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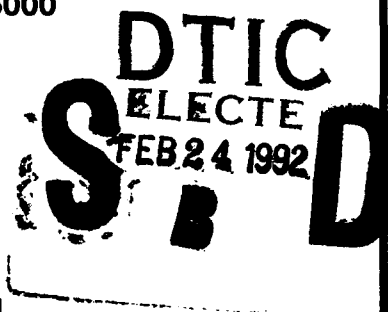


ARMSTRONG  
LABORATORY

HAZARDOUS WASTE TECHNICAL ASSISTANCE SURVEY,  
HEADQUARTERS 132D TACTICAL FIGHTER WING,  
IOWA AIR NATIONAL GUARD,  
DES MOINES, IOWA

Chung H. Yen, Captain, USAF, BSC

OCCUPATIONAL AND ENVIRONMENTAL  
HEALTH DIRECTORATE  
Brooks Air Force Base, TX 78235-5000



December 1991

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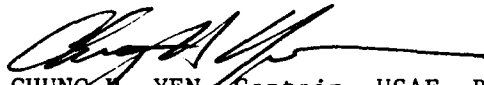
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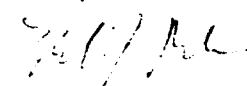
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# REPORT DOCUMENTATION PAGE

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| 14. SUBJECT TERMS<br><br>Hazardous Waste      Waste Minimization<br>HQ 132d Tactical Fighter Wing      Des Moines, IA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                 |                                                                |                                      | 15. NUMBER OF PAGES<br><br>32                                      |  |
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## ACKNOWLEDGMENTS

The author wishes to thank the personnel at 132 TFW, Iowa Air National Guard, who provided information and logistics support during this survey. 2Lt John Kabitzke, Base Environmental Coordinator, and MSgt Zickel and TSgt Palmer, Base Accumulation Point Managers, provided valuable information on the management of the hazardous waste program. Special thanks are given to TSgt Grove, Base Bioenvironmental Engineering Technician, for his escort support during shop visits and providing his corporate knowledge on the waste accumulation and handling practices on base.



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**HAZARDOUS WASTE TECHNICAL ASSISTANCE SURVEY,  
HEADQUARTERS 132D TACTICAL FIGHTER WING,  
IOWA AIR NATIONAL GUARD, DES MOINES, IOWA**

**INTRODUCTION**

On 5 Oct 90, the 132d Mission Support Squadron of the 132d Tactical Fighter Wing (132 TFW), Iowa Air National Guard (ANG), requested the Air Force Occupational and Environmental Health Laboratory\* to conduct a Hazardous Waste Technical Assistance Survey at HQ 132 TFW, Des Moines (Appendix A). The survey results will be used to improve the base hazardous waste management program. The scope of the survey is to address hazardous waste management practices and evaluate opportunities for waste minimization.

The survey was conducted by Capt Patrick T. McMullen and Capt Chung H. Yen during 1-2 May 91.

**BASE DESCRIPTION**

HQ 132 TFW, Iowa ANG, is located on the northwest acreage of the Des Moines International Airport (IAP). HQ 132 TFW is responsible for the maintenance and the flying operation of an A-7D/K squadron. Currently, there are no tenant units physically residing on Iowa ANG basehold at Des Moines IAP.

**HAZARDOUS WASTE MANAGEMENT PROGRAM**

The hazardous waste management program at HQ 132 TFW, Des Moines IAP, is managed primarily by the Environmental and Contracting Planning Office in Civil Engineering (132 TFW/DEV). Bioenvironmental Engineering Services (BES) helps monitor the program through industrial shop surveys and is responsible for waste sampling at the request of 132 TFW/DEV.

Individual shops are responsible for identifying, segregating, handling, packaging, and labelling the wastes generated by their shop. The wastes are collected at satellite accumulation points (SAP) within the shop vicinity. These wastes are ultimately placed in 55-gallon drums located at an accumulation point (AP) on base.

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\*The Air Force Occupational and Environmental Health Laboratory has been redesignated Armstrong Laboratory, Occupational and Environmental Health Directorate.

When wastes require disposal, the shop initiates a DD Form 1348-1 for waste turn-in. This is then given to a 132 TFW/DEV representative who processes the form for eventual disposal of wastes via the Defense Reutilization and Marketing Office (DRMO) at Offutt Air Force Base (AFB).

