MN	302722.	142762.	106446.	90465.
MX	7281769.	1508870.	140410.	90465.
SM	5176392704.	1028095104.	174344768.	115071920.
AV	4069491.	808251.	137064.	90465.

ECO-10 off-peak usage - EXISTING

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE
DEVELOPMENT INC DOE-2.1D 6/13/1996 23: 8:17 PDL RUN
1
READING, PA 19603 4130.05 FT. MONMOUTH -
MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
RP_1 = HOURLY-REPORT

MMDDHH	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)
MONTHLY SUMMARY (MAY)				
MN	302722.	142762.	106446.	90465.
MX	5349443.	1003488.	140410.	90465.
SM	200589872.	67526648.	29018834.	22797268.
AV	795992.	267963.	115154.	90465.
MONTHLY SUMMARY (JUN)				
MN	302722.	142762.	106446.	90465.
MX	4387579.	852782.	140410.	90465.
SM	799004608.	201826736.	59724352.	41252200.
AV	1752203.	442603.	130974.	90465.
MONTHLY SUMMARY (JUL)				
MN	302722.	142762.	112750.	90465.
MX	4323691.	846269.	140410.	90465.
SM	1085108224.	256997424.	68565728.	45594536.
AV	2152993.	509916.	136043.	90465.
MONTHLY SUMMARY (AUG)				
MN	302722.	142762.	107603.	90465.
MX	4581775.	923984.	140410.	90465.
SM	870181440.	218168096.	62414300.	42337780.
AV	1859362.	466171.	133364.	90465.
MONTHLY SUMMARY (SEP)				
MN	302722.	142762.	106446.	90465.
MX	3330085.	669362.	140410.	90465.
SM	558887744.	166955264.	58979604.	42337784.
AV	1194205.	356742.	126025.	90465.
MONTHLY SUMMARY (OCT)				
MN	302722.	142762.	106446.	90465.
MX	2663557.	566817.	140410.	90465.
SM	112066016.	47640048.	28072178.	22797272.
AV	444706.	189048.	111398.	90465.

YEARLY SUMMARY

MN	302722.	142762.	106446.	90465.
MX	5349443.	1003488.	140410.	90465.
SM	3625837824.	959114240.	306775008.	217116832.
AV	1510766.	399631.	127823.	90465.

ECO-10
CHILLER Proposed
OFF-PEAK USAGE=

ENTECH ENGINEERING — EZDOE - ELITE SOFTWARE DEVELOPMENT INC — DOE-2.1D 6/14/1996 22:50:46. PDL RUN 1
READING, PA 19603 — 4130.05 FT. MONMOUTH - MYER CENTER, NJ — FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
RP_1 = HOURLY-REPORT — PAGE 1- 1

MMDDHH	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)	CTANK-ST ORAGE ENERGY RELEASED BTU/HR ----(1)	CTANK-ST ORAGE ENERGY STORED BTU/HR ----(4)	PLANT SYS COOL LOAD BTU/HR ----(2)	PLANT TOTAL COOLING BTU/HR ----(9)
MONTHLY SUMMARY (MAY)								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	10089978.	2124376.	273323.	96264.	1955849.	6100000.	5046720.	10089978.
SM	656171456.	136216416.	33623428.	18482770.	41366828.	496733568.	124518680.	656171456.
AV	2603855.	540541.	133426.	73344.	164154.	1971165.	494122.	2603855.
MONTHLY SUMMARY (JUN)								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	10003975.	2162982.	273323.	96264.	3572792.	6100000.	4619729.	10003975.
SM	1962902784.	399551264.	78906672.	34655204.	228377680.	1394512768.	658726208.	1962902784.
AV	4304612.	876209.	173041.	75998.	500828.	3058142.	1444575.	4304612.
MONTHLY SUMMARY (JUL)								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	9859441.	2119222.	273323.	96264.	3674340.	6100000.	4080833.	9859441.
SM	2315854336.	469431840.	87182632.	35810376.	363932832.	1592337536.	934877056.	2315854336.
AV	4594949.	931412.	172981.	71052.	722089.	3159400.	1854915.	4594949.
MONTHLY SUMMARY (AUG)								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	9967083.	2178282.	273323.	96264.	3652677.	6100000.	4592566.	9967083.
SM	2195670528.	449867264.	84663120.	35810376.	191632736.	1514996352.	730578496.	2195670528.
AV	4691604.	961255.	180904.	76518.	409472.	3237172.	1561065.	4691604.
MONTHLY SUMMARY (SEP)								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	9191487.	1906205.	273323.	96264.	3143705.	6100000.	3688951.	9191487.
SM	1444583552.	299871680.	69593840.	34655204.	194722208.	1079039488.	418591904.	1444583552.
AV	3086717.	640751.	148705.	74050.	416073.	2305640.	894427.	3086717.
MONTHLY SUMMARY (OCT)								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	6916221.	1285772.	273323.	96264.	2663557.	6100000.	2360835.	6916221.
SM	302243744.	69409032.	24934110.	17327596.	45631888.	236072096.	35517524.	302243744.
AV	1199380.	275433.	98945.	68760.	181079.	936794.	140943.	1199380.
YEARLY SUMMARY								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	10089978.	2178282.	273323.	96264.	3674340.	6100000.	5046720.	10089978.
SM	8877425664.	1824347392.	378903840.	176741536.	1065664128.	6313691648.	2902809856.	8877425664.
AV	3698927.	760145.	157877.	73642.	444027.	2630705.	1209504.	3698927.

ECO-41

EQUIPMENT	AVG OPER RATIO	MAX LOAD (MBTU)	MON DAY HR	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS	SIZE (MBTU)	OPER HRS
HW-BOILER	0.147	4.712	2 20 3	4.712	5088								
HERM-CENT-CHLR	0.398	11.449	5 16 2	8.300	2680								
COOLING-TWR	0.302	13.624	5 16 2	5.063	7087								
CTANK-STORAGE	0.752	3.700	10 14 16	44.000	1836								

Hourly Profile
ECO-11-

	HERM-CEN T-CHLR LOAD BTU/HR	HERM-CEN T-CHLR ELECTRIC USE BTU/HR	COOLING-TWR FAN ELEC BTU/HR	COOLING-TWR PUMP ELEC BTU/HR	CTANK-ST ORAGE ENERGY RELEASED BTU/HR	CTANK-ST ORAGE ENERGY STORED BTU/HR	PLANT SYS COOL LOAD BTU/HR	PLANT TOTAL COOLING BTU/HR
	----(1)	----(3)	----(20)	----(21)	----(1)	----(4)	----(2)	----(9)
817 1	8604961.	1746886.	273323.	96264.	0.	6100000.	2202239.	8604961.
817 2	8334408.	1677937.	273323.	96264.	0.	6100000.	1931685.	8334408.
817 3	3431654.	699418.	190706.	96264.	0.	1309248.	1819684.	3431654.
817 4	1963390.	516442.	129866.	96264.	0.	0.	1660668.	1963390.
817 5	1897030.	506345.	129413.	96264.	0.	0.	1594308.	1897030.
817 6	2712147.	598404.	134175.	96264.	0.	0.	2409424.	2712147.
817 7	4382274.	835591.	196199.	96264.	0.	0.	4079552.	4382274.
817 8	1524305.	489328.	123001.	96264.	3700000.	0.	4921582.	1524305.
817 9	2084334.	552305.	126479.	96264.	3700000.	0.	5481611.	2084334.
81710	2305673.	581841.	129642.	96264.	3700000.	0.	5702950.	2305673.
81711	2704204.	623467.	130526.	96264.	3700000.	0.	6101481.	2704204.
81712	2958178.	665086.	131350.	96264.	3700000.	0.	6355456.	2958178.
81713	3064645.	684241.	132624.	96264.	3700000.	0.	6461923.	3064645.
81714	3057686.	678704.	131905.	96264.	3700000.	0.	6454963.	3057686.
81715	2689315.	633799.	130502.	96264.	3700000.	0.	6086592.	2689315.
81716	1730626.	517093.	124716.	96264.	3700000.	0.	5127904.	1730626.
81717	1517008.	491757.	122012.	96264.	3700000.	0.	4914286.	1517008.
81718	1095852.	454859.	118174.	96264.	3700000.	0.	4493130.	1095852.
81719	612431.	317287.	114473.	96264.	3273472.	0.	3583180.	612431.
81720	9720236.	2050749.	273323.	96264.	0.	6100000.	3317514.	9720236.
81721	9415574.	1978712.	273323.	96264.	0.	6100000.	3012852.	9415574.
81722	9143795.	1893147.	273323.	96264.	0.	6100000.	2741072.	9143795.
81723	8946748.	1830261.	273323.	96264.	0.	6100000.	2544025.	8946748.
81724	8767966.	1782318.	273323.	96264.	0.	6100000.	2365244.	8767966.
DAILY SUMMARY (AUG 17)								
MN	612431.	317287.	114473.	96264.	0.	0.	1594308.	612431.
MX	9720236.	2050749.	273323.	96264.	3700000.	6100000.	6461923.	9720236.
SM	102664432.	22805980.	4209023.	2310346.	43973472.	44009248.	95363320.	102664432.
AV	4277685.	950249.	175376.	96264.	1832228.	1833719.	3973472.	4277685.

	HERM-CEN T-CHLR LOAD BTU/HR	HERM-CEN T-CHLR ELECTRIC USE BTU/HR	COOLING-TWR FAN ELEC BTU/HR	COOLING-TWR PUMP ELEC BTU/HR	CTANK-ST ORAGE ENERGY RELEASED BTU/HR	CTANK-ST ORAGE ENERGY STORED BTU/HR	PLANT SYS COOL LOAD BTU/HR	PLANT TOTAL COOLING BTU/HR
	----(1)	----(3)	----(20)	----(21)	----(1)	----(4)	----(2)	----(9)
818 1	8636384.	1747349.	273323.	96264.	0.	6100000.	2233661.	8636384.
818 2	8434174.	1695263.	273323.	96264.	0.	6100000.	2031452.	8434174.
818 3	3547694.	712602.	193209.	96264.	0.	1310064.	1934908.	3547694.
818 4	2064430.	524006.	131377.	96264.	0.	0.	1761707.	2064430.
818 5	1877811.	501406.	131123.	96264.	0.	0.	1575088.	1877811.
818 6	2772317.	599129.	135208.	96264.	0.	0.	2469595.	2772317.
818 7	4335458.	823574.	198238.	96264.	0.	0.	4032736.	4335458.
818 8	1556840.	486717.	124188.	96264.	3700000.	0.	4954118.	1556840.
818 9	2108053.	551507.	128301.	96264.	3700000.	0.	5505331.	2108053.
81810	2518376.	600111.	130143.	96264.	3700000.	0.	5915653.	2518376.
81811	2901525.	653210.	131688.	96264.	3700000.	0.	6298802.	2901525.
81812	2980344.	668098.	132830.	96264.	3700000.	0.	6377622.	2980344.
81813	3379866.	719375.	134816.	96264.	3700000.	0.	6777144.	3379866.
81814	3581769.	748129.	134542.	96264.	3700000.	0.	6979047.	3581769.
81815	3246937.	710006.	131129.	96264.	3700000.	0.	6644215.	3246937.
81816	2240300.	591015.	124679.	96264.	3700000.	0.	5637577.	2240300.
81817	1973811.	559647.	122589.	96264.	3700000.	0.	5371089.	1973811.
81818	1461631.	504285.	118057.	96264.	3700000.	0.	4858909.	1461631.
81819	1310031.	488012.	116561.	96264.	3271744.	0.	4279052.	1310031.
81820	10349036.	2085808.	273323.	192529.	0.	6100000.	3946313.	10349036.
81821	10132552.	2042872.	273323.	192529.	0.	6100000.	3729829.	10132552.
81822	9917701.	2001510.	273323.	192529.	0.	6100000.	3514978.	9917701.
81823	9715632.	2127740.	273323.	96264.	0.	6100000.	3312910.	9715632.
81824	9510250.	2062854.	273323.	96264.	0.	6100000.	3107528.	9510250.
DAILY SUMMARY (AUG 18)								
MN	1310031.	486717.	116561.	96264.	0.	0.	1575088.	1310031.
MX	10349036.	2127740.	273323.	192529.	3700000.	6100000.	6979047.	10349036.
SM	110552920.	24204222.	4231939.	2599139.	43971744.	44010064.	103249272.	110552920.
AV	4606372.	1008509.	176331.	108297.	1832156.	1833753.	4302053.	4606372.

	HERM-CEN T-CHLR LOAD BTU/HR	HERM-CEN T-CHLR ELECTRIC USE BTU/HR	COOLING-TWR FAN ELEC BTU/HR	COOLING-TWR PUMP ELEC BTU/HR	CTANK-ST ORAGE ENERGY RELEASED BTU/HR	CTANK-ST ORAGE ENERGY STORED BTU/HR	PLANT SYS COOL LOAD BTU/HR	PLANT TOTAL COOLING BTU/HR
	----(1)	----(3)	----(20)	----(21)	----(1)	----(4)	----(2)	----(9)
819 1	9253977.	1988647.	273323.	96264.	0.	6100000.	2851255.	9253977.
819 2	9131609.	1940816.	273323.	96264.	0.	6100000.	2728887.	9131609.
819 3	4136370.	834952.	190861.	96264.	0.	1311616.	2522031.	4136370.
819 4	2751367.	628152.	130092.	96264.	0.	0.	2448645.	2751367.
819 5	2710398.	622943.	129844.	96264.	0.	0.	2407676.	2710398.
819 6	3472536.	726455.	133998.	96264.	0.	0.	3169813.	3472536.
819 7	4895288.	957644.	196895.	96264.	0.	0.	4592566.	4895288.
819 8	1913660.	540565.	125266.	96264.	3700000.	0.	5310938.	1913660.
819 9	2422802.	596014.	128818.	96264.	3700000.	0.	5820079.	2422802.
81910	2508665.	606618.	130125.	96264.	3700000.	0.	5905942.	2508665.
81911	2679204.	624143.	130397.	96264.	3700000.	0.	6076482.	2679204.
81912	2827596.	647588.	131290.	96264.	3700000.	0.	6224874.	2827596.
81913	3186882.	696752.	131973.	96264.	3700000.	0.	6584160.	3186882.
81914	3012683.	681800.	131702.	96264.	3700000.	0.	6409960.	3012683.
81915	2610945.	623708.	130027.	96264.	3700000.	0.	6008223.	2610945.
81916	1613110.	504844.	122850.	96264.	3700000.	0.	5010388.	1613110.
81917	1222273.	466486.	118388.	96264.	3700000.	0.	4619550.	1222273.
81918	753642.	394563.	115478.	96264.	3700000.	0.	4150920.	753642.
81919	581505.	299114.	112712.	96264.	3272480.	0.	3551262.	581505.
81920	9672672.	2049826.	273323.	96264.	0.	6100000.	3269949.	9672672.
81921	9353499.	1951686.	273323.	96264.	0.	6100000.	2950777.	9353499.
81922	9099245.	1863682.	273323.	96264.	0.	6100000.	2696522.	9099245.
81923	8820708.	1781487.	273323.	96264.	0.	6100000.	2417985.	8820708.
81924	8553722.	1705005.	273323.	96264.	0.	6100000.	2151000.	8553722.
DAILY SUMMARY (AUG 19)								
MN	581505.	299114.	112712.	96264.	0.	0.	2151000.	581505.
MX	9672672.	2049826.	273323.	96264.	3700000.	6100000.	6584160.	9672672.
SM	107184344.	23733492.	4203975.	2310346.	43972480.	44011616.	99879880.	107184344.
AV	4466015.	988896.	175166.	96264.	1832187.	1833817.	4161662.	4466015.

