

AD-A198 897 HAZARDOUS WASTE STAFF ASSISTANCE SURVEY PLATTSBURG AFB
NEW YORK(U) AIR FORCE OCCUPATIONAL AND ENVIRONMENTAL
HEALTH LAB BROOKS AF. G T FAGIN ET AL. OCT 87
UNCLASSIFIED USAF OEHM-87-129E00159KHC F/G 24/3

HAZARDOUS WASTE STAFF ASSISTANCE SURVEY PLATTSBURG AFB
NEW YORK(U) AIR FORCE OCCUPATIONAL AND ENVIRONMENTAL
HEALTH LAB BROOKS AF. G T FAGIN ET AL. OCT 87
USAFODHM-87-129E00159KHM F/G 24/3

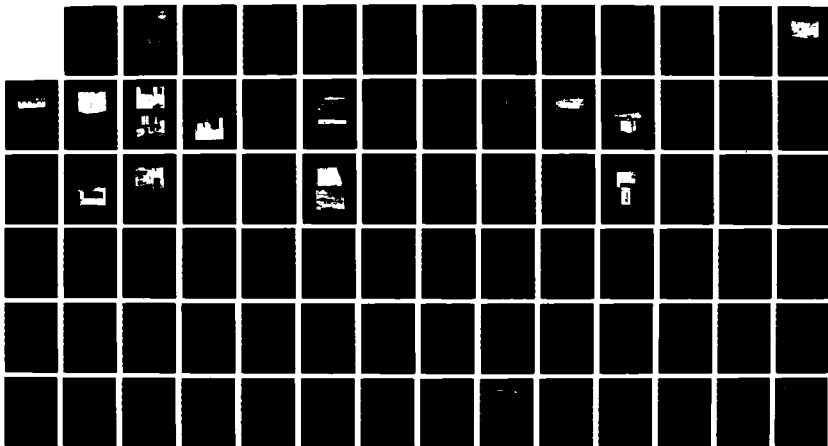
1/1

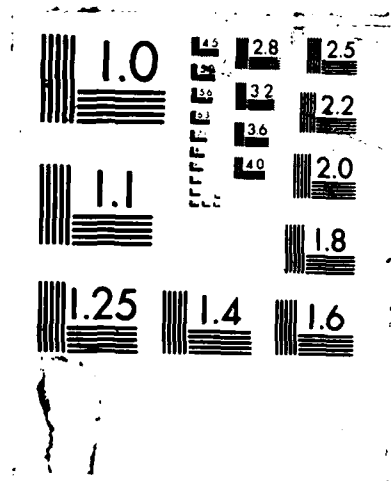
UNCLASSIFIED

G T FAGIN ET AL. OCT 87

F/G 24/3

ML





USAFOEHL REPORT
-87-129EQ0159KHH



AD-A188 897

HAZARDOUS WASTE STAFF ASSISTANCE SURVEY, PLATTSBURG AFB NY

GUY T. FAGIN, Capt, USAF, BSC
ROBERT A. TETLA, JR., 1Lt, USAF, BSC

October 1987

DTIC
ELECTE
DEC 15 1987
S D

Final Report

Distribution is unlimited; approved for public release

USAF Occupational and Environmental Health Laboratory
Human Systems Division (AFSC)
Brooks Air Force Base, Texas 78235-5501

87 12 11 051

NOTICES

When Government drawings, specifications, or other data are used for any purpose other than a definitely related Government procurement operation, the Government thereby incurs no responsibility nor any obligation whatsoever. The fact that the Government may have formulated, or in any way supplied the said drawing, specifications, or other data, is not to be regarded by implication, or otherwise, as in any manner licensing the holder or any other person or corporation; or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

The mention of trade names or commercial products in this publication is for illustration purposes and does not constitute endorsement or recommendation for use by the United States Air Force.

Do not return this copy. Retain or destroy.

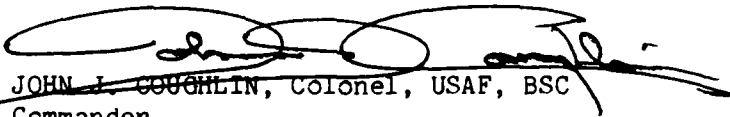
Air Force installations may direct requests for copies of this report to: USAF Occupational and Environmental Health Laboratory (USAFOEHL) Library, Brooks AFB TX 78235-5501.

Other Government agencies and their contractors registered with the DTIC should direct requests for copies of this report to: Defense Technical Information Center (DTIC), Cameron Station, Alexandria VA 22314.

Non-Government agencies may purchase copies of this report from: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield VA 22161

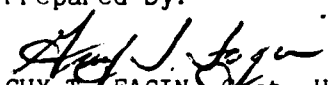
The Public Affairs Office has reviewed this report, and it is releasable to the National Technical Information Service, where it will be available to the general public, including foreign nations.

This report has been reviewed and is approved for publication.



JOHN L. COUGHLIN, Colonel, USAF, BSC
Commander

Prepared By:

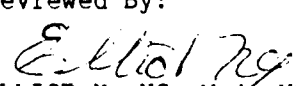


GUY T. FAGIN, Capt, USAF, BSC
Air Function

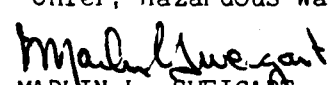


ROBERT A. TETLA, JR., 1Lt, USAF, BSC
Hazardous Waste Function

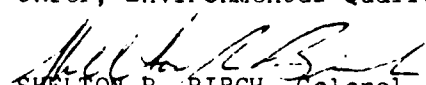
Reviewed By:



ELLIOT K. NG, Maj, USAF, BSC
Chief, Hazardous Waste



MARLIN L. SWEIGART, Lt Col, USAF, BSC
Chief, Environmental Quality Branch



SHELTON R. BIRCH, Colonel, USAF, BSC
Chief, Consultant Services Division

1477

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED			1b. RESTRICTIVE MARKINGS		
2a. SECURITY CLASSIFICATION AUTHORITY NA			3. DISTRIBUTION/AVAILABILITY OF REPORT Distribution is unlimited; approved for public release		
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE NA			5. MONITORING ORGANIZATION REPORT NUMBER(S)		
4. PERFORMING ORGANIZATION REPORT NUMBER(S) 87-129EQ0159KHH			7a. NAME OF MONITORING ORGANIZATION		
6a. NAME OF PERFORMING ORGANIZATION USAF Occupational and Environmental Health Laboratory		6b. OFFICE SYMBOL (If applicable) ECQ	7b. ADDRESS (City, State, and ZIP Code)		
6c. ADDRESS (City, State, and ZIP Code) Brooks AFB TX 78235-5501			9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER		
8a. NAME OF FUNDING/SPONSORING ORGANIZATION Same as 6a		8b. OFFICE SYMBOL (If applicable)	10. SOURCE OF FUNDING NUMBERS		
6c. ADDRESS (City, State, and ZIP Code) Same as 6c			PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.
			WORK UNIT ACCESSION NO.		
11. TITLE (Include Security Classification) Hazardous Waste Staff Assistance Survey, Plattsburg AFB NY					
12. PERSONAL AUTHOR(S) Guy T. Fagin, Capt. USAF, BSC, Robert A. Tetla, 1Lt, USAF, BSC					
13a. TYPE OF REPORT Final		13b. TIME COVERED FROM 20-30 Apr 87		14. DATE OF REPORT (Year, Month, Day) October 1987	
15. PAGE COUNT 84					
16. SUPPLEMENTARY NOTATION					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB-GROUP	Plattsburg AFB hazardous waste, waste reduction, waste minimization		
19. ABSTRACT (Continue on reverse if necessary and identify by block number) At the request of HQ SAC/SGPB, the USAFOEHL conducted a hazardous waste staff assistance survey at Plattsburg AFB from 20 Apr 87 to 30 Apr 87. The scope of this survey was to address hazardous waste management practices and explore opportunities for hazardous waste minimization. The survey team performed a shop-by-shop evaluation of chemical waste management practices as well as met with hazardous waste managers and engineers to discuss the hazardous waste program. The results of our survey showed that the hazardous waste program at PAFB is informal. The Environmental Coordinator, DEEV, has the responsibility of training shop personnel, inspecting accumulation sites, reviewing finalized manifests and maintaining records. DEEV is not involved with the specific details of waste disposal. The program is primarily managed by the Defense Reutilization Management Office (DRMO), the bioenvironmental shop (BEE), and the shop generating the waste. (over)					
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT ☐ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT ☐ DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION Unclassified		
22a. NAME OF RESPONSIBLE INDIVIDUAL 1Lt Robert A. Tetla, Jr.			22b. TELEPHONE (Include Area Code) (512) 536-3305		22c. OFFICE SYMBOL ECQ

Item #19 cont'd

Recommendations: (1) There is need to develop a waste analysis plan. This plan would consist of: A complete listing of all waste streams; a baseline chemical analysis; analysis frequency; sampling technique and analysis parameters. (2) Action should be taken to secure, curb and cover waste storage sites. (3) A program should be initiated to determine the integrity of underground storage tanks. (4) Solvent, oil and fuel waste minimization could prove cost effective. (5) Turn in documents (DD Form 1348-1) need to be routed through a central office, such as the Environmental Coordinator, for recording exact amounts of waste generated by the base. (6) Most importantly, the training and education program initiated by the Environmental Coordinator should be continued and expanded.

ACKNOWLEDGMENT

The authors wish to thank the personnel at Plattsburg AFB who provided information and logistic support during our visit. Mr Grimmer, 380 ABG/DEEV, and the Bioenvironmental Engineering Shop, USAF Hospital Plattsburg/SGPB, were especially supportive of the mission both during and after the field survey.

[illegible]

CONTENTS

	Page
DD Form 1437	i
Acknowledgment	iii
Illustrations	v
I. INTRODUCTION	1
II. BACKGROUND	1
III. PROCEDURE	2
IV. DESCRIPTION OF INDUSTRIAL ACTIVITIES AND WASTE DISPOSAL PRACTICES	4
V. SUMMARY OF GENERAL WASTE DISPOSAL PRACTICES	19
VI. OBSERVATIONS AND CONCLUSIONS	20
VII. MANAGEMENT PRACTICES	26
VIII. RECOMMENDATIONS	29
References	31
APPENDIX	
A Request Letter	33
B Waste Disposal Practices By Shop	37
C Summary of Accumulation Sites	49
D Waste Disposal Form	53
E Summary of Wastes Generated	59
F Staff Summary Sheet to Wheel and Tire Shop	69
G Acquanetics Questionnaire	73
Distribution List	79

ILLUSTRATIONS

Table		Page
1	CATEGORIES OF WASTE AT PLATTSBURG AFB	2
2	VOLATILE ORGANIC CONTAMINATION AT FOUR MONITORING WELLS	23
3	EXAMPLE OF A WASTE ANALYSIS PLAN	27
4	SAMPLE ANALYSIS OF BATTERY ACID	28

Figure

1	DD Form 1348	2
2	Power Production Accumulation Site	5
3	Auto Hobby Accumulation Site	6
4	Refueling Maintenance Accumulation Site	7
5	Heavy Equipment Oil Collection Pan	8
6	350 Gallon Above Ground Oil Storage Tank	8
7	General Purpose Repair Oil Collection Pan	9
8	Fire Training Pit	11
9	FMS Aircraft Washrack Layout	13
10	Aircraft Washrack Oil/Water Separator	14
11	Propulsion Shop Accumulation Site	15
12	Corrosion Control Accumulation Site	16
13	NDI Penetrant Inspection Process	17
14	New Corrosion Control Accumulation Site	21
15	AGE Washrack and Accumulation Site	22
16	Oil Filling Area Behind Reprographics	25
17	Safety Kleen Degreasing Unit	30

I. INTRODUCTION

In a 10 Mar 87 letter (Appendix A), Headquarters Strategic Air Command Bioenvironmental Engineering, HQ SAC/SGPB, requested the USAF Occupational and Environmental Health Laboratory, Consultant Services Division, Environmental Quality Branch (USAFOEHL/ECQ) to perform a hazardous waste staff assistance survey at Plattsburg Air Force Base (PAFB) NY. The scope of this survey was to address hazardous waste management practices as well as explore opportunities for hazardous waste minimization.

The survey was conducted by Captain Guy T. Fagin and 1Lt Robert A. Tetla, USAFOEHL Hazardous Waste Function, USAFOEHL/ECQ, from 20 Apr 87 to 30 Apr 87.

II. BACKGROUND

A. Base Description

Plattsburg AFB, the home of the 380th Bombardment Wing, is located in northeastern New York State on the shore of Lake Champlain. The base is partially located within the southern part of the city of Plattsburg in Clinton County.

B. Hazardous Waste Program

The Hazardous Waste Program at Plattsburg AFB is informal. The Environmental Coordinator (DEEV) has the responsibility of training shop personnel, inspecting accumulation sites, reviewing all finalized manifests and maintaining records. DEEV is not involved with the specific details of the disposal of wastes. The program is primarily managed by the Defense Reutilization Management Office (DRMO), the Bioenvironmental Engineering shop (BEE) and the shop generating the waste.

The generating organization logs the quantity of waste placed into storage containers, identifies, segregates, handles, packages, labels, and keeps records of hazardous wastes stored at the accumulation site. A listing of disposal practices by shop is listed in Appendix B. The shops also have the responsibility of appointing an accumulation site manager for their hazardous waste accumulation site, and providing the environmental coordinator with the name and position of newly appointed accumulation site managers.

