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**Hazardous Waste Technical Assistance Survey
Luke AFB AZ**

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March 1990

Final Report

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

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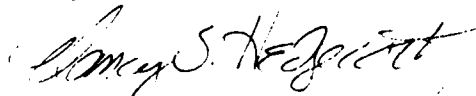
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At the request of 832 Medical Group (TAC)/SGPB, the AFOEHL conducted a hazardous waste technical assistance survey at Luke AFB (LAFB) from 30 Oct - 3 Nov 89. The scope of this survey was to address hazardous waste management practices, explore opportunities for hazardous waste minimization, and to determine possible industrial discharges to the sanitary sewer. 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. Recommendations include: (1) Develop and implement a formalized hazardous waste education and training program; (2) Store waste paints and thinners in smaller containers at 944 CAMS Corrosion Control; (3) Use an alternate absorbent material, such as siliceous-based, for cleaning up small spills; (4) Establish a contract with a local linen contractor for supplying cleaning rags; (5) Use soap rather than PD-680 at 832 CES Power Production for washing generators throughout the base. (KPR)

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I. INTRODUCTION

The 832d Medical Group (TAC)/SGPB requested the Air Force Occupational and Environmental Health Laboratory, Environmental Quality Division (AFOEHL/EQ) conduct a Hazardous Waste Survey at Luke AFB (Request letter is included in Appendix A). The scope of the Hazardous Waste Survey was to determine possible industrial discharges to the sanitary sewer, address hazardous waste management practices and explore opportunities for hazardous waste minimization.

The survey was conducted by Capt Patrick T. McMullen, 2Lt Nancy S. Hedgecock, and AB Tamra F. Dillon from 30 Oct to 3 Nov 89.

II. BACKGROUND

A. Base Description

Luke AFB is located in the Valley of the Sun in central Arizona. It is the largest fighter pilot training base in the free world and is the home of the 58 Tactical Training Wing, 405 Tactical Training Wing, and the 944 TAC Fighter Group.

B. Hazardous Waste Program

The hazardous waste program at Luke AFB is managed primarily through the Environmental and Contract Planning Office in Civil Engineering, 832 CSG/DEV. The Defense Reutilization and Marketing Office (DRMO) is responsible for contractual removal of wastes. Bioenvironmental Engineering Services (BES) help monitor the program through industrial shop surveys and is responsible for waste sampling at the request of DEV.

Individual shops are responsible for identifying, segregating, packaging, and labeling the wastes generated by their shop. The wastes are usually placed in a 55-gallon drum or bowser located either at a satellite accumulation site or at an accumulation site.

When wastes require disposal, the generator completes an AF Form 2005 and submits it to Supply. Supply generates a DD Form 1348-1 using the information contained on the AF Form 2005. The DD Form 1348-1 is then approved by the Environmental Coordinator indicating that funds are available for disposal of the waste. Finally, the generator submits the DD Form 1348-1 to DRMO who arranges for a waste disposal contractor to pickup the wastes.

Waste oil is sold to All Western Oil Co. for 3 cents per gallon. Payment received is based on the going rate at the time of disposal. Other wastes are disposed of at a cost to the base.

Wastes are identified by either wastestream analysis or user knowledge before being transferred to the DRMO Storage Facility. BES is responsible for sampling unknown wastes and other wastestreams on an as needed basis. Samples are sent to the AF Occupational and Environmental Health Laboratory, Analytical Services Division (AFOEHL/SA) for analysis. Results are returned to BES who notifies DEV of the results.

III. PROCEDURE

The first step of the survey was to review the base's hazardous waste management plan and the BES industrial shop folders to determine which shops generate chemical wastes. The next step was to visit 39 industrial shops to observe industrial operations, discuss chemical waste disposal practices with shop personnel, and hand out chemical disposal survey forms (Appendix B). These forms, completed by shop personnel, were reviewed by the survey team and provided additional information for subsequent discussions with shop personnel.

The DRMO Hazardous Waste Storage Facility (HWSF) and each accumulation site were also visited and evaluated. The accumulation site evaluation form is included in Appendix C. The following individuals were contacted to discuss their responsibility and involvement in the hazardous waste program:

1 Lt Thomas, Chief, Bioenvironmental Engineering, SGPB, AV 853-7521
Capt Dixon, Chief, Environmental Quality Branch, AV 853-3621
TSgt Lukas, Hazardous Waste Technician, DEV, AV 853-3621
Mr Forrest, Environmental Coordinator, DEV, AV 853-3621
Mr Adams, Defense Reutilization and Marketing Office, AV 853-7144
Mr Benton, Defense Reutilization and Marketing Office, AV 853-7144

Based on the data from the completed chemical disposal survey forms, the annual forecasted quantities for nine categories of waste were determined (see Table 1). From Table 1, column 3, the majority of the waste, 54%, consists of waste oils and fluids; however, these wastes are not considered hazardous wastes. Seven percent of the total amount of waste generated is drummed and disposed through DRMO. From Table 1, column 5, 52 percent of the hazardous wastes generated are paint wastes. Itemized listings of wastes (including categories, shop, amount of waste, and disposal method) are found in Appendix D. Appendix E contains a list of those wastes drummed for disposal through DRMO as either hazardous or nonhazardous waste.