	HERM-CEN T-CHLR LOAD BTU/HR	HERM-CEN T-CHLR ELECTRIC USE BTU/HR	COOLING-TWR FAN ELEC BTU/HR	COOLING-TWR PUMP ELEC BTU/HR	CTANK-ST ORAGE ENERGY RELEASED BTU/HR	CTANK-ST ORAGE ENERGY STORED BTU/HR	PLANT SYS COOL LOAD BTU/HR	PLANT TOTAL COOLING BTU/HR
	----(1)	----(3)	----(20)	----(21)	----(1)	----(4)	----(2)	----(9)
820 1	8096428.	1579772.	273323.	96264.	0.	6100000.	1693705.	8096428.
820 2	7758868.	1484915.	273323.	96264.	0.	6100000.	1356146.	7758868.
820 3	3220147.	645250.	200639.	96264.	0.	1309968.	1607456.	3220147.
820 4	1121888.	417839.	129259.	96264.	0.	0.	819166.	1121888.
820 5	873031.	396212.	127424.	96264.	0.	0.	570308.	873031.
820 6	675061.	319185.	125392.	96264.	0.	0.	372339.	675061.
820 7	847083.	394195.	129385.	96264.	0.	0.	544360.	847083.
820 8	0.	0.	0.	0.	879383.	0.	576661.	0.
820 9	0.	0.	0.	0.	1387981.	0.	1085259.	0.
82010	0.	0.	0.	0.	1558670.	0.	1255947.	0.
82011	0.	0.	0.	0.	1033505.	0.	730782.	0.
82012	0.	0.	0.	0.	1851636.	0.	1548914.	0.
82013	0.	0.	0.	0.	1725235.	0.	1422512.	0.
82014	0.	0.	0.	0.	1687046.	0.	1384324.	0.
82015	0.	0.	0.	0.	1705681.	0.	1402959.	0.
82016	0.	0.	0.	0.	1630507.	0.	1327784.	0.
82017	0.	0.	0.	0.	1463423.	0.	1160700.	0.
82018	0.	0.	0.	0.	493246.	0.	190523.	0.
82019	0.	0.	0.	0.	321140.	0.	18418.	0.
82020	6488580.	1204361.	273323.	96264.	0.	6100000.	85857.	6488580.
82021	6451083.	1195941.	273323.	96264.	0.	6100000.	48360.	6451083.
82022	3918737.	743976.	204172.	96264.	0.	3557792.	58222.	3918737.
82023	348922.	165933.	122609.	96264.	0.	0.	46200.	348922.
82024	302722.	143918.	122012.	96264.	0.	0.	0.	302722.
DAILY SUMMARY (AUG 20)								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	8096428.	1579772.	273323.	96264.	1851636.	6100000.	1693705.	8096428.
SM	40102552.	8691497.	2254184.	1155173.	15737450.	29267760.	19306902.	40102552.
AV	1670940.	362146.	93924.	48132.	655727.	1219490.	804454.	1670940.
MONTHLY SUMMARY (AUG)								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	10349036.	2127740.	273323.	192529.	3700000.	6100000.	6979047.	10349036.
SM	455650208.	100587112.	19114532.	10685350.	191631328.	205307968.	405646880.	455650208.
AV	3797085.	838226.	159288.	89045.	1596928.	1710900.	3380391.	3797085.
YEARLY SUMMARY								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	10349036.	2127740.	273323.	192529.	3700000.	6100000.	6979047.	10349036.
SM	455650208.	100587112.	19114532.	10685350.	191631328.	205307968.	405646880.	455650208.
AV	3797085.	838226.	159288.	89045.	1596928.	1710900.	3380391.	3797085.

ECO-11
ON-PEAK

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/15/1996 1:24:15 PDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
RP_1 = HOURLY-REPORT PAGE 1- 1

MMDDHH	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)	CTANK-ST ORAGE ENERGY RELEASED BTU/HR ----(1)	CTANK-ST ORAGE ENERGY STORED BTU/HR ----(4)	PLANT SYS COOL LOAD BTU/HR ----(2)	PLANT TOTAL COOLING BTU/HR ----(9)
MONTHLY SUMMARY (MAY)								
MN	0.	0.	0.	0.	302722.	0.	0.	0.
MX	2648487.	616376.	135088.	96264.	3700000.	0.	6045765.	2648487.
SM	52971264.	18375018.	6362738.	5005751.	338857088.	0.	351868960.	52971264.
AV	401297.	139205.	48203.	37922.	2567099.	0.	2665674.	401297.
MONTHLY SUMMARY (JUN)								
MN	0.	0.	0.	0.	1114873.	0.	812151.	0.
MX	3571629.	751448.	134514.	96264.	3700000.	0.	6968906.	3571629.
SM	282317312.	86843608.	24336650.	18771562.	914471296.	0.	1116869888.	282317312.
AV	1069384.	328953.	92184.	71104.	3463907.	0.	4230568.	1069384.
MONTHLY SUMMARY (JUL)								
MN	0.	0.	0.	0.	2356196.	0.	2053473.	0.
MX	3350099.	715213.	135483.	96264.	3700000.	0.	6747377.	3350099.
SM	316338784.	97399040.	27898160.	21274440.	872915456.	0.	1116600832.	316338784.
AV	1318078.	405829.	116242.	88644.	3637148.	0.	4652504.	1318078.
MONTHLY SUMMARY (AUG)								
MN	0.	0.	0.	0.	1092452.	0.	789730.	0.
MX	3581769.	748129.	135909.	96264.	3700000.	0.	6979047.	3581769.
SM	366838848.	109692824.	30728180.	23488520.	985642496.	0.	1268929792.	366838848.
AV	1329126.	397438.	111334.	85103.	3571169.	0.	4597572.	1329126.
MONTHLY SUMMARY (SEP)								
MN	0.	0.	0.	0.	483018.	0.	180296.	0.
MX	2535474.	609965.	134598.	96264.	3700000.	0.	5932752.	2535474.
SM	121760576.	41834348.	14530494.	11455467.	740704128.	0.	786178688.	121760576.
AV	483177.	166009.	57661.	45458.	2939302.	0.	3119757.	483177.
MONTHLY SUMMARY (OCT)								
MN	0.	0.	0.	0.	302722.	0.	0.	0.
MX	1314499.	447063.	132330.	96264.	3700000.	0.	4711777.	1314499.
SM	4782947.	1908980.	864847.	673851.	175286672.	0.	147375584.	4782947.
AV	44287.	17676.	8008.	6239.	1623025.	0.	1364589.	44287.
YEARLY SUMMARY								
MN	0.	0.	0.	0.	302722.	0.	0.	0.
MX	3581769.	751448.	135909.	96264.	3700000.	0.	6979047.	3581769.
SM	1145009792.	356053824.	104721072.	80669584.	4027877376.	0.	4787823616.	1145009792.
AV	900165.	279917.	82328.	63419.	3166570.	0.	3764012.	900165.

ECO-11
OFF-PEAK

ENTECH ENGINEERING — EZDOE - ELITE SOFTWARE DEVELOPMENT INC — DOE-2.1D 6/15/1996 1:20: 2 PDL RUN 1
READING, PA 19603 — 4130.05 FT. MONMOUTH - MYER CENTER, NJ — FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
RP_1 = HOURLY-REPORT — PAGE 1- 1

MMDDHH	HERM-CEN T-CHLR LOAD BTU/HR ----(1)	HERM-CEN T-CHLR ELECTRIC USE BTU/HR ----(3)	COOLING-TWR FAN ELEC BTU/HR ----(20)	COOLING-TWR PUMP ELEC BTU/HR ----(21)	CTANK-ST ORAGE ENERGY RELEASED BTU/HR ----(1)	CTANK-ST ORAGE ENERGY STORED BTU/HR ----(4)	PLANT SYS COOL LOAD BTU/HR ----(2)	PLANT TOTAL COOLING BTU/HR ----(9)
MONTHLY SUMMARY (MAY)								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	11449442.	2174647.	273323.	192529.	1955849.	6100000.	5046720.	11449442.
SM	575690880.	121960280.	31619334.	18675298.	41366828.	416252896.	124518680.	575690880.
AV	2284488.	483969.	125474.	74108.	164154.	1651797.	494122.	2284488.
MONTHLY SUMMARY (JUN)								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	10062979.	2149821.	273323.	192529.	3572792.	6100000.	4619729.	10062979.
SM	1704813056.	354296640.	72701424.	34751468.	228377680.	1136423424.	658726208.	1704813056.
AV	3738625.	776966.	159433.	76209.	500828.	2492157.	1444575.	3738625.
MONTHLY SUMMARY (JUL)								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	9859441.	2116499.	273323.	96264.	3674340.	6100000.	4080833.	9859441.
SM	1973575936.	411029024.	78867176.	35810376.	363932832.	1250059520.	934877056.	1973575936.
AV	3915825.	815534.	156482.	71052.	722089.	2480277.	1854915.	3915825.
MONTHLY SUMMARY (AUG)								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	10349036.	2127740.	273323.	192529.	3652677.	6100000.	4592566.	10349036.
SM	1846620544.	387588928.	76387736.	36099168.	191632736.	1166000640.	730578496.	1846620544.
AV	3945771.	828182.	163222.	77135.	409472.	2491454.	1561065.	3945771.
MONTHLY SUMMARY (SEP)								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	9191487.	1893722.	273323.	96264.	3143705.	6100000.	3688951.	9191487.
SM	1309061632.	276886496.	66190880.	34655204.	194722208.	943517568.	418591904.	1309061632.
AV	2797140.	591638.	141434.	74050.	416073.	2016063.	894427.	2797140.
MONTHLY SUMMARY (OCT)								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	6916221.	1285772.	273323.	96264.	2663557.	6100000.	2360835.	6916221.
SM	293388768.	68229096.	24710630.	17327596.	45631888.	227217088.	35517524.	293388768.
AV	1164241.	270750.	98058.	68760.	181079.	901655.	140943.	1164241.
YEARLY SUMMARY								
MN	0.	0.	0.	0.	0.	0.	0.	0.
MX	11449442.	2174647.	273323.	192529.	3674340.	6100000.	5046720.	11449442.
SM	7703150592.	1619990528.	350477184.	177319120.	1065664128.	5139470848.	2902809856.	7703150592.
AV	3209646.	674996.	146032.	73883.	444027.	2141446.	1209504.	3209646.

ECO-12

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/18/1996 20:50: 7 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOACO - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

MONTH	ELECTRIC UNIT= 3413.00	FUEL-OIL UNIT= 138690.00
JAN		
ENERGY CONSUMPTION (UNIT/MO)	492409.	9619.
PEAK DEMAND (UNIT/HR)	1462.	37.
TOTAL COST ($)	50385.11	5675.37
FEB		
ENERGY CONSUMPTION (UNIT/MO)	443235.	7702.
PEAK DEMAND (UNIT/HR)	1462.	41.
TOTAL COST ($)	46606.48	4543.95
MAR		
ENERGY CONSUMPTION (UNIT/MO)	507936.	5389.
PEAK DEMAND (UNIT/HR)	1460.	24.
TOTAL COST ($)	51708.00	3179.24
APR		
ENERGY CONSUMPTION (UNIT/MO)	471645.	1667.
PEAK DEMAND (UNIT/HR)	1450.	19.
TOTAL COST ($)	48771.78	983.57
MAY		
ENERGY CONSUMPTION (UNIT/MO)	569655.	209.
PEAK DEMAND (UNIT/HR)	1922.	4.
TOTAL COST ($)	60200.39	123.51
JUN		
ENERGY CONSUMPTION (UNIT/MO)	700313.	0.
PEAK DEMAND (UNIT/HR)	1992.	0.
TOTAL COST ($)	72612.47	0.00
JUL		
ENERGY CONSUMPTION (UNIT/MO)	706960.	0.
PEAK DEMAND (UNIT/HR)	1987.	0.
TOTAL COST ($)	72770.63	0.00
AUG		
ENERGY CONSUMPTION (UNIT/MO)	736229.	0.
PEAK DEMAND (UNIT/HR)	1989.	0.
TOTAL COST ($)	75364.64	0.00
SEP		
ENERGY CONSUMPTION (UNIT/MO)	661987.	0.
PEAK DEMAND (UNIT/HR)	1929.	0.
TOTAL COST ($)	68992.77	0.00
OCT		
ENERGY CONSUMPTION (UNIT/MO)	540086.	323.
PEAK DEMAND (UNIT/HR)	1831.	9.
TOTAL COST ($)	57068.06	190.39
NOV		
ENERGY CONSUMPTION (UNIT/MO)	465371.	3663.
PEAK DEMAND (UNIT/HR)	1459.	23.
TOTAL COST ($)	48288.68	2160.91
DEC		
ENERGY CONSUMPTION (UNIT/MO)	491305.	8407.
PEAK DEMAND (UNIT/HR)	1462.	28.
TOTAL COST ($)	50302.42	4960.15
TOTAL		
ENERGY CONSUMPTION (UNIT/YR)	6787130.	36978.
PEAK DEMAND (UNIT/HR)	1992.	41.
TOTAL COST ($)	703071.44	21817.08

VARIABLE PUMPING

EXISTING CONDITIONS

REPORT- BS-E SUMMARY OF ELECTRICITY CHARGES

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
JAN								
	4OFFPKKWH	492	193243.	13894.16	787.	787.	0.00	
	EONPKDMHTG	252	299165.	0.00	1462.	1462.	12527.85	
	EONPKKWH	252	299165.	23963.10	1462.	1462.	0.00	
								50385.11
FEB								
	4OFFPKKWH	444	173699.	12488.97	787.	787.	0.00	
	EONPKDMHTG	228	269534.	0.00	1462.	1462.	12527.85	
	EONPKKWH	228	269534.	21589.66	1462.	1462.	0.00	
								46606.48
MAR								
	4OFFPKKWH	468	182063.	13090.36	787.	787.	0.00	
	EONPKDMHTG	276	325872.	0.00	1460.	1460.	12515.29	
	EONPKKWH	276	325872.	26102.35	1460.	1460.	0.00	
								51708.00
APR								
	4OFFPKKWH	468	174886.	12574.32	787.	787.	0.00	
	EONPKDMHTG	252	296759.	0.00	1450.	1450.	12427.03	
	EONPKKWH	252	296759.	23770.44	1450.	1450.	0.00	
								48771.78
MAY								
	4OFFPKKWH	492	231908.	16674.15	1058.	1058.	0.00	
	EONPKDMHTG	252	337747.	0.00	1922.	1922.	16472.73	
	EONPKKWH	252	337747.	27053.51	1922.	1922.	0.00	
								60200.39
JUN								
	4OFFPKKWH	456	286599.	20606.45	1092.	1092.	0.00	
	EONPKDMCL	264	413713.	0.00	1992.	1992.	18867.59	
	EONPKKWH	264	413713.	33138.43	1992.	1992.	0.00	
								72612.47
JUL								
	4OFFPKKWH	504	325704.	23418.14	1076.	1076.	0.00	
	EONPKDMCL	240	381256.	0.00	1987.	1987.	18813.90	
	EONPKKWH	240	381256.	30538.59	1987.	1987.	0.00	
								72770.63
AUG								
	4OFFPKKWH	468	297876.	21417.29	1099.	1099.	0.00	
	EONPKDMCL	276	438353.	0.00	1989.	1989.	18835.25	
	EONPKKWH	276	438353.	35112.10	1989.	1989.	0.00	
								75364.64
SEP								
	4OFFPKKWH	468	281033.	20206.26	1069.	1069.	0.00	
	EONPKDMCL	252	380955.	0.00	1929.	1929.	18272.00	
	EONPKKWH	252	380955.	30514.52	1929.	1929.	0.00	
								68992.77
OCT								
	4OFFPKKWH	504	229810.	16523.32	965.	965.	0.00	
	EONPKDMHTG	240	310278.	0.00	1831.	1831.	15691.49	
	EONPKKWH	240	310278.	24853.25	1831.	1831.	0.00	
								57068.06

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

CONTINUED

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
NOV								
	4OFFPKKWH	480	182353.	13111.20	787.	787.	0.00	
	EONPKDMHTG	240	283017.	0.00	1459.	1459.	12507.81	
	EONPKKWH	240	283017.	22669.67	1459.	1459.	0.00	
								48288.68
DEC								
	4OFFPKKWH	492	192529.	13842.83	787.	787.	0.00	
	EONPKDMHTG	252	298773.	0.00	1462.	1462.	12527.85	
	EONPKKWH	252	298773.	23931.73	1462.	1462.	0.00	
								50302.42
TOTAL			6787130.	521084.78			181986.66	703071.44

Variable speed on chilled water

ECO-12

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/18/1996 10:22:31 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOAC0 - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-D SUMMARY OF FUEL AND UTILITY USE AND COSTS

