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USAFOEHL REPORT

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HAZARDOUS WASTE TECHNICAL ASSISTANCE SURVEY, FAIRCHILD AFB WA

ROBERT A. TETLA, Captain, USAF, BSC
ANTHONY T. ZIMMER, 1Lt, USAF, BSC

September 1988

Final Report

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

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JAMES C. ROCK, Colonel, USAF, BSC
Commander

Reviewed By:



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

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19. ABSTRACT (Continue on reverse if necessary and identify by block number) Headquarters 92nd Bombardment Wing (SAC), requested the USAF O EHL conduct a hazardous waste technical assistance survey at Fairchild AFB from 18 to 29 Jan 88. The scope of this survey was to evaluate hazardous waste management practices and explore opportunities for hazardous waste minimization. The survey team performed a shop evaluation of chemical waste management practices and met with hazardous waste managers and engineers to discuss the hazardous waste program. Recommendations: (1) The base needs to modify their waste analysis plan to include as a minimum: a complete listing of all known wastestreams; the results of a baseline waste analysis; the parameters for analysis; the sampling frequency; and the sampling technique for each wastestream. (2) Wastes should be taken to DRMO in government vehicles rather than privately owned vehicles to reduce the liability to the base should an accident occur. (3) A contractor should be contacted to recycle batteries on the base. (4) The			(over)			
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base should start a program to test the integrity of their underground storage tanks. (5) The 92nd Vehicle Maintenance accumulation site manager should control the disposal of waste oil going into the underground waste oil storage tank under his responsibility. (6) Oil from the 92nd FMS Pneudraulic shop's hydraulic test stand should not be discharged into the sanitary sewer. The waste hydraulic fluid should be collected and placed in a waste oil bowser. (7) Shops using PD-680 (e.g., Wheel and Tire Shop) should consider switching from PD-680 to a biodegradable solvent such as Citrikleen or Penetone 724. These chemicals are biodegradable and can be discharged to the sanitary sewer if analytical results confirm that the spent solvent is nonhazardous. (8) Water containing FSII can be discharged to the sanitary sewer. This chemical is biodegradable and nonhazardous. (9) The Bioenvironmental Engineering Shop should sample waste from drums using a coliwasa instead of a hand pump.

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ACKNOWLEDGMENT

The authors wish to thank the personnel at Fairchild AFB who provided information and logistic support during our visit. Mr Carlson, 92 CSG/DEEV; Capt Burk, 92 BMW/LGSF; 1Lt Marchand and the Bioenvironmental Engineering Shop, USAF Hosp Fairchild/SGPB; TSgt Hess, 92 FMS/FMCO; and Mr Nelson, 92 CES/DEME, were especially supportive of the mission both during and after the field survey.



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I. INTRODUCTION

In a 3 Sep 87 letter (Attachment 1), Headquarters 92nd Bombardment Wing, Strategic Air Command, requested the USAF Occupational and Environmental Health Laboratory, Consultant Services Division, Environmental Quality Branch (USAFOEHL/ECQ) to perform a hazardous waste technical assistance survey at Fairchild AFB (FAFB) WA. The scope of this survey was to evaluate hazardous waste management practices as well as explore opportunities for hazardous waste minimization.

The survey was conducted by Maj Elliot K. Ng, Capt Robert A. Tetla, and 1Lt Anthony T. Zimmer, from 18 to 29 Jan 88.

II. BACKGROUND

A. Base Description

Fairchild AFB is located 12 miles west of Spokane, Washington, and is home of the 92nd Bombardment Wing. The base serves as a host unit for various tenants such as: the 3636th Combat Crew Training Wing; 141st Air Refueling Wing (Washington Air National Guard); Detachment 24, 40th Aerospace Rescue and Recovery Squadron; Detachment 1 of the 1000th Satellite Operations Group; Detachment 3, 9th Weather Squadron; the 2039th Information Systems Squadron; and Field Training Detachment 506 (ATC).

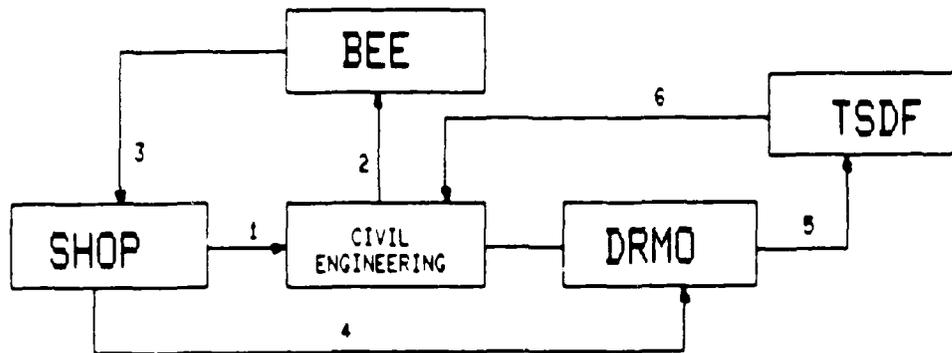
B. Hazardous Waste Program

Overall, the hazardous waste program is operating well. The Environmental Coordinator (DEEV) has the responsibility for training shop personnel, contacting the Bioenvironmental Engineer (BEE) to analyze wastestreams, and keeping records. The specific day-to-day details of waste disposal is primarily the responsibility of the shops generating the waste.

Waste generators keep logs on the amount and types of waste being placed in each 55-gallon drum. If the contents of a drum are unknown, the drum is sampled by the BEE. Drums are kept at the shop's satellite accumulation site located near or inside each shop. A listing of satellite accumulation sites is in Attachment 2. Shop personnel also have the responsibility of appointing an accumulation site manager and providing the Environmental Coordinator with the site manager's name and position.

When a drum is full, the accumulation site manager has 90 days to: (1) identify the contents of the drum, (2) properly label the drum, (3) fill out DD Form 1348-1 (Atch 3), and (4) transport the drum to the DRMO accumulation site. The accumulation site at

DRMO has an interim permit to hold wastes for 180 days before being picked up by a disposal contractor. See Figure 1 for a flow diagram of waste turn-in procedures.



1. A shop accumulates a 55-gallon drum of waste. The shop satellite accumulation site manager contacts civil engineering (DEEV). If the contents of the drum are known, the satellite accumulation site manager fills out DD Form 1348-1 and labels the drum.
2. If the drum's content is unknown, the satellite accumulation site manager asks civil engineering to contact the Bioenvironmental Engineer to sample the drum.
3. After the drum's content has been analyzed, the results are sent to civil engineering and to the shop. The satellite accumulation site manager labels the drum and fills out DD Form 1348-1.
4. When all the paperwork is filled out and the drum is labeled, shop personnel contact DRMO to set up an appointment to transport the waste to DRMO's permitted accumulation site. Once the waste is brought to DRMO, DRMO will inspect the condition of the drum and the paperwork accompanying the drum (DD Form 1348-1). If everything is in order, DRMO will take accountability of the drum; otherwise, the shop has to take the drum back and correct the problem (e.g., if the drum is dented, the shop has to place the drum in an overpack).
5. After DRMO takes accountability of the waste, they fill out the Hazardous Waste Manifest and contact a disposal contractor. The contractor picks up the waste at DRMO and transports it to a treatment, storage, and disposal facility (TSDF).
6. Once the waste is properly disposed of, the completed manifest is returned to the base.

Figure 1: Summary of Waste Turn-in Procedures on Fairchild AFB

Once the waste has been taken to the permitted accumulation site, the hazardous waste manifest is filled out by DRMO and the disposal contractor (Chemical Processors Incorporated) is notified. The disposal contractor takes responsibility for the manifest when he picks up the waste. After the disposal contractor disposes of the waste in an approved treatment, storage and disposal facility (TSDF) the completed manifest is returned to the Environmental Coordinator for his records.

III. PROCEDURE

First, the base's hazardous waste management plan and the Bioenvironmental Engineer's industrial shop folders were reviewed. Nine categories of waste generated on Fairchild AFB were established. After the preliminary waste assessment, the survey team visited all major industrial shops on base to observe industrial activities, discuss chemical waste disposal practices with shop personnel, and hand out chemical waste disposal survey forms (Attachment 4) to inventory waste disposal practices.

The following individuals were contacted to discuss their individual area of responsibility in the hazardous waste management program:

Capt Burk, Fuels Management Officer (also Waste Minimization Management Board Chairman), 92 BMW/LGSF, AUTOVON 352-2413

1Lt Marchand, Chief, Bioenvironmental Engineering,
92 STRAT Hosp/SGPB, AUTOVON 352-2391

Scott Carlson, Environmental Coordinator,
92 CSG/DEEV, AUTOVON 352-5847

TSgt Hess, 92 FMS/FMCO, AUTOVON 352-5253

Chadyne Oglesbee, Materials Sorter & Classifier,
DRMO, AUTOVON 352-2350

The results from the chemical waste disposal survey forms are summarized in Table 1. This summary shows the annual forecasted wastes generated on Fairchild AFB by category. See Attachment 5 for the calculations of Column 3 (Total) and Attachment 6 for the calculations of Column 4 (Total Drummed). All drummed wastes go to DRMO for disposal by contract.

From Table 1, Column 3, waste oils and waste fluids (hydraulic, transmission and brake) comprise the largest category of waste generated on Fairchild AFB. All waste oils and fluids are eventually taken to underground waste oil tanks located at the Auto Hobby Shop, 141st WANG Vehicle Maintenance Shop, 92nd TRANS Vehicle

Maintenance Shop, or the ATC Vehicle Maintenance Shop (located in the survival area). All waste oils and fluids are picked up by a waste oil contractor and refined for heating oil. From Table 1, Column 5, waste fuels, waste strippers, waste paints and thinners, waste solvents other than PD-680, and NDI wastes comprise over 83% of the wastes drummed and disposed of through DRMO. The remaining wastes, i.e., waste acids, used PD-680 and used antifreeze, comprise the remaining 17% and are drummed and disposed of through DRMO.

TABLE 1
ANNUAL FORECASTED QUANTITIES FOR WASTE CATEGORIES
AT FAIRCHILD AFB

PRODUCT	TOTAL (Gal/yr)	TOTAL DRUMMED (Gal/gr)	%TOTAL DRUMMED
1 Waste Oils & Fluids	15297.00	---	----
2 Fuels	10948.00	2188.00	22.15
3 Waste PD-680	2670.00	1070.00	10.83
4 Waste Solvents	1863.00	1863.00	18.86
5 Stripping Waste	1744.00	1744.00	17.66
6 Waste Paints & Thinners	1730.00	1730.00	17.52
7 NDI Wastes	690.00	690.00	6.99
8 Waste Acids	472.00	471.00	4.77
9 Used Antifreeze	786.00	120.00	1.22
Totals:	36,200.00	9,876.00	100.00

IV. DESCRIPTION OF INDUSTRIAL ACTIVITIES AND WASTE DISPOSAL PRACTICES

This section documents our findings while visiting 38 industrial activities.

A. 92 Avionics Maintenance Squadron

Shop: Fire Control Shop
Shop Supervisor: MSgt Johnson

Building: 2150
AUTOVON: 352-5229/
5940

Personnel in the Fire Control Shop repair, disassemble, clean, reassemble and align all components on the M-61 20 mm rotary cannon and gun feeder assemblies. This shop has a 25-gallon PD-680 tank (Figure 2) for cleaning the guns and feeder assemblies. On the average one gun per month is cleaned. When the PD-680 is contaminated, it is drained to a lower tank and passed through a diesel oil filter back into the top tank. The PD-680 in the tank has not been changed in over 2 years. The filter on the tank is changed annually and disposed of as a municipal waste. This shop has a hot oil bath tank (about 66 gallons) that has not been used in 3 years. There is still light weight weapon oil in this tank.

B. 92 Field Maintenance Squadron

1. Shop: Fuel Systems Repair
Shop Supervisor: TSgt Bogner

Building: 1012
AUTOVON: 352-5919

Fuel System Repair personnel remove and replace aircraft system components such as pumps, valves and fuel bladders. Any spilled fluids (e.g., fuel, hydraulic fluid and oil) are drained to a fuel/oil separator which is connected to the sanitary sewer. Fuel puddles are vacuumed up and emptied into a flight line bowser maintained by POL (Petroleum Oil and Lubricant) personnel. Dirty rags and absorbent materials used for cleaning are disposed of as municipal waste.