TABLE. 1 ANNUAL FORECASTED QUANTITIES FOR WASTE CATEGORIES AT LUKE AFB

PRODUCT	TOTAL WASTE (GAL/YR)	% TOTAL	TOTAL DRUMMED WASTE (GAL/YR)	% TOTAL
Oils & Fluids	29632	54.2	0	0
Paints & Thinners	2125	3.9	2125	51.8
Fuels	11784	21.6	84	2.1
Solvents	5953	10.9	1008	24.5
Sodium Hydroxide	400	0.7	0	0
Antifreeze	181	0.3	25	0.6
Soaps	1560	2.9	0	0
Photo & NDI	2425	4.4	265	6.5
Paclei Gun Cleaner	600	1.1	600	14.6
TOTAL:	54660		4107	

IV. DESCRIPTION OF INDUSTRIAL ACTIVITIES: This section details the results of the shop-by-shop chemical usage and disposal practice survey of the following industrial shops (Appendix F contains a master list of shops surveyed and Appendix G contains a shop-by-shop listing of waste disposal practices):

A. 832 Transportation Squadron (TRANS)

Shop: Allied Trades
Contact: Sgt Whitney

Bldg: 291
AUTOVON: 853-6085

Allied Trades personnel repair and paint vehicle bodies. Waste enamel paint, polyurethane paint, Imron paint, MEK, and paint thinners (160 gallons/year) are drummed, stored at the shop's satellite accumulation site, and disposed as hazardous waste through DRMO. Empty aerosol cans are disposed as municipal waste. Shop rags are taken to linen exchange for cleaning and reissue.

Allied Trades personnel are also responsible for cleaning and maintaining a caustic soda (sodium hydroxide) tank that is used for cleaning radiators. The waste (100 gallons/3 months) is discharged down the drain with copious amounts of water to the sanitary sewer system.

Shop: Refueling Maintenance
Contact: MSgt Rork

Bldg: 353
AUTOVON: 853-6209

Refueling maintenance personnel maintain and repair aircraft refueling vehicles. Waste JP-4 is drained to a 500-gallon underground storage tank. JP-4 is either used at the Fire Training Pit (FTP) for training purposes or disposed as petroleum oils and lubricants (POL) through DRMO. Waste oil and fluid are drummed, stored at the 832 TRANS accumulation site, transferred to the POL Recovery Area waste storage tanks, and disposed through DRMO as POL. Waste antifreeze is drummed, stored at the 832 TRANS accumulation site, and disposed through DRMO. Shop rags are taken to linen exchange for cleaning and reissue.

Shop: Vehicle Maintenance
Contact: MSgt Rork

Bldg: 291
AUTOVON: 853-6216

Shop personnel perform oil changes, lubrication, and routine maintenance on all military vehicles assigned to Luke AFB. Waste motor oil (100 gallons/month), hydraulic fluid (20 gallons/month), transmission fluid (25 gallons/month), and brake fluid (1 gallon/month) are drummed, stored at the shop's accumulation site, transferred to the POL Recovery Area waste storage tanks, and disposed as POL through DRMO. Waste MoGas (5 gallons/month) and diesel (2 gallons/month) are drummed, stored at the shop's accumulation site, transferred to the POL Recovery Area waste storage tanks, and disposed as POL through DRMO. Batteries are exchanged on a one-for-one basis through Co-Pars. Waste antifreeze (3 gallons/month) is drummed and stored at the shop's accumulation site. The shop is in the process of obtaining an antifreeze recycling unit.

The shop has four, 15-gallon 360 solvent degreasing tanks that are changed out every 3-4 months. The waste is drummed, stored at the shop's accumulation site, transferred to the POL Recovery Area waste storage tanks, and disposed as POL through DRMO. Citrikleen (15 gallons/month, diluted 1:8) is used for cleaning shop floors. The waste is discharged down the drain to an oil/water separator connected to the sanitary sewer. If Citrikleen is not available, aircraft soap (diluted 1:8) is used for cleaning the floors. Shop rags are taken to linen exchange for cleaning and reissue. Speedy Dry is disposed as municipal waste.

B. 58 Equipment Maintenance Squadron (58 EMS)

Shop: AGE
Contact: SMSgt Withers

Bldg: 930A
AUTOVON: 853-3463

Shop personnel repair, maintain and dispatch flight line support equipment. Waste oil and fluid (300 gallons/month) are stored in 55-gallon bowzers, transferred to the POL Recovery Area waste storage tanks, and disposed as POL through DRMO. AGE personnel are responsible for maintaining the flight line JP-4 bowzers. When full, the bowzers are taken to the POL recovery area and emptied into a waste storage tank. The JP-4 is blended back into the main base fuel supply, used at the FTP for training purposes, or disposed as POL through DRMO.