MONTH	ELECTRIC UNIT= 3413.00	FUEL-OIL UNIT= 138690.00
JAN		
ENERGY CONSUMPTION (UNIT/MO)	492409.	9619.
PEAK DEMAND (UNIT/HR)	1462.	37.
TOTAL COST ($)	50385.11	5675.37
FEB		
ENERGY CONSUMPTION (UNIT/MO)	443235.	7702.
PEAK DEMAND (UNIT/HR)	1462.	41.
TOTAL COST ($)	46606.48	4543.95
MAR		
ENERGY CONSUMPTION (UNIT/MO)	507936.	5389.
PEAK DEMAND (UNIT/HR)	1460.	24.
TOTAL COST ($)	51708.00	3179.24
APR		
ENERGY CONSUMPTION (UNIT/MO)	471645.	1667.
PEAK DEMAND (UNIT/HR)	1450.	19.
TOTAL COST ($)	48771.78	983.57
MAY		
ENERGY CONSUMPTION (UNIT/MO)	549054.	209.
PEAK DEMAND (UNIT/HR)	1907.	4.
TOTAL COST ($)	58547.22	123.51
JUN		
ENERGY CONSUMPTION (UNIT/MO)	668670.	0.
PEAK DEMAND (UNIT/HR)	1988.	0.
TOTAL COST ($)	70228.48	0.00
JUL		
ENERGY CONSUMPTION (UNIT/MO)	676374.	0.
PEAK DEMAND (UNIT/HR)	1983.	0.
TOTAL COST ($)	70481.09	0.00
AUG		
ENERGY CONSUMPTION (UNIT/MO)	705402.	0.
PEAK DEMAND (UNIT/HR)	1986.	0.
TOTAL COST ($)	73053.52	0.00
SEP		
ENERGY CONSUMPTION (UNIT/MO)	626595.	0.
PEAK DEMAND (UNIT/HR)	1915.	0.
TOTAL COST ($)	66227.12	0.00
OCT		
ENERGY CONSUMPTION (UNIT/MO)	518685.	323.
PEAK DEMAND (UNIT/HR)	1801.	9.
TOTAL COST ($)	55224.77	190.39
NOV		
ENERGY CONSUMPTION (UNIT/MO)	465371.	3663.
PEAK DEMAND (UNIT/HR)	1459.	23.
TOTAL COST ($)	48288.68	2160.91
DEC		
ENERGY CONSUMPTION (UNIT/MO)	491305.	8407.
PEAK DEMAND (UNIT/HR)	1462.	28.
TOTAL COST ($)	50302.42	4960.15
TOTAL		
ENERGY CONSUMPTION (UNIT/YR)	6616680.	36978.
PEAK DEMAND (UNIT/HR)	1988.	41.
TOTAL COST ($)	689824.69	21817.08

VARIABLE PUMPING
PROPOSED CONDITIONS

ENTECH ENGINEERING EZDOE - ELITE SOFTWARE DEVELOPMENT INC DOE-2.1D 6/18/1996 10:22:31 EDL RUN 1
READING, PA 19603 4130.05 FT. MONMOUTH - MYER CENTER, NJ FTMOACO - SIM MCA H20 ONLY W/OA SCHD1
REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
JAN								
	4OFFPKKWH	492	193243.	13894.16	787.	787.	0.00	
	EONPKDMHTG	252	299165.	0.00	1462.	1462.	12527.85	
	EONPKKWH	252	299165.	23963.10	1462.	1462.	0.00	
								50385.11
FEB								
	4OFFPKKWH	444	173699.	12488.97	787.	787.	0.00	
	EONPKDMHTG	228	269534.	0.00	1462.	1462.	12527.85	
	EONPKKWH	228	269534.	21589.66	1462.	1462.	0.00	
								46606.48
MAR								
	4OFFPKKWH	468	182063.	13090.36	787.	787.	0.00	
	EONPKDMHTG	276	325872.	0.00	1460.	1460.	12515.29	
	EONPKKWH	276	325872.	26102.35	1460.	1460.	0.00	
								51708.00
APR								
	4OFFPKKWH	468	174886.	12574.32	787.	787.	0.00	
	EONPKDMHTG	252	296759.	0.00	1450.	1450.	12427.03	
	EONPKKWH	252	296759.	23770.44	1450.	1450.	0.00	
								48771.78
MAY								
	4OFFPKKWH	492	216930.	15597.26	1014.	1014.	0.00	
	EONPKDMHTG	252	332124.	0.00	1907.	1907.	16346.86	
	EONPKKWH	252	332124.	26603.10	1907.	1907.	0.00	
								58547.22
JUN								
	4OFFPKKWH	456	263536.	18948.23	1047.	1047.	0.00	
	EONPKDMCL	264	405134.	0.00	1988.	1988.	18829.02	
	EONPKKWH	264	405134.	32451.24	1988.	1988.	0.00	
								70228.48
JUL								
	4OFFPKKWH	504	302262.	21732.64	1032.	1032.	0.00	
	EONPKDMCL	240	374111.	0.00	1983.	1983.	18782.13	
	EONPKKWH	240	374111.	29966.33	1983.	1983.	0.00	
								70481.09
AUG								
	4OFFPKKWH	468	275198.	19786.74	1054.	1054.	0.00	
	EONPKDMCL	276	430204.	0.00	1986.	1986.	18807.44	
	EONPKKWH	276	430204.	34459.33	1986.	1986.	0.00	
								73053.52
SEP								
	4OFFPKKWH	468	255721.	18386.33	1025.	1025.	0.00	
	EONPKDMCL	252	370874.	0.00	1915.	1915.	18133.75	
	EONPKKWH	252	370874.	29707.04	1915.	1915.	0.00	
								66227.12
OCT								
	4OFFPKKWH	504	213724.	15366.73	900.	900.	0.00	
	EONPKDMHTG	240	304963.	0.00	1801.	1801.	15430.54	
	EONPKKWH	240	304963.	24427.50	1801.	1801.	0.00	
								55224.77

REPORT- ES-E SUMMARY OF ELECTRICITY CHARGES

CONTINUED

MONTH	CHARGE-ASSIGNMENT (U-NAME)	LENGTH (HR/MO)	CONSUMPTION BY C-A (KWH)	ENERGY CHARGE ($)	MEASURED DEMAND (KW)	BILLING DEMAND (KW)	DEMAND CHARGE ($)	TOTAL CHARGES ($)
NOV								
	4OFFPKKWH	480	182353.	13111.20	787.	787.	0.00	
	EONPKDMHTG	240	283017.	0.00	1459.	1459.	12507.81	
	EONPKKWH	240	283017.	22669.67	1459.	1459.	0.00	
								48288.68
DEC								
	4OFFPKKWH	492	192529.	13842.83	787.	787.	0.00	
	EONPKDMHTG	252	298773.	0.00	1462.	1462.	12527.85	
	EONPKKWH	252	298773.	23931.73	1462.	1462.	0.00	
								50302.42
TOTAL			6616680.	508461.22			181363.42	689824.69

Attachment 8.13

Scope of Study

Entech Engineering, Inc.

Consulting Engineers

Principals
Daniel J. Castellani, PE
Thomas M. McManon, PE
William M. McManon Jr., PE

ENTECH

September 27, 1995

Entech #4130.05

Director of Public Works
ATTN: SELF-PW-E (Mr. Dooney)
Building 167 Riverside Avenue
Fort Monmouth, New Jersey 07703-5108

Re: Indefinite Delivery-Type Contract No. DACA01-94-D-0037
Limited Energy Study, Myer Center, Ft. Monmouth, N.J.

Dear Mr. Dooney:

As requested at our meeting on August 8, 1995, we are furnishing additional scope definitions for the Myer Center energy study. During our discussions you requested that the energy study not address just the steam system but also other major HVAC systems in the building. This concern was further substantiated by the project currently out for bidding to provide new hot water boilers to feed the two-pipe fan coil system. This project greatly reduces the need for steam to just a few users. In summary, Ft. Monmouth is already taking steps to replace the major steam load in Building 2700 and thus leaves limited options for additional energy savings. Future energy and conservation may, therefore, be more readily achievable via modifications/upgrades to other major HVAC systems.

In order to better accommodate your needs, we offer the following preliminary list of Energy Conservation Opportunities (ECOs) which could be considered and of which include other major HVAC systems serving Building 2700. We believe these ECOs would not only met your request, but also be possible within the current authorized contract fee. Please review the following list and forward your comments as soon as possible so that Entech may proceed without any schedule modifications.

ECO List

- Steam to Hot Water Heating Conversion
- Decentralize Steam Distribution System
- Direct Fired Domestic Hot Water Generator
- Decentralize Domestic Hot Water Distribution System
- Convert Steam Source HVAC Equipment to Hot Water

ENTECH

4 South Fourth Street
P O. Box 32
Reading
Pennsylvania 19603

Office 610.373.6667

Fax 610.373.7537

- Occupied/Unoccupied Cycle Controls for HVAC Systems
- Cooling Tower Optimization
- Thermal Storage for Chilled Water System
- Efficient Chillers
- Convert Chilled Water System to Variable Flow Primary/Secondary System
- Automated Outside Air Reset Control for Hot Water Distribution Temperature Control
- Replace Domestic Hot Water Recirculation Pumps

I have discussed this change with Mr. James Kendall in Norfolk and he agrees with the revision to the project scope. A copy of our telephone conversation is attached for your records.

Should you have any questions or wish to discuss the preceding information, please do not hesitate to call. In addition, please find, attached, a project schedule for review and comment.

Sincerely,

Edward L. Caulkins, P.E.
Project Manager

cc: Mr. James Kendall
Mr. Charles Konig
Mr. Battaglia
Mr. Kapur
Mr. William McMahon

G:\PROJECTS\4130.05\WP\DOONEY.L01

ENTECH ENGINEERING INC.
TELEPHONE AND CONFERENCE MEMORANDUM

DATE: 9-20-95

BY: Ed Caulkins

PROJECT NO.: 4130.05

PERSON(S): Jim Kendall

TELEPHONE NO: 804-441-7403

REPRESENTING: Norfolk District

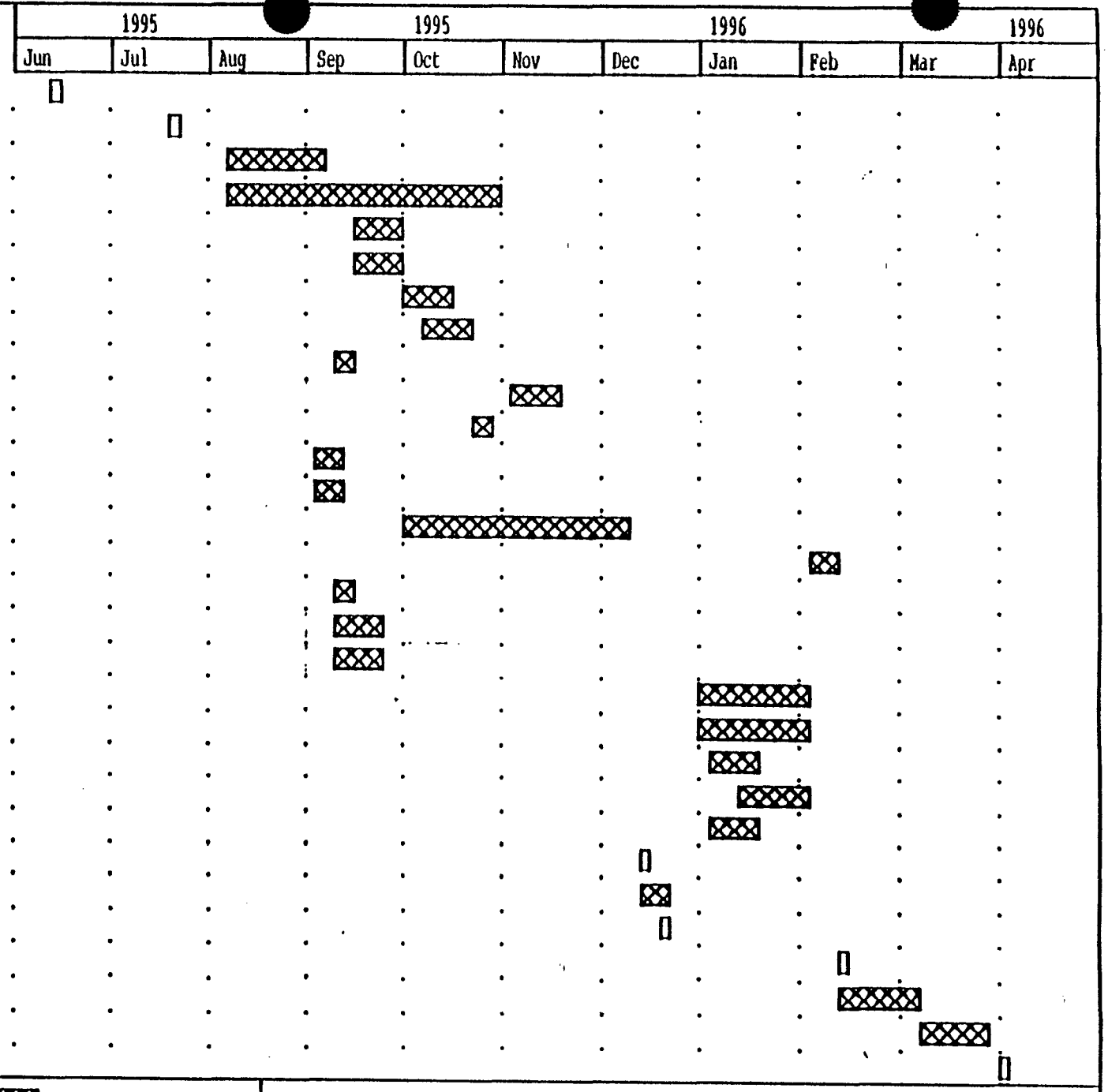
PHONE CODE: 036

SUBJECT: Scope of Study

NOTES: Discussed Kevin Dooney's request that Entech not focus totally on steam plant but cover other HVAC systems as well. The steam issue should not be removed from the study but should be reduced in effort & comprehensiveness to accommodate other HVAC systems which might offer significant energy savings.

Jim stated that as long as steam is not totally eliminated from the project scope, the revised focus is not a problem. There is no modification to the contract scope document required. Entech should forward a copy of the letter re: this change to Jim and Mr. Battaglia. Acceptance of this letter by Kevin Dooney is justification for modifications.

		Duration	Start Date
1	Notice to Proce	0.00 Weeks	6/14/95
2	Kickoff Meeting	0.00 Days	7/21/95
3	Data Gathering	4.00 Weeks	8/ 8/95
4	Site Inspection	12.00 Weeks	8/ 8/95
5	Heat Gain/Heat	2.00 Weeks	9/18/95
6	Building Simula	2.00 Weeks	9/18/95
7	Distribution Sy	2.00 Weeks	10/ 2/95
8	Boiler System L	2.00 Weeks	10/ 9/95
9	Fuel Use Analys	1.00 Week	9/11/95
10	Regression Anal	2.00 Weeks	11/ 6/95
11	Balance Supply/	1.00 Week	10/23/95
12	Utility Rate An	1.00 Week	9/ 5/95
13	Draft ECO's	1.20 Week	9/ 4/95
14	Preliminary ECO	10.00 Weeks	10/ 2/95
15	Executive Summa	1.00 Week	2/ 5/96
16	Methodology	1.00 Week	9/11/95
17	Facility Descri	2.00 Weeks	9/11/95
18	Energy Use	2.00 Weeks	9/11/95
19	ECO's Recommend	5.00 Weeks	1/ 1/96
20	ECO's Not Recom	5.00 Weeks	1/ 1/96
21	Life Cycle Cost	2.00 Weeks	1/ 5/96
22	Discussion	3.00 Weeks	1/15/96
23	Attachments	2.00 Weeks	1/ 5/96
24	Interim Submitt	0.00 Weeks	12/14/95
25	Interim Review	1.00 Week	12/14/95
26	Interim Present	0.00 Weeks	12/21/95
27	Prefinal Submit	0.00 Weeks	2/14/96
28	Ft. Monmouth Co	3.00 Weeks	2/15/96
29	Incorporate Rev	3.00 Weeks	3/ 7/96
30	Final Submissio	0.00 Weeks	4/ 1/96



Noncritical
Slack
Critical
Milestone
Project: SCHEDULE Date: Sep 21, 1995 9:59 AM

Fort Monmouth
Limited Energy Study

Entech Engineering, Inc.

Consulting Engineers

Principals:
Daniel J. Castellani, PE
Thomas M. McManon, PE
William M. McManon Jr., PE

ENTECH

FAX TRANSMITTAL

DATE: 10.2.95 TIME: _____

ENTECH PROJECT #/NAME: _____

PLEASE DELIVER THE FOLLOWING PAGE(S) TO:

NAME: MR KEVIN DOONEY

FIRM: FT MONMOUTH

FAX #: 908-532-2367 PHONE CODE: 036

FROM: ED CALLKINS

REMARKS: KEVIN,

PLEASE CALL ME AFTER YOU HAVE A CHANCE TO REVIEW

THANKS

ED

Original Sent Via:

☐ U.S. Mail

☐ Overnight Delivery Service

☒ FAX Only, Originals Not Sent

WE ARE TRANSMITTING 5 PAGE(S) (INCLUDING COVER PAGE)

If you do not receive all the pages, please call (610) 373-6667.

ENTECH

4 South Fourth Street
P.O. Box 32
Reading
Pennsylvania 19603

Office 610.373.6667

Fax 610.373.7537

Entech Engineering, Inc.