DRMO is contacted when the shop has to dispose of a waste. DRMO will either take accountability of the waste (the shop retains the waste at the accumulation site) or take actual custody until the contractor (Frontier Enviro-Sure) comes to pick up the waste. Due to the limited size of DRMO's accumulation site only flammable wastes are accepted. All other wastes are stored at 10 accumulation sites on base (see Appendix C).

Unknown wastes have to be analyzed before disposal. The BEE has taken the responsibility to perform analysis on unknown waste and other waste streams on an as needed basis. Prior to disposal, the shop generating the waste fills out a DD Form 1348-1 (Figure 1), along with the United States

Environmental Protection Agency (EPA) uniform manifest, before contacting the contractor. Upon arrival the contractor goes to DRMO and notifies the Environmental Monitor (Arlia McCusker) who ensures the contractor: (1) does not commingle wastes; (2) properly labels the vacuum truck and the drums; and (3) signs the manifest. Finally, the contractor takes the waste to their Treatment Storage Disposal Site (TSDS) for final disposal.

U. S. GOVERNMENT PRINTING OFFICE: 1983-115-871

SHIP TO NONDESTRUCT INSPECTION 380 FMS/MAFFN PLATTSBURGH AFB NY 12903 AFOC Phone										SHIP TO SX1092 DRMO-XPT PLATTSBURGH AFB NY 12903 BROC Phone										MARK FOR DEMIL'A ISW										PROJECT										TOTAL WEIGHT 5100 275.00									
FREIGHT CLASSIFICATION NOMENCLATURE										ITEM NOMENCLATURE										One 55 GL Metal Drum										Petroleum based solvent - 80% solvent, 10% water, 10% dirt.																			
SELECTED BY AND DATE										TOTAL WEIGHT										RECEIVED BY AND DATE										INSPECTED BY AND DATE																			
PACKED BY AND DATE										TOTAL CUBE										WAREHOUSED BY AND DATE										WAREHOUSE LOCATION																			
REMARKS										This is to certify that the above named, material is properly classified, described, packaged, marked and labeled, and in proper condition for transportation according to the applicable regulations of DOT and EPA.										Signature										Date																			
FIRST DESTINATION ADDRESS										DATE SHIPPED										RECEIVER'S SIGNATURE AND DATE										RECEIVER'S DOCUMENT NUMBER																			
TRANSPORTATION CHARGEABLE TO										RECEIVER'S SIGNATURE AND DATE										RECEIVER'S DOCUMENT NUMBER																													

DD FORM 1348-1 14 PART 1 MAR 76 000 SINGLE LINE ITEM RELEASE/RECEIPT DOCUMENT

Figure 1. DD Form 1348-1

III. PROCEDURE

The first step of the survey was to establish the major categories of waste generated at PAFB. To accomplish this task, data on waste quantities were extracted from the Bioenvironmental Engineering Shop folders, PAFB's hazardous waste management plan,¹ and discussions with the following individuals:

Capt. Mark McCullough, Chief, Bioenvironmental Engineering
SGPB, AUTOVON 689-7421

Mr Jack Grimmer, Environmental Coordinator,
DEEV, AUTOVON 689-5689

Mr Dean Processor, Chief, Plattsburg AFB DRMO
AUTOVON 689-7060

From our review, we established eleven categories of waste (Table 1) generated on PAFB. After this preliminary waste assessment, the survey team proceeded to visit all major industrial shops to observe industrial activities, discuss industrial waste disposal practices with shop personnel and hand out waste disposal survey forms (see Appendix D), specifically designed to inventory chemical waste disposal practices on base.

Based on information received on our waste survey forms, a summary of the annual forecasted wastes generated at PAFB is shown in Table 1 by category. From Table 1, Column 4 (See Appendix E for calculations), waste oils, fluids, fuels, and solvents comprise over 87% of the wastes generated at PAFB. The mechanisms for handling these wastes are established; however, our survey showed a lack of commitment, by shop personnel, to the program.

TABLE 1
CATEGORIES OF WASTE AT PLATTSBURG AFB (PAFB)

CATEGORY	PRODUCT	TOTAL (Gal/yr)	%TOTAL CATEGORIES 1-11	%TOTAL CATEGORIES 5-11
1	WASTE OIL	14954	33.14	----
2	WASTE FLUID	11503	25.49	----
3	WASTE FUEL	7310	16.20	----
4	WASTE SOLVENTS	5827	12.91	----
5	PHOTO WASTE	2161	4.79	39.04
6	WASTE ANTIFREEZE	814	1.80	14.71
7	WASTE THINNERS	804	1.78	14.53
8	PAINT WASTE	648	1.44	11.71
9	STRIPPING WASTE	600	1.33	10.84
10	WASTE ACIDS	288	0.64	5.20
11	NDI WASTE	220	0.49	3.97
TOTALS		45129	100.01	100.00

Waste oils and fluids are placed in 350-gallon above ground tanks located at the shop, however, those shops without tanks place them in either bowers or 55-gallon drums. The waste oils and fluids are picked up by a DRMO contractor (Frontier/Enviro-Sure) and disposed of through incineration. Waste fuels are either placed in bowers or 55-gallon drums and picked up by base Fuels Maintenance Branch (POL) personnel for testing. Uncontaminated JP-4 is placed in two 50,000-gallon above ground tanks where it is later transferred to the fire training pit for burning. Contaminated JP-4 is placed in a 15,000-gallon above ground tank and disposed of through a DRMO contractor. Waste solvents are either placed in a 55-gallon drum or collection bowers and disposed of by contractor.

After deletion of waste oil, waste fluid, waste fuel, and waste solvents, the relative quantities of the remaining wastes were recalculated. Over 90% of the remaining wastes are photo waste, waste antifreeze, paint waste, waste thinners and stripping waste, i.e., categories 5, 6, 7, 8, and 9, respectively.

IV. DESCRIPTION OF INDUSTRIAL ACTIVITIES AND WASTE DISPOSAL PRACTICES

This section documents our findings while visiting the industrial activities.

- | | |
|------------------------------------|-------------------|
| 1. Shop: 380 MMS/DAR Reprographics | Building: 406 |
| Shop Supervisor: SSgt Weiss | AUTOVON: 689-5125 |

Reprographic personnel are responsible for supporting the printing requirements of the base. The shop contains a 28505 Multi Duplicator and a Xerox 9400 high speed copier. Chemicals used in this shop include: a blanket wash (perchloroethane solution) that is generally used up in process (any remaining solution is stored); and an electrostatic solution (containing ferrocyanide and hydrogen cyanide) that is used to clean the press process and any unused portion is thrown in the sink. Acetone is placed on a rag and used to clean the press, and then thrown in the dumpster. No waste is generated from this application.

- | | |
|------------------------------------|-------------------|
| 2. Shop: CES/REME Power Production | Building: 426 |
| Shop Supervisor: TSgt Infante | AUTOVON: 689-5625 |

CES/REME Power Production personnel operate and maintain emergency generator sets, both gas and diesel powered. The shop has a 25-gallon tank of PD-680 located in the battery room to clean parts. This tank is cleaned out semiannually. Waste PD-680 is placed in a 55-gallon drum and taken to a storage site (Figure 2) located in a fenced area across from the building. Battery acid is neutralized in a sodium bicarbonate solution and drained to the sewer. The empty batteries are turned in to DRMO for disposal. The shop does some touch-up painting with paint spray cans. Empty spray cans are thrown in the trash. Waste oil and fluids from the generators are taken to the Auto Hobby Shop and placed in 55-gallon drums.

- | | |
|-----------------------------|-------------------|
| 3. Shop: CE Paint Shop | Building: 508 |
| Shop Supervisor: Mr Trumbly | AUTOVON: 689-5620 |

Paint shop personnel are responsible for painting buildings and signs. Latex paints are used for all work. No wastes are generated from this shop.

- | | |
|---------------------------|-------------------|
| 4. Shop: Auto Hobby Shop | Building: 509 |
| Shop Supervisor: Mr McRae | AUTOVON: 689-5269 |

The Auto Hobby shop is housed in a "garage type" building containing state-of-the-art equipment for maintenance and repair of privately owned vehicles. All floor drains are connected to an oil/water separator that is cleaned out on a quarterly basis.



Figure 2. Power Production Accumulation Site

This shop has two PD-680 tanks (approximately 25 gallons each), that are changed out on a quarterly basis. Waste PD-680, waste oils, and waste fluids are placed in separate 55-gallon drums and taken to the waste storage site (Figure 3) located across the street from the building, where they are picked up by a contractor (currently Enviro-Sure). The shop has submitted a work order to install a 350-gallon above ground tank to store waste oil and fluids which will be pumped out by contract. There are no waste paints and thinners generated at the present time. The shop is in the process of installing a new dry paint booth. ALK 600 soap (NSN 5850-01-184-7453), diluted 10:1, is used to clean the floors. Waste antifreeze and neutralized battery acid are disposed of down the drain.



Figure 3. Auto Hobby Accumulation Site

5. Shop: 380 SPS Combat Arms Training
and Maint.

Building: 2010

Shop Supervisor: MSgt Duprat

AUTOVON: 639-5929

The only chemical used in this shop is rifle bore cleaner (approximately 3-4 gallons per year). This chemical is used up in process.

6. Shop: 380 Trans Allied Trades

Building: 2540

Shop Supervisor: TSgt Abrahamson

AUTOVON: 689-7335

Trans Allied Trades personnel are responsible for vehicle body work and painting. Most vehicle painting is done in a separate building across from Allied Trades. This building consists of a washrack and a waterfall paint booth. Waste paints and thinners are stored in 55-gallon drums, located near the refueling maintenance facility (Figure 4) and disposed of as hazardous waste. The paint booth is cleaned out every 4-5 paint jobs. The sludge from the paint booth waterfall is removed and drummed as hazardous waste and the water (approximately 350 gallons) is drained into the sewer system.

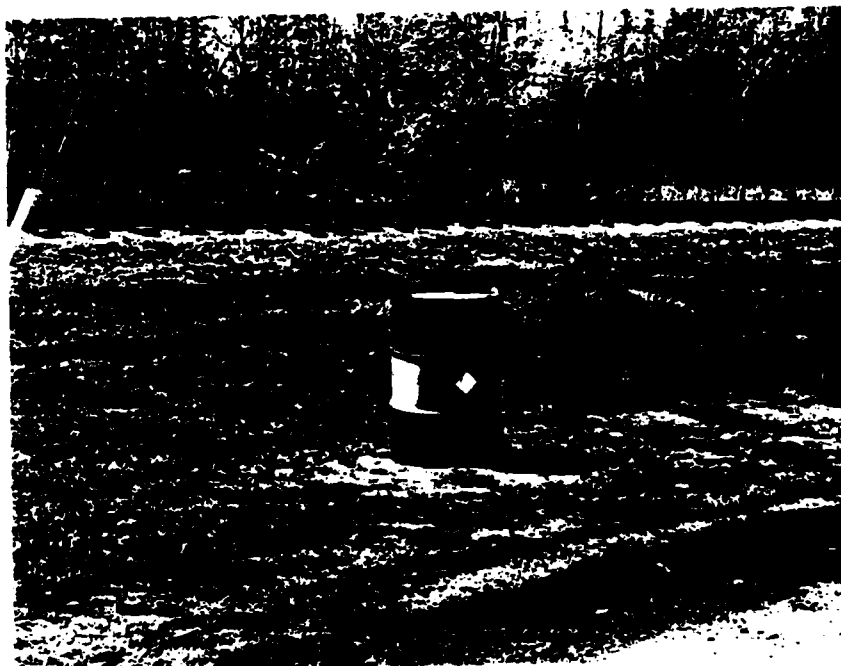


Figure 4. Refueling Maintenance Accumulation Site

7. Shop: 380 Trans/LGTM Heavy Equipment Maint Building: 2540
Shop Supervisor: Mr Cash AUTOVON: 689-7140

Personnel in this shop repair all base maintenance equipment and special purpose equipment. Waste oil and fluids are placed in a pan that is connected to a 350-gallon above ground tank (Figures 5 & 6). This tank is pumped out by a contractor. This shop has three PD-680 solvent tanks (approximately 25-gallons each) that are cleaned out semiannually. Waste PD-680 is placed in 55-gallon drums and taken to DRMO for disposal. Used antifreeze is placed in 55-gallon drums and disposed of through DRMO.



Figure 5. Heavy Equipment Oil Collection Pan



Figure 6. 350-Gallon Above Ground Oil Storage Tank

8. Shop: 380 Trans Refueling Maint.
Shop Supervisor: SSgt Kyle

Building: 2542
AUTOVON: 689-7687

Refueling Maintenance personnel maintain fuel trucks. This shop is connected to a fuel/water separator that is rated at handling 30 gallons per minute. Any fuel entering the separator is supposed to be separated into an 1000-gallon underground tank for collecting contaminated jet and aviation fuel. This tank is pumped out by Liquid Fuels Maintenance Branch (POL). Contaminated fuels are taken to the storage area and placed into a centralized 15,000-gallon above ground holding tank (located near POL). Waste oils, fluids and antifreeze are drummed and disposed of by contractor.