2. Shop: Glossy Eagle
Shop Supervisor: TSgt Funnewark

Building: 1017
AUTOVON: 352-5714

Shop personnel are responsible for refurbishing the interior and exterior of KC-135 aircraft. Personnel also spot clean, sand, and repaint the aircraft. Aircraft needing major paint jobs are sent to Tinker AFB for repainting. Shop personnel generate about 25 gallons of waste paints and thinners per month (the major component of this wastestream is methyl ethyl ketone (MEK)). Wastes are drummed at a satellite accumulation site located inside the facility and disposed through DRMO.

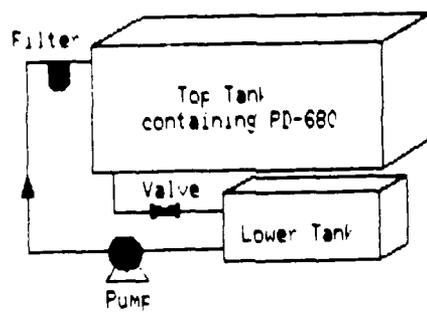
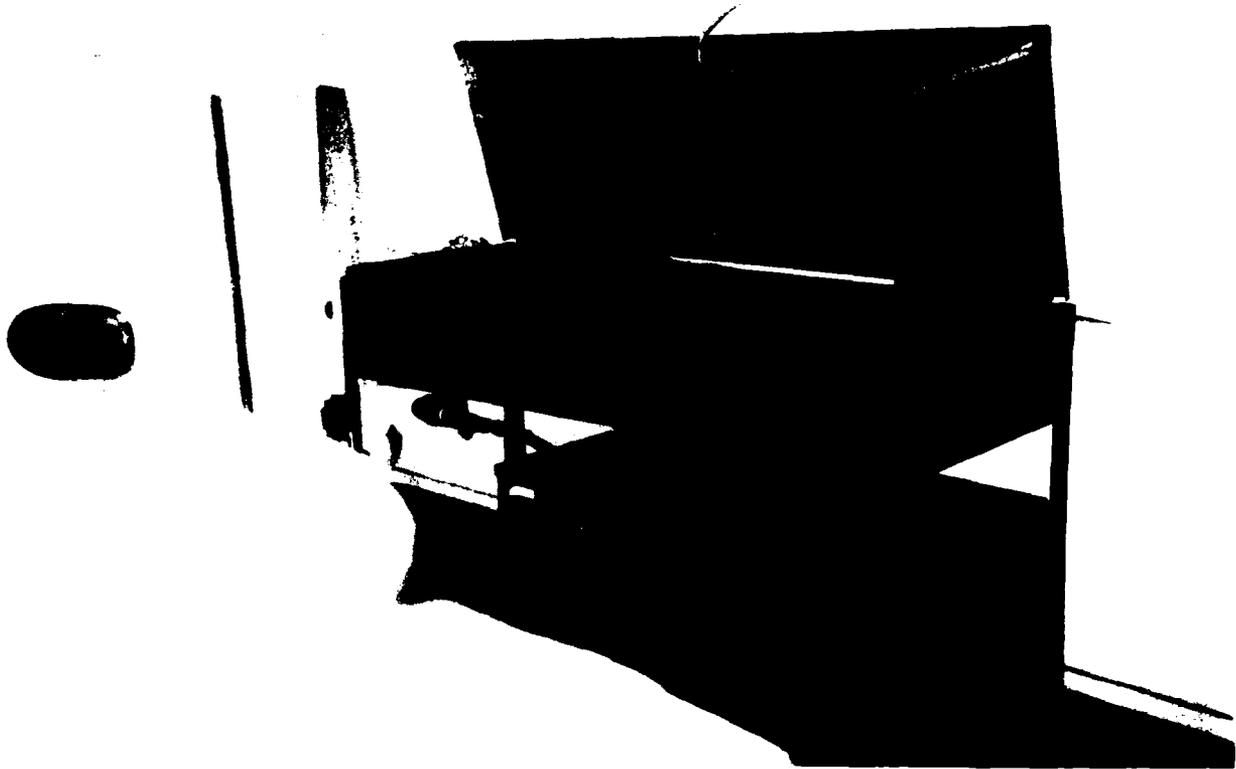


Figure 2. Fire Control Shop's PD-680 Tank

3. Shop: Aerospace Ground Equipment (AGE)
Shop Supervisor: MSgt Arnold

Building: 2050
AUTOVON: 352-5431

Shop personnel clean, paint and perform periodic inspections of all AGE support equipment. The shop has a washrack where aircraft soap (55 gallons/month, diluted 10:1) and PD-680 (12 gallons/month) are used to clean equipment. Wastes from the washrack drain into an oil/water separator connected to the sanitary sewer. The oil/water separator is periodically pumped out by civil engineering sewage treatment plant personnel.

Two-hundred-fifty gallons of waste motor oil, 5 gallons of waste hydraulic fluid, and 5 gallons of waste 7808 oil are generated per month at this shop. These wastes are placed into an oil bowser located next to the AGE satellite accumulation site (Figure 3) before being taken to an underground tank located behind Bldg 2115. The shop has one Safety Kleen (30-gallon) degreasing tank that is changed out every 2 months by a contractor. A 40-gallon PD-680 degreasing tank, changed out every 3 months, is located in the shop. Waste PD-680, waste paints and thinners (approximately 35 gallons/month), and waste antifreeze (10 gallons/month) are kept at a satellite accumulation site located adjacent to the facility until transported to DRMO for disposal. The satellite accumulation site is secured and covered but not curbed. During the survey there were two drums of unknown wastes in the satellite accumulation site awaiting analytical results from the BEE shop. Also, our discussion with shop personnel indicated that they would like to convert from PD-680 to Citrikleen, but they were concerned about the potential effects of Citrikleen on metallic surfaces.

4. Shop: Corrosion Control
Shop Supervisor: MSgt White

Building: 2050
AUTOVON: 352-5253

Shop personnel are responsible for stripping and painting aircraft parts and support equipment. The shop is divided into four areas. Area 1 is the sandblasting area. All bead blasting/paint chip waste is thrown in trash for municipal disposal. The waste has not been tested for heavy metals.

Area 2 is the stripping area (Figure 4). This area has a 165-gallon hot stripping tank (Figure 5) containing methylene chloride that is changed out every three months. This area is used as the satellite accumulation site for the facility. The site has two drums. One drum for epoxy stripper and one drum for waste MEK and thinners.

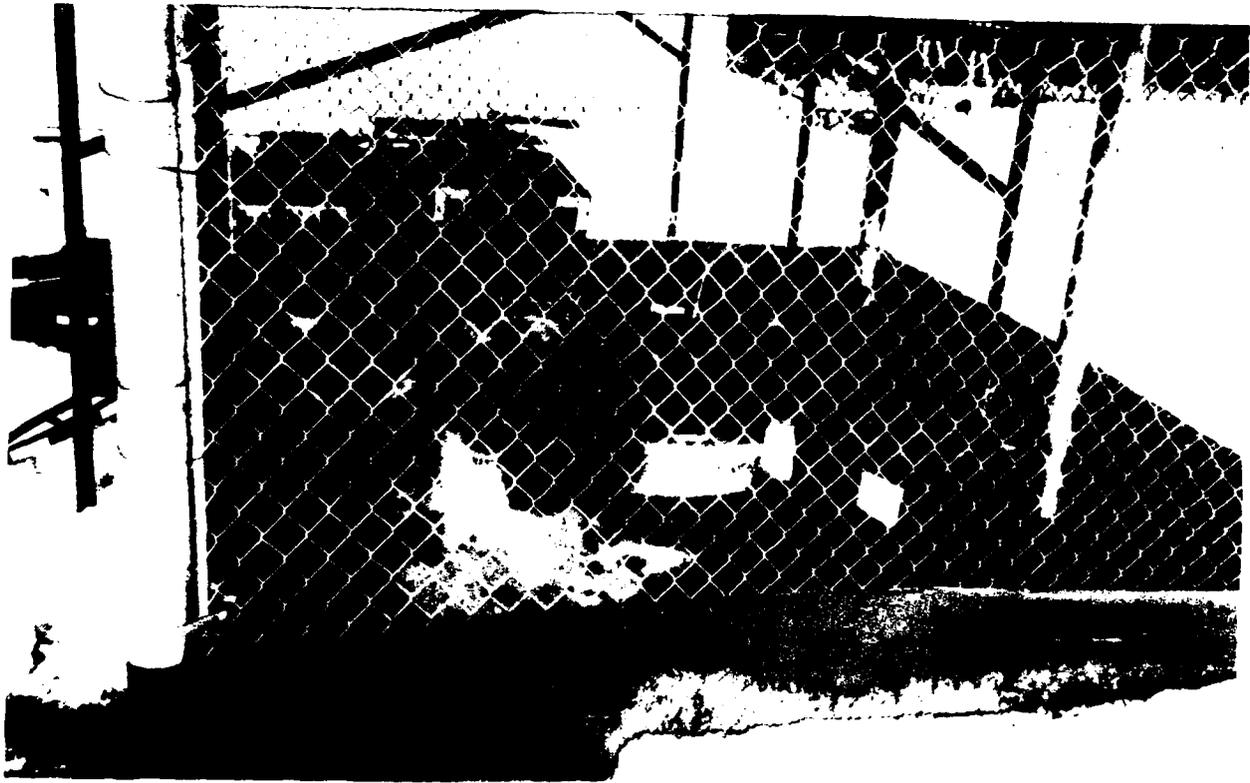


Figure 3. AGE Satellite's Accumulation Site



Figure 4. Corrosion Control's Stripping Area



Figure 5. Corrosion Control's Hot Stripping Tank

Area 3 is the painting area. This area contains a waterfall paint booth. The water from the paint booth (about 100 gallons) is drained every two weeks to the sanitary sewer. All paint waste skimmed off the top of the water is placed into a 55-gallon drum along with any sludge removed from the bottom of the tank. The 55-gallon drum is stored inside the paint booth. The water from the paint booth has not been tested to see if it is a hazardous waste.

Area 4 is the washdown area. Large parts that cannot be dipped into the hot tank are stripped here using an epoxy stripper (10 gallons/month). Most of the stripper is caught on metallic paper which is placed on the floor before the part is stripped. This paper is drummed and disposed of as a hazardous waste. Rinsewater from the stripping operations is drained directly to the sanitary sewer via a floor drain. Methyl ethyl ketone (MEK, 30 gallons/month) is used as a thinner. Waste paints and thinners are drummed, stored at the satellite accumulation site, and sent to DRMO for disposal.

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| 5. Shop: Nondestructive Inspection (NDI) | Building: 2050 |
| Shop Supervisor: TSgt Littleton | AUTOVON: 352-5343 |

Nondestructive Inspection (NDI) personnel are responsible for inspecting aircraft and aircraft parts for structural flaws using magnetic particle inspection and dye penetrant inspection. The magnetic particle inspection tank (20 gallons) and chemicals used in the dye penetrant inspection (115 gallons of emulsifier, 115 gallons of dye penetrant and 115 gallons of developer) are changed out every six months. Developers and fixers used in the photo processing units (10 gallons/month) are sent to the Base Photo Lab for silver recovery and disposal. A 55-gallon vat of trichloroethane used for cleaning equipment is changed out every three months. PD-680 (5 gallons/month) is also used to clean equipment. Oils used in the Joint Oil Analysis Program (JOAP) lab (10 gallons/month) are placed in 55-gallon drums. All wastes are drummed separately for disposal through DRMO.

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| 6. Shop: Aero Repair and Wheel & Tire | Building: 2050 |
| Shop Supervisor: TSgt Pilcher | AUTOVON: 352-5653 |

Personnel are responsible for rigging, adjusting and maintaining aircraft controls, landing gear and hatches. They also tear down and rebuild wheel and tire assemblies. The shop has four Safety Kleen degreasing tanks (50, 20, 16 and 10-gallon capacities, respectively). The tanks are cleaned out every two months by contractor. Dirty rags are turned into linen exchange on a 1 bag of dirty rags for 1 bag of clean rags exchange.

7. Shop: Electric Shop
Shop Supervisor: SSgt Yamashita

Building: 2050
AUTOVON: 352-5659

Battery maintenance procedures at the Electric Shop generate about 13 gallons of waste acid per month. Shop personnel drain all spent battery acid into plastic drums (15-gallon capacity, see Figure 6) and dispose of it through DRMO. Battery acid neutralization is not performed in this shop.