## **PROCEDURE**

The first step of the survey was to review the base hazardous waste management plan and identify shops that are potential generators of hazardous waste streams. Next, 12 industrial shops were visited to observe industrial operations, discuss chemical waste disposal practices with shop supervisors and personnel, and complete interview forms (Appendix B).

The base AP and all SAPs were visited and assessed.

The overall hazardous waste management program was discussed with the following individuals:

|                   |                                              |
|-------------------|----------------------------------------------|
| 2Lt John Kabitzke | Base Environmental Coordinator               |
| MSgt Zickel       | Base Accumulation Point Manager              |
| TSgt Palmer       | Base Accumulation Point Manager              |
| TSgt Tim Grove    | Base Bioenvironmental Engineering Technician |

## **OBJECTIVES**

Evaluate management of hazardous waste program.

Identify opportunities for waste minimization.

## **SUMMARY OF WASTE DISPOSAL PRACTICES AT 132 TFW, IOWA ANG**

The waste disposal practices for different categories of wastes are summarized in this section. A shop-by-shop summary of disposal practices is contained in Appendix C.

Waste oils and fluids are accumulated in 55-gallon drums at or near points of generation. Once full, the drums are transported to the AP. These waste are stored until transport for disposal by DRMO at Offutt AFB.

Waste paint, thinners, and strippers are placed in 55-gallon drums, transported to the AP, and stored until disposal by Offutt DRMO.

Soap solutions are rinsed down the drain into the sanitary sewer. In most instances, they run straight into the vicinity creeks at the airport.

Waste penetrants, emulsifiers, developer, and magnetic particle oils from the Nondestructive Inspection (NDI) shop are drummed and disposed of by Offutt DRMO.

Waste fuels consisting of JP-4, mogas, and diesel are accumulated in 55-gallon drums at or near the shop areas. Once full, the drums are transported to the AP. Most fuels are disposed of through Offutt DRMO. However, 132 TFW Fuel Cell Repair recycles 120 gallons of residual JP-4 fuel each year.

Spent and waste batteries are turned in to Offutt DRMO for disposal.

A summary of waste disposal practices for each waste category is shown in Appendix D.

Appendix E is a master list of shops.

## **OBSERVATIONS AND RECOMMENDATIONS**

### **Regulatory Deficiencies at Accumulation Point (AP)**

The hazardous waste AP consists of an uncovered, concrete diked area elevated 18" of sufficient size for base needs. The site is unsecured, open to weather, and without spill response equipment. Moreover, this site does not have an "emergency response coordinator" (with alternate) appointed by the base commander.

REC: To meet safety and emergency response requirements under 40 CFR 262.34 the following is required: posting of emergency response requirements as detailed in 262.34 (d)(5)(ii), formal designation by the base commander of an individual to serve as his "emergency response coordinator," a written program for emergency response at the site, and proper training for all employees who have access to this area.

Though not required by law, for a small quantity generator, it is advantageous for the base to upgrade the AP with a cover and security fencing. The storage drums at the SAP should be secured with locking devices. These measures will help minimize the occurrence of inadvertent and unauthorized mixing of hazardous waste with used oil and spent fuel.

### **Formal Designation of AP Manager**

There is an AP manager who currently assumes operational responsibilities. However, an individual has not been officially appointed by the base commander.

REC: The base commander should assign the present AP manager (with alternate) in writing.

### **Management of Satellite Accumulation Point (SAP)**

The base has several SAPs located near the generation points. There was not a clear understanding as to the identity of the SAP managers. At the time of this visit, there were several drums unsecured. As the drums were not covered, they are exposed to the rain and snow. This exposure could lead to corrosion of the drums and leaking of their contents.

REC: The base commander should assign a SAP manager (and alternate) in writing for each point. The responsibilities for this position are outlined in the base's Hazardous Waste Management Plan. Although not required by law, all drums in the SAP should be secured with a lock assembly. When transferred to the AP, locks and responsibilities will be transferred from the SAP manager to the AP manager. All drums must be protected with a polyethylene drum cover while in storage at the SAP. Additionally, the Field Maintenance SAP building should continue to be used for storage.