9. Shop: 380 Trans General Purpose Veh. Maint
Shop Supervisor: MSgt Lamontagne

Building: 2548
AUTOVON: 689-7687

The General Purpose Repair shop maintains and repairs government vehicles, and their major waste is engine oil. Waste oils and fluids are placed in a pan that is connected to a 350-gallon above ground tank (see Figure 7). This shop has two 25-gallon solvent tanks containing Formula 647 solvent. These tanks are cleaned out annually. Waste solvent and waste antifreeze are placed in 55-gallon drums and taken to DRMO for disposal. All floor drains in this building are connected to an oil/water separator that is connected to a 550-gallon underground tank for the collection of waste oils. This tank is pumped out by contractor. Incorporated into this shop is the Trans Battery Shop that turns batteries over to DRMO after draining them. The waste battery acid is neutralized with sodium bicarbonate in a 25-gallon ceramic pan and then drained into a floor drain which enters the underground holding tank. Empty batteries are turned in to DRMO for disposal.

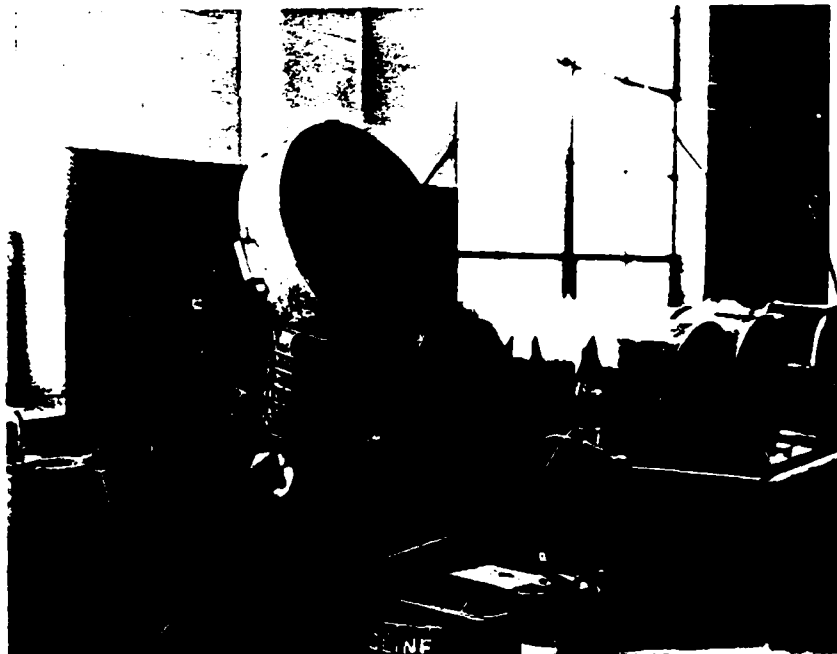


Figure 7. General Purpose Oil Collection Pan

10. Shop: 380 CSG Audio Visual Lab
Shop Supervisor: TSgt Komorniki

Building: 2710
AUTOVON: 689-7633

Base Audio Visual Information Center personnel are responsible for developing, processing and printing photographs in support of the base. The laboratory is divided into two areas, the Graphics Room and the Photo Lab. The Graphics Room, as well as the Photo Lab uses fixer and developer. The developer is dumped down the drain. The fixer goes through a silver recovery unit. The discharge is checked with litmus paper to assure that silver is not being discharged to the sewer. The remainder of the fixer is discharged in the drain. The silver recovery unit is cleaned out at the discretion of the lab.

11. Shop: Fire Department
Shop Supervisor: Chief Caraballo

Building: 2748
AUTOVON: 689-7440

The Fire Department is divided into three sections: Fire Department, Equipment Maintenance and Fire Extinguisher Maintenance. Fire Department personnel maintain and repair fire fighting and support vehicles. They perform scheduled preventive maintenance, i.e., oil changes, lubes and winterization, and repair/replace assemblies as required. Waste oils and fluids are drummed and taken to DRMO. Waste antifreeze is drummed and disposed of as hazardous waste. Used batteries are turned in to TRANS General Purpose Vehicle maintenance's battery shop for processing. Soap used to wash vehicles is rinsed down the drain. Waste PD-680 is drummed and turned in to DRMO. Degreasants are of the spray can type. They are applied and rinsed off.

The Fire Training Pit (see Figure 8) is unlined and has shallow piping for pumping JP-4 into the pit area. A new pit is projected in the 88-89 time frame.

The Fire Department uses a 3% AFFF Ansul Foam in the trucks. Occasionally one to two gallons may spill. There is currently no spill cleanup procedures for the AFFF.

12. Shop: 380 FMS Electric Shop
Shop Supervisor: TSgt Gill

Building: 2753
AUTOVON: 689-5990

Electrical Systems personnel maintain all aircraft electrical systems, Aerospace Ground Equipment (AGE) and Aircraft Battery Shops (lead acid and NiCad batteries). Lead acid batteries are disposed of by pouring the sulfuric acid into a 25-gallon ceramic tank, neutralizing with sodium bicarbonate and rinsing the solution down the drain. The battery casings are turned in to DRMO. NiCad batteries yield less than an ounce of sodium hydroxide (NaOH) that needs to be neutralized (with boric acid as outlined in T.O. 802-3-1). These NiCad battery casings are also turned in to DRMO. Sulfuric acid (10-20 gallons) is stored in this room.



Figure 8. Fire Training Pit

13. Shop: 380 FMS Pneudraulics
Shop Supervisor: MSgt Eastwood

Building: 2753
AUTOVON: 689-5995

380 FMS Pneudraulics shop personnel maintains in-shop repair capabilities on all pneudraulic and hydraulic aircraft components for the FB-111, KC-135 and T-37. Brakes are completely torn down in the shop. Parts are cleaned in a 110-gallon vat containing a 1:1 solution of B&B 20-20NV soap and water. Waste is drained to the oil/water separators. For quick cleaning of parts, PD-680 (in a 60-gallon tank) is used. The PD-680 is changed every 3 to 6 months. It is drummed and turned into DRMO. Approximately 1 gallon/day of hydraulic fluid is disposed of in a hydraulic fluid bowser near the NDI shop (OMS bowser). Calibration fluid (MIL-C-7024) is disposed of by turning in a 5 gallon metal can every 6 to 12 months to DRMO.

14. Shop: 380 FMS Structural Repair
Shop Supervisor: TSgt Haynes

Building: 2753
AUTOVON: 689-7463

Structural Repair personnel repair, modify and fabricate metal and fiberglass structures to original strength, weight and contour for the FB-111 and the KC-135 aircraft. Five gallons of MEK per month are used up in process. The empty one gallon MEK cans are air dried and put into the dumpster for disposal. A dry paint booth is used for fiberglass work. Epoxy primer is used on the fiberglass. All chemicals are used up in process. Dirty rags are drummed and turned in to DRMO.

15. Shop: 380 FMS Wheel and Tire Shop
Shop Supervisor: TSgt Doers

Building: 2763
AUTOVON: 689-5566

The 380 FMS Wheel and Tire shop personnel builds and tears down wheel and tire assemblies for the KC-135 and FB-111. This shop has two tanks, one PD-680 (15-gallon tank) and one soap/water. The PD-680 tank is used for cleaning wheel bearings. The PD-680 tank is mixed with 3 to 5% oil for coating. The waste from the PD-680 tank is drummed and turned in to DRMO. The 110-gallon soap and water tank contains a 50-50% solution of B&B 20-20NV soap and water. This tank is changed out every 3 to 6 months with waste being drained to the oil/water separator.

16. Shop: 380 FMS Washrack
Shop Supervisor: TSgt Ray

Building: 2763
AUTOVON: 689-7504

380 FMS Washrack personnel perform aircraft washing for FB-111, KC-135, Det 18 helicopters and support equipment. Aircraft are on a 120 day wash cycle. Cleaning of the aircraft is conducted with brushes and buckets containing PD-680 (140 solvent) and aircraft cleaning soap. The soap is mixed in a 25-75% solution with water. The soap is dispensed at four different stations which features hot and cold water as well as compressed air hookups (Figure 9). The soap is stored in a 10,000 gallon above ground tank. The tank is refilled with soap approximately every two years. The quantity of PD-680 added to the soap/water solution depends on the required degree of cleaning. The PD-680 is stored in 55-gallon drums. When empty, the drums are triple rinsed and turned in to salvage. All floor drains throughout the washrack area are mini oil/water separators (Figure 10). Waste from these separators is drained periodically by Liquid Fuels Maintenance personnel and stored in a 15000-gallon tank located in the Transportation Squadron area where it is ultimately disposed of by DRMO. The washrack area is also used by Corrosion Control for aircraft painting and maintenance on the KC-135.

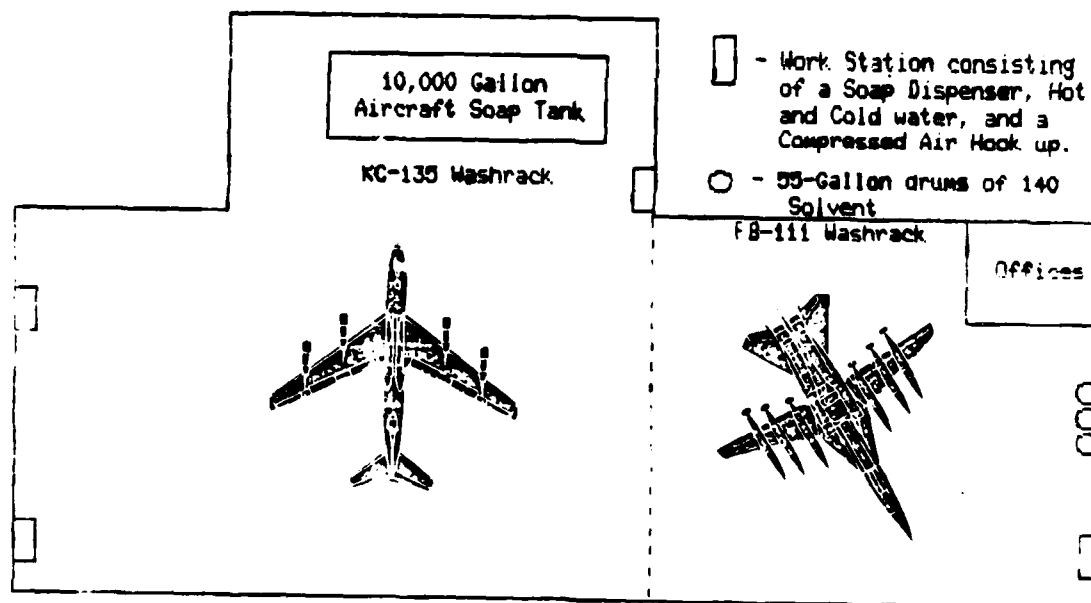


Figure 9. FMS Aircraft Washrack Layout

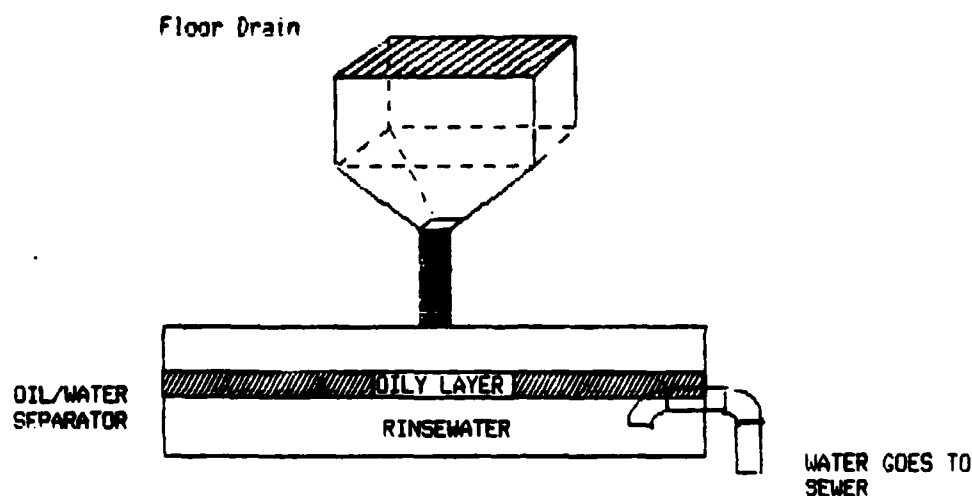


Figure 10. FMS Washrack Oil/Water Separator

17. Shop: 380 FMS Propulsion Branch
 Shop Supervisor: SMSgt Foote

Building: 2774
 AUTOVON: 689-7710

Propulsion Branch personnel perform intermediate maintenance and repair on the TF-30 and J-57 engines. Waste oil (75 gallons/month), hydraulic fluid (55 gallons/month) and jet fuel (55 gallons/month) are drummed and turned into DRMO. The bearing cleaning room has a 140 solvent tank (25 gallons) which is changed out once a month. Small amounts of finger print remover degreaser (10 quarts/month), and carbon remover (4 gallons/month) are also used in this room. All solvents and degreasants are drummed and stored at the accumulation site for the shop (Figure 11) until turned in to DRMO. Aircraft Soap is diluted 15:1 and used on parts. The soap is rinsed off and the rinsewater goes down the drain.



Figure 11. Propulsion Shop Accumulation Site

18. Shop: 380 OMS Vehicle Management
Shop Supervisor: MSgt Simmons

Building: 2785
AUTOVON: 689-6457

Vehicle Management personnel provide: (1) assistance in operator care for squadron vehicle fleet, (2) vehicle washrack for year round cleaning of vehicles, and (3) inside storage of assigned tow tractors and aircraft deicing equipment. E.Z. Suds (2 gallons/month) are used to wash government vehicles. Soap is rinsed off and the rinsewater goes down the drain.