8. Shop: Pneudraulics
Shop Supervisor: SSgt Ryan

Building: 2050
AUTOVON: 352-5280

Pneudraulic Shop personnel maintain in-shop repair capabilities for all KC-135 and B-52 aircraft pneudraulic components. The shop has two Safety Kleen degreasing units (15 and 25-gallon capacities) that are changed out every two months by the Safety Kleen Corporation. The shop also has a hydraulic test stand that has a 35-gallon hydraulic fluid reservoir. During testing, approximately 8 gallons/month of hydraulic fluid are drained to an oil/water separator which is connected to the sanitary sewer. The shop contains a nozzle test stand that uses PD-680 as the test fluid, but no waste PD-680 is generated.



Figure 6. Electric Shop's Satellite Accumulation Site

9. Shop: Propulsion Shop
Shop Supervisor: CMSgt Herker

Building: 2163
AUTOVON: 352-5176

Shop personnel are responsible for the buildup, repair and functional testing of TF-33 and J-59 engines. Approximately 200 gallons of waste 7808 oil, 30 gallons of waste fuel and 55 gallons of waste hydraulic fluid are generated per month. The shop has a 55-gallon PD-680 degreasing tank. The tank is changed out every three months. All wastes are drummed separately, stored at their satellite accumulation site (Figure 7), and sent to DRMO for disposal. Shop personnel also use 20 gallons/month of aircraft soap (diluted 10:1) for cleaning equipment and the facility. The soap solution is drained to the sanitary sewer.

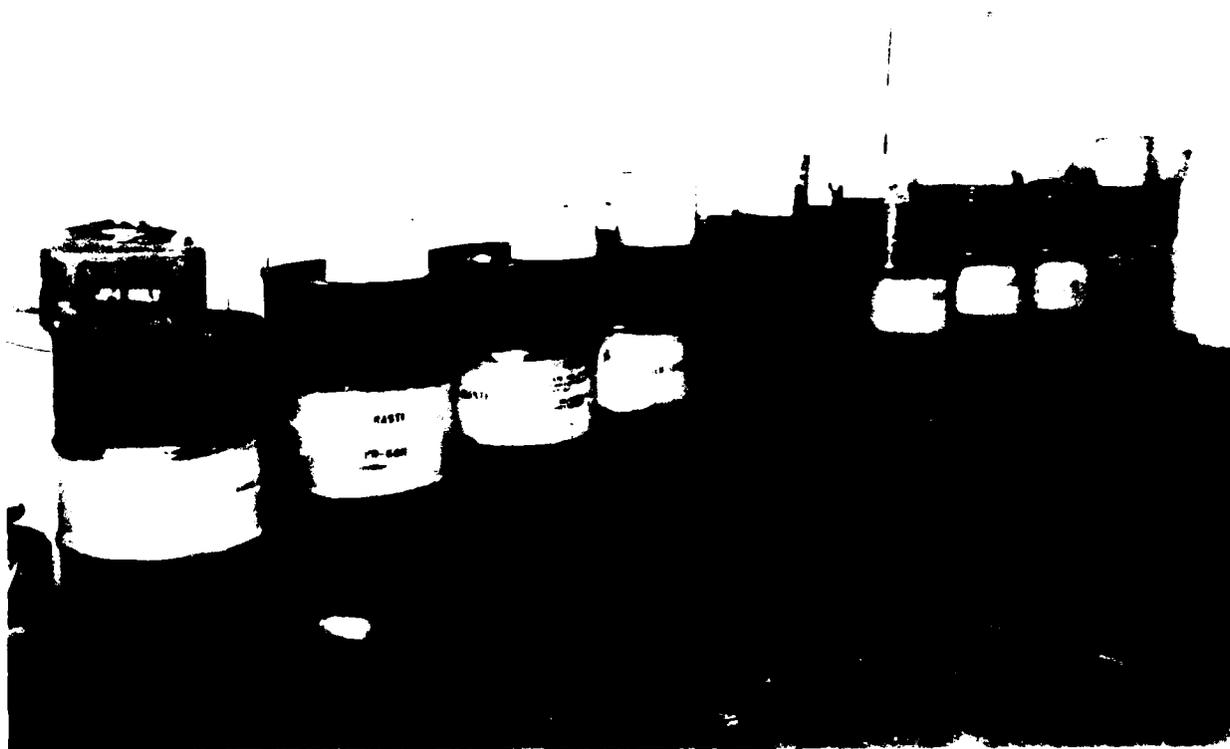


Figure 7. Propulsion Shop's Satellite Accumulation Site

The Propulsion Shop's Accessory Repair Section has a bearing room and a manifold tester. The manifold tester is used to test flow patterns of fuel nozzles. The tester utilizes calibration fluid (approximately 20 gallons) that is changed out every

90 days. The bearing room has five tanks to clean bearings: a 5-gallon tank of carbon remover; a 15-gallon tank of PD-680 and 7808 oil; a 7-gallon tank of fingerprint remover; a 7-gallon tank of PD-680; and a 7-gallon tank of 7808 oil. These tanks are changed out about every 30 days or on an as needed basis. All waste chemicals in this section are drummed and placed in the satellite accumulation site located next to the propulsion washrack. Wastes from the Test Cell are brought to the Propulsion Shop's satellite accumulation site for disposal.

C. 92 Operational Maintenance Section

- | | |
|-------------------------------|-------------------|
| 1. Shop: Washrack | Building: 1012 |
| Shop Supervisor: MSgt Blowers | AUTOVON: 352-5620 |

Washrack personnel are responsible for cleaning KC-135 and B-52 aircraft. Personnel wash about 15 aircraft per month. Aircraft soap (165 gallons/month, diluted 10:1), Solvent Emulsion Cleaner (70 gallons/month) and PD-680 (200 gallons/month) are used to clean aircraft. All chemicals used on the aircraft washrack are drained into an oil/water separator. The oil/water separator has not been pumped out for over six months, even though the shop's supervisor has requested several times that this be done.

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| 2. Shop: KC-135 Phase Docks | Building: 2050 |
| Shop Supervisor: SSgt Hoheland | AUTOVON: 352-5195 |

Personnel at the KC-135 Phase Docks accomplish hourly post flight inspections and unscheduled maintenance of the KC-135 aircraft. Waste JP-4 is placed in flight line fuel bowzers and disposed of through DRMO. Waste oil and hydraulic fluid are placed in the waste oil bowser located at the FMS AGE's satellite accumulation site (outside Bldg 2050). A 55-gallon drum of waste hydraulic fluid was located near one of the offices in the phase docks. No one in the area knew which shop was responsible for this drum.

D. 92 Civil Engineering Section

- | | |
|---------------------------------|-------------------|
| 1. Shop: Sewage Treatment Plant | Building: 0001 |
| Shop Supervisor: TSgt Talmalage | AUTOVON: 352-2401 |

Plant personnel are responsible for cleaning out all oil/water separators on base, and performing monthly check on separators. The wastes from each separator are placed in 55-gallon drums and left at the site. The satellite accumulation site manager of that shop has responsibility for disposal of the waste sludge. All waste

sludges from the treatment plant are dried in drying beds and then taken to fields located east of the base. The waste sludge has not been tested for EP toxic metals since 1984.

2. Shop: Fire Department
Shop Supervisor: Chief Boyce

Building: 0003
AUTOVON: 352-5215

Fire Department personnel perform routine maintenance of fire fighting vehicles including oil changes and minor repairs. About 10 gallons/month of waste motor oil is generated. The waste oil is placed in an oil bowser and taken to an underground waste oil tank located adjacent to the Transportation Shop, Bldg 2115. Personnel operate a fire training pit used for training exercises. Water contaminated with fuel is left in the fire training pit after an exercise and is sent to an oil/water separator that drains to an open field.

3. Shop: Entomology
Shop Supervisor: SSgt Peters

Building: 2025
AUTOVON: 352-2424

The Civil Engineering Entomology Shop is responsible for pest control throughout the base such as insecticide spraying of trees, homes, etc. The chemicals are used up in process. Any leftover chemicals are drained and stored in containers for use at a later time. Pesticide canisters are triple rinsed, punctured, placed in a plastic bag, and thrown in the trash. The liquid from the triple rinsing of containers is saved for use at a later time for mixing new pesticide.

4. Shop: Exterior Electric Shop
Shop Supervisor: Mr Nelson

Building: 2451
AUTOVON: 352-2304

Shop personnel are responsible for exterior maintenance and repair of electrical equipment. Personnel are responsible for removing and transporting PCB contaminated transformers. Transformers are transported either to an accumulation site located adjacent to the Engine Test Cell, Building 2150, or to a PCB storage site located in a secured room in Building 2151A. A contract was awarded to North American Environmental Company for the disposal of PCB contaminated waste from both sites in October 87. A future contract is being considered to remove all transformers on base containing PCBs.

5. Shop: Refrigeration
Shop Supervisor: Mr Grosser

Building: 2451
AUTOVON: 352-2318

Refrigeration personnel are responsible for maintaining air conditioning and refrigeration equipment throughout the base and cleaning the electrostatic precipitator at the indoor firing range, Bldg 2001. The shop has one Safety Kleen (30-gallon) vat

that is changed out monthly by the Safety Kleen Corporation. A solvent, Aquasol, is used for cleaning equipment. The spent solvent (about 2 gallons/month) is placed into a 55-gallon drum in the shop and taken to DRMO for disposal when full. Waste oil (10 gallons/month) from motor overhauls is taken to an underground waste oil tank located at Vehicle Maintenance, Bldg 2115.

6. Shop: Paint Shop
Shop Supervisor: Mr Riley

Building: 2451
AUTOVON: 352-2303

Shop personnel paint the interior and exterior of buildings, structures, and signs on Fairchild AFB. Approximately 3 gallons of waste thinners are generated per month and placed in a 55-gallon drum located at their satellite accumulation site. The shop uses latex paints and some lacquer paints. This shop has a waterfall paint booth that is drained twice per month. Sludge from the waterfall paint booth is scraped off and placed in a 55-gallon drum for waste sludge.

The shop also has a 25-gallon thinner tank that is used to clean painting equipment (see Figure 8). After the tank has been used extensively, the sludges are allowed to settle to the bottom of the tank leaving clean thinner on top to be reused. The sludge that accumulates on the bottom of the tank is periodically drawn off the bottom and new thinner is added to refill the tank. Waste sludge is drummed and disposed of through DRMO as a hazardous waste. The satellite accumulation site is located next to the thinner tank. This site was secured, covered, and on a concrete floor.

7. Shop: Power Production
Shop Supervisor: MSgt West

Building: 2451
AUTOVON: 352-5872

Power Production personnel operate and maintain emergency gas and diesel powered generator sets and aircraft arresting barrier systems used for landing of disabled aircraft. About 30 gallons of waste oil and approximately five gallons of waste automotive and diesel fuel are generated per month. These wastes are drummed and stored outside the building in a fenced area (see Figure 9). Waste motor oil is taken to the Transportation Squadron and placed in their 150-gallon underground waste oil tank. Fuel is replaced after repairs are made on the equipment. This shop also has a Battery Shop that occasionally maintains lead-acid batteries. Unneutralized waste battery acid is placed into a 30-gallon drum and disposed of as hazardous waste through DRMO. Spent battery casings are sent to DRMO.

The shop also has a 30-gallon Safety Kleen degreasing unit that is serviced by the Safety Kleen Corporation on a monthly basis. About five gallons per month of waste antifreeze is discharged to the sanitary sewer system.