### **Tracking of Waste Disposal Drums**

The base has a recurring problem of unmarked drums of waste appearing at the AP or base supply. In the absence of any "User's Knowledge" regarding the contents, the base is required to perform a full hazardous waste analysis at approximately \$1,800/drum. IAW 40 CFR 264, the generator of the waste has the total responsibility for storage, labelling, identification, and transportation of the waste to the AP.

REC: A simple solution to this problem has been implemented at several other installations. A system is established to numerically code all drums used in the shops for waste storage (hazardous and nonhazardous). The number must be assigned and centrally recorded before waste is initially added to a drum. The number is then verified, as it is turned in to the AP.

### **Waste Management Accountability**

The base has not effectively implemented the base Hazardous Waste Management Plan to include proper designation of SAP and provisions for training of these individuals.

**REC:** The base needs to continue to provide training for SAP/AP managers that addresses procedures for storing, handling, and transporting waste on the base. (Note: Hazardous waste manager training was ongoing during this survey and is expected to address this issue.)

### **Environmental Coordinator Vacancy**

The National Guard Bureau has approved and funded a slot for a full-time environmental coordinator. This slot is currently vacant. Most of the above recommendations would fall under the responsibility of this office.

**REC:** Considering the regulatory breadth and technical complexity of the environmental program requirements of the 132 TFW, we strongly recommend this position be filled with a competent engineering professional.

### **BIBLIOGRAPHY**

1. United States Environmental Protection Agency, Samplers and Sampling Procedures for Hazardous Waste Streams, EPA-600/2-80-018, Jan 1980.
2. Code of Federal Regulations, Title 29, Labor, Part 1910, Occupational Safety and Health Standards, Section 120, Hazardous Waste Operations and Emergency Response, 1990.
3. Code of Federal Regulations, Title 40, Protection of Environment, Part 261, Identification and Listing of Hazardous Waste, Part 262, Standards Applicable to Generators of Hazardous Waste, and Part 264, Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities, 1990.

**APPENDIX A**  
**Request Letter**



# IOWA AIR NATIONAL GUARD

HEADQUARTERS, 132ND TACTICAL FIGHTER WING  
3100 MCKINLEY AVE., DES MOINES, IOWA 50321-2799

TO: 132d MSS/CCE

5 October 1990

SUBJECT: Hazardous Waste Minimization Survey

TO: DCS  
CC  
NGB/SCB  
AF OEHLE/EQH  
IN TURN

1. The 132d Tactical Fighter Wing is in the process of trying to reduce or minimize the accumulation of hazardous waste which benefits the environment for everyone. This unit is actively involved in pursuing all avenues available to strengthen the program.

2. We would appreciate your assistance in performing a hazardous waste minimization technical assistance survey at the earliest possible date. TSgt Tim Grove/SCPB can be contacted at 939-8575, Tuesday through Friday to coordinate the survey and handle your needs.

GARY A. FITZGERALD, Capt, Iowa ANG  
Mission Support Officer

1st Ind, 132d TFW/DCS

10 October 1990

TO: 132d TFW/CC

Request forwarded for your approval. This survey will be very beneficial to this unit in identifying and minimizing hazardous waste.

HARRY E. CLARK, Major, Iowa ANG  
Deputy Commander for Support

2nd Ind, 132d TFW/CC

10 October 1990

TO: NGB/SCB

Request is valid and forwarded for your consideration. This survey will greatly benefit this unit.

DONALD W. ARMINSTON, Col, Iowa ANG  
Commander

3rd Ind to 132nd MSS/CCE ltr, 5 Oct 90, Hazardous Waste Minimization Survey

NGB/SGB

2 Nov 90

TO: AFOEHL/EQH

1. This request has been reviewed and discussed with the requesting unit.
2. Your support is once again appreciated, NGB/SGB POC is Lt Col Washeleski or CMSgt Craig, DSN 858-8535