Consulting Engineers

Reading • Pottsville • Lehigh Valley

Principals:
Daniel J. Castellani, PE
Thomas M. McMahon, PE
William M. McMahon Jr., PE

ENTECH

August 25, 1995

Entech #4130.05

Mr. Jim Kendall
Norfolk District
Attn: CENAO-EN-DE, Jim Kendall
803 Front Street
Norfolk, VA 23510

Re: Ft. Monmouth - DACA01-94-D-0037

Dear Jim:

I received a fax from Mr. Kapur of HQ, Forces Command, indicating that Ft. Monmouth is not a Forscom Installation. This fax was in the form of the Entech Meeting Minutes cover sheet with the previous note. I interpret this to mean that Mr. Kapur has no responsibility regarding this project and does not require copies of further communications. The contract documents list Mr. Kapur, therefore I am forwarding this to you for your input. Should we remove Mr. Kapur from the correspondence list or add someone else in his place? Please let me know what you would like us to do.

Sincerely,

Edward L. Caulkins, P.E.
Project Manager

cc: Bill McMahon - Entech

ENTECH

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Reading
Pennsylvania 19603

Office 610.373.6667

Fax 610.373.7537

CENAO-EN-DE

April 1995

GENERAL SCOPE OF WORK

FOR A

LIMITED ENERGY STUDY

Performed as part of the

ENERGY ENGINEERING ANALYSIS PROGRAM (EEAP)

SCOPE OF WORK
FOR A
LIMITED ENERGY STUDY

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7.3 Reevaluate Selected Projects
7.4 Evaluate Selected ECOs
7.5 Combine ECOs into Recommended Projects
7.6 Submittals, Presentations and Reviews

ANNEXES

A - DETAILED SCOPE OF WORK

B - EXECUTIVE SUMMARY GUIDELINE

C - REQUIRED DD FORM 1391 DATA

1. BRIEF DESCRIPTION OF WORK: The Architect-Engineer (AE) shall:

1.1 Review the previously completed Energy Engineering Analysis Program (EEAP) study which applies to the specific building, system, or energy conservation opportunity (ECO) covered by this study.

1.2 Perform a limited site survey of specific buildings or areas to collect all data required to evaluate the specific ECOs included in this study.

1.3 Reevaluate the specific project or ECO from the previous study to determine its economic feasibility based on revised criteria, current site conditions and technical applicability.

1.4 Evaluate specific ECOs to determine their energy savings potential and economic feasibility.

1.5 Provide project documentation for recommended ECOs as detailed herein.

1.6 Prepare a comprehensive report to document all work performed, the results and all recommendations.

2. GENERAL

2.1 This study is limited to the evaluation of the specific buildings, systems, or ECOs listed in Annex A, DETAILED SCOPE OF WORK.

2.2 The information and analysis outlined herein are considered to be minimum requirements for adequate performance of this study.

2.3 For the buildings, systems or ECOs listed in Annex A, all methods of energy conservation which are reasonable and practical shall be considered, including improvements of operational methods and procedures as well as the physical facilities. All energy conservation opportunities which produce energy or dollar savings shall be documented in this report. Any energy conservation opportunity considered not feasible shall also be documented in the report with reasons for elimination.

2.4 The study shall consider the use of all energy sources applicable to each building, system, or ECO.

2.5 The "Energy Conservation Investment Program (ECIP) Guidance", described in letter from DAIM-FDF-U, dated 10 Jan 1994 (including current updates) establishes criteria for ECIP projects and shall be used for performing the economic analyses of all ECOs and projects. The program, Life Cycle Cost In Design (LCCID), has been developed for performing life cycle cost calculations in accordance with ECIP guidelines and is referenced in the ECIP Guidance. If any program other than LCCID is proposed for life cycle cost analysis, it must use the mode of calculation specified in the ECIP Guidance. The output must be in the format of the ECIP LCCA summary sheet, and it must be submitted for approval to the Contracting Officer.

2.6 Computer modeling will be used to determine the energy savings of ECOs which would replace or significantly change an existing heating, ventilating, and air conditioning (HVAC) system. The requirement to use computer modeling applies only to heated and air conditioned or air conditioned only buildings which exceed 8,000 square feet or heated-only buildings in excess of 20,000 square feet. Modeling will be done using a professionally recognized and proven computer program or programs that integrate architectural features with air conditioning, heating, lighting and other energy producing or consuming systems. These programs will be capable of simulating the features, systems, and thermal loads of the building under study. The program

will use established weather data files and may perform calculations on a true hour-by-hour basis or may condense the weather files and the number of calculations into several "typical" days per month. The Detailed Scope of Work, Annex A, will list programs that are acceptable to the Contracting Officer. If the AE desires to use a different program, it must be submitted for approval with a sample run, an explanation of all input and output data, and a summary of program methodology and energy evaluation capabilities.

2.7 Energy conservation opportunities determined to be technically and economically feasible shall be developed into projects acceptable to installation personnel. This may involve combining similar ECOs into larger packages which will qualify for ECIP or FEMP funding, and determining in coordination with installation personnel the appropriate packaging and implementation approach for all feasible ECOs.

2.7.1 Projects which qualify for ECIP funding shall be identified, separately listed, and prioritized by the Savings to Investment Ratio (SIR).

2.7.2 All feasible non-ECIP projects shall be ranked in order of highest to lowest SIR.

2.7.3 At some installations Energy Conservation and Management (ECAM) funding will be used instead of ECIP funding. The criteria for each program is the same. The Director of Public Works will indicate which program is used at this installation. This Scope of Work mentions only ECIP, however, ECAM is also meant.

2.8 Metric Reporting Requirements: In this study, the analyses of the ECOs may be performed using English or Metric units as long as they are consistent throughout the report. The final results of energy savings for individual recommended projects and for the overall study will be reported in units of MegaBTU per year and in MegaWatts per year. Paragraph 7.6.2 details requirements for the contents of the final submittal.

3. PROJECT MANAGEMENT

3.1 Project Managers. The AE shall designate a project manager to serve as a point of contact and liaison for work required under this contract. Upon award of this contract, the individual shall be immediately designated in writing. The AE's designated project manager shall be approved by the Contracting Officer prior to commencement of work. This designated individual shall be responsible for coordination of work required under this contract. The Contracting Officer will designate a project manager to serve as the Government's point of contact and liaison for all work required under this contract. This individual will be the Government's representative.

3.2 Installation Assistance. The Commanding Officer or authorized representative at the installation will designate an individual to assist the AE in obtaining information and establishing contacts necessary to accomplish the work required under this contract. This individual will be the installation representative.

3.3 Public Disclosures. The AE shall make no public announcements or disclosures relative to information contained or developed in this contract, except as authorized by the Contracting Officer.

3.4 Meetings. Meetings will be scheduled whenever requested by the AE or the Contracting Officer for the resolution of questions or problems encountered in the performance of the work. The AE's project manager and the Government's representative shall be required to attend and participate in all meetings pertinent to the work required under this contract as directed by the

Contracting Officer. These meetings, if necessary, will be in addition to the presentation and review conferences.

3.5 Site Visits, Inspections, and Investigations. The AE shall visit and inspect/investigate the site of the project as necessary and required during the preparation and accomplishment of the work.

3.6 Records

3.6.1 The AE shall provide a record of all significant conferences, meetings, discussions, verbal directions, telephone conversations, etc., with Government representative(s) relative to this contract in which the AE and/or designated representative(s) thereof participated. These records shall be dated and shall identify the contract number, and modification number if applicable, participating personnel, subject discussed and conclusions reached. The AE shall forward to the Contracting Officer within ten calendar days, a reproducible copy of the records.

3.6.2 The AE shall provide a record of requests for and/or receipt of Government furnished material, data, documents, information, etc., which if not furnished in a timely manner, would significantly impair the normal progression of the work under this contract. The records shall be dated and shall identify the contract number and modification number, if applicable. The AE shall forward to the Contracting Officer within ten calendar days, a reproducible copy of the record of request or receipt of material.

3.7 Interviews. The AE and the Government's representative shall conduct entry and exit interviews with the Director of Public Works before starting work at the installation and after completion of the field work. The Government's representative shall schedule the interviews at least one week in advance.

3.7.1 Entry. The entry interview shall describe the intended procedures for the survey and shall be conducted prior to commencing work at the facility. As a minimum, the interview shall cover the following points:

a. Schedules.

b. Names of energy analysts who will be conducting the site survey.

c. Proposed working hours.

d. Support requirements from the Director of Public Works.

3.7.2 Exit. The exit interview shall be held when the field work is essentially complete; it shall briefly describe the items surveyed and probable areas of energy conservation. The interview shall also solicit input and advice from the Director of Public Works.

4. SERVICES AND MATERIALS. All services, materials (except those specifically enumerated to be furnished by the Government), labor, supervision, and travel necessary to perform the work and render the data required under this contract are included in the lump sum price of the contract.

5. PROJECT DOCUMENTATION. All energy conservation opportunities which the AE has considered shall be included in one of the following categories and presented in the report as such:

5.1 ECIP Projects. To qualify as an ECIP project, an ECO, or several ECOs which have been combined, must have a construction cost estimate greater than $300,000, a Savings to Investment Ratio (SIR) greater than 1.25 and a simple payback period of less than ten years. The overall project and each discrete part of the project shall have an SIR greater than 1.25. All projects meeting the above criteria shall be arranged as specified in paragraph 2.7.1 and shall be provided with programming documentation. Programming documentation shall consist of a DD Form 1391 and life cycle cost analysis (LCCA) summary sheet(s) (with necessary backup data to verify the numbers presented). A life cycle cost analysis summary sheet shall be developed for each ECO and for the overall project when more than one ECO are combined. The energy savings for projects consisting of multiple ECOs must take into account the synergistic effects of the individual ECOs.

5.2 Non-ECIP Projects. Projects which do not meet ECIP criteria with regard to cost estimate, but which have an SIR greater than 1.25 shall be documented. Projects or ECOs in this category shall be arranged as specified in paragraph 2.7.2 and shall be provided with the following documentation: the life cycle cost analysis (LCCA) summary sheet completely filled out, a description of the work to be accomplished, backup data for the LCCA (energy savings calculations and cost estimate), and the simple payback period. The energy savings for projects consisting of multiple ECOs must take into account the synergistic effects of the individual ECOs. In addition these projects shall have the necessary documentation prepared, as required by the Government's representative, for one of the following categories:

a. Federal Energy Management Program (FEMP) Projects. A FEMP (or O&M Energy) project is one that results in needed maintenance or repair to an existing facility, or replaces a failed or failing existing facility, and also results in energy savings. The criteria are similar to the criteria for ECIP projects, i.e., SIR $\geq$ 1.25, and simple payback period of less than ten years. Projects with a construction cost estimate up to $1,000,000 shall be documented as outlined in par 5.2 above; projects over $1,000,000 shall be documented on 1391s. In the FEMP program, a system may be defined as "failed or failing" if it is inefficient or technically obsolete. However, if this strategy is used to justify a proposed project, the equipment to be replaced must have been in use for at least three years.

b. Low Cost/No Cost Projects. These are projects which the Director of Public Works (DPW) can perform using his resources. Documentation shall be as required by the DPW.

5.3 Nonfeasible ECOs. All ECOs which the AE has considered but which are not feasible, shall be documented in the report with reasons and justifications showing why they were rejected.

6. DETAILED SCOPE OF WORK. The Detailed Scope of Work is contained in Annex A.

7. WORK TO BE ACCOMPLISHED.

7.1 Review Previous Studies. Review the previous EEAP study which applies to the specific building, system, or ECO covered by this study. This review should acquaint the AE with the work that has been performed previously. Much of the information the AE may need to develop the ECOs in this study may be contained in the previous study.

7.2 Perform a Limited Site Survey. The AE shall obtain all necessary data to evaluate the ECOs or projects by conducting a site survey. However, the AE is encouraged to use any data that may have been documented in a previous study. The AE shall document his site survey on forms developed for the survey, or on standard forms, and submit these completed forms as part of the report. All test and/or measurement equipment shall be properly calibrated prior to its use.

7.3 Reevaluate Selected Projects. The AE shall reevaluate the projects and ECOs listed in Annex A. These projects and ECOs were previously identified but have not been accomplished or have been only partially accomplished. If the project or ECO is acceptable as is, that is, there are no changes to the basic project or ECO, the energy savings shown in the previous project may be accepted as accurate but the energy cost and construction cost estimates shall be updated based on the most current data available. With the above information the project shall then be analyzed based on current ECIP criteria. If the project or ECO is basically acceptable but some of the buildings in the original project have been deleted or new buildings can be added, the necessary changes shall be made to the energy savings, the energy costs and construction costs shall be updated, and the revised project or ECO shall then be analyzed using current ECIP guidance. If the original project or ECO has had numerous changes made to it so that all of the numbers are suspected of being inaccurate, but the project or ECO is still considered feasible, the AE shall develop the project from the beginning and analyze it with the current ECIP guidance. These projects shall be separately listed in the report.

7.4 Evaluate Selected ECOs. The AE shall analyze the ECOs listed in Annex A. These ECOs shall be analyzed in detail to determine their feasibility. Savings to Investment Ratios (SIRs) shall be determined using current ECIP guidance. The AE shall provide all data and calculations needed to support the recommended ECO. All assumptions and engineering equations shall be clearly stated. Calculations shall be prepared showing how all numbers in the ECO were figured. Calculations shall be an orderly step-by-step progression from the first assumption to the final number. Descriptions of the products, manufacturers catalog cuts, pertinent drawings and sketches shall also be included. A life cycle cost analysis summary sheet shall be prepared for each ECO and included as part of the supporting data.

7.5 Combine ECOs Into Recommended Projects. During the Interim Review Conference, as outlined in paragraph [7.6.1], the AE will be advised of the DPW's preferred packaging of recommended ECOs into projects for implementation. Some projects may be a combination of several ECOs, and others may contain only one. These projects will be evaluated and arranged as outlined in paragraphs 5.1, 5.2, and 5.3. Energy savings calculations shall take into account the synergistic effects of multiple ECOs within a project and the effects of one project upon another. The results of this effort will be reported in the Final Submittal per par [7.6.2].

7.6 Submittals, Presentations and Reviews. The work accomplished shall be fully documented by a comprehensive report. The report shall have a table of contents and shall be indexed. Tabs and dividers shall clearly and distinctly divide sections, subsections, and appendices. All pages shall be numbered. Names of the persons primarily responsible for the project shall be included. The AE shall give a formal presentation of the interim submittal to installation, command, and other Government personnel. Slides or view graphs showing the results of the study to date shall be used during the presentation. During the presentation, the personnel in attendance shall be given ample opportunity to ask questions and discuss any changes deemed necessary to the study. A review conference will be conducted the same day, following the presentation. Each comment presented at the review conference will be discussed and resolved or action items assigned. It is anticipated that the presentation and review conference will require approximately one working day. The presentation and review conference will be at the installation on the date agreeable to the Director of Public Works, the AE and the Government's representative. The Contracting Officer may require a resubmittal of any document(s), if such document(s) are not approved because they are determined by the Contracting Officer to be inadequate for the intended purpose.

7.6.1 Interim Submittal. An interim report shall be submitted for review after the field survey has been completed and an analysis has been performed on all of the ECOs. The report shall indicate the work which has been accomplished to date, illustrate the methods and justifications of the approaches taken and contain a plan of the work remaining to complete the study.

Calculations showing energy and dollar savings, SIR, and simple payback period of all the ECOs shall be included. The results of the ECO analyses shall be summarized by lists as follows:

a. All ECOs eliminated from consideration shall be grouped into one listing with reasons for their elimination as discussed in par 5.3.

b. All ECOs which were analyzed shall be grouped into two listings, recommended and non-recommended, each arranged in order of descending SIR. These lists may be subdivided by building or area as appropriate for the study.

The AE shall submit the Scope of Work and any modifications to the Scope of Work as an appendix to the report. A narrative summary describing the work and results to date shall be a part of this submittal. At the Interim Submittal and Review Conference, the Government's and AE's representatives shall coordinate with the Director of Public Works to provide the AE with direction for packaging or combining ECOs for programming purposes and also indicate the fiscal year for which the programming or implementation documentation shall be prepared. The survey forms completed during this audit shall be submitted with this report. The survey forms only may be submitted in final form with this submittal. They should be clearly marked at the time of submission that they are to be retained. They shall be bound in a standard three-ring binder which will allow repeated disassembly and reassembly of the material contained within.