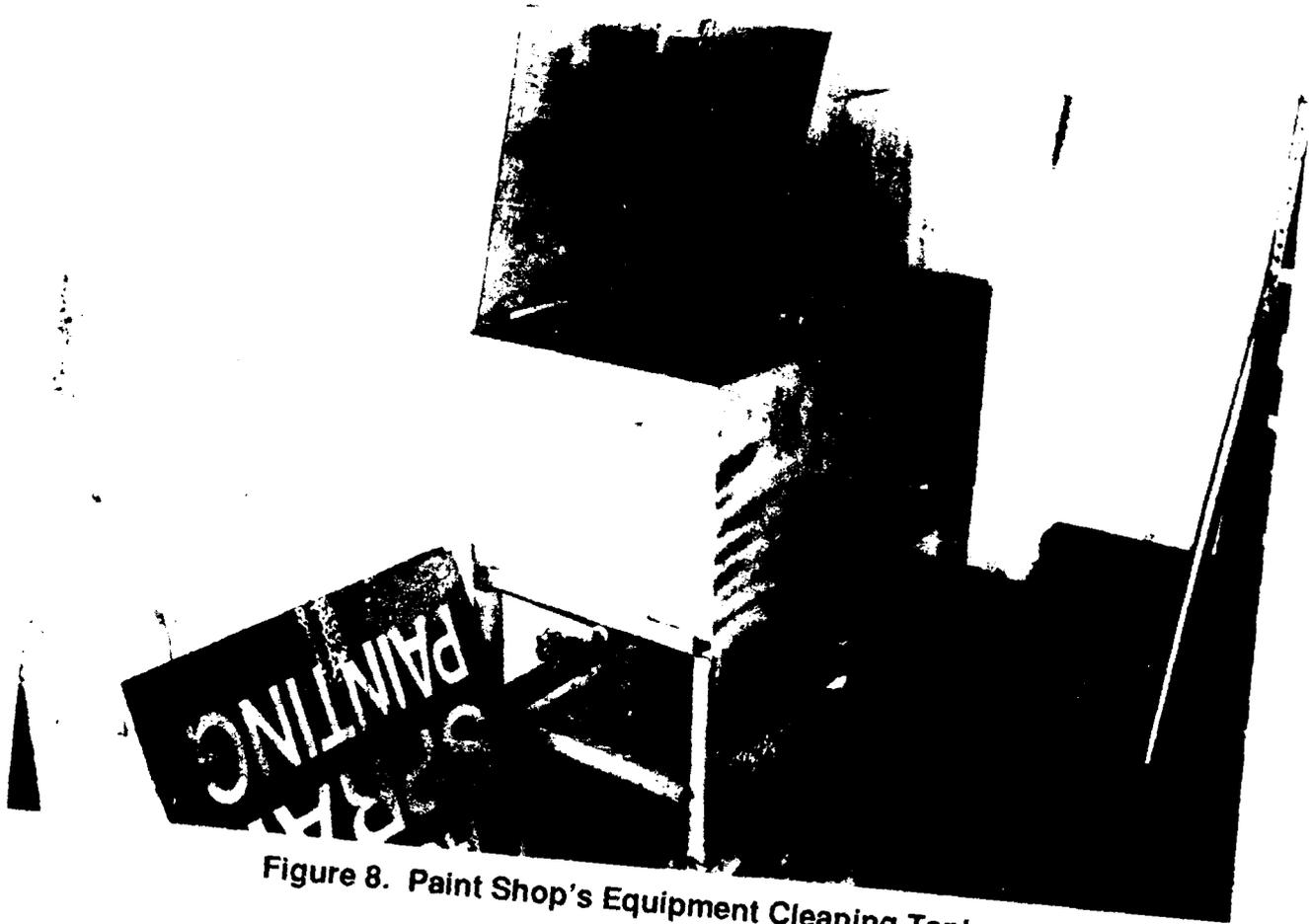


Figure 8. Paint Shop's Equipment Cleaning Tank



Figure 9. Power Production's Satellite Accumulation Site

8. Shop: Liquid Fuels Maintenance
 Shop Supervisor: MSgt Williams

Building: 2451
 AUTOVON: 352-2715

Liquid Fuels personnel maintain stationary fuel systems, and clean both aboveground and underground fuel tanks. Most of the generated waste is a JP-4 and sludge mixture from tank cleaning operations. The cleaning frequency and amount of waste from each tank varies (see Table 2). Waste from tank cleaning is drummed, left on site, tested, and turned over to DRMO for final disposal. This shop has one Safety Kleen degreasing unit that is serviced by the Safety Kleen Corporation on a monthly basis.

Table 2. Fuel Tank Clean-out Schedule

Number of Tanks	Capacity of the Tank (Gal)	Cleanout Frequency (yrs)	Location of the Tank	Amount of Waste/Tank (Gal)
3	25,000	3	flight line	15
5	50,000	3	flight line	20
10	50,000	6	flight line	20
3	7,000	8	Weapons Storage Area	5
1	25,000	8	Cusick	10
1	30,000 bbl*	5	Storage	150
1	5,000 bbl	5	Storage	100
1	20,000 bbl	5	Storage	150

* bbl - barrels

E. Transportation Squadron

1. Shop: Refueling Maintenance
 Shop Supervisor: Mr Gooch

Building: 1060
 AUTOVON: 352-5843

Maintenance personnel perform scheduled and unscheduled maintenance on refueling trucks and hosecarts. Waste fuel and waste oil are stored in bowzers. Waste oil bowzers are taken and emptied into the underground storage tank located next to the motor pool. This underground tank is pumped out by a contractor. Fuel drained from equipment is caught in fiberglass pans, placed in a fuel bowser, and returned to POL personnel for reuse. Very little fuel (approximately 1 gal/month) is allowed to enter the fuel/water separator. A Safety Kleen unit is used for degreasing parts. The degreasing solution is changed and disposed of by the Safety Kleen Corporation.

2. Shop: General Purpose Vehicle Maintenance
Shop Supervisor: TSgt Kinzly

Building: 2115
AUTOVON: 352-5274

The General Purpose Repair Shop maintains and repairs government vehicles. The major waste is engine oil (110 gallons/month). Waste oil is placed in a 600-gallon underground tank located next to the shop (Figure 10). This shop has two Safety Kleen degreasing units serviced by the Safety Kleen Corporation on a monthly basis.



Figure 10. Underground Storage Tank at 92nd Vehicle Maintenance

3. Shop: Special Purpose Vehicle Maintenance
Shop Supervisor: MSgt Clark

Building: 2115
AUTOVON: 352-5291

Personnel in the Special Purpose Vehicle Maintenance Shop are responsible for the maintenance and repair of all heavy equipment. The wastes from this shop are

2. Shop: Auto Hobby Shop
Shop Supervisor: Mr Keys

Building: 2319
AUTOVON: 352-2310

The Auto Hobby Shop is a "garage type" building where personal vehicles are maintained and repaired. A washrack is located behind the shop.

This shop has three Safety Kleen degreasing units that are serviced once a month by the Safety Kleen Corporation. Waste oils and fluids are placed in a 500-gallon underground tank. The tank is pumped out by a contractor. There are no waste paints and thinners leftover from the dry paint booth, since patrons using the paint booth are responsible for removing all paints and thinners when they are finished. Waste antifreeze is discharged to the sanitary sewer via a floor drain. This shop also has a bead blasting unit. The media used in this unit is disposed of as municipal waste and has never been tested for heavy metals.

G. 141st Washington Air National Guard (141 WANG)

1. Shop: AGE
Shop Supervisor: Mr Lee

Building: 285
AUTOVON: 352-5587

AGE Shop personnel maintain powered aerospace ground equipment. Waste oils and hydraulic fluid (50 gallons/month) are placed in a bowser. When the bowser is full, it is taken to the WANG Vehicle Maintenance Shop and drained into their 500-gallon underground tank. Waste fuel (.5 gallons/month) is drummed and turned in to DRMO for disposal. This shop has a battery shop that services lead-acid batteries. The unneutralized acid, drained from the batteries, is placed in one of two 15-gallon drums on a pallet and turned in to DRMO as a hazardous waste. This shop has a 16-gallon PD-680 degreasing tank that is changed out every two months. Waste PD-680 is drummed and sent to DRMO. The satellite accumulation site, located outside the building, is secured and on a concrete floor, but not covered.

2. Shop: Vehicle Maintenance
Shop Supervisor: Mr Absalonson

Building: 446
AUTOVON: 352-5845

Vehicle Maintenance personnel service all Air National Guard vehicles at Fairchild AFB. Waste motor oil (50-100 gallons/month) is placed in a 250-gallon bowser and when full, the bowser is drained into a 500-gallon underground tank located next to Building 446. The tank is pumped out by a contractor. Waste paint and thinners are drummed and disposed of through DRMO as a hazardous waste. Waste battery acid (about 5 gallons per month) is containerized and disposed of through DRMO. Waste PD-680 from a 35-gallon degreasing tank (changed out quarterly) is drummed and disposed of through DRMO. The shop supervisor would like to replace the PD-680 tank with a Safety Kleen degreasing tank.

3. Shop: Photo Lab
Shop Supervisor: Mr Green

Building: 447
AUTOVON: 352-5042

Base Photo Lab personnel are responsible for taking, developing, processing and printing photographs. The Photo Lab uses fixers and developers. Used developers are poured down the drain. Used fixers, bleach, and hardener pass through a silver recovery unit before being discharged to the sanitary sewer. The discharge from the silver recovery unit is checked with litmus paper (as described in AFR 400-14) to assure that silver is not being discharged to the sewer.

4. Shop: Aircraft Phase Dock
Shop Supervisor: Mr O'Conner

Building: 1033
AUTOVON: 352-5101

Aircraft Phase Dock personnel accomplish post flight inspections and unscheduled maintenance on the KC-135E aircraft. Waste motor oil (25 gallons/month) and PD-680 (15 gallons/6 months) are stored in separate 55-gallon drums, taken to the WANG motor pool and placed in an underground tank. Waste paints and thinners (10 gallons/month) and stripping waste (approximately 1 gallon/month) are segregated in 55-gallon drums and disposed of through DRMO as a hazardous waste. Waste JP-4 from aircraft is placed into a 200-gallon flight line bowser. When the bowser is full, the waste JP-4 is taken to the fuel lab for testing. If uncontaminated, the fuel is placed back into the POL bulk storage tanks.

5. Shop: Electric Shop
Shop Supervisor: Mr Burns

Building: 1034
AUTOVON: 352-2106

Electric Shop personnel service nickel cadmium aircraft batteries. Unneutralized sodium hydroxide (2-5 ml per battery) drained from nickel cadmium batteries is stored in a 5-gallon container. When full, the sodium hydroxide is taken to DRMO for disposal. Drained battery casings are taken to DRMO for disposal.

6. Shop: Wheel and Tire Shop
Shop Supervisor: MSgt Dionne

Building: 1034
AUTOVON: 352-5038

Wheel and Tire Shop personnel build and tear down wheel and tire assemblies. This shop has a 40-gallon and a 125-gallon Penetone 724 tank: the 40-gallon tank is used for cleaning and washing bearings; the 125-gallon tank is used for cleaning wheels and attached hardware (Figure 11). Both tanks are changed out semiannually. The shop also has a 110-gallon hot stripping tank used by Corrosion Control personnel to strip small parts. This tank is changed out annually. All waste chemicals from this shop are drummed and taken to DRMO for disposal.



Figure 11. 141st Wheel and Tire Shop's Tanks

7. Shop: Corrosion Control
Shop Supervisor: Mr Christoph

Building: 1034
AUTOVON: 352-5101

Corrosion Control Shop personnel perform touch-up painting and stripping of aircraft in addition to stripping aircraft parts and AGE equipment. Waste paints and thinners (18 gallons/month) are placed in a 55-gallon drum and disposed of as hazardous waste. Waste stripper (1 gallon/month) is placed in a 55-gallon drum and disposed of as hazardous waste. The satellite accumulation site (see Figure 12), located in the building, is secured and covered. Drums are sealed and a log of wastes accumulated in the drums is kept.