JAMES L. CRAIG, JR., CMSgt, USAF  
Supt, Bioenvironmental Engineering

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**APPENDIX B**

**Hazardous Waste Technical Assistance Survey  
Shop Supervisor Interview Form**

HAZARDOUS WASTE TECHNICAL ASSISTANCE SURVEY  
SHOP SUPERVISOR INTERVIEW FORM

SHOP & OFFICE SYMBOL \_\_\_\_\_ EXT \_\_\_\_\_  
BUILDING \_\_\_\_\_ CONTACT \_\_\_\_\_  
MISSION \_\_\_\_\_

WORKLOAD \_\_\_\_\_

| <u>WASTE STREAM</u> | <u>TYPE/NSN</u> | <u>QTY/MO.</u> | <u>DISPOSAL METHOD</u> |
|---------------------|-----------------|----------------|------------------------|
| FUEL                | _____           | _____          | _____                  |
| 7808 MOTOR OIL      | _____           | _____          | _____                  |
| SYNTHETIC OIL       | _____           | _____          | _____                  |
| FLUIDS (B,T,OR H)   | _____           | _____          | _____                  |
| SOLVENTS            | _____           | _____          | _____                  |
| WASTE PAINTS (TYPE) | _____           | _____          | _____                  |
| THINNERS (TYPE)     | _____           | _____          | _____                  |
| STRIPPERS (TYPE)    | _____           | _____          | _____                  |
| SOAPS (dil ratio)   | _____           | _____          | _____                  |
| BATTERIES           | _____           | _____          | _____                  |
| SPEEDY DRY          | _____           | _____          | _____                  |
| SHOP RAGS           | _____           | _____          | _____                  |

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

O/W SEPARATORS (NO.,USE,CLEANOUT FREQ & DISPOSAL) \_\_\_\_\_  
(ADD INFO ON BACK AS REQ'D)

RECOMMENDATIONS

\_\_\_\_\_

\_\_\_\_\_

OTHERS

PENETRANT

EMULSIFIER

ANTIFREEZE

CARBON REMOVER

MAG PARTICLE

DEVELOPER

O/W SLUDGE

ACIDS

TANKS

CHEMICAL

SIZE

CHANGE FREQ

DISPOSAL

MIS.

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---

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---

---

UST'S

USE

SIZE

LOCATION

PUMP OUT FREQ

LEAK TESTED

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## **APPENDIX C**

### **Disposal Practices by Shop at 132 TFW, Iowa ANG**

## DISPOSAL PRACTICES BY SHOP AT IOWA AIR NATIONAL GUARD

SHOP: 132 TFW Gun Services

Building: 124

| WASTE PRODUCT  | QTY (GAL/YR) | DISPOSAL |
|----------------|--------------|----------|
| Carbon Remover | 600          | DRMO     |
| Safety Kleen   | 240          | CD       |
| Total:         | 840          |          |

SHOP: 132 TFW NDI

Building: 230

| WASTE PRODUCT | QTY (GAL/YR) | DISPOSAL |
|---------------|--------------|----------|
| Penetrant     | 20           | DRMO     |
| Emulsifier    | 20           | DRMO     |
| Developer     | 50           | DRMO     |
| Magnetic Oil  | 15           | DRMO     |
| Total:        | 105          |          |

SHOP: 132 TFW Electric/Battery

Building: 100

| WASTE PRODUCT | QTY (BATTERIES/YR) | DISPOSAL |
|---------------|--------------------|----------|
| Ni-Cad        | 25                 | DRMO     |
| Lead ACid     | 30                 | DRMO     |
| Total:        | 55                 |          |

SHOP: 132 TFW Pneudraulics

Building: 100

| WASTE PRODUCT  | QTY (GAL/YR) | DISPOSAL |
|----------------|--------------|----------|
| Fluid          | 174          | DRMO     |
| Safety Kleen   | 180          | CD       |
| PD—680 Type II | 36           | UIP      |
| Total:         | 390          |          |

**SHOP: 132 TFW Phase Maintenance****Building: 100**

| WASTE PRODUCT  | QTY (GAL/YR) | DISPOSAL |
|----------------|--------------|----------|
| Oil & Fluid    | 24           | DRMO     |
| PD—680 Type II | 360          | DRMO     |
| Total:         | 384          |          |

**SHOP: 132 TFW Repair and Reclamation****Building: 100**

| WASTE PRODUCT  | QTY (GAL/YR) | DISPOSAL |
|----------------|--------------|----------|
| Stripper       | 160          | DRMO     |
| SE-377 cleaner | 60           | DRMO     |
| PD—680 Type II | 10           | DRMO     |
| Safety Kleen   | 180          | CD       |
| Total:         | 410          |          |