Calla 800 (55 gallons/month), Citrikleen (250 gallons/month), and aircraft soap are used on the washrack for cleaning equipment. The washrack drains lead to an oil/water separator that is connected to the sanitary sewer system. The oil phase of the separator is pumped into a 250-gallon above-ground storage tank that is periodically pumped out by a contractor. No painting is done in this shop. Shop rags are taken to linen exchange for cleaning and reissue.

Shop: Armament Systems
Contact: SMSgt Reid

Bldg: 926
AUTOVON: 853-7335

Shop personnel maintain bomb racks, gun systems, and weapons release systems for the F-16 aircraft. The shop has a 400-gallon heated Paclei tank used for cleaning 20 mm gun systems. The tank is changed out every three months. All water is boiled off; the residue (150 gallons) is drummed and disposed through DRMO. Shop rags are taken to linen exchange for cleaning and reissue.

Shop: Corrosion Control
Contact: TSgt Brown

Bldg: 922
AUTOVON: 853-6797

Shop personnel perform corrosion control treatment and painting on F-16 aircraft, associated aircraft parts and support equipment. Waste polyurethane and enamel paints (55 gallons/month) are drummed, stored at the shop's accumulation site (see Figure 1), and disposed as hazardous waste through DRMO. Waste polyurethane thinner, MEK, and toluene are recycled by shop personnel using a Little Still distillation unit.

The unit is located in a building behind the shop. The shop has a 15-gallon B&B 1567-C stripping tank which is changed out monthly. The waste is drummed, stored at the shop's accumulation site, and disposed as hazardous waste through DRMO.

The shop has a 500-gallon waterfall paint booth that is changed out monthly. The water is discharged down the drain to the sanitary sewer. The dry paint sludge is disposed as municipal waste. Shop rags are disposed as municipal waste.



Figure 1: 58 EMS Corrosion Control Accumulation Site

Shop: Phase Docks
Contact: MSgt Hairston

Bldg: 985
AUTOVON: 853-3877

Shop personnel perform periodic maintenance and inspection on the F-16 aircraft. Waste oil and fluid (<1 gallon/month) are stored in a 55-gallon bowser, transferred to the POL Recovery Area waste storage tanks, and disposed as POL through DRMO. Kim-Wipes, used for cleaning up small spills, are disposed as municipal waste. The shop floor drains (located at the front of the shop) are connected to the sanitary sewer.

C. 58 Component Repair Squadron (58 CRS)

Shop: Fuel System Repair
Contact: Msgt Byer

Bldg: 983
AUTOVON: 853-6473

Shop personnel perform routine and unscheduled maintenance on F-16 aircraft fuel systems. JP-4 (45 gallons/month) is vacuumed from the fuel tanks into a bowser. The JP-4 is transferred to the POL Recovery Area waste storage tanks. The JP-4 is recycled into the base fuel supply, used at the FTP for training purposes, or disposed through DRMO as POL. JP-4 that is spilled from the tanks (5-6 gallons/tank) is flushed with water into floor drains connected to an oil/water separator. Shop rags are disposed as municipal waste. Small hydrazine spills are neutralized with bleach and flushed with copious amounts of water.

Shop: Hush House
Contact: TSgt Johnson

Bldg: 1016
AUTOVON: 853-6693

Shop personnel perform field tests and engine rev-ups on the F-100 jet engine. Approximately 30 engines/month are tested. Small quantities of JP-4, oil, and fluid that leak from the engines during testing are flushed with water into floor drains connected to an oil/water separator.

Shop: Jet Engine Maintenance
Contact: MSgt Bradford

Bldg: 931
AUTOVON: 853-6561

Shop personnel perform routine maintenance on the F-100 engine. JP-4 drained from engines is collected in drip pans and transferred to a bowser that is stored at the shop's accumulation site (see Figure 2). Waste mop water is drummed, sampled, analyzed, and disposed of accordingly. Shop rags are taken to linen exchange for cleaning and reissue.

Shop: Pneudraulics
Contact: MSgt Etzle

Bldg: 931
AUTOVON: 853-6760

Shop personnel service, repair, and maintain hydraulic and pneumatic components in the F-16 and F-15 aircraft. Waste hydraulic fluid (10 gallons/month) is collected in a bucket, taken to the AGE shop and transferred to a bowser. PD-680 (100 gallons/month) is also taken to an AGE bowser. Kim-Wipes are disposed as municipal waste.

D. 58 Aircraft Generation Squadron (58 AGS)

Shop: 310 AMU
Contact: TSgt Lishka

Bldg: 913
AUTOVON: 853-6326

Shop personnel maintain and issue tools and equipment and perform flight line maintenance on F-16 aircraft assigned to the 58th Tactical Fighter Wing. Waste oil (200 gallons/month) and JP-4 (400 gallons/month) are collected in 55-gallon bowzers. The bowzers are taken weekly to the POL Recovery Area and emptied into the waste storage tanks. The waste oil is disposed as waste POL through DRMO. The JP-4 is blended back into the main base fuel supply, used at the (FTP) for training purposes, or disposed through DRMO as POL. Speedy Dry is disposed as municipal waste.