19. Shop: Det 1 Helicopter Maintenance
Shop Supervisor: MSgt Richardson

Building: 2793
AUTOVON: 689-5164

Helicopter Maintenance personnel perform routine maintenance, trouble shoot and isolate component malfunctions for the UH-1M Helicopter. Waste jet fuel (5 gallons/month), hydraulic fluid (1 gallon) and oils (5 gallons/month) are disposed of into bowzers. PD-680 (40 gallons/month) is drummed and turned in to DRMO. All washings are done in the Black Hanger (bldg 2763). Approximately 10 gallons of aircraft soap/month are used. Rinsewater is drained into the oil/water separator.

20. Shop: 380 FMS NDI
Shop Supervisor: TSgt Johnson

Building: 2802
AUTOVON: 689-7292

380 FMS NDI personnel are responsible for x-ray inspection of KC-135 and FB-111 aircraft. The NDI laboratory personnel perform analysis of aircraft engine oil wetted systems. Personnel also perform dye penetrant/magnetic particle inspection on aircraft and support equipment. 1,1,1-Trichloroethane is used in the ultrasonic cleaner. Approximately 1 gallon is changed out every day. The trichloroethane is drained into a gallon metal can and poured into a 55-gallon drum. One quart of oil per day is generated from the Baird Atomic Spectrometer which is used to determine metal content of used oil. The used oil is mixed in with the trichloroethane and put into a 55-gallon drum at Corrosion Control (Figure 12). Other wastes generated include dye penetrant (110 gallons/yr), emulsifier (110 gallons/yr) and developer (220 gallons/yr) from the Fluorescent Dye Penetrant Inspection Unit (Figure 13). The penetrant and the emulsifier are drummed and turned in to DRMO. The developer is discharged down the drain. Film developing chemical wastes are produced by x-ray darkroom procedures. The fixer (8 gallons/month) is disposed of through a silver recovery before discharging down the drain. The developer (8 gallons/month) is disposed of down the drain.



Figure 12. Corrosion Control Accumulation Site

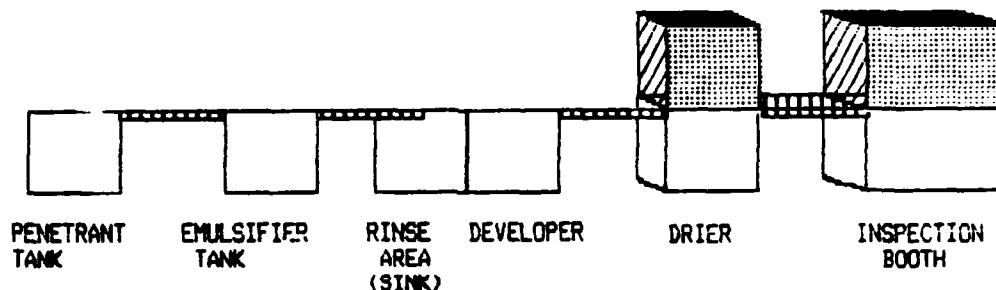


Figure 13. NDI Penetrant Inspection Process

21. Shop: 380 FMS AGE Branch
Shop Supervisor: SMSgt Johr

Building: 2815
AUTOVON: 689-7738

Personnel from the 380 CES AGE Branch perform maintenance on all aerospace ground equipment. They perform daily service checks and deliver AGE to required locations on the flightline. Solvent 140 is used to clean parts. The two tanks (30 and 10 gallons) are changed out approximately every six months. All fuels are either returned to the fuel tanks or are turned in for use at the fire training pit. Waste hydraulic fluid and mineral oil are placed in a 350-gallon plastic tank outside the building and disposed of by DRMO. All spray and liquid paint cans are put into the trash when empty. Speedy Dry absorbent is used for spills. The contaminated Speedy Dry is turned into DRMO. Aircraft soap is used for washing vehicles and the rinsewater drains into the floor's oil/water separator.

22. Shop: 380 FMS Fuel Systems Repair
Shop Supervisor: MSgt Johnson

Building: 2818
AUTOVON: 689-7795

Aircraft Fuel Systems Repair personnel remove, repair and replace fuel system components and perform leak detection and classification of fuel leaks. They maintain water injection and derivative fuel system functions on all assigned KC-135 and FB-111 aircraft. Residual JP-4 from the fuel systems (3 to 4 gallons) is put into a bowser and drained by contract personnel. Small amounts of JP-4 and residual are disposed of in the hanger floor drain oil/water separator.

23. Shop: 380 FMS Test Cell
Shop Supervisor: MSgt Slesh

Building: 2820
AUTOVON: 689-5418

Jet Engine Test Cell personnel trouble shoot engines, perform field tests and engine rev-up procedures on the TF-30-P107 (KC-135) and the J-57-59W (FB-111) engines. Aircraft soap (1 gallon/month) is used to clean equipment and the interior of the run bay. Soap is rinsed off and drained to the oil/water separator. Oil (10 gallons/month), hydraulic fluid (1 gallon/month) and Jet Fuel (100 gallons/month) are drained to the oil/water separator. All floor drains are connected to the oil/water separator which drains into a 400-gallon sub-level storage tank. Contents from this storage tank are picked up by Liquids Fuel personnel and used in the fire training pit. Antifreeze (30 gallons/year) is put down the drain to preserve the pipes.

24. Shop: 380 CES Pavements and Grounds
Shop Supervisor: MSgt Palmer

Building: 2827
AUTOVON: 689-5144

Personnel of the 380 CES Pavements and Grounds shop repair roads, sidewalks, runways, recreational areas and maintain lawns. Grounds personnel operate farm tractors and lawn mowers for herbicide spraying and grounds maintenance. All herbicide is stored at the entomology storage area (bldg 2566). Empty herbicide cans are triple rinsed before placing into the dumpster. Rinsewater is put back into the spray tank for reuse. Antifreeze, hydraulic fluid and motor oil are used to "top off" the needed level in the machinery. Waste from the drip pans is taken to the motor pool's 350-gallon plastic tank. A small PD-680 tank (approximately 15-gallons) is used to clean parts. The small tank is drained every six months and turned in to DRMO. Vehicles are washed inside with aircraft soap and the rinsewater drains into the floor's oil/water separator. This shop has three storage lockers containing gas cans, spray paint and starting fluid. The 15-gallon cans of joint sealer used to fill cracks in the pavement are thrown into the trash when empty.

25. Shop: 380 CES Liquid Fuels Maintenance
Shop Supervisor: MSgt Delano

Building: 2840
AUTOVON: 689-7552

The 380 CES Liquid Fuels Maintenance section performs required inspections on POL tanks, pipelines, valves and pumphouses of JP-4, mogas and diesel fuels. Personnel routinely pump out approximately 20 oil/water separators on base. Wastes from oil/water separators are transferred to a 15,000-gallon tank and picked up by a contractor. Clean or basically uncontaminated JP-4 (verified by the lab) is transferred to a 50,000-gallon tank which the Fire Department uses in the burn pit.

26. Shop: 380 FMS Corrosion Control
Shop Supervisor: Sgt Champain

Building: 2890
AUTOVON: 689-7082

Corrosion Control personnel treat the FB-111 and the KC-135 aircraft, support equipment, and all associated parts for corrosion. FB-111 aircraft are touched up (partial stripping and painting) in this building. The KC-135 aircraft are touched up in the Black Hanger (Bldg 2763). This area has two dry paint booths. All thinners and waste paint (100 gallons/month) are mixed together and put into 55-gallon drums and turned in to DRMO. Empty

paint cans (including spray cans) are thrown into the trash. Methyl Ethyl Ketone (MEK) is used to clean spray guns. Approximately 16 gallon/month of MEK waste paint and thinner are drummed. Two stripping tanks (10 and 30 gallons) contain Klean Strip (OEM) Auto Stripper. Used stripper is drummed (50 gallons/month) and turned in to DRMO. Chromate conversion coating (1/2 gallon/month) is drummed and turned in to DRMO. Alodine acid, used to protect aluminum nose pieces, (1/2 gallon/month) is drummed and turned in to DRMO. This shop has purchased a new hot dip tank to be installed in the near future. The tank will use B&B 9201 Stripper. All floor drains are connected to an oil/water separator which empties into a sub-level tank. The capacity of this tank is approximately 1975 gallons. In March 1987 it was noticed that only 500 gallons were pumped out of the supposedly full tank. Currently the State of New York has dug four wells to monitor for methylene chloride and is investigating to find out which direction the water tables are flowing.

27. Shop: 380 MMS Integrated Munitions Building: 3578
Maintenance N,S,E Bays
Shop Supervisors: TSgts Zwort, Shusky, White AUTOVON: 689-7202

Integrated Munitions Maintenance personnel inspect, test, trouble-shoot, maintain, store, handle, modify and repair nuclear weapons, weapon components and related equipment. The bays use a variety of solvents to include toluene, alcohol, naphtha, acetone, and MEK. The solvents are used on rags to wipe down equipment and as thinner for paints. All solvents are used up in process. Spray paints are used for touch up. Empty cans are disposed of in the trash. Also located in this area is the Equipment Maintenance Shop (Shop Supervisor: Sgt Schaffer, Building: 3569). This shop maintains and repairs munitions trailers. Hydraulic fluid and brake fluid (110 gallons/year) from these trailers are drummed and turned in to DRMO. PD-680 is used in a small tank to clean parts (10 gallons/year). PD-680 is also drummed and turned in to DRMO. Paint cans are thrown in the trash when empty. Aircraft soap (5 gallons/year) is used to wash the trailers. The trailers are washed outside on the pavement and the rinsewater runs off onto the pavement.

28. Shop: 380 MMS Conventional Munitions Building: 3580
Maintenance
Shop Supervisor: TSgt Thorton AUTOVON: 689-7014

Conventional Munitions Maintenance personnel maintain and repair conventional weapons systems and associated hardware. Touch up painting is accomplished using paints, lacquers and thinners. Empty paint cans are thrown in the trash.

V. SUMMARY OF GENERAL WASTE DISPOSAL PRACTICES AT PAFB

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

1. Waste oil from each shop is kept at an assigned accumulation point in 55-gallon drums, 350-gallon polyethylene tanks or bowzers. Waste oil from the approximately 20 oil/water separators is stored in two underground tanks totaling 50,000 gallons, located in the motor pool complex. All waste oil is pumped out by a contractor.

2. Uncontaminated JP-4 (verified by the POL lab) is transferred to a 50,000 gallon above ground tank and is used by the Fire Department in the burn pit. Contaminated JP-4 is added to a centralized 15,000 gallon above ground holding tank to be picked up by the contractor.

3. A large amount of PD-680 is used for degreasing operations, approximately 1690 gallons/year annually. Waste PD-680 from most shops is placed in 55-gallon drums and held at their accumulation points for pick up by the contractor. PD-680 used at AGE and the aircraft washracks is hosed off and enters the sewer system along with aircraft soaps.

4. Waste hydraulic fluids generated on base are stored in 55-gallon drums and picked up by the contractor.

5. Paint waste and thinners are stored in 55-gallons drums and disposed of as hazardous waste.

6. Waste strippers are stored in 55-gallon drums and disposed of as hazardous waste.

7. Battery acids are neutralized first then rinsed down the drain.

8. Most waste antifreeze is stored in 55-gallon drums and turned into DRMO for disposal. The Auto Hobby Shop, CES Power Production Shop and the FMS Test Cell disposes the antifreeze down the drain.

9. Fixer wastes are sent through a silver recovery unit before being discharged to the sewer system.

10. NDI waste (penetrant and emulsifier) are drummed and disposed of as hazardous waste.

11. Empty paint spray cans are thrown in the trash.

12. Speedy Dry, used to clean fuel spills, is either thrown in the dumpster or drummed and disposed of as hazardous waste depending on the amount of saturation.

13. Sludge (paint waste) from the waterfall paint booths on base is drummed and turned in as hazardous waste. The remaining water is drained off into the sewer system.

14. Waste solvents (e.g., PD-140, trichloroethane) are drummed and disposed of as hazardous waste.

VI. OBSERVATIONS AND CONCLUSIONS

A. Plattsburg AFB has virtually no baseline chemical analysis to characterize waste streams. The shops are responsible for identifying what goes into waste containers; however, without a baseline waste stream analysis, untrained technicians may incorrectly identify waste as either hazardous or nonhazardous wastes.

B. The Environmental Coordinator (DEEV) is responsible for training accumulation point managers, who, in turn train other shop personnel. Only two training courses were taught at the time of this survey. The courses were developed from a single master copy of the base Hazardous Waste Training Manual. The courses consist of two parts, a basic overview of waste management, and shop specific waste management practices. This training, when fully developed, could prove to be beneficial.

C. DEEV is not involved with the specific details of the disposal of wastes. The program is primarily managed at the shop level. The individual accumulation point managers are responsible for their own areas.

D. Most of the waste storage sites on base are not secured, curbed or covered. However, DEEV is working on the problem by: (1) purchasing a new chemical storage container² (Figure 14) located at Corrosion Control, Bldg 2890, and (2) fencing in the storage area at 380 FMS Propulsion and Aerospace Systems Branches, Bldg 2774. Secured waste storage sites should discourage intentional or unintentional cross-contamination of wastes.