**SHOP: 132 TFW AGE****Building: 104**

| WASTE PRODUCT | QTY (GAL/YR) | DISPOSAL |
|---------------|--------------|----------|
| Fuel          | 12           | DRMO     |
| Oil & Fluid   | 400          | DRMO     |
| Soaps         | 60           | SS       |
| Safety Kleen  | 160          | CD       |
| Total:        | 632          |          |

**SHOP: 132 TFW Structural Repair****Building: 315**

| WASTE PRODUCT         | QTY (GAL/YR) | DISPOSAL |
|-----------------------|--------------|----------|
| Waste Paint & Thinner | 110          | DRMO     |
| Total:                | 110          |          |

SHOP: 132 TFW Fuel Cell Repair

Building: 315

| WASTE PRODUCT | QTY (GAL/YR) | DISPOSAL |
|---------------|--------------|----------|
| Fuel          | 120          | REC      |
| Total:        | 120          |          |

SHOP: 132 TFW A-7 Propulsion

Building: 160

| WASTE PRODUCT  | QTY (GAL/YR) | DISPOSAL |
|----------------|--------------|----------|
| Fuel           | 24           | DRMO     |
| Oil & Fluid    | 2,400        | DRMO     |
| Safety Kleen   | 360          | CD       |
| PD—680 Type II | 30           | DRMO     |
| Total:         | 2,814        |          |

SHOP: 132 TFW Fuel Management

Building: 112

| WASTE PRODUCT   | QTY (GAL/YR) | DISPOSAL |
|-----------------|--------------|----------|
| Fuel            | 150          | DRMO     |
| Petroleum Ether | 5            | DRMO     |
| Total:          | 155          |          |

SHOP: 132 TFW Vehicle Maintenance

Building: 105

| WASTE PRODUCT | QTY (GAL/YR)    | DISPOSAL |
|---------------|-----------------|----------|
| Oil & Fluid   | 720             | DRMO     |
| Thinners      | 660             | DRMO     |
| A/C Soap      | 360             | SS       |
| Batteries     | 24 Batteries/YR | DRMO     |
| Safety Kleen  | 120             | CD       |
| Total:        | 1,884           |          |

LEGEND: DRMO denotes Defense Reutilization and Marketing Office

SS denotes Sanitary Sewer

CD denotes Contractor Disposal

REC denotes Recycled

UIP denotes Used In Process

## **APPENDIX D**

### **Summary of Waste Disposal Practices for Each Waste Category**

**SUMMARY OF WASTE DISPOSAL PRACTICES FOR  
EACH WASTE CATEGORY**

**WASTE: FUEL**

| SHOP                     | WASTE | QTY (GAL/YR) | DISPOSAL |
|--------------------------|-------|--------------|----------|
| 132 TFW AGE              | Fuel  | 12           | DRMO     |
| 132 TFW Fuel Cell Repair | Fuel  | 120          | REC      |
| 132 TFW A-7 Propulsion   | Fuel  | 24           | DRMO     |
| 132 TFW Fuel Management  | Fuel  | 150          | DRMO     |
| Total:                   |       | 306          |          |

**WASTE: OIL & FLUID**

| SHOP                        | WASTE       | QTY (GAL/YR) | DISPOSAL |
|-----------------------------|-------------|--------------|----------|
| 132 TFW NDI                 | Mag Oil     | 15           | DRMO     |
| 132 TFW Pseudraulics        | Fluid       | 174          | DRMO     |
| 132 TFW Phase Maintenance   | Oil & Fluid | 24           | DRMO     |
| 132 TFW AGE                 | Oil & Fluid | 400          | DRMO     |
| 132 TFW A-7 Propulsion      | Oil & Fluid | 2,400        | DRMO     |
| 132 TFW Vehicle Maintenance | Oil & Fluid | 720          | DRMO     |
| Total:                      |             | 3,733        |          |