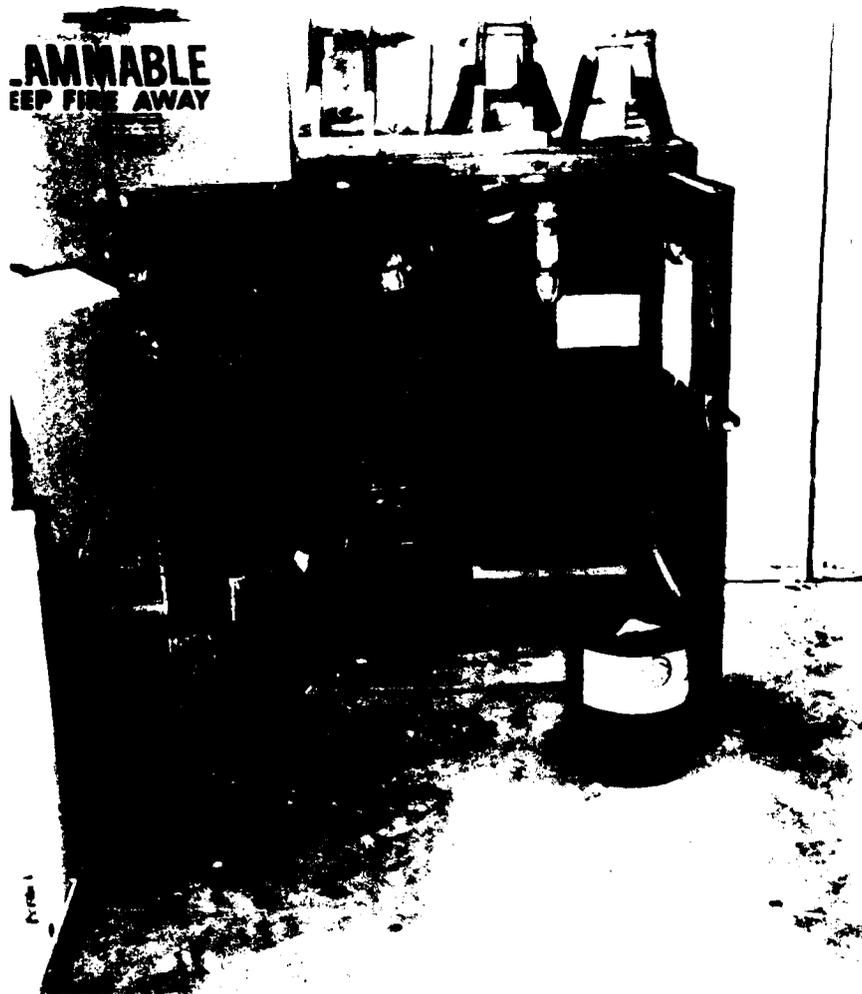


Figure 12. 141st Corrosion Control's Satellite Accumulation Site

8. Shop: Pneudraulic Shop
Shop Supervisor: Mr Entel

Building: 1034
AUTOVON: 352-5036

The shop duties include testing all the KC-135 aircraft hydraulic systems. The hydraulic component tester (HCT-13) uses hydraulic fluid. Hydraulic fluid from the tester is drained into 5-gallon buckets and taken to the WANG Vehicle Maintenance Shop's underground tank. This shop has two Penetone degreasing tanks both of which are changed out semiannually. The first tank (40 gallons) is used for flushing hoses, and the second tank (16 gallons) is used for parts degreasing. The shop also has an ultrasonic cleaner (Figure 13) with two compartments: the first contains 7 gallons of carbon remover; the second compartment contains 40 gallons of Inhibitsol (1,1,1 Trichloroethane). These tanks have never been changed out.

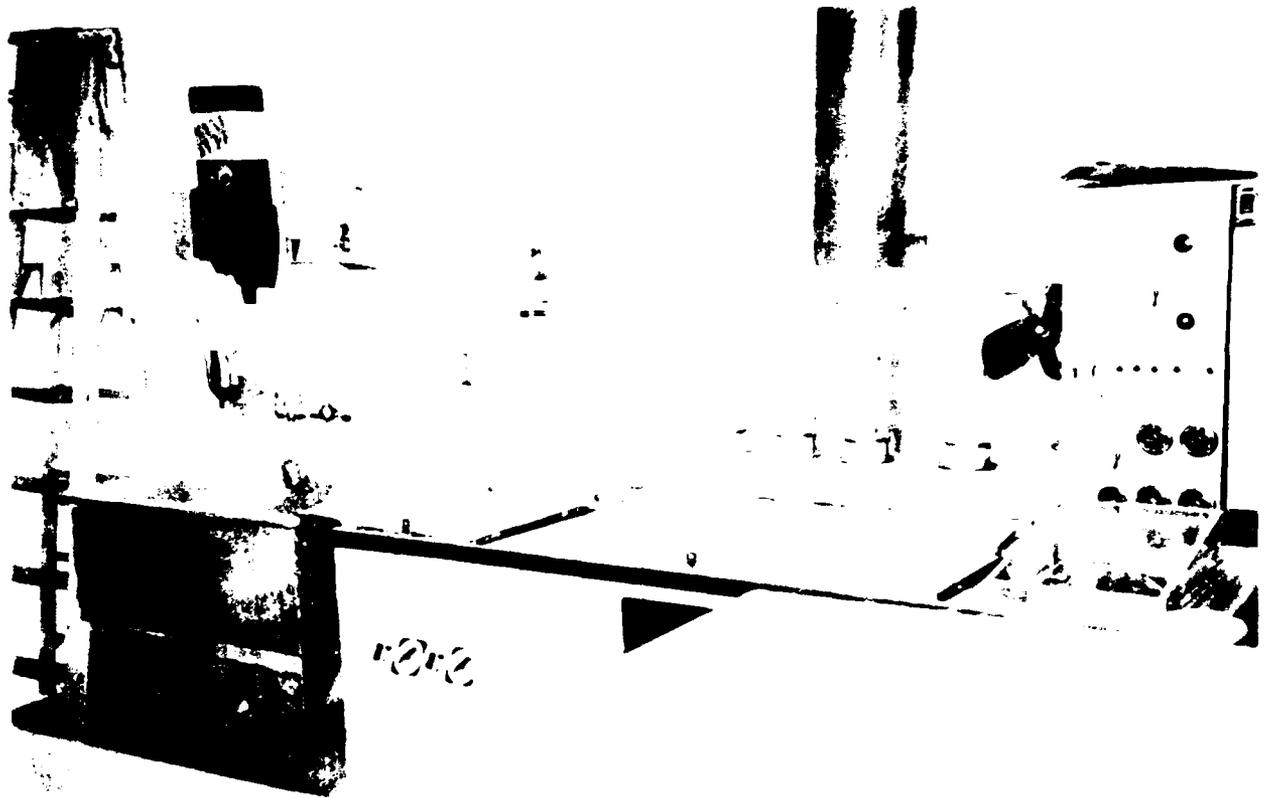


Figure 13. 141st Pneudraulic Shop's Ultrasonic Cleaner

9. Shop: Aircraft Fuel Cell
Shop Supervisor: MSgt Duty

Building: 1037
AUTOVON: 352-2501

Fuel Cell personnel repair and maintain fuel and water systems on the KC-135 aircraft. Only small quantities of waste are generated in this shop. Contaminated JP-4 from depuddling operations is allowed to flow down a drain connected to a fuel/water separator. Contents of this separator are pumped out, drummed, and sent to DRMO for disposal.

10. Shop: Propulsion Shop
Shop Supervisor: Mr Kupka

Building: 2163
AUTOVON: 352-5925

Shop personnel build and tear down KC-135 jet engines. Minimal amounts of waste are generated in this shop. The shop utilizes a 30-gallon Penetone 724 tank (Figure 14) for degreasing parts. It is changed out every 6 months. Used Penetone 724 and used 7808 oil (12 gallons/year) are drummed and carried to the 92nd Propulsion Shop's Satellite accumulation site where they are placed into the appropriate 55-gallon drums. These drums are eventually turned in to DRMO for disposal.



Figure 14. Pentone 724 Degreasing Tank

G. 3636 ATCF/CISS

1. Shop: Vehicle Maintenance
Shop Supervisor: SSgt Pearson

Building: 1212
AUTOVON: 352-2425

Vehicle Maintenance personnel service all vehicles at the ATC school. Waste motor oil (6 gallons/month) and transmission fluid (3 gallons/month) are placed in a 300-gallon underground tank located outside the building. The tank is pumped out by a contractor. Waste paints and thinners (.5 gallon/month) are drummed and disposed of through DRMO. All batteries are taken to the 82nd Trans Vehicle Maintenance (Bldg 2115) for servicing.

V. SUMMARY OF GENERAL WASTE DISPOSAL PRACTICES AT FAIRCHILD AFB

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 Attachment 7.

1. Waste paints and thinners are drummed and disposed of as hazardous waste through DRMO. CE Paint Shop personnel use a settling tank to segregate sludges from thinners. Bead blasting media contaminated with paint chips from the 92 FMS Corrosion Control Shop and the Auto Hobby Shop are thrown into the trash for municipal disposal.

2. Waste strippers from the base are drummed and disposed of as a hazardous waste through DRMO. The stripper enters the sanitary sewer via a floor drain during parts rinsing at 92 FMS Corrosion Control.

3. Most waste battery acid is drained from spent batteries, placed in 15-gallon plastic drums and disposed of as a hazardous waste through DRMO. However, the 141st WANG Electric Shop and 92nd Trans first neutralize the battery acid before turning it over to DRMO.

4. Waste oils and hydraulic fluids are drummed, stored in bowlers, or in waste oil underground storage tanks. Waste oil that is drummed or stored in bowlers is taken to underground waste oil collection tanks located at the Transportation Shop (Bldg 2115), ANG Motor Pool (Bldg 446), ATC Vehicle Maintenance (Bldg 1212), or the Auto Hobby Shop (Bldg 2319). The waste oil is pumped out and disposed of by a waste oil contractor.

5. Waste fuels are first tested by the fuel lab, then blended back into the main fuel tanks for reuse if uncontaminated. Waste fuel unfit for reuse is sent to the fire training pit. Waste fuel sludge and contaminated fuels are disposed of through DRMO.

6. Waste antifreeze for the most part is discharged down the drain. The 92 FMS AGE Shop is the only shop drumming this waste for disposal through DRMO as hazardous waste.

7. Waste solvents (e.g., PD-680, carbon remover) are drummed and sent to DRMO for disposal. Numerous facilities have contracts with the Safety Kleen Corporation to service solvent tanks.

8. Waste fixer from the NDI shop is taken to the 92 CSG Photo Shop. The fixer is sent through a silver recovery unit before being discharged to the sanitary sewer. All other photo chemicals are drained to the sanitary sewer.

9. Emulsifier, developer (used in the dye penetrant process) and penetrant from the NDI shop are drummed and sent through DRMO for disposal as hazardous waste.

10. Dirty rags are generally thrown into the trash.

11. Sludge (paint waste) from the waterfall paint booths is drummed and turned in as hazardous waste. The water from the booths is discharged into the sanitary sewer system.

VI. OBSERVATIONS AND CONCLUSIONS

1. The hazardous waste program is operating well. Shops use logs to track the amounts and types of wastes being placed in each 55-gallon waste drum. These drums are kept at the shop's satellite accumulation site, which is supposed to be located near or inside each shop. When the drum is full, the shop has 3 days to: identify the contents of the drum, properly label the drum, fill out DD Form 1348-1 and transport the drum to the DRMO accumulation site. The DRMO accumulation site has an interim permit to hold wastes for 180 days before they have to be picked up by a disposal contractor. Since the shops log the amounts and types of wastes placed into the drums, the contents of the drums are identified by user's knowledge. If the contents of a drum are unknown, the drum is sampled by the Bioenvironmental Engineer.

Once the waste is brought to the permitted accumulation site, the hazardous waste manifest is filled out by DRMO and the disposal contractor (Chemical Processors Incorporated) is notified. When the contractor picks up the waste and transports it to a treatment, storage and disposal facility (TSDF), he signs the manifest as a transporter. Once the waste is properly disposed of, the manifest is signed by the TSDF. The completed manifest is then returned to the base Environmental Coordinator.

2. The base Environmental Coordinator has developed two training programs that are given twice a year. The annual course (approximately 8 hours) is given to shop supervisors, satellite accumulation site managers and their alternates. The introductory course (approximately 4 hours) is given to shop supervisors and new personnel to the base. The courses are taught by the Environmental Coordinator, Bioenvironmental Engineer, Fire Department and DRMO. Lectures are given by the Environmental Coordinator on the hazardous waste management program, by the Bioenvironmental Engineer on chemical hazards, by the Fire Department on spill response, and by DRMO on filling out DD Form 1348-1 and on waste turn-in procedures.

For the most part, shop personnel thought that the training courses were beneficial. One general comment was that the Hazardous Waste Management Plan and the Spill Response Plan should be separate to avoid confusion.

3. The Environmental Coordinator has requested the satellite accumulation site managers and their alternates have at least 3 years base retainability and have a rank of staff sergeant or higher. Some shops have personnel below this rank, however, most have done a good job running the program.

4. Shops generating wastes are responsible for transporting their hazardous wastes (in 55-gallon drums) to DRMO. Shop personnel said waste drums are sometimes taken to DRMO in privately owned vehicles (POV) because it was hard to find a forklift on base. They also mentioned that even with a forklift, occasionally, drums are damaged during the trip to the DRMO accumulation site and have to be taken back to the shop and repackaged.