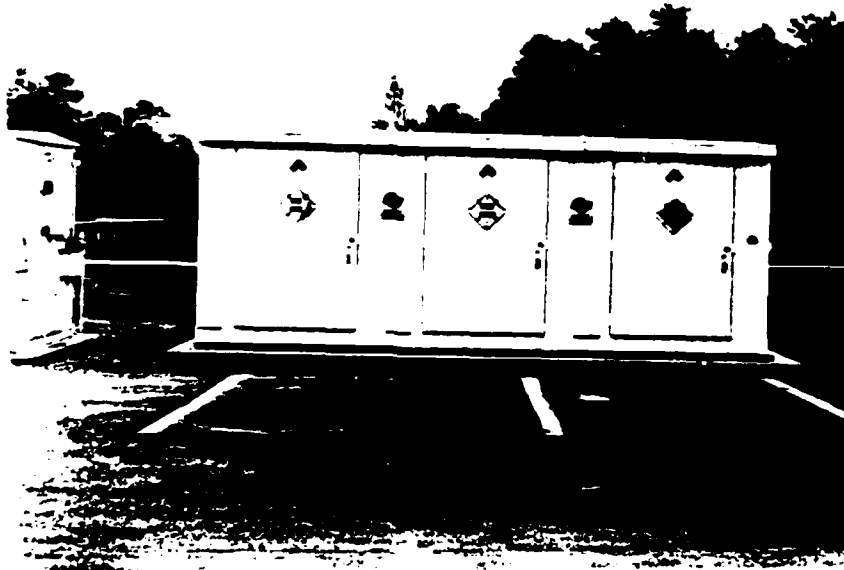


Figure 14. New Corrosion Control Accumulation Site.

E. Some waste storage sites are located near storm or floor drains. The Aerospace Ground Equipment (AGE) accumulation site is located inside the building next to the washrack (Figure 15). The CE Power Production accumulation site is located near a storm drain. Since these areas are not fixed or curbed, spills have the potential of contaminating large areas

because the spilled wastes (oil, PD-680, hydraulic fluid) would enter the drainage system and discharge out at either the sewage treatment plant or Lake Champlain.



Figure 15. AGE Washrack and Accumulation Site

F. The Civil Engineering Paint shop has reduced the amount of paint wastes generated by changing over to latex based paints.

G. Most battery acid is neutralized with sodium bicarbonate in 25 gallon ceramic tubs. Once neutralized, the acid is discharged to the sewer via floor drains. No analysis has been done to determine if neutralized acid contains heavy metals.

H. During the survey, the Refueling Maintenance shop's fuel/water separator clogged and had to be cleaned. The current separator is capable of handling influent up to 30 gallons/min. The shop has a work order to install a second fuel/water separator capable of handling up to 60 gallons/min. The last time the fuel water separator clogged, JP-4 vapors entered the General Purpose Vehicle shop through the sewer.

I. At the present time DRMO can only accept a limited quantity of waste (currently only flammables). DRMO and DEEV have plans to build an 80' by 60' concrete conforming storage area that can hold wastes over 90 days or until capacity is reached (at which time they will have 90 days to dispose of the waste). The facility is scheduled to be in operation sometime in 1988.

J. Shortly before the survey, (March 87) the Corrosion Control shop had an underground waste storage tank leak. The leak was discovered by a contractor who came to pump the supposedly full tank out but discovered the tank was only half full. The base contacted the State of New York who drilled four monitoring wells around the tank and found some volatile organic contamination³ (see Table 2). This leak may be a possible source of the methylene chloride contamination found in the streams and two sanitary sewers, near buildings 2338 and 2291, respectively.

TABLE 2
VOLATILE ORGANIC CONTAMINATION AT THE
FOUR MONITORING WELLS

Contaminate	Well No.			
	1 ($\mu\text{g/L}$)	2 ($\mu\text{g/L}$)	3 ($\mu\text{g/L}$)	4 ($\mu\text{g/L}$)
Methylene Chloride	100	ND	ND	ND
Acetone	17	760	ND	ND
Toluene	12	ND	ND	ND
Ethyl Benzene	5.1	9.8	ND	ND
Ortho and Para Xylene	6.6	29	ND	BD
Meta Xylene	ND	20	ND	BD
Methyl Ethyl Ketone	ND	390	ND	ND
4 Methyl 2 Pentanone	ND	7.8	ND	ND
1,2 Dichloroethene	ND	54	ND	ND
1,1,1 Trichloroethene	ND	36	ND	ND

Note: ND - Not Detected
BD - Below Detection Limits

K. Both TRANS General Purpose and TRANS Heavy Equipment have installed an oil collection system (Figures 5 & 6) that allows shop personnel to pour full oil pans into a cut 55-gallon drum or other container inside the building. The container is directly connected to an above ground 350-gallon tank located outside the building. This system is simple and proves better than having shop personnel pouring full oil pans into an uncut 55-gallon drum or tank. A similar system is scheduled to be installed at the Auto Hobby shop.

L. The Audio Visual Lab, building 2710, sends all waste fixer and developer through a silver recovery process. The silver recovery cartridges are replaced by shop personnel when they feel it is necessary. The dried material is turned in to the precious metal recovery officer at base supply. Shop personnel use litmus paper to check for silver discharge in the effluent. This may account for concentrations of silver found in the sanitary system* (sample taken from manhole A-15 of the USAFOEHL/ECQ Water Quality Branch survey in July of 86).

M. The Reprographics shop uses an electrostatic solution containing ferrocyanide and hydrogen cyanide. This solution is used to clean the presses. Left over solution is poured down the drain. This may represent the source of cyanide found in the sanitary sewer from a sample taken from a manhole upstream from the Officer's Club.

N. An oil filling area located behind Reprographics is covered (Figure 16) but had a lot of oil residue around it.

O. TRANS Allied Trades shop has a waterfall paint booth. When the system is cleaned, the sludge is skimmed off and the water is drained into the sewer. The waste sludge is placed in 55-gallon drums and disposed of as hazardous waste.

P. The base uses a large quantity of PD-680 for degreasing operations. In general, waste PD-680 is placed in 55-gallon drums and disposed of through DRMO.

Q. The Wheel and Tire Shop have a 110-gallon tank containing B&B 20-20NV soap and water, mixed 1:1, to clean wheel hubs. The tank is cleaned out every 3-6 months by discharging the tank contents into an oil/water separator. This tank, according to shop personnel has never been sampled. In a staff summary sheet from the Bioenvironmental Engineering shop, dated 6 June 86 (Appendix F), the shop is not supposed to dispose of contaminated 20-20NV down the floor drain but should place it in drums and turn it in to DRMO.

R. The Fire Department accumulates two 55-gallon drums of waste (oil and PD-680) then turns it in to DRMO. The Fire Department accumulation site is not secure, curbed or on an impermeable pad. If a spill occurs, not only will the spilled material have to be contained and drummed but any dirt contaminated by the spilled material will also have to be recovered.

S. Most shops have oil/water separators attached directly to the floor drains. These oil/water separators are often thought of as chemical/water or hazardous waste/water separators, which might contribute to waste being dumped into the floor drains instead of being properly disposed.

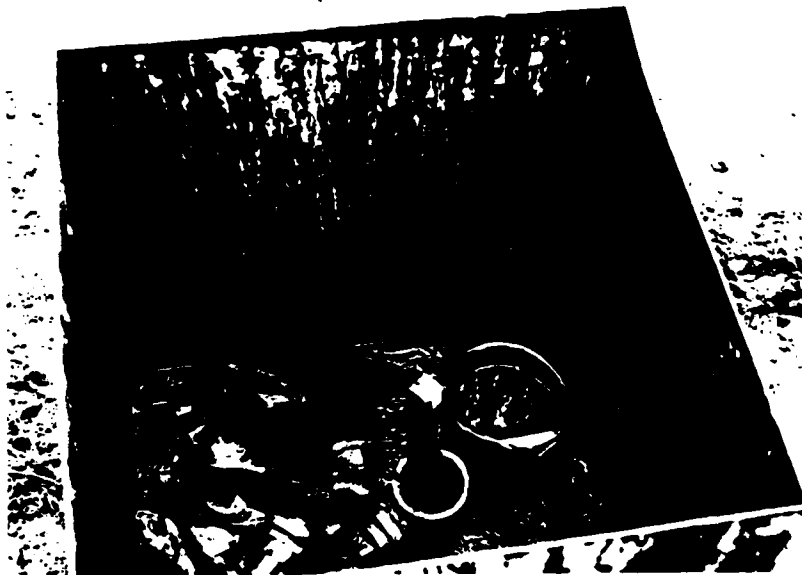


Figure 16. Oil Filling Area Behind Reprographics

VII. MANAGEMENT PRACTICES

A. Plattsburg AFB needs to develop a waste analysis plan. This plan should consist of: a complete listing of all known waste streams with a brief description of the process or operation generating the waste; the results of a baseline chemical analysis (to fully characterize the waste); the required analysis frequency; the sampling technique; and the parameters of analysis (see Table 3). This type of sampling program will allow the base to establish, within a reasonable time, documented rationale for classifying each waste stream as either hazardous or nonhazardous. For example, neutralized battery acid is disposed of as nonhazardous waste, yet it has not been adequately analyzed for heavy metals to substantiate whether or not it is hazardous or nonhazardous.

B. Drums and bowlers at waste storage sites should be secured to prevent or discourage any intentional or unintentional mixing of wastes. Funding should be made available to upgrade each accumulation site with fencing, an impermeable floor (such as a concrete pad) with curbing and a cover (see Appendix C for description). Another option is to replace all existing sites with a chemical storage container (similar to the one located at Corrosion Control), which may be more cost effective than upgrading each accumulation site.

C. The base should do characteristic hazardous waste (EP Toxicity)⁵ analysis on neutralized battery acid. Presently, all neutralized battery acid is disposed of down the drain. Base personnel should proceed with more frequent analyses to document whether all or some of the neutralized acid may be disposed of in this manner. In fact, depending on initial results, it may be cost-effective to sample every drum of neutralized acid to see if any drums can be disposed of as a nonhazardous waste. Based on a single sample analysis (see Table 4) the neutralized acid from the Battery Charging Room in the Electric shop, should be disposed of as hazardous waste due to its high lead content (9.716 mg/l) and not down the drain.

D. The wastewater from the waterfall paint booth at Allied Trades Paint Shop should be routinely tested for characteristic hazardous waste to confirm that it is not hazardous. This must be done to continue to discharge this waste to the sewer system.

E. The base should start a program to test the integrity of its underground tanks. At a minimum, some kind of inventory control system should be implemented to detect any gross leakage.

F. The 20-20NV tank in the Wheel and Tire shop should be sampled to determine whether it is hazardous waste. Until that time, shop personnel should follow the BEE guidance (staff summary sheet Appendix F) to drum the used soap. It should not be placed down the floor drain until the analysis is received confirming that the waste is not hazardous.

G. The AGE waste accumulation site should be relocated away from the washrack and any floor drains. Depending on the specific wastes that are being stored, the accumulation site may have to be moved to outside the building.

TABLE 3. EXAMPLE OF A WASTE ANALYSIS PLAN

SHOP (BUILDING)	DESCRIPTION OF WASTE STREAM	BASELINE ANALYSIS (DATE)	EPA NO.	ANALYSIS FREQUENCY	SAMPLING TECHNIQUE	PARAMETERS
380TH TRANS ALLIED TRADES (2540)	WASTE WATER FROM PAINT BOOTH	(DEC 84) FP-NH PH-NH, EP-NH RX-NH	NH	SEMIANNUALLY (PRIOR TO) (DRAINING)	COLIWASA	FLASH POINT, LEAD, CHROMIUM
CES POWER PROD. (426)	NEUTRALIZED BATTERY ACID	(JAN 86) FP-NH, EP-NH PH-NH, RX-NH	NH	ANNUAL SPOT CHECK (25-GALLON CERAMIC (PAN)	DIPPER	LEAD, CADMIUM
380 FMS CORROSION CONTROL (2763)	PAINT WASTES FROM AIRCRAFT PAINTING	(JUN 85) FP-NH PH-H (1.5) RX-NH, EP-H (CHROMIUM, CADMIUM)	D002 D006 D007	ANNUAL SPOT CHECK (EVERY OTHER DRUM)	COLIWASA	FLASH POINT, PH CHROMIUM, CADMIUM

LEGEND: FP - IGNITABILITY; PH - CORROSIVITY; RX - REACTIVITY; EP - EP TOXICITY;
H - HAZARDOUS; NH - NONHAZARDOUS

TABLE 4
SAMPLE ANALYSES RESULTS
FOR BATTERY CHARGING ROOM

Sample Number: GN870117
Sample Date: Mar 8, 1987

CHEMICAL	Concentration ($\mu\text{g/l}$)	Chemical	Concentration ($\mu\text{g/l}$)
Arsenic	38	Mercury	< 1
Barium	< 200	Nickel	412
Cadmium	58	Selenium	2286
Chromium	132	Silver	98
Hexavalent	< 50	Calcium as Ca	4500
Copper	1254	Magnesium as Mg	9000
Iron	1079	Potassium	4200
Lead **	9716	Sodium	33390000
Manganese	< 50		

** Is considered hazardous due to the lead content of 9.716 mg/l. The 40 CFR 261 considers any lead content above 5 mg/l hazardous waste.

H. Base personnel had no idea about the amount of waste generated by the base. A record could be maintained if the DD Forms 1348-1 are turned in to the Environmental Coordinator.

I. The Refueling Maintenance personnel can reduce the amount of JP-4 entering the fuel/water separator by purchasing or acquiring metal pans to catch JP-4 from the fuel systems they are working on. The JP-4 can then be tested to see if it meets specs. If so it might be returned to the base JP-4 tanks for reuse.

J. The effluent from the silver recovery unit should be analyzed for silver using an approved EPA test method. This is a better indicator of when to change the silver recovery cartridge than litmus paper. The Federal Pretreatment Standard in 40 CFR 459, ⁶ Photographic Point Source Category, specified limits for silver and cyanide (0.030 pounds and 0.038 pounds per 1000 square feet of product, respectively and a pH of between 6.0 and 9.0).