**WASTE: DEGREASERS/CLEANERS**

| SHOP                        | WASTE          | QTY (GAL/YR) | DISPOSAL |
|-----------------------------|----------------|--------------|----------|
| 132 TFW Pseudraulics        | PD-680 Type II | 36           | UIP      |
| 132 TFW Phase Maintenance   | PD-680 Type II | 360          | DRMO     |
| 132 TFW Repair & Reclama    | PD-680 Type II | 10           | DRMO     |
| 132 TFW A-7 Propulsion      | PD-680 Type II | 30           | DRMO     |
| 132 TFW Repair & Reclama    | SE-377 Cleaner | 60           | DRMO     |
| 132 TFW Gun Services        | Safety Kleen   | 240          | CD       |
| 132 TFW Pseudraulics        | Safety Kleen   | 180          | CD       |
| 132 TFW Repair & Reclama    | Safety Kleen   | 180          | CD       |
| 132 TFW AGE                 | Safety Kleen   | 160          | CD       |
| 132 TFW A-7 Propulsion      | Safety Kleen   | 360          | CD       |
| 132 TFW Vehicle Maintenance | Safety Kleen   | 120          | CD       |
| Total:                      |                | 1,736        |          |

**WASTE: BATTERIES**

| SHOP                        | WASTE                  | QTY (BATTER-<br>IES/YR) | DISPOSAL |
|-----------------------------|------------------------|-------------------------|----------|
| 132 TFW Electric/Battery    | Ni-Cad Batteries       | 25                      | DRMO     |
| 132 TFW Electric/Battery    | Lead Acid<br>Batteries | 30                      | DRMO     |
| 132 TFW Vehicle Maintenance | Batteries              | 24                      | DRMO     |
| Total:                      |                        | 79                      |          |

**WASTE: NDI**

| SHOP        | WASTE      | QTY (GAL/YR) | DISPOSAL |
|-------------|------------|--------------|----------|
| 132 TFW NDI | Penetrant  | 20           | DRMO     |
| 132 TFW NDI | Emulsifier | 20           | DRMO     |
| 132 TFW NDI | Developer  | 50           | DRMO     |
| 132 TFW NDI | Mag Oil    | 15           | DRMO     |
| Total:      |            | 105          |          |

**WASTE: CARBON REMOVER**

| SHOP                 | WASTE          | QTY (GAL/YR) | DISPOSAL |
|----------------------|----------------|--------------|----------|
| 132 TFW Gun Services | Carbon Remover | 600          | DRMO     |
| Total:               |                | 600          |          |

**WASTE: PAINT RELATED**

| SHOP                         | WASTE                    | QTY (GAL/YR) | DISPOSAL |
|------------------------------|--------------------------|--------------|----------|
| 132 TFW Structural Repair    | Waste Paint<br>& Thinner | 110          | DRMO     |
| 132 TFW Vehicle Maintenance  | Thinner                  | 660          | DRMO     |
| 132 TFW Repair & Reclamation | Stripper                 | 160          | DRMO     |
| Total:                       |                          | 930          |          |

**WASTE: SOAP**

| SHOP                        | WASTE    | QTY (GAL/YR) | DISPOSAL |
|-----------------------------|----------|--------------|----------|
| 132 TFW AGE                 | Soap     | 60           | SS       |
| 132 TFW Vehicle Maintenance | A/C Soap | 360          | S        |
| Total:                      |          | 420          |          |

**LEGEND:** DRMO denotes Defense Reutilization and Marketing Office  
SS denotes Sanitary Sewer  
CD denotes Contractor Disposal  
REC denotes Recycled  
UIP denotes Used In Process

**APPENDIX E**  
**Master List of Shops**

## MASTER LIST OF SHOPS

| <u>SHOP</u>        | <u>CONTACT</u>      | <u>BUILDING</u> | <u>PHONE NUMBER</u> |
|--------------------|---------------------|-----------------|---------------------|
| Gun Services       | MSgt Davidson       | 124             | 939-8394            |
| NDI                | SSgt Easley         | 230             | 939-8367            |
| Electric/Battery   | MSgt Swenson        | 100             | 939-8355            |
| Pneudraulics       | SSgt Burney         | 100             | 939-8359            |
| Phase Maint.       | TSgt Miller         | 100             | 939-8380            |
| Repair/Reclamation | TSgt Anderson       | 100             | 939-8357            |
| AGE                | MSgt VanWaardhuizen | 104             | 939-8362            |
| Structural Repair  | TSgt Bosworth       | 315             | 939-8366            |
| Fuel Cell Repair   | TSgt Pasco          | 315             | 939-8363            |
| Propulsion         | SMSgt Buzzell       | 160             | 939-8368            |
| Fuels Management   | SSgt Starmer        | 112             | 939-8444            |
| Vehicle Maint      | MSgt Metcalf        | 105             | 939-8445            |