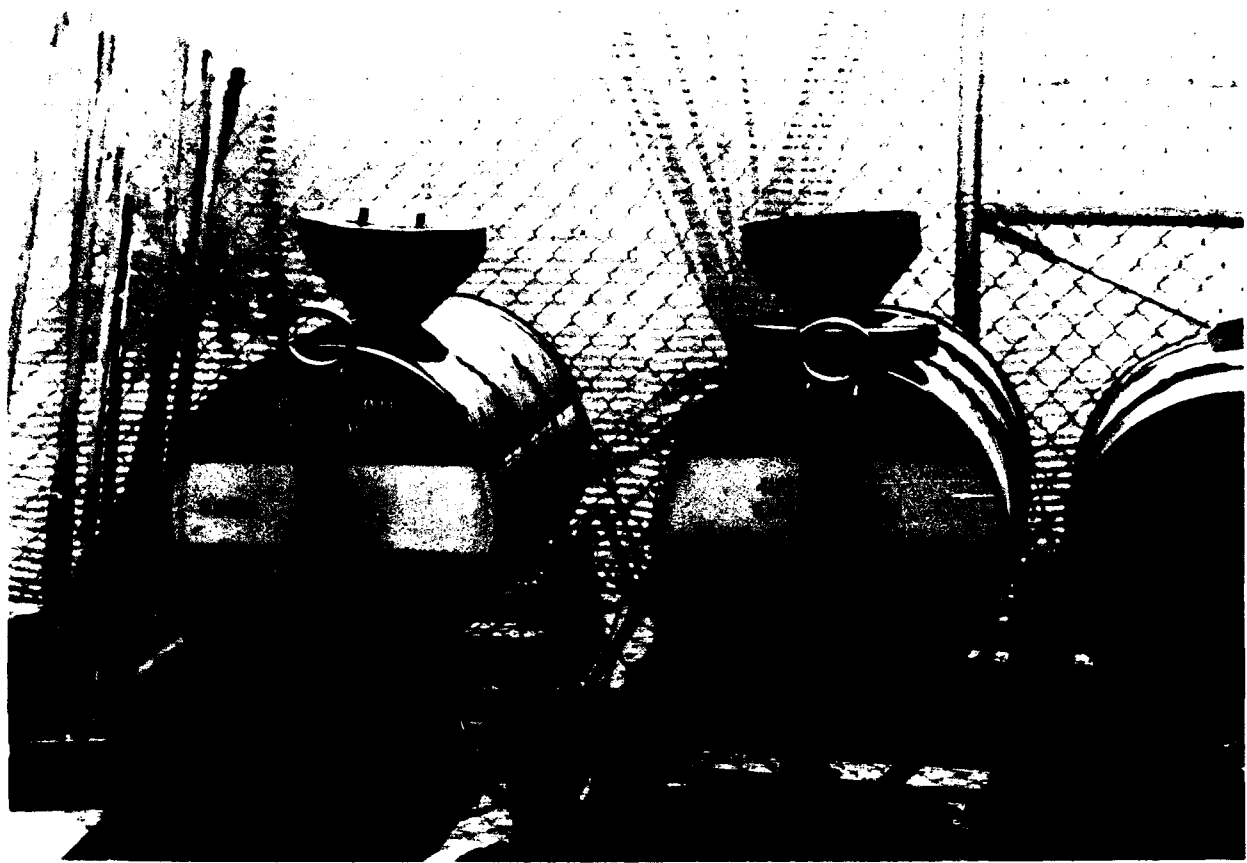


Figure 2: 58 CRS Jet Engine Maintenance Accumulation Site

Aircraft are washed on the flight line using approximately 200 gallons of water per washing. Water not evaporated discharges to the stormwater system.

E. 405 Equipment Maintenance Squadron (405 EMS)

Shop: AGE
Contact: MSgt Isgro

Bldg: 404
AUTOVON: 853-3276

Shop personnel repair, maintain, and dispatch flight line support equipment for F-15 aircraft assigned to the 405th Tactical Fighter Wing. Waste oil and fluid are either discharged directly from the equipment into a drain that leads to a 2000-gallon underground storage tank (UST) or drained into drip pans or buckets which are poured into a trough leading to the UST.

The UST is pumped out by a contractor quarterly. The shop has a 17-gallon Citrikleen tank that is usually replenished rather than cleaned out. The top surface is skimmed; the waste is disposed along with waste oil and fluid. Speedy Dry is reused until saturated; the saturated Speedy Dry is disposed through DRMO. Shop rags are taken to linen exchange for cleaning and reissue. Citrikleen and Alfakleen are used for cleaning shop floors and equipment. The shop floor drains are connected to an oil/water separator. Citrikleen (150 gallons/year) and Citrikleen HD (150 gallons/year) are used on the washrack for cleaning parts and equipment.

The shop has a waterfall paint booth that is drained every two months. The water is discharged to an oil/water separator. The dried sludge from the paint booth is disposed as municipal waste. Waste polyurethane paint (55 gallons/year) is drummed and taken to 405 EMS Corrosion Control for disposal with their waste paint.