VIII. RECOMMENDATIONS

A. The current practice of disposing ethylene glycol antifreeze as hazardous waste is unnecessary. It can be reclaimed, or disposed of down the drain since it is readily biodegradable.

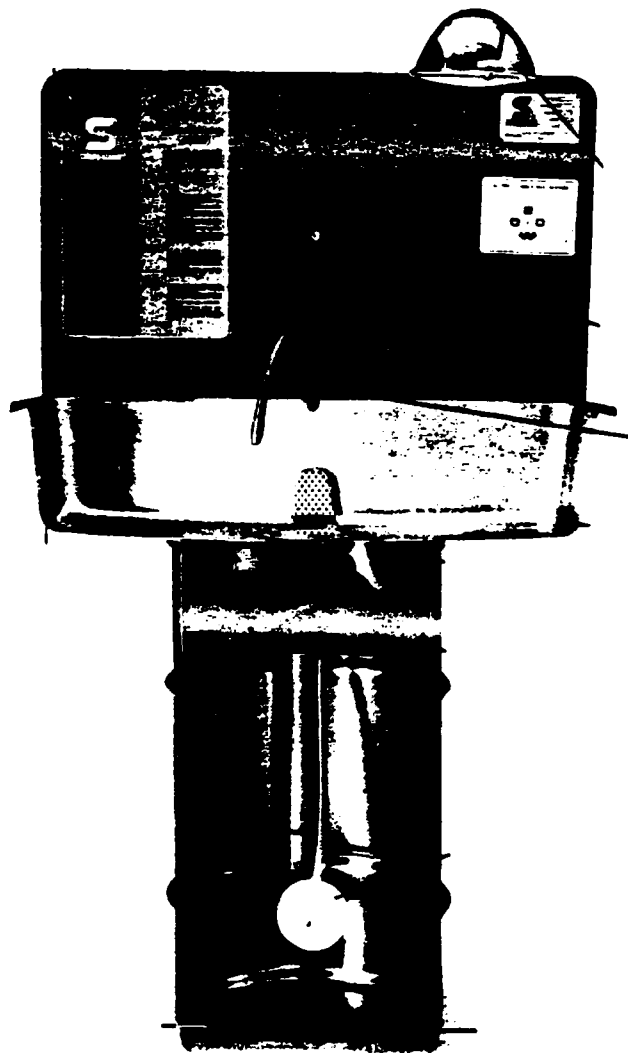
B. The base currently disposes of waste oil through DRMO contractor at a cost to the base. This oil could possibly be burned in the Heating Plant if the contaminants in the oil are removed. Oil recovery units such as Acquanetics' PHORS 180A/300A can be used to remove the contamination. Since these units do not clean all types of oils, the company sends a questionnaire (Appendix E) to the requester to determine whether or not the oil can be reclaimed. These units use vacuum distillation, and ultrafiltration to remove water and particles from the oil. Afterwards, the oil should be clean enough for heating plant use.

C. The base uses PD-680 in fairly large quantities for parts degreasing. PD-680 usage can be minimized by using rented Safety Kleen units (see Figure 17). A Safety Kleen representative will come to the base, service the unit, replace the solvent and remove the used solvent from the unit.

D. The Safety Kleen corporation has recently marketed a unit to clean painting equipment such as spray guns. Such a unit might be used in Corrosion Control, and the TRANS Allied Trades shop to reduce the amount of paint wastes generated from these shops.

E. The NDI shop has a small ultrasonic cleaner that uses 1,1,1-Trichloroethane. This unit is cleaned every one to two days and generates about 15-gallons of waste per month. 1,1,1-Trichloroethane can be recycled by using a small distillation unit (a 5-gallon batch unit). A recovery unit may be more cost effective in the long run since it reuses the product and minimizes the disposal of waste.

F. More effort should be made to minimize JP-4 burning at the Fire Training Pit. Clean JP-4 might be returned to the base POL tanks if it meets specs. Contaminated JP-4, depending on the contaminants, could possibly be burned in the Fire Training pit.



17. Safety Kleen Degreasing Unit

References

1. Plattsburg Air Force Base, "Hazardous Waste Management (HMW) Plan," (date unknown)
2. Safety Storage, Inc., 18900 Stevens Creek Blvd., Cupertino CA, "Chemical Storage Containers."
3. Phone Com Capt Mark McCulloch, Chief Bioenvironmental Engineer PAFB, Jul 31, 1987.
4. USAFOEHL Report 87-062ECQ0159EEF, "Wastewater Characterization Survey of Plattsburg AFB," May 1987.
5. United States Environmental Protection Agency, "Identification and Listing of Hazardous Waste," 40 CFR 261.
6. United States Environmental Protection Agency, "Photographic Point Source Category," 40 CFR 459.
7. Aquanetics, Inc., 111 Milbar Blvd., Farmingdale NY, "On-site Oil Reclamation Systems."
8. Equipment Technologies, Inc., Neptune Beach FL, "Electrical Powered Solvent Recovery (EPAR II, III, & IV)."
9. The Bureau of National Affairs, Inc., "Oil Reclaimed is Money Saved." Chemical Substances Control, No 151, 3 Jul 86.

Appendix A

Request Letter



DEPARTMENT OF THE AIR FORCE
UNITED STATES AIR FORCE HOSPITAL PLATTSBURGH (SAC)
PLATTSBURGH AIR FORCE BASE, NEW YORK 12903-5300

REPLY TO
ATTN OF:

SGPB (Capt McCullough)

25 February 1987

SUBJECT:

Request For OEHL Support

TO:

HQ SAC/SGPB

1. In order to improve the Plattsburgh AFB Hazardous Waste Management Program and also to prepare for an upcoming NY State Department of Environmental Conservation Inspection, I request your assistance in coordinating a staff assistance visit from members of the USAF Occupational and Environmental Health Lab (OEHL). Members of the Environmental Quality Branch have been contacted and are willing to assist us during the spring or summer of 1987.

2. Please coordinate all necessary actions for this Hazardous Waste Staff Assistance visit through USAF OEHL/CC, IAW AFR 161-17, USAF Occupational and Environmental Health Laboratory (OEHL) Services. The base point of contact will be Capt McCullough, available at AV 689-7421. Thank you for your assistance.

I. Q. Chaves

IGNACIO A. CHAVES, Col, USAF, MC, FS
Hospital Commander

cc: 380 CSG/CC
380 CSG/OEHL

1st Ind, HQ SAC/SGPB, Offutt AFB NE 68113-5001

10 Mar 87

TO: USAFOEHL/EC

Please support this request.

Ronald D. Burnett

RONALD D. BURNETT, Colonel, USAF, BSC
Chief, Bioenvironmental Engineering Division
Office of the Surgeon

cc: USAF Hosp Platts
SGPB

004185

810718 1105:22

UNITED STATES AIR FORCE



SEPTEMBER 18, 1947

Appendix B

Waste Disposal Practices by Shop

DISPOSAL PRACTICES BY SHOP FOR PLATTSBURG AFB

Type of Shop: Repographics

Building Number: 406

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Photo (Blanket Wash)	12	TID
Photo (Electrostat)	9	DD
TOTAL:	21	

Type of Shop: Auto Hobby Shop

Building Number: 509

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Antifreeze	40	DD
PD-680	220	D
Brake Fluid	3	D
Soaps	120	RDD
Oils	2400	D
Transmission Fluid	36	D
Paint Wastes	24	D ¹
Waste Thinners	60	D ¹
Waste Battery Acid	6	NDD
TOTAL:	2909	

DISPOSAL PRACTICES BY SHOP FOR PLATTSBURG AFB

Type of Shop: CES Power Production

Building Number: 426

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Hydraulic Fluid	72	D
PD-680	40	D
Oils	240	D
Antifreeze	24	RDD
Waste Battery Acid	120	NDD
Paint Wastes	0	UIP
TOTAL:	496	

Type of Shop: Combat Arms Maint.

Building Number: 2010

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Rifle Bore Cleaner	4	UIP
TOTAL:	4	

Type of Shop: Heavy Equip. Maint.

Building Number: 2540

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Brake Fluid	12	D
PD-680	120	D
Hydraulic Fluid	240	D
Soaps	120	RDD
Transmission Fluid	24	D
Antifreeze	180	D
Oils	4200	KIT
TOTAL:	4896	

DISPOSAL PRACTICES BY SHOP FOR PLATTSBURG AFB

Type of Shop: Trans Allied Trades

Building Number: 2540

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Paint Wastes	24	D
Waste Thinners	144	D
TOTAL:	168	

Type of Shop: Refueling Maint

Building Number: 2542

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Antifreeze	60	D
Automotive Fuel	60	DD
Transmission Fluid	48	D
Oils	72	D
Jet Fuel	600	DD
Hydraulic Fluid	2	D
Brake Fluid	2	D
Soaps	180	RDD
Degreasants	8	RDD
TOTAL:	1032	

DISPOSAL PRACTICES BY SHOP FOR PLATTSBURG AFB

Type of Shop: General Purpose Veh.

Building Number: 2548

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Formula 647	60	KIT
Waste Battery Acid	144	NDD
Soaps	48	DD
Oils	2100	D
Brake Fluid	12	D
Transmission Fluid	300	D
Antifreeze	360	D
Automotive Fuel	0	RTT
TOTAL:	3024	

Type of Shop: Photo Lab

Building Number: 2710

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Photo (Developer)	1200	DD
Photo (Hypo)	480	TIS
TOTAL:	1680	

Type of Shop: FMS Pneudraulics

Building Number: 2753

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
PD-680	200	D
Calibration Fluid	10	D
Hydraulic Fluid	360	PIB
B&B 2020NV	200	D
TOTAL:	770	

DISPOSAL PRACTICES BY SHOP FOR PLATTSBURG AFB

Type of Shop: FMS Washrack

Building Number: 2763

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
PD-680	3360	RDD
Soaps	4800	RDD
TOTAL:	8160	

Type of Shop: Fire Department

Building Number: 2748

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Soaps	120	RDD
Oils	192	D
PD-680	20	D
Hydraulic Fluid	36	D
Fingerprint Remover	5	RDD
Brake Fluid	12	D
Automotive Fuel	10	D
Antifreeze	120	D
TOTAL:	515	

Type of Shop: Structural Repair

Building Number: 2753

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
MEK	60	UIP
TOTAL:	60	

DISPOSAL PRACTICES BY SHOP FOR PLATTSBURG AFB

Type of Shop: FMS Electric Shop

Building Number: 2753

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Waste Battery Acid	12	NDD
Oils	60	D
TOTAL:	72	

Type of Shop: Wheel & Tire Shop

Building Number: 2763

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
PD-680	200	D
B&B 2020NV	200	DD
TOTAL:	400	

Type of Shop: FMS Propulsion Shop

Building Number: 2774

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Oils	900	D
Soaps	480	RDD
Jet Fuel	600	D
Hydraulic Fluid	600	D
Degreasants	30	D
PD-680	420	D
TOTAL:	3030	

DISPOSAL PRACTICES BY SHOP FOR PLATTSBURG AFB

Type of Shop: OMS Veh. Management

Building Number: 2785

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Soaps	24	DD
TOTAL:	24	

Type of Shop: Helicopter Maint.

Building Number: 2793

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Hydraulic Fluid	12	PIB
Oils	60	PIB
Soaps	120	DD
Jet Fuel	60	PIB
PD-680	300	D
TOTAL:	552	

Type of Shop: FMS NDI

Building Number: 2802

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
NDI (Penetrant)	110	D
1,1,1 Trichloroethan	150	D
Oils	180	D
NDI (Emulsifier)	110	D
Photo (Fixer)	240	SRDD
Photo (Developer)	220	DD
TOTAL:	1010	

DISPOSAL PRACTICES BY SHOP FOR PLATTSBURG AFB

Type of Shop: FMS AGE

Building Number: 2815

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Automotive Fuel	600	D ² , RTT
Degreasants	60	D
PD-680	120	D, DD
Soaps	240	RDD
Oils	600	D
Hydraulic Fluid	9600	D
Jet Fuel	600	D ² , RTT
TOTAL:	11820	

Type of Shop: Fuel Syst. Repair

Building Number: 2818

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Jet Fuel	480	PIB
Oils	0	UIP
TOTAL:	480	

Type of Shop: FMS Test Cell

Building Number: 2820

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Soaps	12	DD
Oils	150	KIT
Hydraulic Fluid	12	KIT
Antifreeze	30	DD
Jet Fuel	1200	KIT
TOTAL:	1404	

DISPOSAL PRACTICES BY SHOP FOR PLATTSBURG AFB

Type of Shop: Pavements & Grounds

Building Number: 2827

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Herbicides	0	UIP
PD-680	30	D
TOTAL:	30	

Type of Shop: Liq. Fuels Maint.

Building Number: 2840

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Jet Fuel	3100	FTP
Oils	3800	KIT
TOTAL:	6900	

Type of Shop: Corrosion Control

Building Number: 2890

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
Alodine	6	D
Waste Acids	6	D
Stripping Waste	600	D
Waste Thinners	600	D
Paint Wastes	600	D
TOTAL:	1812	

DISPOSAL PRACTICES BY SHOP FOR PLATTSBURG AFB

Type of Shop: Equipment Maint.