Some alternatives to having each shop individually transport wastes to DRMO are: (1) Assign a person in Civil Engineering who would be responsible for inspecting and transporting waste drums from all shops to the DRMO accumulation site. (2) Assign a person from the Transportation Squadron to go to all the satellite accumulation sites once per month to transport waste drums to the DRMO accumulation site. (3) Have one or two persons from each organization be responsible for transporting waste drums for shops within their organization. These options would streamline the transporting of waste to DRMO and also allow shops to spend less time and manpower transporting wastes back and forth to the DRMO accumulation site.

5. Some wastestream categories (i.e., liquid paint stripper, paint and lacquer thinner, xylene) have had baseline analysis performed to identify the wastestream as either hazardous or nonhazardous. The hazardous waste management plan outlines the seven wastestream categories, the parameters of each wastestream to be analyzed, and the rationale for performing the analysis. This procedure along with the shop logs eliminates the need to sample every drum of waste going to DRMO. However, information on where the wastestream is located, the type of process generating the waste, the frequency of analysis and the sampling procedure for the wastestream are not contained in the hazardous waste management plan.

6. The Base Environmental Protection Committee has established a Waste Minimization Management Board to look at ways of reducing the amount of wastes (especially waste solvents) sent to DRMO. The group has examined the possible use of filters and distillation units; however, at the present time there is not a market for recycled materials in the Spokane area. In addition, operational problems (such as where to locate the unit and who will be responsible to run the unit) detracted from the desirability of using these units.

7. The Waste Minimization Management Board has reduced the amount of PD-680 used on the base by converting almost all PD-680 tanks to Safety Kleen units. The WANG units still use some PD-680 but are switching to a biodegradable Penetone degreasant (Penetone 724).

8. There was no uniformity in the turn-in procedures for lead-acid batteries. Power production personnel are draining the batteries, placing unneutralized battery acid in 15-30 gallon containers and turning in the unneutralized acid and empty battery casings

to DRMO, while the Transportation Battery Shop personnel fill the empty cells with baking soda before the casings are turned in to DRMO. The 92nd Transportation Squadron is attempting to get a waste battery recycling contractor to accept the batteries with the acid still in the battery cells. This would eliminate disposing of battery acid as a hazardous waste.

9. The base has classified almost all waste storage sites as satellite accumulation sites. A satellite accumulation site must be located at or near the point of waste generation and cannot store more than 55 gallons of hazardous waste or one quart of acutely hazardous waste on site at any one time. When these quantities are exceeded, the waste must be moved within three days. Satellite accumulation points do not have to meet all the requirements of 40 CFR 265 for accumulation sites.

10. The 92 AMS Fire Control Shop has placed an oil filter on their PD-680 tank (see Figure 2) to filter particulates from the PD-680. The shop cleans approximately 12 guns per year. The filter is changed out annually. By using a filter, the shop has been able to reuse the PD-680 in the tank for over 2 years.

11. The base (active duty) waste oil storage tank is located at the 92nd Transportation Shop. Any active duty shop with filled waste oil containers (drums or bowzers) brings their waste oil to the site and drains the waste oil into the underground tank. Since the area is not secured and has no point of contact, anyone can bring waste oil to the tank for disposal. Because of the lack of supervision, sloppy transfer operations have resulted in the ground around the tank becoming contaminated.

12. The personnel in 92 Trans Refueling Maintenance use fiberglass pans to catch jet fuel drained from trucks. The drained fuel is placed in a 250-gallon bowser, taken to the fuel lab and tested, and placed back into the POL bulk storage tanks if uncontaminated. This eliminates disposing of good jet fuel as hazardous waste.

13. The 92 FMS Pneudralic Shop's test stand is connected to the floor drain in the shop. Waste hydraulic fluid from the test stand goes down the drain after it is used to test components. This fluid should be caught and placed in the waste oil bowser at the 92 FMS AGE's accumulation site.

14. The 92 FMS Corrosion Control Shop has a bead blasting unit that uses glass beads for stripping parts (i.e., aircraft wheels). The media, when dirty, is disposed of as municipal waste. The waste media has never been tested for characteristic hazardous waste. Shop personnel are not sure whether the waste media should be disposed of as hazardous or nonhazardous.

15. The water from waterfall paint booths on base has never been analyzed before it is drained to the sanitary sewer, so the shops do not know if the wastewater is hazardous or nonhazardous.

16. The rinsewater from the rinsing operations at 92 FMS Corrosion Control (where large parts are stripped) has been analyzed but the results have been lost. The rinsewater should be reanalyzed to determine if the effluent going to the sanitary sewer is hazardous or exceeds pretreatment standards.

17. Although the developer used at NDI in the powder form is considered hazardous due to high chromium, once the developer is mixed with water (110 gallons), the mixture may not be hazardous waste. The waste developer mixture is now treated as a hazardous waste, but analyses are necessary to confirm disposal practice.

18. The 92 FMS AGE Shop had a satellite accumulation site located outside of the shop that was secured, covered, and on a concrete pad. We questioned if it should be a satellite waste storage site due to its location. All other accumulation sites are considered satellite accumulation sites because they are located in the shop. However, this site should probably be an accumulation site since it contained fuels, PD-680, and 2 unknown waste drums. This site meets the Federal RCRA requirements for an accumulation site.

19. The 92 FMS AGE Shop is placing waste antifreeze in 55-gallon drums and disposing of it through DRMO. Other shops on the base place waste antifreeze down the drain. It seems that the AGE Shop has not been informed that they do not have to drum used antifreeze and dispose of it through DRMO.

20. Personnel at the 92 OMS Washrack use approximately 25 gallons of PD-680 per aircraft (approximately 15 aircraft are washed per month). Once applied, the PD-680 is rinsed off and discharged into drains that are connected to an oil/water separator. Washrack personnel would like to use a less irritating and more biodegradable degreasant, such as Penetone 724 or Citrikleen, that may possibly be disposed of down the sanitary sewer. In addition, Citrikleen appears to be a better degreaser than PD-680.

21. Fuel management personnel were looking for guidance on the disposal of Fuel System Icing Inhibitor (FSII). FSII contains ethylene glycol monoethyl ether (EGME) and is added to jet fuels to remove any water that is in the fuel. The water is drawn off and may contain up to 50% FSII. Currently, the water and FSII mixture is placed in 55-gallon drums until it is poured on the flight line to evaporate. They would like to discharge it to the sanitary sewer. As long as the base sewage treatment plant can handle a BOD increase of 25 mg/liter, FSII may be discharged to the sewage treatment plant.

22. DRMO has found a waste oil contractor (Dobbins Oil Company) to pump out all waste oil underground tanks located at 141 WANG Vehicle Maintenance, 92 LGTM Vehicle Maintenance, 3636 CCTW Vehicle Maintenance, the Auto Hobby Shop, and the

BX Service Station. The contractor mixes all the oil into a vacuum truck and does an analysis on the waste oil when he gets back to his office. By having a waste oil contractor purchase the oil, the base does not have to pay for the disposal of waste oil as a hazardous waste. However, all oil is mixed (both synthetic and regular motor oil) and many DRMO's (e.g., Columbus AFB, Castle AFB) find that they can get a better price for used synthetic oil than they can for used motor oils.

23. The Special Police firing range has an air filter system consisting of a horizontal rollamatic filter (Figure 15, a filter roll impregnated with oil), a box filter and an electronic precipitator. The rollamatic filter is used to remove large lead particles from the air before the air reaches the precipitator. The electronic precipitator is designed to remove smaller particles remaining in the air after the air has passed through the rollamatic filter. However, the rollamatic filter sags in the middle allowing the larger lead particles to pass to the electronic precipitator. As a result the water used to clean the electronic precipitator contains lead concentrations greater than 5 mg/liter; thus, classifying the water as hazardous. Modification to the air handling system to correct this problem is anticipated sometime in 1988.

24. One 55-gallon drum of waste hydraulic fluid was in the 92 OMS Jet Phase dock area. The drum was not monitored by shop personnel and contained approximately 25 gallons of waste hydraulic fluid. Some personnel in the shop said they occasionally used the drum to dispose of their waste hydraulic fluid, but most of the time, waste hydraulic fluid is placed in the waste oil bowser located in the 92 FMS AGE's satellite accumulation site. The 92 OMS Jet Phase dock area is not considered a satellite accumulation site.

25. The 92 CE Paint Shop has designed a tank (See Figure 3) to clean painting equipment. Thinner is placed in a tank with a drain on the bottom. Equipment is cleaned in the thinner and the thinner is allowed to settle. Therefore, solids go to the bottom and the clean thinner remains on top. The solids are periodically drawn off the bottom, and more thinner is added to replace the amount removed. This process has reduced the amount of paint thinner used for cleaning painting equipment.

26. The 141st WANG Aircraft Fuel Cell uses a pneudralic vacuum for depuddling aircraft after the aircraft has been drained for repair of the fuel system. When the vacuum is full of jet fuel from depuddling operations it is drained into a floor drain that is connected to a fuel/water separator. The fuel/water separator is pumped out by the sewage treatment plant personnel every 30 days or when necessary.

27. The Hazardous Waste Management/Oil and Hazardous Substance Spill Prevention Response Plan states that a coliwasa will be used for drum sampling. However, discussion with the BEE shop reveals that they have been using a pump sampler. A pump sampler will not give a representative sample of the drums contents since it only samples at one point.



Figure 15. Rollamatic Filter

VII. RECOMMENDATIONS

1. Fairchild AFB needs to modify their waste analysis plan. As a minimum, this plan should consist of: a complete listing of all known wastestreams with a brief description of the process or operation generating the waste; the results of a baseline chemical analysis (to fully characterize the waste); EPA's hazardous waste number; the required sampling frequency; the sampling technique; and the parameters of analysis (see Table 3). Other possible information might include method of analysis; proper shipping name; and disposal or disposition method (e.g., drummed, resale). This type of sampling program will allow the base to establish within a reasonable amount of time, documented rationale for classifying each wastestream as hazardous or nonhazardous.

2. Wastes taken to DRMO should be transported in government vehicles and not personal vehicles. This will reduce the liability to the base should an accident occur while transporting the waste in a privately owned vehicle. Some options to streamline the transporting of waste to DRMO are listed in paragraph VI.4.

TABLE 3. EXAMPLE OF WASTE ANALYSIS PLAN

SHOP BUILDING)	DESCRIPTION OF WASTE STREAM	WASTE BASELINE ANALYSIS (DATE)	EPA NO.	ANALYSIS FREQUENCY	SAMPLING TECHNIQUE	PARAMETERS
Allied Trades (2115)	PAINT SLUDGE FROM PAINT BOOTH	(DEC 87) FP-H (70 F) PH-NH, EP-NH RX-NH	DJ001	SEMIANNUALLY EACH DRUM)	GRAB OF PAINT SLUDGE	FLASH POINT
		(JAN 88) FP-NH, EP-NH PH-MH, RX-NH	NH	ANNUAL SPOT CHECK (EVERY OTHER DRUM)	COILWASA	LEAD, CADMIUM
		(JUN 88) FP-H (120 F) PH-NH (6.5) RX-NH, EP-H (Cr, Cd)	D001 D007	QUARTERLY CLEANOUT	DIPPER	FLASH POINT, pH CHROMIUM, CADMIUM

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

3. Personnel picking up and transporting hazardous wastes should be trained in handling and transporting hazardous wastes.

4. The base should obtain the service of a battery contractor. Getting a contractor to recycle used lead-acid batteries would eliminate the hassles of draining the batteries, filling the cells with baking soda, transporting the drained acid and the batteries to DRMO, and paying to dispose of the battery acid as a hazardous waste.

5. The base should initiate a program to test the integrity of its underground tanks to determine if any are leaking. The base has some old tanks (put in service in the mid 1960s) still being used. As a minimum, some kind of inventory control system could be implemented to detect any gross leakage.

6. The waste oil storage tank at the 92nd Transportation Shop should be secured. Disposal should be controlled to avoid improper disposal practices.

7. The following operations should have their wastestreams analyzed to determine if the waste is a hazardous waste instead of a nonhazardous waste as currently classified: (1) The Corrosion Control Shop and the Auto Hobby Shop have a bead blasting unit. The media from the unit should be tested for characteristic hazardous waste. (2) The waterfall paint booths on base should be routinely tested for characteristic hazardous waste to confirm that the wastewater is not a hazardous waste. (3) The rinsewater at the 92nd FMS Corrosion Control (where large parts are stripped with an epoxy stripper) rinse area should be reanalyzed for characteristic hazardous waste. If the results show the effluent to be a hazardous waste, parts should be stripped over a catch pan and wiped down with rags to remove any stripper remaining on the parts. All the wastes should then be drummed and disposed of as hazardous waste. (4) All waste chemicals in NDI should be analyzed to determine whether or not the waste chemicals in these processes are hazardous waste.