Shop: Corrosion Control
Contact: SSgt Pinto

Bldg: 922
AUTOVON: 853-6456

Shop personnel perform corrosion control treatment and painting on F-15 aircraft, associated aircraft parts and support equipment. Waste polyurethane paint (55 gallons/month) is drummed, stored at the shops accumulation site, and disposed as hazardous waste through DRMO. Waste polyurethane thinner, MEK, and naphtha thinner are recycled by shop personnel using a Little Still distillation unit. The unit is located in a building behind the shop. The shop has a 15-gallon B&B 1567-C stripping tank which is changed out monthly. The waste is drummed, stored at the shop's accumulation site, and disposed as hazardous waste through DRMO.

The shop has a dry paint booth; the filters (20) are replaced weekly and disposed as municipal waste. Shop rags are disposed as municipal waste.

Shop: NDI
Contact: TSgt Chase

Bldg: 966
AUTOVON: 853-6731

Shop personnel perform inspection of F-16 and F-15 aircraft structural components using dye penetrant, magnetic particle and x-ray inspection methods. Spent x-ray developer (40 gallons/month) is discharged down the drain to the sanitary sewer. Spent x-ray fixer (40 gallons/month) is processed through a Peterson Silver Recovery Cell before being discharged down the drain to the sanitary sewer.

Dye penetrant inspection is an open system which uses penetrant, emulsifier, and developer. The shop is in the process of converting from a lipophilic dye penetrant inspection process to a hydrophilic dye penetrant inspection process. This conversion may reduce the amount of hazardous wastes generated by the shop. Parts are sequentially dipped into the penetrant and the emulsifier then rinsed and allowed to dry. Next, the part is dipped into the developer, passed through a drying oven, inspected, and rinsed. Spent penetrant (110 gallons/year) and emulsifier (110 gallons/year) are drummed and disposed as hazardous waste through DRMO. Spent developer (110 gallons/year) and rinsewater generated during the inspection process are discharged down the drain to an oil/water separator connected to the sanitary sewer. Magnetic particle solution (55 gallons/year) is drummed and disposed through DRMO.

A Baird Atomic Oil Analysis Spectrometer is used to evaluate engine oil from aircraft. 1,1,1-Trichloroethane is used as a wipe on/wipe off process to clean the machine. Waste oil (10 gallons/month) is collected in a 5-gallon can, taken to another shop and transferred to a 55-gallon bowser.

Shop: Phase Docks
Contact: MSgt Deyo

Bldg: 914
AUTOVON: 853-6731

Shop personnel perform periodic maintenance and inspection on the F-15 aircraft. Waste oil and fluid are stored in 55-gallon bowzers maintained by AGE personnel (see Figure 3). It is then transferred to the POL Recovery Area waste storage tanks, and disposed as POL through DRMO. Shop rags are taken to linen exchange for cleaning and reissue. Speedy Dry is reused until saturated, drummed, and disposed through DRMO.



Figure 3: 405 EMS Phase Dock Waste Oil Bowzers

Shop: Wheel and Tire
Contact: TSgt Guthrie

Bldg: 400
AUTOVON: 853-6179

Shop personnel assemble, disassemble, and clean wheels and tires for the F-16 and F-15 aircraft. The shop has a 150-gallon caustic solution wheel stripping tank (Fine Organics 8010) that is changed out every six months. The waste is drummed, stored at the shop's accumulation site (see Figure 4) and disposed as hazardous waste through DRMO. The shop also has a 150-gallon PD-680 tank that is changed out every six months. The waste is drummed, stored at the shop's accumulation site, and disposed through DRMO. The shop is in the process of obtaining a bead blasting unit. Bead blasting will eliminate the need for the two chemical tanks. The wheels are cleaned with aerosol Magnaflux before being sent to NDI. The empty aerosol cans are disposed as municipal waste. Shop rags are taken to linen exchange for cleaning and reissue.

The bearing room has one 50-gallon PD-680 tank that is changed out every 30 days. The waste is drummed, stored at the shop's accumulation site, and disposed through DRMO. The shop is in the process of switching from PD-680 to Citrikleen X-PC. The tank will be changed out every 2 1/2 months.