7.6.2 Final Submittal. The AE shall prepare and submit the final report when all sections of the report are 100% complete and all comments from the interim submittal have been resolved. The AE shall submit the Scope of Work for the study and any modifications to the Scope of Work as an appendix to the submittal. The report shall contain a narrative summary of conclusions and recommendations, together with all raw and supporting data, methods used, and sources of information. The report shall integrate all aspects of the study. The recommended projects, as determined in accordance with paragraph 5, shall be presented in order of priority by SIR. The lists of ECOs specified in paragraph [7.6.1] shall also be included for continuity. The final report and all appendices shall be bound in standard three-ring binders which will allow repeated disassembly and reassembly. The final report shall be arranged to include:

a. An Executive Summary to give a brief overview of what was accomplished and the results of this study using graphs, tables and charts as much as possible (See Annex B for minimum requirements).

b. The narrative report describing the problem to be studied, the approach to be used, and the results of this study.

c. Documentation for the recommended projects (includes LCCA Summary Sheets).

d. Appendices to include as a minimum:

1) Energy cost development and backup data

2) Detailed calculations

3) Cost estimates

4) Computer printouts (where applicable)

5) Scope of Work

ANNEX A

DETAILED SCOPE OF WORK

1. LOCATION

A. General description. The Architect Engineer (AE) shall furnish all services, materials, supplies, labor, equipment, investigations, studies, and travel as required in connection with the feasibility study for the below identified project in accordance with the contract and all furnished instructions:

INSTALLATION	DESCRIPTION
Fort Monmouth, NJ	Limited Energy Study (Bldg 2700)

2. AUTHORIZATION (Not Required)

3. STUDY INSTRUCTIONS

If the Design Manuals, Guide Specifications, and/or Project Engineering Instructions do not cover a specific condition in question, the AE shall contact the Contracting Officer before proceeding. If there is a conflict in Engineering Instructions or other reference data, such questions or conflicts should be brought to the attention of the Contracting Officer before proceeding.

4. INSTALLATION REPRESENTATIVE

The installation representative for this contract will be Mr. Kevin Dooney, Director of Public Works.

5. COMPLETION SCHEDULE

The following schedule shall be used as a guide in approving payments on this contract. The interim report for shall be due not later than 180 days after Notice to Proceed. The prefinal report shall be due not later than 45 days after the interim report review conference. The final report shall be due not later than 30 days after the prefinal review conference.

6. METHOD OF PAYMENT

A. Title I. The AE shall prepare and submit to the US Army Engineer District, Norfolk, partial payment estimates in accordance with the attachment entitled "Instructions for Completion of ENG Form 93". Payment under this contract, for which property or services are provided in a series of partial executions or deliveries, will be made within 30 days after receipt of an invoice which has been properly executed by the AE.

B. Additional Conferences. Payment for furnishing the services of technically qualified representatives to attend additional conferences, when so requested in writing by the Contracting Officer, will be made at a rate per hour for the discipline involved plus travel expenses computed in accordance with Government Joint Travel Regulations in effect at the time travel is performed and actual cost of transportation.

7. The simulation programs acceptable for use in this study are listed below. Any substitutes must be submitted and approved as outlined in the basic scope of work.

A. Building Loads and System Thermodynamics (BLAST)

B. DOE 2.1B

C. Carrier E20 of Hourly Analysis Program (HAP)

D. Trane Air-Conditioning Economics (TRACE)

E. Beacon

8. LIFE CYCLE COSTING IN DESIGN (LCCID)

A computer program titled Life Cycle Costing in Design (LCCID) is available from the BLAST Support Office in Urbana. Illinois for a nominal fee. This computer program can be used for performing the economical calculations for ECIP and non-ECIP ECOS. The AE is encouraged to obtain and use this computer program. The BLAST Supporting Office can be contacted at 144 Mechanical Engineering Building, 1206 West Green Street, Urbana, Illinois 61801. The telephone number is (217) 333-3977 or (800) 842-5278.

9. FACILITY SURVEY

The Architect-Engineer (AE) shall conduct a survey of the buildings and building systems listed in accordance with HNDS86-188-ED-ME and as described herein. Each building/system shall be observed while operating. The survey shall include and document the following items:

A. The central steam plant including all boilers, auxiliaries, fuel systems, stack(s), internal steam piping, and physical structures.

B. The steam distribution system from the central steam plant to the outer wall of all buildings served by steam. The system will include piping, insulation, valves, controls, traps, vents, and associated structures. Special interest shall be given to equipment life, condition, and capacity.

C. Condensate return system similar to the steam system.

D. The chilled water system as it relates to reheating. due to overheating

E. Facilities which consume steam including peak steam demand, overall yearly use, and types of equipment served. This shall be limited to the overall system energy use and not to any particular individual user.

F. Those areas that may be needed for supplemental or auxiliary steam plants.

G. The fuel supply as it relates to the boiler plant operations.

H. The environmental equipment related to the boiler plant operations.

10. AUTOMATED REVIEW MANAGEMENT SYSTEM (ARMS) Not Required

11. GOVERNMENT-FURNISHED DATA

A. AR 415-15 Military Construction, Army (MCA) Program Development.

B. AR 415-20 Project Development and Design Approval.

C. TM 5-800-3 Project Development Brochure.

D. Engineering Instructions (as applicable).

E. Previous studies related to application of Steam at this site (where applicable).

12. SUBMITTAL REQUIREMENTS

ORGANIZATION	COPIES REQUIRED (Correspondence): Interim: Final and Prefinal Review	Executive Summary, Only
Norfolk District Attn: CENAO-EN-DE, Jim Kendall 803 Front Street Norfolk, VA 23510	5	
Headquarters, Forces Command Attn: FCEN-RDF, Mr. Naresh Kapur Energy Office, Building 200 Ft. McPherson, GA 30330-6000	1	
U.S. Army Engineer District, Mobile Attn: CESAM-EN-DM (Mr. Battaglia) Post Office Box 2288 109 St. Joseph Street Mobile, AL 36602	1	
Commander USAED, North Atlantic ATTN: CENAD-EN-MM (Mr Wong) 90 Church Street New York, NY 10007		1
Commander US Army Corps of Engineers ATTN: CEMP-ET (Mr Gentil) 20 Massachusetts Avenue NW Washington, DC, 20314 1000 .		1 (Final Only)
Commander US Army Logistics Evaluation Agency ATTN: LOEA-PL (Mr Keath) New Cumberland Army Depot New Cumberland, PA, 17070 5007		1 (Final Only)
Director of Public Works ATTN: SELFM-PW-E (Mr Dooney) Bldg 167 (Riverside Ave.) Fort Monmouth, NJ, 07703 5108	2	2

13. ANALYSIS OF SYSTEMS

The Architect Engineer (AE) will utilize standard methods of engineering calculations to understand current energy consumption in such detail as to permit identification of further improvement options.

HEAT LOSS CALCULATIONS A calculation of each facility's theoretical energy use due to building heat loss and heat gain will be made using energy models derived from ASHRAE standards.

STEAM DISTRIBUTION LOSSES Based upon the known arrangement and condition of the steam lines, a calculation shall be made showing the average rate of distribution losses and the overall costs associated with normal operation.

BOILER SYSTEM LOSSES Together with the boiler efficiency tests provide a calculation that will show total boiler system losses including stack losses, skin losses, partial load losses, blowdown losses and others that may apply.

CONDENSATE SYSTEM LOSSES Review the condensate return records and provide a calculation showing the costs of condensate not returned. Provide areas of loss, estimated loss quantities and costs

REGRESSION ANALYSIS Provide a calculation using historical energy consumption, weather data, occupancy, and other variables for potential mathematical correlation to support other energy calculations.

BALANCE OF ENERGY SUPPLY WITH USERS/LOSSES Provide a calculation by combining all calculations made in this study to match actual steam production with calculated energy use.

UTILITY RATE ANALYSIS Provide a separate calculation for each type of energy conserved-gas, oil, and electric. The incremental cost of fuel shall be used for all energy savings options.

CHECK REGULATORY REQUIREMENTS Provide a check of all regulatory bodies affecting emissions to the air or water discharges. Provide any recommendations made in compliance with such regulatory agencies.

14. METHOD

The Architect Engineer (AE) shall collect information on the existing boiler plant and steam system operations in order to have a reasonable understanding of operations, cost, energy use, problems, limitations, and future need. This shall be accomplished in the following steps.

DATA GATHERING From the start of the study the AE shall collect available data that will assist in energy use evaluations and recommendations. A partial list of data that shall be sought is as follows:

- Energy bills and summaries /
- Schedules
- Steam line drawings /
- Floor plans or building data /
- Site plans
- Maintenance records
- Steam load profiles
- Boiler plant operator logs ✓
- Temperature histories
- Energy management system profile NONE

SITE VISITS, INSPECTIONS A team of Engineers shall visit the facility. The inspection will cover areas covered in the study. Operators shall interviewed for operation of individual areas and systems.

Nameplate data will be collected as well as observations of arrangements, physical condition and effectiveness. The following measurements shall be collected:

- Pressure levels —
- Temperatures —
- Electrical loads —
- Steam flow rates —
- Schedules —
- Dimensions —

15. ENERGY CONSERVATION OPPORTUNITY INVESTIGATIONS

The AE shall investigate all reasonable options of saving energy and energy-related costs in the operation of the steam production and distribution systems. The approach used to identify each option is briefly described below.

Existing Conditions. This section describes the nature of the existing operating system, its energy use, costs, advantages and disadvantages. Data is usually transferred to this section from the calculations.

Proposed Idea. This section describes improvement ideas that are different from the existing conditions. They may describe a capital projects, modifications, or O&M procedures. The resulting improvements are described, energy costs, quantities and arrangements are briefly noted. Sufficient conceptual studies will be executed to determine feasibility, generate anticipated operational data and estimating values.

Construction Cost Estimate. A feasibility cost estimate in the format prescribed will be performed. The estimate breakdown will be included in the report showing known quantities and costs. Allowances for indirect costs and contingencies are included.

Annual Savings. The report will show the annual savings in energy, quantities, demand, costs, and BTU's. As the report is written, these savings are merely the difference between existing and proposed.

Discussion. This section of the report describes a number of relevant factors including payback period, impact on labor or non-energy costs, O&M concerns, appearances, comfort, life extension, etc. The intent of this section is to address normal impacts or uncertainties of various improvement ideas.

16. REPORT PREPARATION PHASE

The AE will prepare a Energy Analysis report which will fully document the steps previously described. The report will be prepared as follows.

Executive Summary - Section 1. The outline of the executive section is shown on Appendix B.

Methodology - Section 2. This part of the report describes the approach, sequence, assumptions, calculations methods, computer programs, sample outputs, etc. that were used for the study.

Facility Description - Section 3. The report will briefly discuss the buildings and systems covered by the study. It will show floor plans, layout flow diagrams, facility age and condition, major equipment characteristics by system, hours of operation, and concerns expressed by occupants and managers.

Energy Use and Costs - Section 4. The report will describe individual and combined energy and steam consumption for the past two years. The report will describe rate structures, incremental cost calculations, trends, and analysis of use by source. This section critically establishes baseline use of energy for later improvement possibilities.

ECOs Recommended - Section 5. This section describes in detail each of the Energy Conservation Opportunities (ECOs) that are recommended for adoption and funding. The approach to each ECO write-up has been discussed in the preceding section.

ECOs Not Recommended - Section 6. The report will also show ECOs that were investigated but not recommended for adoption due to economics, conflicts, with other ECOs or concerns of operations.

Discussion - Section 7. This part of the report will cover interesting findings of the study not related to other sections of the report. It may include recommendations for non-energy problems, further studies. O&M procedures, training, etc.

Attachments. As part of the report, there will be enclosures for photos, backup calculations, referenced materials such as rate tariffs, codes, etc.

Applications and Funding Requests. As part of this study, applications for project funding will be made in accordance with Section 5, Project Documentation and directions from local authorized persons. The exact level of funding and funding program (expected to be ECIP), will be at the direction of the facility manager.

Suggested Implementation Schedules. The report will also contain a suggested timetable for implementing various projects or programs. This recommendation will be made in consultation with various facility managers.

Operation and Maintenance Instructions. Where appropriate, the study will recommend the formation of procedures or changes to processes that relate to improved energy usage and costs through Operation and Maintenance.

Meetings. At the start of the project, a series of progress meetings will be summarized in minutes prepared and distributed by the AE. There will be a special meeting at the project start and final report phase.

Correspondence. Keeping Fort Monmouth informed of the progress of the conduct of this study shall be a priority. The information shall be transferred in a number of ways.

Progress reports shall be prepared on a monthly basis to highlight the significant events of the prior month. This shall be especially true for actions completed, problems discovered, schedule changes and ECO developments. The progress reports will accompany monthly billings and will form the basis for progress meetings.

Special letters shall be sent for matters of major importance or where schedule delay is not tolerable. This may be true of O&M findings that offer immediate cost savings.

Telephone calls, in-person visits, copies of correspondence and other communications shall be used to keep the post informed of energy analysis underway.

ANNEX B

EXECUTIVE SUMMARY GUIDELINE

1. Introduction.

2. Building Data (types, number of similar buildings, sizes, etc.)

3. Present Energy Consumption of Buildings or Systems Studied.

   - Total Annual Energy Used.
   - Source Energy Consumption.

   Electricity - KWH, Dollars, BTU
   Fuel Oil - GALS, Dollars, BTU, MWH
   Natural Gas - THERMS, Dollars, BTU, MWH
   Propane - GALS, Dollars, BTU, MWH
   Other - QTY, Dollars, BTU, MWH

4. Reevaluated Projects Results.

5. Energy Conservation Analysis.

   - ECOs Investigated.
   - ECOs Recommended.
   - ECOs Rejected. (Provide economics or reasons)
   - ECIP Projects Developed. (Provide list)*
   - Non-ECIP Projects Developed. (Provide list)*
   - Operational or Policy Change Recommendations.

* Include the following data from the life cycle cost analysis summary sheet: the cost (construction plus SIOH), the annual energy savings (type and amount), the annual dollar savings, the SIR, the simple payback period and the analysis date.

6. Energy and Cost Savings.

   - Total Potential Energy and Cost Savings.
   - Percentage of Energy Conserved.
   - Energy Use and Cost Before and After the Energy Conservation Opportunities are Implemented.

ANNEX C

REQUIRED DD FORM 1391 DATA

To facilitate ECIP project approval, the following supplemental data shall be provided:

a. In title block clearly identify projects as "ECIP."

b. Complete description of each item of work to be accomplished including quantity, square footage, etc.

c. A comprehensive list of buildings, zones, or areas including building numbers, square foot floor, etc.

(11) Latest MCP Index, essential for projecting costs for project documentation.

(12) The following items are important and should be provided to the AE to the extent to which they are available:

(a) As-built drawings of applicable buildings, equipment, or systems

(b) Handbooks or SOPs relating to the operation of applicable equipment or systems.

(c) Applicable records of energy or fuel usage.

(d) Copies of bills for electrical assumptions before and after improvements.

(4) Include source of expertise and demonstrate savings claimed. Identify any special or critical environmental conditions such as pressure relationships, exhaust or outside air quantities, temperatures, humidity, etc.

e. Claims for boiler efficiency improvements must identify data to support present properly adjusted boiler operation and future expected efficiency. If full replacement of boilers is indicated, explain rejection of alternatives such as replace burners, nonfunctioning controls, etc. Assessment of the complete existing installation is required to make accurate determinations of required retrofit actions.

f. Lighting retrofit projects must identify number and type of fixtures, and wattage of each fixture being deleted and installed. New lighting shall be only of the level to meet current criteria. Lamp changes in existing fixtures is not considered an ECIP type project.

g. An ECIP life cycle cost analysis summary sheet as shown in the ECIP Guidance shall be provided for the complete project and for each discrete part included in the project. The SIR is applicable to all segments of the project. Supporting documentation consisting of basic engineering and economic calculations showing how savings were determined shall be included.

h. The DD Form 1391 face sheet shall include, for the complete project, the annual dollar and MBTU savings, SIR, simple amortization period and a statement attesting that all buildings and retrofit actions will be in active use throughout the amortization period.

i. The calendar year in which the cost was calculated shall be clearly shown on the DD Form 1391.

j. For each temporary building included in a project, separate documentation is required showing (1) a minimum 10-year continuing need, based on the installation's annual real property utilization survey, for active building retention after retrofit, (2) the specific retrofit action applicable and (3) an economic analysis supporting the specific retrofit.

k. NAF funded facilities will not be included in an ECIP project without an accompanying statement certifying that utility costs are not reimbursable.

l. Any requirements required by ECIP guidance dated 10 Jan 1994 and any revisions thereto. Note that nonescalated costs/savings are to be used in the economic analyses.

m. The five digit category number for all ECIP projects except for Family Housing is 80000. The category code number for Family Housing projects is 71100.