Building Number: 3569

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
PD-680	10	D
Hydraulic Fluid	55	D
Soaps	5	DD
Brake Fluid	55	D
TOTAL:		125

Type of Shop: 380 MMS Munitions

Building Number: 3578

WASTE PRODUCT	QTY/GALLONS	DISPOSAL
PD-680	10	D
TOTAL:		10

D - Drummed

KIT - Kept in tank

PIB - Placed in bowser

TIS - Turned into salvage

TID - Thrown in dumpster

UIP - Used up in process

FTP - Used in fire training pit

NDD - Neutralized and placed down the drain

SRDD - Sent through silver recover process that discharged down a drain

D¹ - Will be drummed once the paint booth is in operation

D² - Automotive and jet fuels are mixed in the same drum

Appendix C

Summary of Accumulation Sites

ACCUMULATION POINTS (Organization, Waste, Location, Description)

1. 380 FMS Propulsion and Aerospace Systems Branches

- Contaminated JP-4 and Solvents
- Exterior site, southeast of bldg 2774
- Concrete pad, fenced, no curbs, "No Smoking" signs

2. 380 FMS Corrosion Control

- Paint related waste, MEK, Thinners
- Exterior site, southeast of bldg 2890 - Interior Site, northeast corner, bldg 2890
- Exterior storage on ground, some use metal pans. - Interior storage, below grade concrete holding tank 5x5x10' 1700 gallon capacity.

NOTE:- Two new Chemical Storage Containers see Figure 14.

3. 380 FMS NDI

- Contaminated solvents and oily wastes
- Exterior site, southeast of bldg 2890
- Exterior storage on ground, some drums have metal pans

4. 380 MMS Intergrated Munitions Maintenance

- Contaminated solvents and paint related wastes
- Exterior site, east of bldg 3578
- Concrete pad

5. 380 CSG Auto Hobby Shop

- Contaminated solvents

- Exterior site, northeast of 509
- Exterior storage on asphalt

- 6. 380 LGT Vehicle Maintenance
 - Contaminated solvents
 - Exterior site, northwest of bldg 2540
 - Exterior storage on ground

- 7. 380 FMS AGE Branch
 - Contaminated fuel and solvents
 - Interior site, bldg 2815
 - Interior storage on concrete

- 8. 380 CES Power Production
 - Contaminated solvents
 - Exterior site, bldg 426
 - Exterior storage on asphalt in fenced storage area

- 9. 380 CES Fire Department
 - Contaminated solvents
 - Exterior site, bldg 2748
 - Exterior storage on asphalt

- 10. Defense Reutilization and Marketing Office (DRMO)
 - Storage of PAFB Hazardous Waste
 - Exterior site (non PCB) storage bin, bldg 1809
 - Exterior storage on asphalt with sand and canvas base.
Concrete dividers for bin. "No Smoking" and "Hazardous
Waste" signs. No curbs.

Appendix D

Waste Disposal Form

(This page left blank)

Shop:
Shop Supervisor:
Shop Duties:

Building Number:
Autovon:

CATAGORIES OF WASTE AND DISPOSAL METHODS

TYPE OF WASTE	DISPOSAL METHOD *(D,DD)	AMOUNT GENERATED (per month)	COMMENTS
1. PAINT WASTES			
2. WASTE THINNERS			
3. \$ STRIPPING WASTE			
4. \$ WASTE ACIDS			
5. WASTE BATTERY ACID			
6. \$ SOAPS			
7. \$ OILS			
8. TRANSMISSION FLUID			
9. BRAKE FLUID			
10. HYDRAULIC FLUID			
11. JET FUEL			
12. AUTOMOTIVE FUEL			
13. ANTIFREEZE			
14. \$ SOLVENTS			
15. \$ DEGREASANTS			
16. \$ PHOTO WASTES			
17. \$			

\$ specify the types used on next page

* USED DISPOSAL CODES BELOW:

D-DRUMMED	RTT-RETURNED TO FUEL TANKS	UIP-USED IN PROCESS
DD-DOWN DRAIN	FTP-GOES TO FIRE TRAINING PIT	KIT-KEPT IN TANK
NDD-NEUTRALIZED FIRST THEN PLACED DOWN DRAIN		O-OTHER (specify)
RDD-RINSED OFF AND RINSEWATER GOES DOWN DRAIN		E-EVAPORATED
SRDD-SILVER RECOVERY UNIT THEN DOWN DRAIN		NA-NOT APPLICABLE

SPECIFIC CHEMICALS USED

STRIPPERS

<u>Name of Stripper</u>	<u>Manufacturer</u>	<u>Amt used/wk</u>	<u>National Stock Number</u>

SOLVENTS/DEGREASANTS

<u>Name of Solvent</u>	<u>Manufacturer</u>	<u>Amt used/wk</u>	<u>National Stock Number</u>

SOAPS

<u>Name of Soap</u>	<u>Manufacturer</u>	<u>Amt used/wk</u>	<u>National Stock Number</u>

OILS

<u>Name of Oil</u>	<u>Amt used/week</u>	<u>Disposal Method</u>

Chemical listing (cont.)

ACIDS

<u>Name of Acid</u>	<u>Manufacturer</u>	<u>Amt used/wk</u>	<u>National Stock Number</u>

PHOTO CHEMICALS

<u>Name of Chemical</u>	<u>Manufacturer</u>	<u>Amt used/wk</u>	<u>National Stock Number</u>

NDI CHEMICALS

<u>Name of Chemical</u>	<u>Manufacturer</u>	<u>Amt used/wk</u>	<u>National Stock Number</u>

Other Chemicals Not Listed

<u>Name of Chemical</u>	<u>Manufacturer</u>	<u>Amt used/wk</u>	<u>National Stock Number</u>

Shop supervisors signature: _____

Example:

Shop: 877th Corrosion Control Building Number: 2213
 Shop Supervisor: SMSgt Smith Autovon: 240-3305
 Shop Description: This shop is responsible for stripping and painting C-130 aircraft and aircraft parts. The corrosion control shop is also responsible for washing the C-130's.

CATEGORIES OF WASTE AND DISPOSAL METHODS			
TYPE OF WASTE	DISPOSAL METHOD *(D,DD)	AMOUNT GENERATED (per month)	COMMENTS
1. PAINTS AND THINNERS	D	125 GALLONS	
2. DEVELOPER WASTES	NA		
3. \$ STRIPPING WASTE	D,RDD SEE BELOW	COMBINED TOT. 25 GAL.	STRIPPER IS APPLIED, WIPED OFF WITH RAGS, THEN RINSED
4. BATTERY ACID	NA		
5. \$ SOAPS	RDD	SEE BELOW	ALL SOAP IS DILUTED 15:1, USED ON PART, RDD

STRIPPERS

Name of Stripper	Manufacturer	Amt used	National Stock Number
P-D C717 Stripper	ABC chemical	5 gallons	6850-00-293-0987
Joes Stripper	XYZ chem	20 gallons	9870-98-090-9943

SOAPS

Name of Soap	Manufacturer	Amt used	National Stock Number
AIRCRAFT SOAP	nmo chemical	23 gal soap	4534-00-978-5643
GENERAL PURPOSE	ABC chemical	1 pt. soap	5674-00-987-1234

NOTE: IF YOU HAVE ANY QUESTIONS ABOUT FILLING OUT THE FORM PLEASE CONTACT THE BIOENVIRONMENTAL ENGINEERING SHOP AT EXTENSION- 7421/6296 AND ASK FOR EITHER CAPT FAGIN OR 1LT TETLA.

Appendix E

Summary of Wastes Generated

(This page left blank)

WASTES GENERATED AT PLATTSBURG AFB

BASE: Plattsburg AFB, Plattsburg NY
Type of Waste: Waste Oils

SHOP	BLD #	PRODUCT	QTY/GALLONS
Fire Department	2748	Oils	192
General Purpose Veh.	2548	Oils	2100
CES Power Production	426	Oils	240
Refueling Maint	2542	Oils	72
Fuel Syst. Repair	2818	Oils	0
FMS AGE	2815	Oils	600
Helicopter Maint.	2793	Oils	60
Heavy Equip. Maint.	2540	Oils	4200
Auto Hobby Shop	509	Oils	2400
Liq. Fuels Maint.	2840	Oils	3800
FMS Electric Shop	2753	Oils	60
FMS NDI	2802	Oils	180
FMS Test Cell	2820	Oils	150
FMS Propulsion Shop	2774	Oils	900
TOTAL:			14954

WASTES GENERATED AT PLATTSBURG AFB

BASE: Plattsburg AFB, Plattsburg NY
Type of Waste: Waste Fluids

SHOP	BLD #	PRODUCT	QTY/GALLONS
Refueling Maint	2542	Hydraulic Fluid	2
FMS Pneudraulics	2753	Hydraulic Fluid	360
FMS AGE	2815	Hydraulic Fluid	9600
Helicopter Maint.	2793	Hydraulic Fluid	12
FMS Test Cell	2820	Hydraulic Fluid	12
FMS Propulsion Shop	2774	Hydraulic Fluid	600
Heavy Equip. Maint.	2540	Hydraulic Fluid	240
Fire Department	2748	Hydraulic Fluid	36
CES Power Production	426	Hydraulic Fluid	72
Equipment Maint.	3569	Hydraulic Fluid	55
FMS Pneudraulics	2753	Calibration Fluid	10
Fire Department	2748	Brake Fluid	12
Auto Hobby Shop	509	Brake Fluid	3
Heavy Equip. Maint.	2540	Brake Fluid	12
Equipment Maint.	3569	Brake Fluid	55
Refueling Maint	2542	Brake Fluid	2
General Purpose Veh.	2548	Brake Fluid	12
Auto Hobby Shop	509	Transmission Fluid	36
General Purpose Veh.	2548	Transmission Fluid	300
Heavy Equip. Maint.	2540	Transmission Fluid	24
Refueling Maint	2542	Transmission Fluid	48
TOTAL:			11503

WASTES GENERATED AT PLATTSBURG AFB

BASE: Plattsburg AFB, Plattsburg NY
Type of Waste: Fuels

SHOP	BLD #	PRODUCT	QTY/GALLONS
Fire Department	2748	Automotive Fuel	10
General Purpose Veh.	2548	Automotive Fuel	0
Refueling Maint	2542	Automotive Fuel	60
FMS AGE	2815	Automotive Fuel	600
Liq. Fuels Maint.	2840	Jet Fuel	3100
Helicopter Maint.	2793	Jet Fuel	60
FMS AGE	2815	Jet Fuel	600
Refueling Maint	2542	Jet Fuel	600
Fuel Syst. Repair	2818	Jet Fuel	480
FMS Test Cell	2820	Jet Fuel	1200
FMS Propulsion Shop	2774	Jet Fuel	600
TOTAL:			7310

WASTES GENERATED AT PLATTSBURG AFB

BASE: Plattsburg AFB, Plattsburg NY
Type of Waste: Waste Solvents and Degreasants

SHOP	BLD #	PRODUCT	QTY/GALLONS
Refueling Maint	2542	Degreasants	8
FMS Pneudraulics	2753	B&B 20-20 NV	200
FMS AGE	2815	Degreasants	60
FMS Propulsion Shop	2774	Finger Print Remover	30
Fire Department	2748	Degreasants	5
Wheel & Tire Shop	2763	B&B 20-20NV	200
Equipment Maint.	3569	PD-680	10
Helicopter Maint.	2793	PD-680	300
FMS Pneudraulics	2753	PD-680	200
Heavy Equip. Maint.	2540	PD-680	120
Fire Department	2748	PD-680	20
Structural Repair	2753	MEK	60
Auto Hobby Shop	509	PD-680	220
FMS AGE	2815	PD-680	120
FMS NDI	2802	1,1,1 Trichloroethane	150
CES Power Production	426	PD-680	40
General Purpose Veh.	2548	Formula 647	60
Wheel & Tire Shop	2763	PD-680	200
FMS Washrack	2763	PD-680	3360
Combat Arms Maint.	2010	Rifle Bore Cleaner	4
FMS Propulsion Shop	2774	PD-680	420
Pavements and Grounds	2827	PD-680	30
380 MMS Munitions Maintenance	3578	PD-680	10
TOTAL:			5827

WASTES GENERATED AT PLATTSBURG AFB

BASE: Plattsburg AFB, Plattsburg NY
Type of Waste: Photo Wastes

SHOP	BLD #	PRODUCT	QTY/GALLONS
FMS NDI	2802	Photo (Developer)	220
Photo Lab	2710	Photo (Developer)	1200
FMS NDI	2802	Photo (Fixer)	240
Repographics	406	Photo (Electrostat)	9
Repographics	406	Photo (Blanket Wash)	12
Photo Lab	2710	Photo (Hypo)	480
TOTAL:			2161

Type of Waste: Waste Antifreeze

SHOP	BLD #	PRODUCT	QTY/GALLONS
Heavy Equip. Maint.	2540	Antifreeze	180
Auto Hobby Shop	509	Antifreeze	40
Fire Department	2748	Antifreeze	120
CES Power Production	426	Antifreeze	24
FMS Test Cell	2820	Antifreeze	30
Refueling Maint	2542	Antifreeze	60
General Purpose Veh.	2548	Antifreeze	360
TOTAL:			814

WASTES GENERATED AT PLATTSBURG AFB

BASE: Plattsburg AFB, Plattsburg NY
Type of Waste: Waste Thinners

SHOP	BLD #	PRODUCT	QTY/GALLONS
Auto Hobby Shop	509	Waste Thinners	60
Trans Allied Trades	2540	Waste Thinners	144
Corrosion Control	2890	Waste Thinners	600
TOTAL:			804