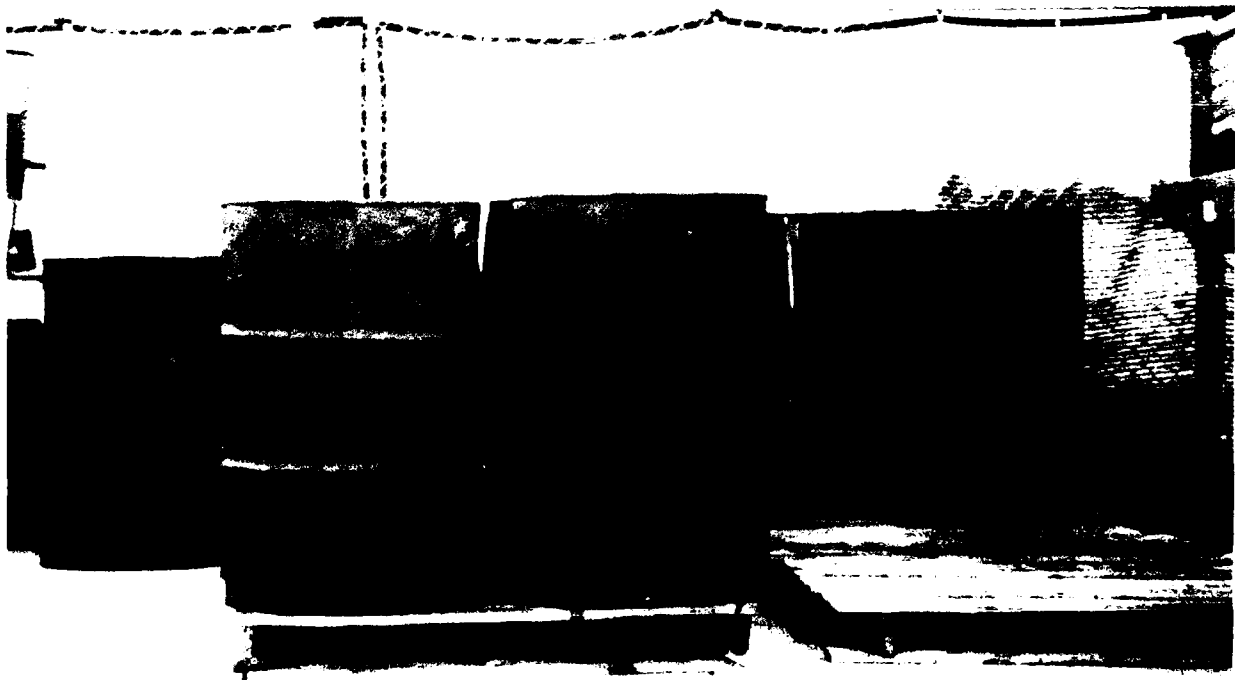


Figure 4: 405 EMS Wheel and Tire Accumulation Site

F. 405 Component Repair Squadron (405 CRS)

Shop: Manual Test Station
Contact: TSgt Ickes

Bldg: 417
AUTOVON: 853-7301

Shop personnel maintain and repair F-15 aircraft avionics equipment. Freon-113 is used for cleaning antennae, radar equipment and the test station. The waste freon and rags (100 gallons/year) are drummed and disposed through DRMO.

Shop: Electric
Contact: Mr Healis

Bldg: 913
AUTOVON: 853-6198

Shop personnel maintain and repair batteries used in both the F-15 and F-16 aircraft. Both the 405 CRS Electric shop and the 58 CRS Electric shop operate out of this shop. Lead acid batteries are emptied into a neutralization sink (Figure 5). The electrolyte is neutralized with sodium bicarbonate and tested with litmus paper before being discharged down the drain to a holding tank. The battery casings are disposed through DRMO.

NiCad batteries (3-4 cells/week) are neutralized with boric acid. The neutralized electrolyte is discharged to a holding tank. The spent battery cells are disposed through DRMO.