8. The test stand in the 92 FMS Pneudralic Shop should be disconnected from the floor drain and connected to a bucket or drum. Waste hydraulic fluid should be placed in the waste oil bowser located at the 92 FMS AGE satellite accumulation site.

9. Both the 92 FMS AGE and 92 FMS Propulsion satellite accumulation sites should be evaluated by the Environmental Coordinator to determine if they actually operate as satellite accumulation sites.

10. Where possible the base should try to replace all PD-680 tanks with either Safety Kleen or a biodegradable product such as Citrikleen or Penetone 724. For example, at the washracks, PD-680 used in spray-on or wipe-on operations should be replaced by one of the aforementioned products.

11. Fuel System Deicing Inhibitor (FSII) is biodegradable and can be released to the sanitary sewer.

12. The Defense Reutilization and Marketing Office personnel should examine the possibility of getting a contract for synthetic oils (i.e., 7808). Waste synthetic oil is usually purchased at a higher price than regular motor oil. If a contractor is found to purchase synthetic oil, shops should start segregating waste oils.

13. The Bioenvironmental Engineering Shop should use a coliwasa to take drum samples instead of using the hand pump to ensure representative samples.

14. The 55-gallon drum of hydraulic fluid at the 92 OMS Jet Phase docks should be removed if no one is going to take responsibility for the drum.

References

1. Fairchild Air Force Base, "Hazardous Waste Management/Oil and Hazardous Substance Spill Prevention and Response Plan," November 1984.
2. United States Environmental Protection Agency, "Identification and Listing of Hazardous Waste," 40 CFR 261.
3. United States Environmental Protection Agency, "Standards Applicable to Generators of Hazardous Waste," 40 CFR 262.
4. United States Environmental Protection Agency, "Underground Storage Tanks," 40 CFR 280.

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Attachment 1



DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 92D BOMBARDMENT WING (SAC)
FAIRCHILD AIR FORCE BASE, WA 99011

REPLY TO
ATTN OF: CV

3 Sep 87

SUBJECT: Hazardous Waste Staff Assistance Visit

TO: USAF OEHL Consultant Services Division

1. Request that you perform a hazardous waste staff assistance visit at Fairchild AFB as soon as possible. The goals for your visit will be to ensure wastes are properly identified as either hazardous or nonhazardous and to examine hazardous waste streams for opportunities to minimize the quantities of hazardous waste being generated.

2. The points of contact are Capt Burke, Waste Minimization Management Board Chairman, AV 352-2411 and Lt Marchand, 92 STRAT HOSP/SGPB, AV 352-2391.

A handwritten signature in cursive script, reading "Joseph M. Hudson Jr.", is positioned above the typed name.

JOSEPH M. HUDSON JR., Colonel, USAF
Vice Commander

Request Letter

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Attachment 2

Satellite Accumulation Sites

<u>Shops</u>	<u>Bldg No.</u>
92 FMS Glossy Eagle	1012
92 FMS AGE	2050
92 FMS Corrosion Control	2050
92 FMS NDI	2050
92 FMS Electric Shop	2050
92 FMS Propulsion Shop	2163
92 OMS Phase Docks	2050
92 CE Paint Shop	2451
92 Ce Power Production	2451
92 Trans Refueling Maintenance	1060
92 Trans General Purpose Vehicle Maint.	2115
92 Trans Allied Trades	2115
92 Trans Battery Shop	2115
141 WANG AGE	285
141 WANG Vehicle Maintenance	446
141 WANG Phase Docks	1033
141 WANG Electric Shop	1034
141 WANG Wheel & Tire Shop	1034
141 WANG Corrosion Control	1034

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Attachment 4

Chemical Waste Disposal Survey Forms

Shop:
Shop Supervisor:
Shop Duties:

Building Number:
Autovon: X-

CATAGORIES OF WASTE AND DISPOSAL METHODS

TYPE OF WASTE	DISPOSAL METHOD	AMOUNT GENERATED (per month)	COMMENTS
1. * PAINT WASTE AND THINNERS	XXXXXXXXXX		
2. * STRIPPING WASTE	XXXXXXXXXX		
3. * WASTE ACIDS	XXXXXXXXXX		
4. * SOAPS/CLEANERS			
5. * WASTE OIL			
6. * WASTE FLUIDS			
7. * WASTE FUELS			
8. USED ANTIFREEZE			
9. * WASTE SOLVENTS OTHER THAN PD-680	XXXXXXXXXX		
10. * PD-680			
a. USED IN A TANK/VAT (NORMALLY DRUMMED)	D		
b. USED FOR WASHING (NORMALLY RINSED DD)	RDD		
11. * PHOTO WASTES	XXXXXXXXXX		
12. *			

* specify the types used on next page

Examples of disposal Practices;

D-DRUMMED RTT-RETURNED TO FUEL TANKS DD-DOWN DRAIN PIT-PLACED IN TANK
NDD-NEUTRALIZED FIRST THEN PLACED DOWN DRAIN NA-NOT APPLICABLE

SPECIFIC CHEMICALS USED

PAINT WASTE AND THINNERS

Specific Waste	Waste Disposal	Amount of Waste
Types	Method	Generated per month

Paints

Latex _____
 Polyurathane _____
 Enamel _____

Thinners (list)

DOES THE SHOP USE ANY SAFETY KLEEN UNITS TO CLEAN PAINTING EQUIPMENT?
 (YES / NO) CIRCLE ONE
 IF SO HOW MANY UNITS? _____
 CAPACITY OF EACH UNIT: _____

STRIPPERS

Name of Stripper	Manufacturer	National Stock Number	Amt used/month or		Disposal METHOD
			Tank Cap.	Change out Frag.	
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

ACIDS

Name of Acid	Manufacturer	Amt used/mo	Disposal Method
Battery Acid	XXXXXXXXXX	_____	_____
_____	_____	_____	_____

SOAPS/CLEANERS

Name of Soap	Manufacturer	Amt used/mo	National Stock Number
_____	_____	_____	_____
_____	_____	_____	_____

Chemical listing (cont.)

OILS/FLUIDS

Type of oil/fluid	Amt used/month	Disposal Method (if waste goes to a Tank give Capacity and location)
Brake Fluid		
Transmission Fluid		
Hydraulic Fluid		
7808 Oil		

SOLVENTS/DEGREASANTS

Name of Chemical	Manufacturer	NSN	Amt used/month or		Disposal METHOD
			Tank Cap.	Change out Freq.	
Carbon Remover					
PD-680 used in a tank/vat		XXXXXXXXXX			
PD-680 used on the washrack		XXXXXXXXXX			

DOES THE SHOP USE ANY SAFETY XLEEN DEGREASING UNITS (Y/N)? IF SO HOW MANY: _____
 CAPACITY OF EACH UNIT: _____

PHOTO CHEMICALS

Name of Chemical	Manufacturer	Amt/month or		Disposal Method
		Tank Cap.	Change out Freq.	

Chemical listing (cont.)

NDI CHEMICALS

Name of Chemical	Manufacturer	National Stock Number	Amt/month or		DISPOSAL METHOD
			Tank Cap.	Change out Freq.	
Emulsifier					
Dye Penetrant					
Developer					

Other Chemicals Not Listed

Name of Chemical	Manufacturer	NSN	Amt/month or		DISPOSAL METHOD
			Tank Cap.	Change out Freq.	

SIGNATURE OF PERSON FILLING OUT THE FORM: _____

Attachment 5

WASTES GENERATED ON FAIRCHILD AFB

WASTE OILS AND FLUIDS

SHOP	WASTE	QTY (GALLONS)
92nd TRANS Refueling Maintenance	Transmission Fluid	120
141st Vehicle Maint.	Motor Oil	850
92nd FMS NDI Lab	7808 OIL	110
141st Vehicle Maint.	Hydraulic Fluid	12
141st Pseudraulics	5606 Hydraulic Fluid	20
141st Propulsion Shop	7808 Oil	6
92nd TRANS Special Purpose Vehicle	Motor Oil	3000
141st Vehicle Maint.	Transmission Fluid	24
141st AGE	Motor Oil	600
92nd FMS AGE	Motor Oil	3000
92nd FMS AGE	Hydraulic Fluid	60
92nd TRANS General Purpose Vehicle Ma	Motor Oil	1320
92nd FMS NDI Lab	Waste Fluids	220
92nd CE AC and Refrigeration	30 W Oil	120
92nd CSG Auto Hobby Shop	Transmission Fluid	72
92nd FMS Propulsion Shop	Hydraulic Fluid	660
92nd TRANS Refueling Maintenance	Engine Oil	120
141st A/C Phase	7808 Oil	180
92nd FMS Propulsion Shop	7808 Oil	2400
141st A/C Phase	Hydraulic Fluid	120
92nd CE Power Production	Hydraulic Fluid	6
92nd CSG Auto Hobby Shop	Brake Fluid	12
92nd CE Power Production	Transmission Fluid	5
92nd CSG Auto Hobby Shop	Engine Oil	240
ATC Vehicle Maintenance	Hydraulic/Trans	40
92nd CE Power Production	Motor Oil	240
ATC Vehicle Maintenance	Motor Oil	80
92nd FMS AGE	7808 Oil	60
92nd TRANS Special Purpose Vehicle	Trans/Brake/Hyd Flu	1500
	TOTAL:	15297

WASTE FUELS

SHOP	WASTE	QTY (GALLONS)
141st A/C Fuel Cell	JP-4	600
141st Propulsion Shop	JP-4	10
141st A/C Phase	JP-4	1200
92nd CE Liquid Fuels Maint.	Fuel Sludge	1200
92nd FMS Fuel System Repair	JP-4	360
92nd TRANS Refueling Maintenance	Reclaimed JP-4	7200
92nd FMS Propulsion Shop	JP-4	360
141st AGE	Waste Fuel	6
92nd TRANS Refueling Maintenance	JP-4	12
TOTAL:		10948

WASTE PD-680

SHOP	WASTE	QTY (GALLONS)
92nd FMS Propulsion Shop	PD-680	240
141st A/C Phase	PD-680	30
141st A/C Fuel Cell	PD-680	50
141st Vehicle Maint.	PD-680	120
92nd OMS Washrack	PD-680	1600
141st AGE	PD-680	180
92nd FMS AGE	PD-680	160
92nd TRANS Special Purpose Vehicle	PD-680	240
92nd FMS NDI Lab	PD-680	50
TOTAL:		2670

WASTE SOLVENTS

SHOP	WASTE	QTY (GALLONS)
141st Pneudraulics	Inhibitsol	48
92nd TRANS Special Purpose Vehicle	Uni 255 Solvent	200
141st Propulsion Shop	Penetone 724	60
141st Pneudraulics	Penetone 724	60
92nd FMS NDI Lab	1,1,1 TCE	220
92nd FMS Propulsion Shop	Fingerprint Remover	55
141st Wheel & Tire shop	Penetone 724	1000
92nd FMS Propulsion Shop	Carbon Remover	220
TOTAL:		1863

WASTE STRIPPERS

SHOP	WASTE	QTY (GALLONS)
141st Corrosion Control	B&B 1567	12
141st Wheel & Tire shop	Hot Stripper	1000
92nd FMS Corrosion Control	Hot Tank Stripper	600
141st A/C Phase	Stripping Waste	12
92nd FMS Corrosion Control	Epoxy Stripper	120
TOTAL:		1744

WASTE PAINTS AND THINNERS

SHOP	WASTE	QTY (GALLONS)
92nd FMS AGE	Methyl Ethyl Ketone	360
141st Vehicle Maint.	Waste Paint & Thinner	12
92nd FMS Glossy Eagle	Polyurethane Thinner	60
92nd FMS Corrosion Control	Waste Paints & Thinner	360
141st A/C Phase	Waste Paint & Thinner	120
92nd FMS AGE	Polyurethane Paints	60
92nd FMS Glossy Eagle	Polyurethane Paint	60
92nd TRANS Allied Trades	Waste Paints & Thinner	180
141st Corrosion Control	Waste Paints & Thinner	200
92nd FMS Glossy Eagle	Enamel Paint	12
92nd CE Paint Shop	Waste Paints & Thinner	60
ATC Vehicle Maintenance	Waste Paint & Thinner	6
92nd FMS Glossy Eagle	Methyl Ethyl Ketone	240
TOTAL:		1730