Type of Waste: Paint Wastes

SHOP	BLD #	PRODUCT	QTY/GALLONS
Trans Allied Trades	2540	Paint Wastes	24
Corrosion Control	2890	Paint Wastes	600
CES Power Production	426	Paint Wastes	0
Auto Hobby Shop	509	Paint Wastes	24
TOTAL:			648

Type of Waste: Stripping Wastes

SHOP	BLD #	PRODUCT	QTY/GALLONS
Corrosion Control	2890	Stripping Waste	600
TOTAL:			600

WASTES GENERATED AT PLATTSBURG AFB

BASE: Plattsburg AFB, Plattsburg NY
Type of Waste:

SHOP	BLD #	PRODUCT	QTY/GALLONS
CES Power Production	426	Waste Battery Acid	120
General Purpose Veh.	2548	Waste Battery Acid	144
Auto Hobby Shop	509	Waste Battery Acid	6
FMS Electric Shop	2753	Waste Battery Acid	12
Corrosion Control	2890	Waste Acids	6
TOTAL:			288

Type of Waste: NDI Wastes

SHOP	BLD #	PRODUCT	QTY/GALLONS
FMS NDI	2802	NDI (Emulsifier)	110
FMS NDI	2802	NDI (Penetrant)	110
TOTAL:			220

Type of Waste: Mis Wastes

SHOP	BLD #	PRODUCT	QTY/GALLONS
Pavements & Grounds	2827	Herbicides	0
Corrosion Control	2890	Alodine	6
TOTAL:			6

BASE: Plattsburg AFB, Plattsburg NY
Type of Waste: Soaps

SHOP	BLD #	PRODUCT	QTY/GALLONS
Fire Department	2748	Soaps	120
FMS Propulsion Shop	2774	Soaps	480
Auto Hobby Shop	509	Soaps	120
FMS AGE	2815	Soaps	240
Helicopter Maint.	2793	Soaps	120
Refueling Maint	2542	Soaps	180
FMS Washrack	2763	Soaps	4800
OMS Veh. Management	2785	Soaps	24
Equipment Maint.	3569	Soaps	5
FMS Test Cell	2820	Soaps	12
General Purpose Veh.	2548	Soaps	48
Heavy Equip. Maint.	2540	Soaps	120
TOTAL:			6269

Appendix F

Staff Summary Sheet to Wheel and Tire Shop

(This page left blank)

STAFF SUMMARY SHEET

	TO	ACTION	SIGNATURE (Surname), GRADE AND DATE		TO	ACTION	SIGNATURE (Surname), GRADE AND DATE
1	USAF HOSP SGPM	Coord	<i>McCullough, Capt</i> 10 Jun 86	6	USAF HOSP SGPB	Coord	<i>Mark A. McCullough</i> 1 July 86
2	USAF HOSP SGP	Coord	<i>H. Hall, Col</i> 11 Jun 86	7			
3	USAF HOSP SG	Coord	<i>C. R. Aune, Lt Col</i> 13 Jun 86	8			
4	380 FMS CC	Coord	<i>[Signature]</i> 15 Jun 86	9			
5	380 FMS MAFAR	Action	<i>R. D. [Signature]</i> 27 Jun 86	10			

SURNAME OF ACTION OFFICER AND GRADE

Capt. McCullough

SYMBOL

SGPB

PHONE

7421

TYPIST'S INIT

EFP

SUSPENSE DATE

20 June 1986

SUBJECT

~~Baseline~~

Industrial Hygiene Survey, 380 FMS Wheel & Tire Shop

DATE

6 June 1986

SUMMARY

1. A Baseline Industrial Hygiene Survey was accomplished at the 380 FMS Wheel & Tire Shop, building 2673, IAW AFR 161-33. The purpose of this survey was to identify and evaluate any potential hazards which might affect the worker's health.
2. Hazardous noise exposures have been documented in this section. Potential hazardous exposures to airborne asbestos fibers and solvents may also occur when disassembling and cleaning wheels. Air samples were collected to determine extent of worker's exposures, results will be provided under a separate cover once received from the analyzing laboratory. It was also noted that repeated skin contact with 20-20 NV solvent occurs when removing parts from the cleaner tank. Use of protective gloves or a submerged shelf arrangement is necessary. Disposal of the 20-20 NV solvent must be coordinated through the Defense Reutilization and Marketing Office (DRMO) rather than disposal through the floor drain. Adequate engineering controls and personal protective equipment was on hand to reduce exposures to acceptable levels.

Mark A. McCullough

MARK A. McCULLOUGH, Capt., USAF, BSC
Bioenvironmental Engineer

1-Atch.: Draft Survey

(This page left blank)

Appendix G

Acquanetics Questionnaire

(This page left blank)

AQUANETICS, INC.

ON-SITE OIL RECLAMATION SYSTEMS

111 Milbar Blvd., Farmingdale, NY 11735

(516) 454-7800

U.S.A.

TELEX: 64 5149 MIMCO, FDLE



OIL RECLAMATION APPLICATION DATA SHEET

NOTE: If more than one type of oil is used, or more than one plant location exists, please fill out a data sheet for each type of oil and plant location.

COMPANY NAME: _____ DATE: _____
ADDRESS: _____ COMPANY CONTACT: _____
CITY: _____ TITLE: _____
COUNTRY: _____
TELEPHONE #: (____) _____ TELEX: _____

1. TYPE OF INDUSTRY

Industrial Manufacturing ☐ Utilities ☐ Military ☐ Steel ☐
Petro Chemical ☐ Plastics ☐ Mining ☐
Automotive ☐ Refining ☐ Other (Please Specify) _____

2. HOW MANY OPERATING SHIFTS DAILY? One ☐ Two ☐ Three ☐

3. TYPE OF OIL

	VISCOSITY			
	at 100°F	at 210°F	at 45°C	at 100°C
Hydraulic				
Quench				
Turbine Lube				
Transformer				
Heat Transfer				
Gear				
Cutting				
Drawing				
Synthetic*				
Other*				

*Specify Type

4. WHAT IS THE BRAND NAME DESIGNATION OF THE OIL YOU WOULD LIKE TO PROCESS
(e.g. Mobile DTE 24)? _____

5. WHAT TYPE OF MACHINERY IS PREDOMINANT IN YOUR FACILITY USING THE SUBJECT OIL?

Machine Tools ☐ Turbines ☐ Stamping ☐ Transformers ☐

Quench Tanks ☐ Plastic Injection Molding Equipment ☐

Other (Please Specify) _____

6. APPROXIMATELY HOW MUCH OIL DOES A RESERVOIR FOR A TYPICAL SYSTEM CONTAIN?

_____ gallons / _____ liters

7. HOW MANY SUCH SYSTEMS ARE THERE IN YOUR FACILITY?

_____ number

8. WHAT QUANTITY (YEARLY) IS BEING USED OR PURCHASED?

Less than 1,000 gals./ltrs. ☐ 25,000 - 50,000 gals./ltrs. ☐

1,000 - 10,000 gals./ltrs. ☐ Over 50,000 gals./ltrs. ☐

10,000 - 25,000 gals./ltrs. ☐ Exact Quantity (if available) _____ gals./ltrs.

9. WHAT IS YOUR TOTAL OIL COST PER YEAR?

$\frac{\text{\$ Per gals./ltrs.}}{\text{Yearly Usage in gals./ltrs.}} \times \text{Yearly Usage in gals./ltrs.} = \text{\$ Total Cost}$

10. IF YOU EMPLOY A CENTRAL RESERVOIR TO COLLECT WASTE OILS, WHAT SIZE IS IT?

500 gals./ltrs. ☐ 10,000 gals./ltrs. ☐

1,000 gals./ltrs. ☐ Other _____ gals./ltrs.

10a. WHERE IS IT?

In Plant ☐ Underground ☐ Other (Please Specify) _____

10b. IS IT HEATED? Yes ☐ No ☐ IF YES, STATE TEMPERATURE _____°F/_____°C

10c. DOES THE WASTE OIL RESERVOIR CONTAIN A MIXTURE OF OILS OR PREDOMINANTLY ONE TYPE OF OIL? _____

10d. IF A MIXTURE, WOULD IT BE FEASIBLE TO ARRANGE TO SEGREGATE THESE OILS IF THERE WERE SUBSTANTIAL SAVINGS INVOLVED?

Yes ☐ No ☐

11. DO YOU OBTAIN OIL ANALYSIS* AND CHANGE TIME RECOMMENDATIONS?

Yes ☐ No ☐

11a. IF YES, FROM WHOM? _____

*If available, please attach a copy of a recent analysis of the oil to be processed

12. HOW OFTEN ARE OIL CHANGES EXECUTED?

Every three months ☐ Yearly ☐
 Every six months ☐ Other (Please specify) _____

13. ON THE AVERAGE, WHAT IS THE APPEARANCE OF YOUR OIL WHEN YOU DISPOSE OF IT?

Clear ☐ Very Cloudy ☐
 Slightly Cloudy ☐ Muddy and Stratified with Contamination ☐

14. DOES YOUR OIL HAVE ANY SPECIAL PROBLEMS SUCH AS:

Water ☐ Entrained Gases ☐
 High Dirt Content ☐ High Acid Content ☐

IF YES: Please answer Question 14a (A, B, C & D)

IF NO: Please answer Question 14a (A, B)

14a. CAN YOU DESCRIBE THE FOLLOWING LEVELS OF CONTAMINATION FOR BOTH NEW OIL AND OIL TO BE RECLAIMED?

	New Oil	Oil To Be Reclaimed
A. Approximate Water Percent		
B. Approximate Dirt Content		
C. Entrained Gases - Flash Point		
D. Acids: Total Acid Number (TAN)		

14b. DOES YOUR WASTE OIL CONTAIN ANY SOLVENT? Yes ☐ No ☐

14c. IF YES, PLEASE SPECIFY _____

15. WHAT IS THE MAJOR REASON FOR PLANNED OIL CHANGES?

Regular Scheduled Change ☐ High Dirt Content ☐
 High Water Content ☐ Other (Please Specify) _____

16. HOW MUCH OIL DO YOU FEEL YOU CAN COLLECT PER WEEK FOR RECLAMATION?

_____ gallons/liters

17. WOULD YOU WANT THE OIL PROCESSED IN

One Shift (8 Hours) ☐ Two Shifts ☐
 Other (Specify Hours) _____

18. IS COOLING WATER AVAILABLE? IF YES

PRESSURE _____ psi FLOW _____ gpm/lpm TEMP _____ °F/°C

19. WHAT POWER IS AVAILABLE?

440V ☐ 220V ☐ Max. Amperage Avail. _____ Hertz: 60 ☐ 50 ☐
550 Vac ☐ 500 Vac ☐ 415 Vac ☐ 380 Vac ☐ 210 Vac ☐ Other: _____ Phase: 3 ☐ 1 ☐

20. DO YOU PRESENTLY HAVE EQUIPMENT IN YOUR FACILITY WHICH IS DESIGNATED TO CLEAN, FILTER OR RECLAIM OIL?

Yes ☐ (Please answer Questions 21-25) No ☐ (Please skip to Question 26)

21. IF YES, WHAT IS THE NAME OF THE MANUFACTURER OF THIS EQUIPMENT, AND THE MODEL NUMBER?

Manufacturer

Model Number

22. WHAT TYPE OF EQUIPMENT IS THIS?

Filtration System ☐ Vacuum Distillation System ☐

Centrifuge System ☐ Other (Please Specify) _____

23. HOW SATISFIED ARE YOU WITH THE PERFORMANCE OF THIS EQUIPMENT?

Very Satisfied ☐ Adequate ☐ Marginal ☐ Not Satisfied ☐

24. WHAT IS THE PROCESS RATE OF THIS EQUIPMENT IN GALLONS/HR.? — LITERS/HR.?

25. DO YOU FEEL THIS PROCESS RATE IS SUFFICIENT TO HANDLE YOUR PLANT'S REQUIREMENTS?

Yes ☐ No ☐

26. WHO IN YOUR ORGANIZATION IS RESPONSIBLE FOR CONTROLLING OIL USAGE AND COST?

27. DO YOU ANTICIPATE A NEED FOR INCREASED QUANTITIES OF OIL? IF SO, HOW MUCH?

5% ☐ 10% ☐ 15% ☐ Other _____%

28. ARE YOU INTERESTED IN PLANT WIDE RECLAMATION OR FOR CLEANING OIL IN A PARTICULAR PIECE OF EQUIPMENT? _____

.....

Thank you for your assistance in helping us to more accurately respond to your needs

Distribution List

	Copies
HQ AFSC/SGPB Andrews AFB DC 20334-500	1
HQ USAF/SGPA Bolling AFB DC 20332-6188	1
HQ SAC/DE Offutt AFB NE 68113-5001	2
HQ SAC/SGPB Offutt AFB NE 68113-5001	2
AAMRL/TH Wright-Patterson AFB OH 45433-6573	1
USAF Regional Medical Center Wiesbaden/SGPB APO New York 09220-5300	1
OL AD, USAFOEHL APO San Francisco 96274-5000	1
USAFSAM/TSK Brooks AFB TX 78235-5301	1
USAFSAM/EDH Brooks AFB TX 78235-5301	1
Defense Technical Information Center (DTIC) Cameron Station Alexandria VA 22319	2
HQ USAF/LEEV Bolling AFB DC 20330-5000	2
HQ AFESC/RDV Tyndall AFB FL 32403-6001	1
USAF Hospital Plattsburg/SGPB Plattsburg AFB NY 12903-5300	3
380 ABG/DEEV Plattsburg AFB NY 12903-5300	3

END
DATE

FILMED

MARCH

1988

DTIC