FACSIMILE HEADER SHEET

COMMAND/OFFICE	NAME/OFFICE SYMBOL	OFFICE PHONE	FAX
From: USAED Mobile, AL	Tony Battaglia CESAM-EN-DM	(334) 690-2618	(334) 690-2424
To: USAED Norfolk, VA	Jim Kendall CENAO-EN-DE	(804) 441-7703	(804) 441-7831
To: ENTECH Reading, PA	Matt LLoyd	(610) 373-6667	(610) 373-7537

CLASS	PREC	PAGES	DATE-TIME	MO	YR	RELEASER'S SIGNATURE
U	N	2	14 1430	06	95	Anthony W. Battaglia

REMARKS

space below for communications center use only

Gentlemen:

The delivery order for the Limited Energy Study, Myer Center Steam System, Fort Monmouth, NJ, was signed today. A copy of the signed order, Form 1155, is attached. The complete package will follow by mail.

Now the real work starts. Best wishes for a high-quality, energy-saving, on-schedule study! Don't forget to send us copies of each submittal.

Good luck,

Tony B.

ORDER FOR SUPPLIES OR SERVICES

(Contractor must submit four copies of invoice)

YDW

Form Approved OMB No. 0704-0187 Expires Aug 31, 1992

PAGE 1 OF

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0187), Washington, DC 20503. Please DO NOT RETURN your form to either of those addresses. Send your completed form to the procurement official identified in item 6.

1. CONTRACT / PURCH ORDER NO.	2. DELIVERY ORDER NO.	3. DATE OF ORDER	4. REQUISITION / PURCH REQUEST NO.	5. CERTIFIED FOR NATIONAL DEFENSE UNDER DMS REG 1
DACA01-94-D-0037	0005	14 Jun 95		DO

6. ISSUED BY	CODE	7. ADMINISTERED BY (If other than 6)	CODE	8. DELIVERY FOB
US ARMY ENGINEER DISTRICT, MOBILE P.O. BOX 2288 MOBILE, ALABAMA 36628-0001		US ARMY ENGINEER DISTRICT, NORFOLK 803 FRONT STREET NORFOLK, VA 23510-1096		[X] DEST [ ] OTHER (See Schedule if other)

9. CONTRACTOR	CODE	FACILITY CODE	10. DELIVER TO FOB POINT BY (Date)	11. MARK IF BUSINESS
NAME AND ADDRESS ENTECH ENGINEERING, INC. 500 PENN STREET P.O. BOX 32 READING, PA 19603			SEE APPENDIX "A"	[ ] SMALL [ ] SMALL DISADVANTAGED [ ] WOMEN-OWNED
			12. DISCOUNT TERMS N/A	
			13. MAIL INVOICES TO SEE BLOCK 14	

14. SHIP TO	CODE	15. PAYMENT WILL BE MADE BY	CODE	MARK ALL PACKAGES AND PAPERS WITH CONTRACT OR ORDER NUMBER
US ARMY ENGINEER DISTRICT, MOBILE ATTN: CENAO-EN-MP (MLECIK) 803 FRONT STREET NORFOLK, VA 23510-1096		FINANCE AND ACCOUNTING OFFICER US ARMY ENGINEER DISTRICT, MOBILE 803 FRONT STREET NORFOLK, VA 23510-1096		

16. TYPE OF ORDER

DELIVERY [X] This delivery order is issued on another Government agency or in accordance with and subject to terms and conditions of above numbered contract.

PURCHASE [ ] Reference your ____ furnish the following on terms specified herein.

ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED, SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.

NAME OF CONTRACTOR	SIGNATURE	TYPED NAME AND TITLE	DATE SIGNED

[X] If this box is marked, supplier must sign Acceptance and return the following number of copies:

17. ACCOUNTING AND APPROPRIATION DATA / LOCAL USE

2152050 08-3013 P70000000 S44110 RA5A635D051B400 (E87950221) $131,393.00 TOTAL

18. ITEM NO.	19. SCHEDULE OF SUPPLIES / SERVICE	20. QUANTITY ORDERED / ACCEPTED*	21. UNIT	22. UNIT PRICE	23. AMOUNT
0001	DELIVERY ORDER FOR EEAP PROGRAM, LIMITED ENERGY STUDY AT FORT MONMOUTH, NEW JERSEY	1	JOB		$131,393.00

*If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle.

24. UNITED STATES OF AMERICA
BY: GENE L. CURTIS
CONTRACTING / ORDERING OFFICER

25. TOTAL $131,393.00

26. DIFFERENCE

27. SHIP NO. [ ] PARTIAL [ ] FINAL

28. D.O. VOUCHER NO.

29. INITIALS

26. QUANTITY IN COLUMN 20 HAS BEEN
[ ] INSPECTED [ ] RECEIVED [ ] ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED

DATE ____ SIGNATURE OF AUTHORIZED GOVERNMENT REPRESENTATIVE

32. PAID BY

33. AMOUNT VERIFIED CORRECT FOR

34. CHECK NUMBER

35. BILL OF LADING NO.

36. I certify this account is correct and proper for payment.

DATE ____ SIGNATURE AND TITLE OF CERTIFYING OFFICER

31. PAYMENT [ ] COMPLETE [ ] PARTIAL [ ] FINAL

37. RECEIVED AT	38. RECEIVED BY	39. DATE RECEIVED	40. TOTAL CONTAINERS	41. S/R ACCOUNT NUMBER	42. S/R VOUCHER NUMBER

DD Form 1155, MAY 90

Previous editions are obsolete.

Attachment 8.14

Review Comments

INTERIM REVIEW COMMENTS

EEAP LIMITED ENERGY STUDY

at

MYER CENTER
Ft. Monmouth, New Jersey

prepared by

ENTECH ENGINEERING, INC.
4 South Fourth Street
Reading, Pennsylvania 19603
610-373-6667
Entech #4130.05

May 17, 1996

Interim Review Comments and Responses

The following addresses the review comments (CESAM-EN-DM Comments - Battaglia) for the EEAP Limited Energy Study, Myer Center Steam & HVAC at Fort Monmouth, NJ along with our responses.

Comment	Response
1. General: The AE has done a very good job of collecting and presenting data on the mechanical system for this complicated building.	1. General: Thank you for your positive comment. We appreciate the time and effort put forth in reviewing the report.
2. Page 2-5: Correct description for kWh.	2. Page 2-5: Description in abbreviations table for kWh was corrected from kilowatts per hour to kilowatt hour.
3. Page 2-20, Par 2: Twenty years was entered as common criteria for economic life in the LCCAs. This value can vary depending on the type of system being analyzed. For a complete list of economic lives, see the ECIP Guidance.	3. Page 2-20, Par 2: We are aware of the list for economic life in LCCAs. We will incorporate appropriately in individual LCCA's.
4. Page 3-9: Correct typos in first and second paragraphs.	4. Page 3-9: A couple of typographical errors were corrected in paragraphs 1 and 2.
5. Page 3-7 & 3-9: With regard to the new hot water boilers for Building 2706; Please clarify if the base case energy usage and the analyses of the ECOs will assume new boilers in operation or not in operation.	5. Page 3-7 & 3-9: Replacing steam heating with new hot water boilers in the middle of an EEAP study complicates the analysis of the past versus the future. With this study, the existing loads on the MCA water will be separated in the boiler plant related ECO analysis. The new boilers in Building 2706 will be assumed to be in operation supporting the MCA demands. The main ECO for this EEAP Study will focus on the viability of operating a large boiler plant and steam distribution with relatively small loads excluding the MCA demands. The losses and/or overheating of spaces is suspected to be excessive, thereby warranting the investigation of decentralizing this system. Also, decentralization can be accomplished such that the full-time operation and monitoring of the existing system can be reduced to part-time monitoring with the new installations.
6. Page 3-12, Par 2: Delete unnecessary word after "water chiller".	6. Page 3-12, Par 2: The unnecessary word was removed.

Comment	Response
7. Page 3-16, Table 3.4.1.1: Some of the items listed, for example, 9-11, have both cooling equipment compressor data and chilled water data listed. It can't be both. Please clarify.	7. Page 3-16, Table 3.4.1.1: When this list was originally comprised the compressor (hp) and (kW/ton) were omitted for the MCA chilled water loads which are handled by the Central Chiller Plant in Building 2706. Later, portioned values were then added for purposes of identifying the building/floor load totals and kW/ton averages. The MCA values in the "Est. Cooling Load/Compressor" columns shown were darkened to differentiate them from the others. Note: The connected (kW) loads in the electric model (Table 5.6.2.2) reflect that the values in the compressor columns of the listed MCA items in Table 3.4.1.1 and 2 were removed. Horsepower (hp) in the "Cooling Type (Est. Cond. Flow/hp)" columns relate only to the associated pumps and condenser fans excluding the MCA compressor loads.
8. Page 3-16, Table 3.4.1.1: Cooling Equipment Field: Several items list plant chilled water at 55°F. Chilled water is usually supplied at 42-45°F. Should this apply to supply air temperature rather than chilled water temperature?	8. Page 3-16, Table 3.4.1.1: The 55 degree chilled water reference for the MCA two-pipe system is correct. The building maintains this temperature because they want to minimize condensation from the fan coil units. Since the perimeter fan coils and the MCA air handlers serving other areas are on the same piping system the supply temperature will remain in the 50-55°F range. Areas requiring lower humidity control, or more cooling in general have been supplemented with other cooling sources (ie: Item 118 in Table 5.4.1.2 and some "Liebert Units" in other areas). Comfort is probably borderline on design days using the 55 degree water.
9. Page 3-18: Suggest the following additions to the tables on page 3-18: a. Table 3.1.4.3: add columns for Supply & Return Temperature. b. Table 3.1.4.4: add column for equipment served.	9. Page 3-18: a. Columns were added for the supply (55°F) and return (65°F) for the Building 2706 chillers in Table 3.4.1.3. b. The "Building Service" column in Table 3.4.1.4 was changed to "Equipment Served". CT-1 in Building 2706 supports the chiller plant only while the towers on the roof of Building 2700 support a variety of equipment.
10. Page 3-25: Top line: Should the word "coils" be substituted for "unit heater"?	10. Page 3-25: The phrase "unit heaters" was replaced with "coils".

Comment	Response
11. Page 4-8: Regarding unavailability of fuel oil bills for months of June and November: Is it possible that they just did not order oil in June and November because they had enough in the tank for expected needs? Discuss in light of findings on pages 4-16 and 4-17.	11. Page 4-8: The June and November oil bills were considered missing because no other information was available to consider otherwise. Records available to us did not confirm whether they existed or not. If the two months in question are considered to be months when oil was not ordered, then the estimated usage would be about 30% greater than the delivered totals. Fort Monmouth should be able to confirm whether fuel oil was ordered/delivered for June and November of 1994. We believe the report should remain as is unless further information is provided to the contrary.
12. Page 4-14 & 4-15: Here two year's worth of steam production data are shown, with more steam produced in 93-94 then in 94-95; then they are averaged. Averaging is not always the best way to determine the typical year's performance. After all, that is the objective, to predict the typical year's performance. Wouldn't it be better to compare the steam production to the EZDOE output, which is based on a typical year's weather, and make adjustments on that basis? Please discuss.	12. Page 4-14 & 4-15: Entech believes that the two year information for steam production is the best available source for identifying past steam production. The EZDOE output is a check of the heating and cooling loads for Building 2700 only. Cafeteria usage, domestic hot water, Buildings 2704, 2705 and 2715 usage and the system losses, which vary from month to month according to our findings, are beyond the EZDOE focus for this report.
13. Page 4-16, par 4-6: Good work.	13. Page 4-16: Thank you for your comment. This section has since been incorporated into Section 4-3.
14. Page 5-3: Top of page, mentions heating for areas frequently open to outdoors. Suggest evaluating an ECO to serve such areas with direct-fired gas IR heaters.	14. Page 5-3: While the use of direct fired gas IR heaters is an excellent idea, Fort Monmouth personnel have concluded that serving these areas with hot water during the heating season only will be acceptable.
15. Page 5-3, Par 2, Sent 2: Change "supported a majority" to "supported by the majority".	15. Page 5-3, Par 2: Paragraph corrected per comments.

Comment		Response	
16.	Sec 5, General: I am concerned about the use of multiple models to determine building loads and predict system performance. Except for the development of the U values and the analysis of the smaller buildings, the use of the Degree Day Method seems to have done more to muddy the waters than to verify the loads and performances. Some of the following comments will illustrate these concerns. It is suggested that the time spent on the Degree Day Method for Building 2700 might have been more profitably spend on refining the inputs for the EZDOE model	16.	Sec 5, General: We agree that the Degree Day Method has limitations for modeling of loads as compared to EZDOE. The Degree Day Method spreadsheet is a standard format which we have developed from previous work to help verify the validity of other calculations. It does not have the ability to account for internal heat generation loads which offset some building heat loss. It does, however, give us a way to compare the EZDOE results on a gross basis. All ECO evaluations will be based on the Steam Use Model, EZDOE and Electric Model. We have made modifications to the EZDOE simulations to improve the accuracy of the model since the issuance of the Interim Report.
17.	Page 5-7: Regarding reheat for the clean rooms: The reheat load is taken from Table 3.4.1.2, presumably from the column labeled "Estimated Heating load, Reheat". How was this load estimated; was it based on construction drawings, or nameplate data? Par 5.2.2 goes on to assume that a certain percent of this load is required year round. I am concerned that an assumption on top of an estimate may result in too much error. Wouldn't it be just as easy and more accurate to model each clean room?	17.	Further review of these units suggests that the air supply is about 50,000 cfm and the outdoor air quantity is about 20% or 10,000 cfm. Initial calculations were in error. Psychometric calculations will be included in the Appendix for ECO support data. Detailing each cleanroom would require a thorough design review of information that was not provided to us. We believe our evaluation is a good approximation of the conditions for these spaces. Also, as mentioned EZDOE was not set up in this study for detailed analyses of individual spaces. Block loading of the cleanrooms was consistent with the other system/area evaluations.
18.	Page 5-10, Par 5.2.4, Sent 1; Change "food" to "for".	18.	Page 5-10: Paragraph corrected per comment.
19.	Page 5-13, Par 5.2.6, Sent 1: Change "from" to "by".	19.	Page 5-13: Paragraph corrected per comment.
20.	Page 5-17: I tried to determine the peak winter day steam demand based on the quantities presented in Section 5.2, and I came up with approximately 10,400 lb/hr. This is considerably less than the 15,000 pph mentioned on page 5-14 or the 17,000 pph mentioned on page 5-20. That leads me to suggest that the methods used in Sec 5.2 result in underestimating the requirements.	20.	Page 5-17: The rate of 10,400 lb/hr in Section 5.2 pertains to the connected heating loads for Building 2700 and 2706, whereas the 15,000 lb/hr reference for pipe velocities relates to the plant's steam production peak which includes additional loads for the cafeteria and Building 2704, 2705, and 2718, and of course the system losses. The corrected 16,000 lb/hr reference on page 5-20 pertains to the record peak of the winter of 1994. Both of these values were determined by reviewing the boiler logs in Appendices.(Refer to response to Comment 22.)

Comment	Response
21. Page 5-20, Sent 2 below Table 5.3.2: Change "to" to "than".	21. Page 5-20: Paragraph corrected per comment.
22. Page 5-20: States that the peak steam demand in January 1994 was over 17,000 pph. Where is that data shown in this report? It is not reported in Table 4.5.1, Facilities Engineering Operating Log, nor in Table 4.5.2, Adjusted Steam Production.	22. Page 5-20: It is apparent that some boiler logs were inadvertently mixed in with the fuel oil bills. The logs show that the hourly average "peak" for fuel use at 80% efficiency for both January 19 and 20, 1994 was close to 16,000 lb/hr. The values tabulated in Section 4 and modeled in Section 5.2 are average monthly figures. Actual hourly peaks are considered to be higher.
23. Page 5-24 & 5-29: Color-coded floor plans are excellent.	23. Page 5-24 & 5-29: Thank you for your comment.
24. Page 5-30: Cooling Coil Temp shown as 55°F: Looks like this may refer to Leaving Air Temp rather than cooling medium temp. Please clarify. See Comment 8 above.	24. Page 5-30: The information in question was changed to reflect that the Leaving Air Temperatures for the MCA system and the DX/Misc Cooling systems is 60°F and 55°F respectively.
25. Page 5-32: Statement at top regarding occupancies: It would not seem too difficult to set up an occupancy schedule for the cafeteria. Data on the cafeteria was reported on Page 3-2.	25. Page 32: Other than the general classification for the "cleanroom" spaces, the floors were subdivided in EZDOE by generalized system. This block loading method works well for estimating overall monthly or quarterly usage and peak totals. As with the case of the cafeteria and the auditorium the local system peaks are probably underestimated, but for the purposes of the analyses in this report, that detail was not considered important enough to differentiate in the block loads setup.
26. Page 5-32: The note under Ventilation Rates stated that many areas do not received outdoor air. If people are working in these areas, their health demands that they receive ventilation, even if the cooling load is increased. The report should at the very least make a recommendation for introduction of outside air to meet the requirements of ASHRAE 62-1989.	26. Page 5-32: As professional engineers, we would have been remiss to not mention the issue of minimum air (or lack of) conditions. Our intent was to comment on that subject in the comments and recommendations portion of Section 7. The introduction of additional outside air to the building will obviously do nothing to save energy. A paragraph was added to page 3-9 that also points out the fact that outside air is missing in many areas.