NDI WASTES

SHOP	WASTE	QTY (GALLONS)
92nd FMS NDI Lab	Emulsifier	230
92nd FMS NDI Lab	Developer	230
92nd FMS NDI Lab	Dye Penetrant	230
TOTAL:		690

WASTE ACIDS AND BASES

SHOP	WASTE	QTY (GALLONS)
141st Vehicle Maint.	Battery Acid	60
92nd TRANS Battery Shop	Battery Acid	360
92nd TRANS Allied Trades	Sulfuric Acid	1
141st Electric Shop	Potassium Hydroxide	1
141st AGE	Battery Acid	50
TOTAL:		472

USED ANTIFREEZE

SHOP	WASTE	QTY (GALLONS)
92nd CE Power Production	Used Antifreeze	120
92nd FMS AGE	Used Antifreeze	120
92nd TRANS Special Purpose Vehicle	Used Antifreeze	360
ATC Vehicle Maintenance	Used Antifreeze	60
141st Vehicle Maint.	Used Antifreeze	120
141st AGE	Used Antifreeze	6
TOTAL:		786

SAFETY KLEEN UNITS ON BASE

SHOP	WASTE	(UNITS)
92nd CSG Auto Hobby Shop	Safety Kleen	3
141st A/C Phase	Safety Kleen	1
ATC Vehicle Maintenance	Safety Kleen	1
92nd TRANS Special Purpose Vehicle	Safety Kleen	2
92nd FMS AGE	Safety Kleen	1
92nd CE Power Production	Safety Kleen	1
92nd FMS Propulsion Shop	Safety Kleen	1
92nd CE Liquid Fuels Maint.	Safety Kleen	1
92nd CE AC and Refrigeration	Safety Kleen	1
92nd TRANS General Purpose Vehicle Ma	Safety Kleen	2
92nd TRANS Refueling Maintenance	Safety Kleen	1
TOTAL:		15

Attachment 6

AMOUNT OF WASTES DRUMMED AT FAIRCHILD AFB
WASTE FUELS

SHOP	WASTE	QTY (GALLONS)
92nd FMS Propulsion Shop	JP-4	360
141st AGE	Waste Fuel	6
92nd TRANS Refueling Maintenance	JP-4	12
141st Propulsion Shop	JP-4	10
141st A/C Fuel Cell	JP-4	600
92nd CE Liquid Fuels Maint.	Fuel Sludge	1200
TOTAL:		2188

WASTE PD-680

SHOP	WASTE	QTY (GALLONS)
141st Vehicle Maint.	PD-680	120
92nd FMS NDI Lab	PD-680	50
141st A/C Fuel Cell	PD-680	50
92nd FMS Propulsion Shop	PD-680	240
92nd TRANS Special Purpose Vehicle	PD-680	240
141st A/C Phase	PD-680	30
92nd FMS AGE	PD-680	160
141st AGE	PD-680	180
TOTAL:		1070

WASTE SOLVENTS

SHOP	WASTE	QTY (GALLONS)
92nd FMS Propulsion Shop	Fingerprint Remover	55
92nd TRANS Special Purpose Vehicle	Uni 255 Solvent	200
92nd FMS NDI Lab	1,1,1 TCE	220
92nd FMS Propulsion Shop	Carbon Remover	220
141st Propulsion Shop	Penetone 724	60
141st Pneudraulics	Penetone 724	60
141st Wheel & Tire shop	Penetone 724	1000
141st Pneudraulics	Inhibitsol	48
TOTAL:		1863

WASTE STRIPPERS

SHOP	WASTE	QTY (GALLONS)
141st Wheel & Tire shop	Hot Stripper	1000
92nd FMS Corrosion Control	Epoxy Stripper	120
92nd FMS Corrosion Control	Hot tank Stripper	600
141st A/C Phase	Stripping Waste	12
141st Corrosion Control	B&B 1567	12
TOTAL:		1744

WASTE PAINTS AND THINNERS

SHOP	WASTE	QTY (GALLONS)
141st Vehicle Maint.	Waste Paint & Thinner	12
92nd FMS Corrosion Control	Waste Paints & Thinner	360
141st Corrosion Control	Waste Paints & Thinner	200
92nd FMS Glossy Eagle	Polyurethane Thinner	60
141st A/C Phase	Waste Paint & Thinner	120
92nd FMS Glossy Eagle	Polyurethane Paint	60
92nd CE Paint Shop	Waste Paints & Thinner	60
92nd TRANS Allied Trades	Waste Paints & Thinner	180
92nd FMS AGE	Methyl Ethyl Ketone	360
92nd FMS Glossy Eagle	Enamel Paint	12
ATC Vehicle Maintenance	Waste Paint & Thinner	6
92nd FMS AGE	Polyurethane Paints	60
92nd FMS Glossy Eagle	Methyl Ethyl Ketone	240
TOTAL:		1730

NDI WASTE

SHOP	WASTE	QTY (GALLONS)
92nd FMS NDI Lab	Emulsifier	230
92nd FMS NDI Lab	Developer	230
92nd FMS NDI Lab	Dye Penetrant	230
TOTAL:		690

WASTE ACIDS

SHOP	WASTE	QTY (GALLONS)
141st Vehicle Maint.	Battery Acid	60
141st AGE	Battery Acid	50
92nd TRANS Battery Shop	Battery Acid	360
141st Electric Shop	Potassium Hydroxide	1
TOTAL:		471

USED ANTIFREEZE

SHOP	WASTE	QTY (GALLONS)
92nd FMS AGE	Used Antifreeze	120
TOTAL:		120

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Attachment 7

DISPOSAL PRACTICES BY SHOP FOR FAIRCHILD AFB

Type of Shop: 92nd FMS Fuel System Repair

Building Number: 1012

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
JP-4	360	B
TOTAL:	360	

Type of Shop: 92nd FMS Glossy Eagle

Building Number: 1017

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Polyurethane Paint	60	D
Enamel Paint	12	D
Methyl Ethyl Ketone	240	D
Polyurethane Thinner	60	D
TOTAL:	372	

Type of Shop: 92nd OMS Washrack

Building Number: 1021

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
PD-680	1600	DD
TOTAL:	1600	

Type of Shop: 141st A/C Phase

Building Number: 1033

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Waste Paint & Thinner	120	D
Stripping Waste	12	D
7808 Oil	180	D
JP-4	1200	B
PD-680	30	D
Safety Kleen	1	C
Hydraulic Fluid	120	D
TOTAL:	1663	

Type of Shop: 141st Corrosion Control

Building Number: 1034

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
B&B 1567	12	D
Waste Paints & Thinner	200	D
TOTAL:	212	

Type of Shop: 141st Electric Shop

Building Number: 1034

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Potassium Hydroxide	1	D
TOTAL:	1	

Type of Shop: 141st Pneudraulics

Building Number: 1034

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
5606 Hydraulic Fluid	120	UGT
Penetone 724	60	D
Inhibitsol	48	D
TOTAL:	228	

Type of Shop: 141st Wheel & Tire Shop

Building Number: 1034

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Hot Stripper	1000	D
Penetone 724	1000	D
TOTAL:	2000	

Type of Shop: 141st A/C Fuel Cell

Building Number: 1037

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
PD-680	50	D
JP-4	600	FWS
TOTAL:	650	

Type of Shop: 92nd TRANS Refueling Maintenance

Building Number: 1060

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
JP-4	12	FWS
Reclaimed JP-4	7200	B
Engine Oil	120	B
Transmission Fluid	120	B
Safety Kleen	1	C
TOTAL:	7453	

Type of Shop: ATC Vehicle Maintenance

Building Number: 1212

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Used Antifreeze	60	DD
Waste Paint & Thinner	6	D
Safety Kleen	1	C
Motor Oil	80	UGT
Hydraulic/Trans	40	UGT
TOTAL:	187	

Type of Shop: 92nd FMS AGE

Building Number: 2050

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Polyurethane Paints	60	D
Safety Kleen	1	C
PD-680	160	D
Hydraulic Fluid	60	B
7808 Oil	60	B
Motor Oil	3000	B
Used Antifreeze	120	D
Methyl Ethyl Ketone	360	D
TOTAL:	3821	

Type of Shop: 92nd FMS Corrosion Control

Building Number: 2050

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Epoxy Stripper	120	D
Hot Tank Stripper	600	D
Waste Paints & Thinner	360	D
TOTAL:	1080	

Type of Shop: 92nd FMS NDI Lab

Building Number: 2050

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Developer	230	D
7808 Oil	110	D
1,1,1 TCE	220	D
Emulsifier	230	D
Dye Penetrant	230	D
PD-680	50	D
Waste Fluids	220	D
TOTAL:	1290	

Type of Shop: 92nd FMS Propulsion Shop

Building Number: 2050

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Safety Kleen	1	C
PD-680	240	D
JP-4	360	D
Carbon Remover	220	D
7808 Oil	2400	D
Hydraulic Fluid	660	D
Fingerprint Remover	55	D
TOTAL:	3936	

Type of Shop: 92nd TRANS Allied Trades

Building Number: 2115

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Waste Paints & Thinner	180	D
Sulfuric Acid	1	NDD
TOTAL:	181	

Type of Shop: 92nd TRANS Battery Shop

Building Number: 2115

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Battery Acid	360	D
TOTAL:	360	

Type of Shop: 92nd TRANS General Purpose Vehicle Ma

Building Number: 2115

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Safety Kleen	2	C
Motor Oil	1320	UGT
TOTAL:	1322	

Type of Shop: 92nd TRANS Special Purpose Vehicle

Building Number: 2115

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Motor Oil	3000	UGT
Trans/Brake/Hyd Fluid	1500	UGT
PD-680	240	D
Safety Kleen	2	C
Used Antifreeze	360	DD
Uni 255 Solvent	200	D
TOTAL:	5302	

Type of Shop: 141st Propulsion Shop

Building Number: 2163

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
JP-4	10	D
Penetone 724	60	D
7808 Oil	6	D
TOTAL:	76	

Type of Shop: 92nd CSG Auto Hobby Shop

Building Number: 2319

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Safety Kleen	3	C
Transmission Fluid	72	UGT
Brake Fluid	12	UGT
Engine Oil	240	UGT
TOTAL:	327	

Type of Shop: 92nd CE AC and Refrigeration

Building Number: 2451

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
30 W Oil	120	D
Safety Kleen	1	C
TOTAL:	121	

Type of Shop: 92nd CE Liquid Fuels Maint.

Building Number: 2451

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Fuel Sludge	1200	D
Safety Kleen	1	C
TOTAL:	1201	

Type of Shop: 92nd CE Paint Shop

Building Number: 2451

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Waste Paints & Thinner	60	D
TOTAL:	60	

Type of Shop: 92nd CE Power Production

Building Number: 2451

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Used Antifreeze	120	DD
Safety Kleen	1	C
Hydraulic Fluid	6	E
Transmission Fluid	5	B
Motor Oil	240	R
TOTAL:	372	

Type of Shop: 141st AGE

Building Number: 285

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
Motor Oil	600	B
Waste Fuel	6	D
Used Antifreeze	6	DD
Battery Acid	50	D
PD-680	180	D
TOTAL:	842	

Type of Shop: 141st Vehicle Maint.

Building Number: 446

WASTE PRODUCT	QTY (GALLONS)	DISPOSAL
PD-680	120	D
Used Antifreeze	120	DD
Hydraulic Fluid	12	UGT
Waste Paint & Thinner	12	D
Motor Oil	850	UGT
Transmission Fluid	24	UGT
Battery Acid	60	D
TOTAL:		1198

Legend:

D - DRUMMED C - CONTRACTOR UGT - UNDERGROUND TANK
B - BOWSER DD - DOWN DRAIN FWS - FUEL WATER SEPARATOR
NDD - NEUTRALIZED THEN PLACED DOWN THE DRAIN

Distribution List

	Copies
HQ AFSC/SGPB Andrews AFB DC 20334-5000	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/SGB 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 Hosp Fairchild/SGPB Fairchild AFB WA 99011-5300	2

Distribution List (Cont'd)

Copies

92 CSG/DEEV
Fairchild AFB WA 99011-5000

2

HSD/EV
Brooks AFB TX 78235-5000

1