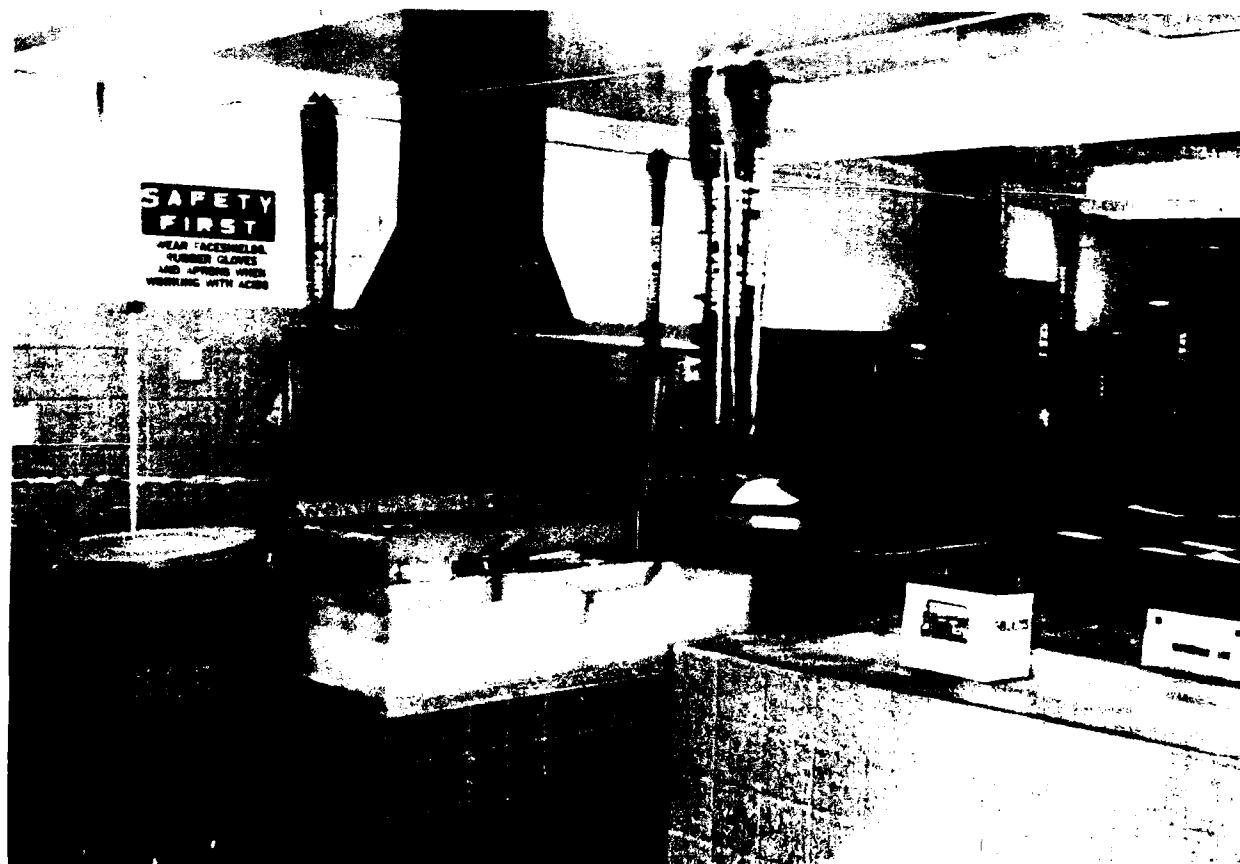


Figure 5: 405 CRS Electric Lead-Acid Battery Neutralization Sink

Shop: Jet Engine Maintenance
Contact: MSgt Jones

Bldg: 930
AUTOVON: 853-3537

Shop personnel maintain and repair engines for the F-15 aircraft. Small oil and fluid leaks are contained in drip pans and cleaned up with shop rags. The rags are taken to linen exchange for cleaning and reissue. Engine stands are washed at the AGE washrack.

The modular repair section has a 50-gallon degreasing tank containing Citrikleen that is changed out on an as needed basis. The waste is disposed through DRMO. The shop also has four 2-gallon tanks containing carbon remover, PD-680, fingerprint remover, and 7808 engine oil. These tanks are also changed out on an as needed basis.

Shop: Small Gas Turbine
Contact: MSgt Baum

Bldg: 1026
AUTOVON: 853-6050

Shop personnel maintain and repair F-15 aircraft start systems. 7808 engine oil (55 gallons/month) is placed in a 55-gallon bowser, transported to the POL Recovery Area, transferred to a waste storage tank, and disposed through DRMO as POL. The shop has one PD-680 degreasing tank that is replenished as necessary. Shop rags are taken to linen exchange for cleaning and reissue.

G. 405 Aircraft Generation Squadron (405 AGS)

Shop: 426 AMU
Contact: MSgt Stroessner

Bldg: 482
AUTOVON: 853-3324

Shop personnel maintain and issue tools and equipment and perform flight line maintenance on F-15 aircraft assigned to the 405 Tactical Fighter Wing. Waste oil (100 gallons/month) and JP-4 (200 gallons/month) are collected in 55-gallon bowzers (see Figure 6). The bowzers are taken to the POL Recovery Area weekly and emptied into the waste storage tanks. The waste oil is disposed as POL through DRMO. The JP-4 is blended back into the main base fuel supply, used at the FTP for training purposes, or disposed through DRMO as POL. Speedy Dry is disposed as municipal waste.

Aircraft are washed on the flight line using CALLA 800 soap and water. The majority of the water rapidly evaporates; the water that does not evaporate is discharged to the storm drainage system.

H. 944 Consolidated Aircraft Maintenance Squadron (944 CAMS)

Shop: Pneudraulics
Contact: TSgt Tuckett

Bldg: 999
AUTOVON: 853-5521

Shop personnel service, repair, and maintain hydraulic and pneumatic components for the F-16 aircraft. The shop has a 20-gallon solvent tank containing Penetone Formula 724. The waste (approximately 20 gallons/year) is taken to 944 CAMS AGE and transferred to an oil bowser. Waste hydraulic fluid (2 gallons/year) is collected in a bucket, taken to the 944 CAMS AGE shop and transferred to an oil bowser. Trichlorotrifluoroethane is used as a wipe on/wipe off parts cleaning process. Shop rags are disposed as municipal waste.