Comment		Response	
27.	Page 5-32: Regarding infiltration: Please provide more background or give more explanation for the first statement regarding infiltration rates set for summer and winter.	27.	Page 5-32: The baseline infiltration rates were modified in EZDOE to 0.8 ach year round since the building is continuously exhausted. The 0.8 ach rate, suggests an ASHRAE definition for a loose to medium type construction for this building during winter conditions. Summer conditions at this rate are considered high but for this building the exhaust differential governs year round. This section will be modified to clarify this setting.
28.	Page 5-33: The very first sentence on this page could also use some additional background or explanation.	28.	Page 5-33: The following sentences were added to the infiltration portion of Section 5.4.3. "Many of the exhaust fans on the roof are designed with relatively low static pressure of 1" ± water gauge". The negative conditions existing in the building would suggest that the added static pressure would reduce the capacities of these fans and in some cases the fans probably exhaust very little air.
29.	Page 5-33, Sent 2: Change "roof" to "rate".	29.	Page 5-33: Paragraph corrected per comment.
30.	Page 5-37, Table 5.4.4.1: Should include "Base Case" in the title.	30.	Page 5-37, Table 5.4.4.1: Corrected per comment.
31.	Page 5-48 & General: The word "usage" is creating some confusion. In some places usage figures are given units of kWh, and in other places units of kW. Please be consistent.	31.	Page 5-48: Usage should be kWh, Page 5-48 was corrected to reflect that consistency. The remainder of the report will be reviewed for consistency.
32.	Page 6-2, ECO list 1.a. Heating: Mentions "hot water heating system/season". Was this intentional, or is it a typo? Please clarify.	32.	Page 6-2: System/season is intentional with the way we are preliminarily presenting the ECO scope. Converting areas utilizing steam available year round to hot water available for a 7 month season maybe unacceptable to some. The use of system/season hopefully highlighted that aspect.
33.	Page 6-4, Sec 6.3: Normally all ECOs are supposed to be analyzed by the time the interim report is submitted. Apparently, a different arrangement has been mutually agreed upon by the Norfolk District, For Monmouth, and the AE for this study. Please assure that sufficient time is provided for review and comment on ECO analyses prior to development of project documentation and submission of the final report.	33.	Page 6-4: Our intent is to allow for necessary time for review of the ECOs.

Comment	Response
34. Page 6-5: In the Proposal: Change "380 kW/ton" to "380 kW".	34. Page 6-5: Paragraph corrected per comments.
35. Page 6-6 and General: What bases is used for estimating the construction costs, Means, a quote, a combination? Please include the estimate with backup data where appropriate for each ECO analysis.	35. The cost estimates are for the most part based on Means. The estimate for this ECO was inadvertently left out of this submission.

The following addresses the review comments (SEL-FM-PW-E Comments - Zatorski) for the EEAP Limited Energy Study, Myer Center Steam & HVAC at Fort Monmouth, NJ along with our responses.

Comment	Response
1. Sec 6.2 1a) Buildings 2705 & 2704 should be converted as per recommendation.	1. Sec 6.2 1a) Agreed
1b) Building 2700 cleanrooms may go out of business. Don't know at this time, Building 2705 as per recommendation.	1b) Entech shall proceed with the assumption that the cleanrooms will continue to operate as is. Consideration for what might happen in the future is difficult to incorporate into an ECO analysis. Note: If the building steam is removed then a heat source of one type or another will still be required for these parts of the building.
1c) Building 2700 Kitchen equipment. Per discussions with Mr. C. Stone, MWR Mgr. It will cost approximately 18K to replace the steam operated dish washer and steam tables.	1c) Thank you for the input on the kitchen equipment. Further discussion with Mr. C. Stone clarified that the $18,000 is for both the kitchen equipment and installation costs, and that these appliances will utilize hot water fired locally by natural gas. Miscellaneous costs will be added in the ECO analysis to assure an adequate estimate for this work.
1d) Building 2700 domestic hot water should be converted to gas fired equipment utilizing the existing distribution system.	1d) Agreed
a) Project in progress in Building 2706.	a) The extra boiler mentioned in our submittal related to a unit that would be deemed necessary (by Fort Monmouth personnel) for supplying year round heat and/or reheat for areas outside the scope of the new cleanroom boiler for the base case. We are aware of the project in Building 2706 which supports the MCA system. Further discussion with Fort Monmouth personnel has confirmed that only the cleanroom heating/reheat load will be required during the summer in Building 2700.
b) Don't know how much of an impact will be left after ARL leaves, hold on this.	b) Refer to comment 1b. The use of hot water versus steam for the cleanroom boiler is a variation from the base case for an ECO comparison only.

Comment	Response
c) Not feasible or cost effective. Entirely to much piping construction required to achieve this.	c) We appreciate your insight. The ECO evaluation should confirm your thoughts.
d) Would be governed by cost effectiveness between the operation of electric and gas fired equipment. Costs of the actual equipment are probably the same.	d) The ECO analyses will determine the best method for providing domestic hot water.
2. Sec 6: Don't agree, approximately 50 units will be required and will be maintenance intensive.	2. Sec 6: We appreciate your input on what might be required. The ECO evaluation should confirm your thoughts.
3. Sec 6: If you include FCUs you're talking about 1400 units.	3. Sec 6: Our intention was to address air handing units that are not dictated by space exhaust (outside air) quantities (ie: cleanrooms, etc.) Fan coil units (FCU's) will not use clocks.
4. Sec 6: Will need some kind of study on this.	4. Sec 6: Resolving the exhaust/infiltration problems associated with this building would take an extra study or evaluation beyond the scope of this project to properly discern how changes could be made. Our intent will be to demonstrate ECO findings associated with a reasonable scenario for this building.
5. Sec 6: Not cost effective per page 6-7 of this text.	5. Sec 6: Agreed
6. Sec 6: Not versed to comment.	6. Sec 6: No response required.
7. Sec 6: Not versed to comment.	7. Sec 6: No response required.
8. Sec 6: Will issue IJO for rehab of tower #5.	8. Sec 6: Our intent is to look at changes to the cooling tower (CT-1) for the chiller plant.
9. - 12. Sec 6: Not versed to comment.	9.-12. Sec 6: No response required.

The following addresses the review comments (Comments - Konig) for the EEAP Limited Energy Study, Myer Center Steam & HVAC at Fort Monmouth, NJ along with our responses.

Comment		Response	
1.	Entech did an excellent job of describing the existing conditions of the Myer Center and it's existing mechanical system.	1.	Thank you for your comment.
2.	Of the 12 ECOs on Entech's list only ECO #5 was evaluated.	2.	Out intent was to supply an example (ECO #5) for review, and to list the ECOs to be evaluated.
3.	Entech must evaluate the other 11 ECOs.	3.	Our intent is to evaluate all 12 ECOs.
4.	Page 3-1, Typos, Eatontown not Eatonville.	4.	Page 3-1: Corrected.

RESPONSES TO PRE-FINAL REVIEW COMMENTS

EEAP LIMITED ENERGY STUDY

at

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Ft. Monmouth, New Jersey

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February 1997

Pre-final Review Comments and Responses

The following addresses the review comments (DPW - K. Dooney - Mech/General) for the EEAP Limited Energy Study, Myer Center Steam & HVAC at Fort Monmouth, NJ along with our responses.

Comment		Response	
1.	Pg 1-3, Table 1.4.1; Real Property records for building 2705 indicate that building is 47,592 sf.	1.	The square footage for Building 2705 was revised to 47,592.
2.	Pg 1-5, para 1.7; 2nd para of 1.7 states identification of opportunities with building 2700 HVAC system was limited. The subsequent sentence provides 2 reasons, however, it is not clear how these reasons especially "the large number of miscellaneous systems" limited Entech's ability on identifying cost effective opportunities. Please explain.	2.	The scope of this limited energy study project was clarified in a letter from E. Caulkins of Entech to K. Dooney, Ft. Monmouth dated 9/27/95. The letter addresses the change in scope beyond the steam system study to include possible energy savings opportunities with the remaining major HVAC systems in Building 2700. A preliminary list of ECOs was presented in that letter that became the basis for the final group of ECOs reviewed. Additional clarification was gained with an earlier telephone conversation between J. Kendall, Norfolk District and E. Caulkins at Entech. We believe our report addresses the most practical list of potential energy savings opportunities for Building 2700. The reason for the limited opportunities for this building can be attributed to the types of installations in this building. The only opportunities that may exist beyond the list provided would come from areas supported by small dedicated systems that may or may not be inefficient. Even at that, changes in efficiencies for small systems do not generally pay for new equipment from an energy savings standpoint. The reference to the "large number of miscellaneous equipment" relates to the remaining pieces of cooling equipment not addressed by the ECOs. These individual systems may be in need of equipment changes but the scope of this limited study does not include those evaluations.
3.	Pg 1-6, Table 1.7.1; What is the abbreviation "LCCID" mean?	3.	Section 2.6.6. was updated to add the description for the acronym LCCID (Life Cycle Cost In Design). A note was added below Table 1.7.2 to refer to Section 2.6.6 for an explanation of the LCCID program.

Comment		Response	
4.	Pg 1-7, top pg; The sentence at top of page, "addresses" should be "addressed".	4.	"Addresses" was changed to "addressed".
5.	Pg 1-7; Is this the recommended "implementation plan"? the words "In order to go further ..." are not descriptive enough.	5.	Page 1-7 was re-written to help clarify our intent.
6.	Pg 1-7, para B; What is meant by a "strategic up front survey" and why wasn't this included in this study? It is one of the recommended ECOs.	6.	Refer to the response for comment 2, and the changes created by comment 5 of page 1-7. Also refer to the response for comment 19.
7.	Pg 2-8; The examples indicate inside temp of 65°F while the table indicates 72°F. The inside temp of 72°F is more realistic. Recommend degrees on pg 2-8 be changed.	7.	The temperature in the sample calculation on Page 2-8 was changed to 72°F. Also, the U-value was corrected in the calculation to 0.55. The values determined for the Heat Loss and Cost in the sample calculation are correct.
8.	Pg 2-9, Table 2.5.3.1; Roof "U" value of 0.11 does not seem correct. We design to U=0.03 now and over the past 20 yrs. the roof "U" value constructed for _____ at least U=0.05	8.	The U-value that we used was based on standard installation per ASHRAE Handbook 1977 Fundamentals. Nothing we saw from an installation standpoint or the drawings available to us suggested that the roof was of construction constituting U-values of 0.05 or better. In any event, changing the value would not have any significant effect on the ECO results.
9.	Pg 2-10, para 2.5.4, 6th sent; Explain what is meant by this sentence - "Year round cooling and heating loads will be estimated based on building's usage".	9.	This statement generalizes the approach of evaluating chunks of building space by the apparent utilization of the space(s), by the equipment supporting the area and by the relative location within the building. Refer to Section 5.4 beginning on Page 5-22 for more explanation on this approach.
10.	Pg 2-14, winter and summer schedule; This does not agree with winter months at left bottom of Table 2.5.5.1.	10.	The approach to the electric model for this project was to review the loads on a 3-season (4-month/season) basis for establishing demand and usage while the actual rates are bi-seasonal based. Summary calculations evaluate the cost associated with the totals for the summer (4-months) and non-summer periods (8-months). The reference to winter months in the lower left hand corner of the sample, Table 2.5.5.1 refers to the non-summer months.

Comment		Response	
11.	Pg 2-16, Table 2.5.5.1; Demand charge are $9.22 from June - Sept. How does this jive with info at left bottom of Table 2.5.5.1. Why is historical data absent?	11.	The values at the lower left of Table 2.5.5.1 are different from the values determined later for Fort Monmouth because this table is a sample only. Also, no historical data is shown because it is a sample only.
12.	Pg 2-21, para 2; deviation of $21.23 per mmBtu requires a "$" sign in numerator	12.	Page 2-21 was corrected to add "$" in numerator.
13.	Pg 2-25, para 2.7; There has never been a meeting scheduled with DPW to discuss report findings. Perhaps when these comments are received an "on-board review" at DPW can be scheduled.	13.	As previously agreed upon, we would be available for a meeting once the review comments were made and addressed.
14.	Pg 3-5, Table 3.3.2; The roof resistance value / "U" value does not appear correct. Roof replacement was completed.	14.	Refer to comment item #8.
15.	Pg 2-23, Table 2.6.6.1; Can this table be made to appear clearer than it is? How does this table fit into what we are doing? Purpose?	15.	No. This table is an exact copy of what was received with the program. The table is a guideline of how one would go through the LCCID program commands/functions. It was provided as a reference to the LCCID approach.
16.	Pg 1-5, 1-6, ECO Summary Table 1.6.1; Why are there no Non-ECIP, O&M projects developed, ie FEMP projects?	16.	We did not identify any projects that fit the non-ECIP, O&M projects definition as stated on Page 7-3.
17.	Pg 3-17, 3-18, Table 3.4.1.1 & 3.4.1.2; What does "Est" mean in the column headings?	17.	The term "Est" means that every piece of information listed in the table was not identified from a drawing schedule, maintenance list, equipment tags, etc. Information was added and values calculated (estimated) where necessary to complete the table. We filled in these remaining columns with values based on the information available and/or good engineering judgement. (i.e. estimated in some cases).
18.	Table 3.4.1.1 & 3.4.1.2; The point size is too small - recommend/request table be reprinted with point size of Table 3.4.1.6.	18.	C-size drawings of the two tables in question are attached for your use. The 11x17 tables in the report were left as is.

Comment		Response	
19.	Pg 3-14, Bldg 2700 exhaust and 5-33/34; The deficiency that exists would suggest to me that a possible Non-ECIP O&M project could be developed to remedy this deficiency.	19.	Yes, we recognize that the building as presently setup has significant deficiencies associated with a lack of outside air, and potentially excess exhaust. A project to add air where needed and to reduce air where not required by eliminating exhaust would go along way toward improving the air quality in the building. Such a project however, would not reduce overall energy costs. The costs would increase with the added outdoor air quantities. This study focused on energy savings opportunities and not building deficiencies. The project presented later as ECO-3 was a hypothetical situation based only on the reduction of unnecessary exhaust.
20.	Pg 3-15, 4th line from top; Cross reference specific page #'s where the discussion of exhaust, ventilation rates, infiltration occur in Section 5.	20.	Page 3-15 was revised to add reference details to "Section 5".
21.	Pg 3-25, 6th line from top; Bldg 2705 is not 30,000 sf. Our records indicate 47,592 sf.	21.	The square footage in this sentence was revised to match the exact total provided.
22.	Pg 3-27, 4th line; Why did Entech "assume" two pumps installed? In the note that follows the "pumps had failed? this cannot be an assumption.	22.	Page 3-27, Section 3.6 was rewritten to eliminate the assumption that "two domestic hot water pumps were installed".
23.	Pg 3-27, para 3.7, 6th line; Which feature (or both) is not being used.	23.	The sentence in question was clarified on page 3-27 addressing the use or non-use of time clocks.
24.	Pg 3-31, para 3.10, 9th line; Natural gas usage in lab areas should be more certain not "possibly" either by site inspection or interview with lab technicians this could be made certain.	24.	Since the available records suggested extremely low levels of gas usage, it was not considered important to identify all the minor users including labs. Only the expected gas usage associated with boilers was evaluated with the models and the ECOs.
25.	Pg 4-1, para 4.1 4th line, Pg 4-10, para 4.4; Natural gas billings were available for Bldg 2700 - if these were not being furnished Entech should have announced in stronger terms these were not provided. I recall hearing no objection by Entech personnel other than billings were required. Natural gas billings can be provided.	25.	We visited the Ft. Monmouth "energy" group on three different occasions to assist in the search for billing information associated with Building 2700. Several phone calls and faxes of request were made in an attempt to get more information. What is shown is what was either found and/or provided. Since the past use of gas was negligible relative to the projected future totals, the information provided was of little use anyway. New billing beyond (later than) the time period evaluated are not requested.

Comment		Response	
26.	Pg 4-1, 4.1, 14th line; Specify where in Section 5 these "details" may be found.	26.	The line in question was modified to include the Section 5.6.3.1 reference.
27.	Pg 4-7, para 4.2.3, Entech should contact the utility and verify what the interval is.	27.	The interval as specified in ACP&L Rate Schedule Sheet No. 22, Revision 3, is 15 minutes as stated on Page 4-7.
28.	Pg 4-11, 1st & 2nd line, Pg 4-12 Table 4.4.1; The natural gas data presented is useless.	28.	Data is based on actual gas bills for Building 2700 for the time period of this report. The boilers were still running on oil during this period also. Also refer to response for comment 25.
29.	Pg 4-15, 3rd line; The text should state "how" this adjustment was made and perhaps include an example.	29.	The text Section 4-5, starting on page 4-12, modified to further clarify how the steam production totals were established.
30.	Pg 4-17, para 4.6, 2nd line; Spell "production".	30.	We have added the missing "i".
31.	Pg 4-17, para 4.6, 5th line; Is it accurate to assume the efficiency of oil fired 1940 equipment for the (equal to) efficiency of the 1994 dual fuel oil and natural gas burners? Is natural gas more efficient then fuel oil?	31.	Refer to the changes in Section 4-5 pertaining to comment 29. The changes in that section also address the questions presented here in this comment.
32.	Pg 5-2, para 5.2.1, 4th line from bottom & Pg 5-3; Indicate where are the text the EZDOE results can be found. The various percentages given require some foundation. How were they determined?	32.	The results are summarized on a yearly basis in Section 5.4.4, starting on page 5-39. The percentages or diversity factors used in steam models represent average estimates for the amount of connected load needed during a given time of day and year. We used the EZDOE results as a check for setting these factors along with engineering judgement for trends, balance, etc.

Comment	Response
33. Pg5-7, 7th line from top, Table 5.2.2.1 - 5.2.2.3; What is the basis/foundation for the assumption of the percentage? Is this the percentage of the connected load? The text should state "connected load" if it is. Reheat values seem high.	33. Refer to the response for comment 32. Also we have added changes to Section 5-2 to clarify that the percentages relate to the connected loads as far as the reheat values go, the systems using reheat do so because of dehumidification concerns which inherently creates a constant discharge temperature scenario for these spaces. In the case of Building 2705 the reheat loads for the zones involved are highest at night during the winter because of the outdoor affect of heat loss, and the lack of internal gain in the space at night. This is typical for most systems with exception of cleanrooms which utilize high volumes of air and have internal heat gains on a more consistent basis. Therefore, the rise in space temperature is basically a constant year round and for the most part it is maintained by consistent levels of average reheat. The actual values may fluctuate some with seasonal affects but with the great amount of air involved its impact is minimal. The values used in the study are adequate for the level of analysis involved.
34. Pg 5-7, 5-8; The "reheat loads" for the cleanrooms as a constant year round value puzzles me and I don't understand the logic. The reheat values of Bldg 2705 in the summer seem equally illogical. Need your help understanding this.	34. See response to comment 33.
35. Pg 5-13, Table 5.2.6.1; The heading % - how were they determined? The same is typical for all categories. Text should explain how to the nearest 1/10% this was calculated (assumed).	35. The approach is portioning a 100% of the steam produced by rounding the estimated steam model values to the nearest 1/10 of 1%.
36. Pg 5-13, Table 5.2.6.1; 48.8% steam loss! Is our auditor going to "guffaw" at this value? Are we certain this is fairly reasonable & accurate? Seems unreasonable.	36. As stated previously, the steam losses projected here may include losses in the boiler. Page 5-13 was modified to add a note about the steam loss numbers. We believe that this system as operating is creating an excessive amount of condensation.
37. Pg 5-18, Fig 5.2.7.4; Figure shows steam losses at 49.6% is that figure a weighted average of 48.8, 49.8 & 53.5?	37. Figure 5.2.7.4 is a graph of the average values presented in Table 5.2.7.3.
38. Pg 5-20, Table 5.3.1; Roof "U" value is not 0.11. A factor of 0.05 is more reasonable.	38. Refer to the response to comment 8.

Comment		Response	
39.	Pg 5-20, Table 5.3.1; The infiltration rate as compared with Table 2.5.2.1 is different - 0.2 chg/hr vs 0.6 chg/hr. The ventilation ratio appears to be very low!	39.	The 0.6 air changes per hour (chg/hr) value in Table 2.5.2.1 is for a sample calculation only. The 0.2 chg/hr value used later in Figure 5.3.3 represents an average value for the entire area being evaluated in Building 2700. Infiltration occurs where air can move in and out of rooms next to walls, roofs, etc. The large spans of area in the middle core of the building doesn't figure into the air infiltration. But since the heat loss calculation uses the entire building area, we had to make air adjustment to the "chg/hr" for predicting the average per square foot infiltration totals.
40.	Pg 5-22, Fig 5.3.3; Since the bldg's seriously deficient in ventilation does this figure have any validity? Infiltration ratio of 0.2 AC/hr vs. 0.6 AC/hr as low as it is would it constitute 38.4% in heat loss? Does this make sense in light of pg 3-14 connected load exhaust = 180,000 cfm multiplier = 65,000 cfm?	40.	The 0.2 chg/hr value as explained in comment 39 creates a significant overall infiltration which constitutes close to 22% heating totals, see Figure 5.3.3 on page 5-22. Both the ventilation (outdoor) air and the infiltration air are combined to be exhausted out the roof. Refer to the explanation in Section 5.4.3 beginning on page 5-34. ECO-3 was also modified to reference Section 5.4.3.
41.	Pg 4-18, Table 4.6.1; Recommend that this table be compared with the actual NG bills (enclosed)	41.	No gas bills were enclosed. Generated estimated gas consumption was based on the time period with documented fuel oil usage.
42.	Delete Comment	42.	No response required.
43.	Pg 5-26, Fig 5.4.2.2; (a) MR#? = MR 11 & white (I-1to I-2) (b) Stairway#4 should be violet color coded (magenta?) (c) there is a unit heater which heats area behind breezeway entrance and adjacent to loading dock and stairway #5. (d) Substation #5 should be violet.	43.	Corrected and added drawing notes where appropriate-(a), (b) and(d) (c) The blue area in the back represents MCA (III8 - III9) unit heaters. A steam heater exists in dock area from III 9 to III11.
44.	Pg 5-27, Fig 5.4.2.3; (a) the main entrance has steam radiation heat inside col I9 to col I10 (b) the area between col I15 and II5 at the bldg exterior is MCA 2-pipe (light brown) (c) there is a MR for PM JCALS located at bldg center line before col lines IV14 & IV15. Color light tan. (d) MR#? between I17 &I18 = MR13	44.	Corrected, modified and added drawing notes where appropriate for (b), (c) and (d). (a) From the design drawings and our walk thru it is our understanding that MCA air handlers and cabinet unit heaters serviced this area.

	Comment		Response
45.	Comment Deleted	45.	No response required.
46.	Pg 5-28, Fig 5.4.2.4; (a)Center core area between col I6 & I9 is served by equipment in MR21 and is not MCA 2-pipe. (b) Center core between I2 & I4 has a thru wall A/C & Liebert A/C for telephone room.	46.	(a) According to MCA drawing M-19, this area is supported by MCA system ductwork to/from Mechanical Room 21A above stairwell #1. (b) The loads in this area were generally modeled as steam w/misc DX cooling. The study at this stage will not be updated for this equipment.
47.	Pg 5-27, Fig 5.4.2.3; (a) Extend light tan one bay south to III12 & III13 (b) MR#? between III9 & III10 is not a MR - delete from dwg.	47.	Corrected (a) and (b).
48.	Pg 5-26, Fig 5.4.2.2; (a) MR#12 should be white unheated space. (b) delete (c) Area between I17 & II4 should be green - cooling only. (d) MR#? between III9 to III10 does not exist delete notation. (e) Area between III10 to III13 should be light tan (not blue)	48.	Corrected (a), (c), (d), and (e).
49.	Pg 5-28, Fig 5.4.2.4; Between core I6 to I9 should be composite dark tan & green Not MCA 2-pipe!	49.	See response to comment 46 (a).
50.	Pg 5-29, Fig 5.4.2.5; Between Core II20 to III9 should be composite dark tan & green.	50.	Corrected this item.
51.	Pg 5-31, par 5.4.3, "City of ref"; "Long Beach" would be a more appropriate city of ref. than Newark.	51.	Newark NJ is the closest site with available weather data for EZDOE.
52.	Pg 5-34, 2nd line from bottom; Why is the connected O.A. quantity an "estimated" quantity?	52.	Outside air quantities were established from schedule or estimation. Scope of work did not include detailed evaluation of all HVAC equipment including TAB reports.
53.	Pg 5-36, 5-37, Tables 5.4.3.1 & 5.4.3.2; The AC/hr rate is given here as 0.8 for infiltration. See pg 5-20, Table 5.3.1 uses 0.2 AC/hr. In the degree day method, why are different values used?	53.	Higher value of 0.8 AC/hr was used for specific perimeter zones in EZDOE. Degree Day Method used 0.2 as an average for the total floor area combined. See response to comments 39 and 40 also.
54.	Delete comment	54.	No response required.
55.	Pg 5-42, Table 5.5.1.1; The title seams a little mislabeled what is "heating reheat..."	55.	Title should be "Heating/Reheat..."

Comment	Response
56. Pg 5-19, 6th line from top; What does "cost estimate" have to do with the heat loss model? Is this a typo?	56. The sentence in question on page 5-19 was modified to clarify the comment.
57. Pg 5-42, Table 5.5.1.2, 5th line from bottom; The 1,417 tons peak cooling is not found in Table 5.5.1.2. This value is supported by the operation of only 1 MCA chiller during the summer months.	57. The figure in this line was modified to read 1,330 which matches Table 5.5.1.2. Yes, the peak day of 640 tons of MCA water is less than the chiller capacity of one chiller, or 690 tons.
58. Pg 5-50, Table 5.6.3.2, 5.6.3.3; The comparison of the models is not in the report I have or the Tables 5.6.3.2 and 5.6.3.3	58. The only comparison was made in Table 5.6.3.1. Tables 5.6.3.2 and 5.6.3.3. were not needed, and the reference on page 5-51 was deleted.
59. Pg 6-2, 2nd line from top; An ECO to provide ventilation to balance the exhaust & infiltration requirements should have been developed FEMP?	59. Refer to the response for comment 16 and 19.
60. Pg 6-5, Bldg 2706, Boiler plant (MCA HW) 2nd sent; What is the basis for 15.2 mlbs/day? How does this jive with EZDOE of 3,460 mmBtu/yr (5,500 mmbtu/day)?	60. The introduction to ECO-1 was modified to reduce confusion by removing the 15.2 mlbs/day reference. Table 5.5.1.1 was modified to read 5,500 mmBtu per year and this value matches the MCA totals from Table 5.4.4.
61. Pg 6-9, proposed reheat (similarly Pg 6-15, & Pg 6-23); Boiler (HW not steam please) should be located in MR41 and MR42 not MR43.	61. Pages 6-9, 6-15, and 6-23 were modified to add reference to the alternate choice, ECO-1B, for hot water boilers instead of steam boilers for the cleanroom areas. We selected MR43 because of its larger size and that it was relatively empty of useful equipment. MR41 and 42 are smaller and presently include operating equipment.
62. Pg 6-21; (a)Please justify or provide basis in "factors" = labor = 55%, material = 10% (b) spell "contingency"	62. (a) These are the markup values we use for labor and material. Their basis is from the Means Estimating Books, and generally the average impact of the two values is to create 25% markup. (b) Spelling has been corrected.
63. Pg 6-22; What % applied to "overhead and profit" to be added to subtotal.	63. The overhead and profit factors are 10% on materials and 55% on labor. The spreadsheet automatically calculates these values and adds them to the bare cost.
64. Pg 6-29; Bldg has been replaced, not req'd, no cost. The overall cost is very high.	64. Building 2704 was part of the scope during the development of the study. The costs included a new building to support new boilers.

Comment		Response	
65.	Pg 6-37, proposed, 2nd section; Aren't these really "preheat coils"?	65.	Reheat coils are normally required for cleanroom temperature and humidity control requirements. Subcooling is required to remove moisture after which reheat is provided to maintain space temperature control.
66.	Pg 6-40; More than 1 HW coil will be required.	66.	The cost estimate states (3) coils at $5,000 each, implying one coil for each unit. The reality is that this will probably take multiple coils for a given AHU "coil". We believe the cost estimate is appropriate for the installation.
67.	Pg 6-60 & attach 8.13; This is only a tape, bubble gum and string approach. The building lacks ventilation in accordance with ASHARE 62-1989. Isn't the fix proper ventilation & removal of excessive exhaust? Then infiltration will be reduced and fresh air requirements meet. I think we have some other type of project here. Re: page 6 of attachment 8.13.	67.	Refer to responses to comments 16 and 19. As stated, fixing the building air balance problems cannot be paid for by energy savings.
68.	Pg 6-17; The current operation of the MCA HW heating system is one boiler operating in standby. Can this be maintained with this option?	68.	If the changes associated with ECO-1 are made, then it is quite possible that you may have to go to a second boiler during peak periods. This type of operation would equate to a system setup of two boilers operating at 60% capacity during peak periods.

Attachment 8.15

Support Calculations

Entech Engineering, Inc.
Reading, PA • Pottsville, PA • Lehigh Valley, PA

Project No. 4130.05
Date 4/30/97
Project FT. MONMOUTH
By
Subject CALCULATED STEAM LOADS SUMMARY
Page 1 of 4

Comments

SUMMARY FOR TABLE 5.2.1.1

WINTER

2700/2706 MCA HW

12AM-8AM $\frac{6250\ \#/HR \times .50 \times .75}{1.20} = 2000\ \#/HR$

8AM-4PM $\frac{6250\ \#/HR \times .50 \times .45}{1.20} = 1200\ \#/HR$

2700 MISC STEAM

12-8 AM $\frac{640\ \#/HR \times .50 \times 1.0}{2.0} = 160\ \#/HR$

8-4PM $\frac{640\ \#/HR \times .50 \times .7}{2.0} = 110\ \#/HR$

2700 AHU w/ STM HEAT

12-8 AM $\frac{3500\ \#/HR \times .5 \times .30}{1.25} = 420\ \#/HR$

8-4 PM $\frac{3500\ \#/HR \times .5 \times .15}{1.25} = 210\ \#/HR$

BLDG 2704

12-8 AM $\frac{800\ \#/HR \times .5 \times .95}{2.0} = 190\ \#/HR$

8-4 PM $\frac{800\ \#/HR \times .5 \times .65}{2.0} = 130\ \#/HR$

Comments

Bldg 2705

12-8AM $\frac{420\#/HR \times .5 \times .5}{1.1} = 100\#/HR$

8-4PM $\frac{420\#/HR \times .5 \times .35}{1.1} = 70\#/HR$

Bldg 2715

12-8AM $\frac{87\#/HR \times .5 \times 1.0}{2.0} = 20\#/HR$

8-4PM $\frac{87\#/HR \times .5 \times .5}{2.0} = 10\#/HR$

			Comments
INTERMEDIATE – TABLE 5.2.1.2			
2700/2706 MCA HW			
12-8 AM	$\frac{6250\#/Hr \times .20 \times .75}{1.25}$	= 750 #/Hr	
8-4PM	$\frac{6250\#/Hr \times .20 \times .45}{1.25}$	= 460 #/Hr	
2700 MISC STM			
12-8 AM	$\frac{640\#/Hr \times .20 \times 1.0}{2.0}$	= 60 #/Hr	
8-4PM	$\frac{640\#/Hr \times .20 \times .50}{2.0}$	= 30 #/Hr	
2700 MISC AHU W/ STM			
12-8 AM	$\frac{3500\#/Hr \times .20 \times .25}{1.25}$	= 140 #/Hr	
8-4PM	$\frac{3500\#/Hr \times .20 \times .12}{1.25}$	= 70 #/Hr	
2704			
12-8 AM	$\frac{800\#/Hr \times .20 \times .95}{2.0}$	= 80 #/Hr	
8-4PM	$\frac{800\#/Hr \times .20 \times .65}{2.0}$	= 50 #/Hr	

Comments

2705

12-8 Am $\frac{420\ \#/HR \times .20 \times .50}{1.1} = 40\ \#/HR$

8-4 Pm $\frac{420\ \#/HR \times .20 \times .35}{1.1} = 30\ \#/HR$

2715

12-8 Am $\frac{87\ \#/HR \times .2 \times 1.0}{2.0} = 10\ \#/HR$

8-4 Pm $\frac{87\ \#/HR \times .2 \times .50}{2.0} = 5\ \#/HR$

SUMMARY
TABLE 5.2.1.3

2700 MISC STM HTG

12-8 Am $640\ \#/HR \times .15 \times .5 = 50\ \#/HR$

8-4 Pm $640\ \#/HR \times .15 \times .25 = 25\ \#/HR$