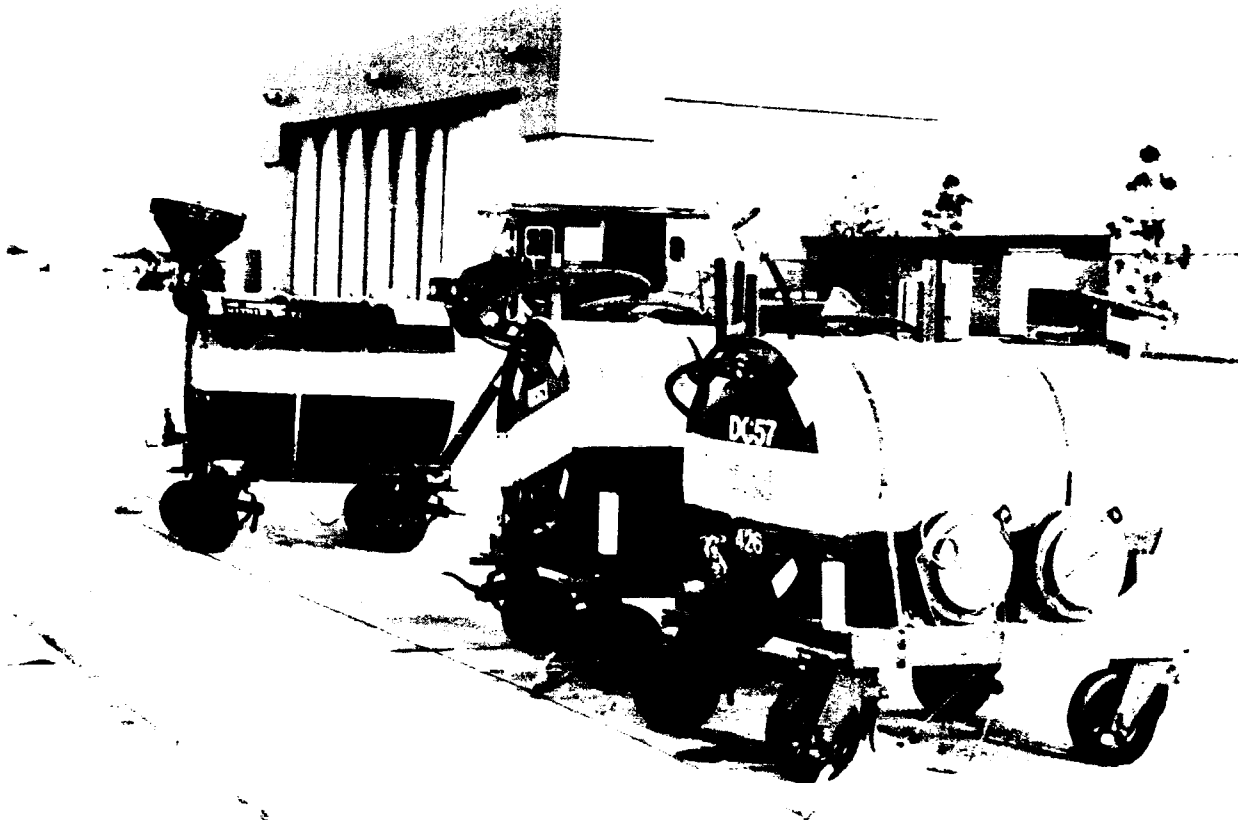


Figure 6: 405 AGS 426 AMU Oil and Fuel Bowers

Shop: Fuel System Repair
Contact: MSgt Van

Bldg: 1022
AUTOVON: 853-5562

Shop personnel perform routine and unscheduled maintenance on F-16 aircraft fuel systems. JP-4 is vacuumed from the fuel tanks into a bowser and transported to 944 CAMS AGE. Any fuel that is spilled from the tanks is flushed with water into floor drains connected to an oil/water separator. Shop rags are disposed as municipal waste.

Shop: Propulsion
Contact: SMSgt Davis

Bldg: 993
AUTOVON: 853-5423

Shop personnel are responsible for the teardown, inspection, repair, and reassembly of F-16 engines during scheduled maintenance. Shop personnel work on one engine per month. Small quantities of waste JP-4 and 7808 engine oil (6 gallons/month) are collected in drip pans, taken to the 944 CAMS AGE shop and transferred to a bowser. The shop has one small tank containing a mixture of PD-680 and 7808 engine oil that is used for bearings. The waste is disposed with other waste oil generated by the shop. Shop rags are sent to linen exchange for cleaning and reissue. The shop does not have any floor drains.

Shop: AGE
Contact: SMSgt Harvey

Bldg: 1013
AUTOVON: 853-5556

Shop personnel repair, maintain and dispatch flight line support equipment. Waste oil and fluid (600 gallons/month) and waste fuel (300 gallons/month) are accumulated in 55-gallon bowlers, transferred to the POL Recovery Area waste storage tanks. The oil is disposed as POL through DRMO. The JP-4 is recycled into the main base fuel supply, used for training purposes at the FTP, or disposed as POL through DRMO. Wastes from other 944 CAMS shops are brought to the AGE shop. Batteries are charged and filled at this shop. Electrolyte neutralization is done at the 58 CRS Electric shop. All painting is done at 944 CAMS Corrosion Control. Shop rags are taken to linen exchange for cleaning and reissue.

Shop: Corrosion Control
Contact: TSgt Webber

Bldg: 1013
AUTOVON: 853-5563

Shop personnel perform corrosion control treatment and painting on F-16 aircraft, associated aircraft parts and support equipment. Waste polyurethane paint (55 gallons/year) and lacquer thinner and MEK (55 gallons/year) are stored at the shop's satellite accumulation site, transported to the 944 CAMS accumulation site (see Figure 7), and disposed as hazardous waste through DRMO.

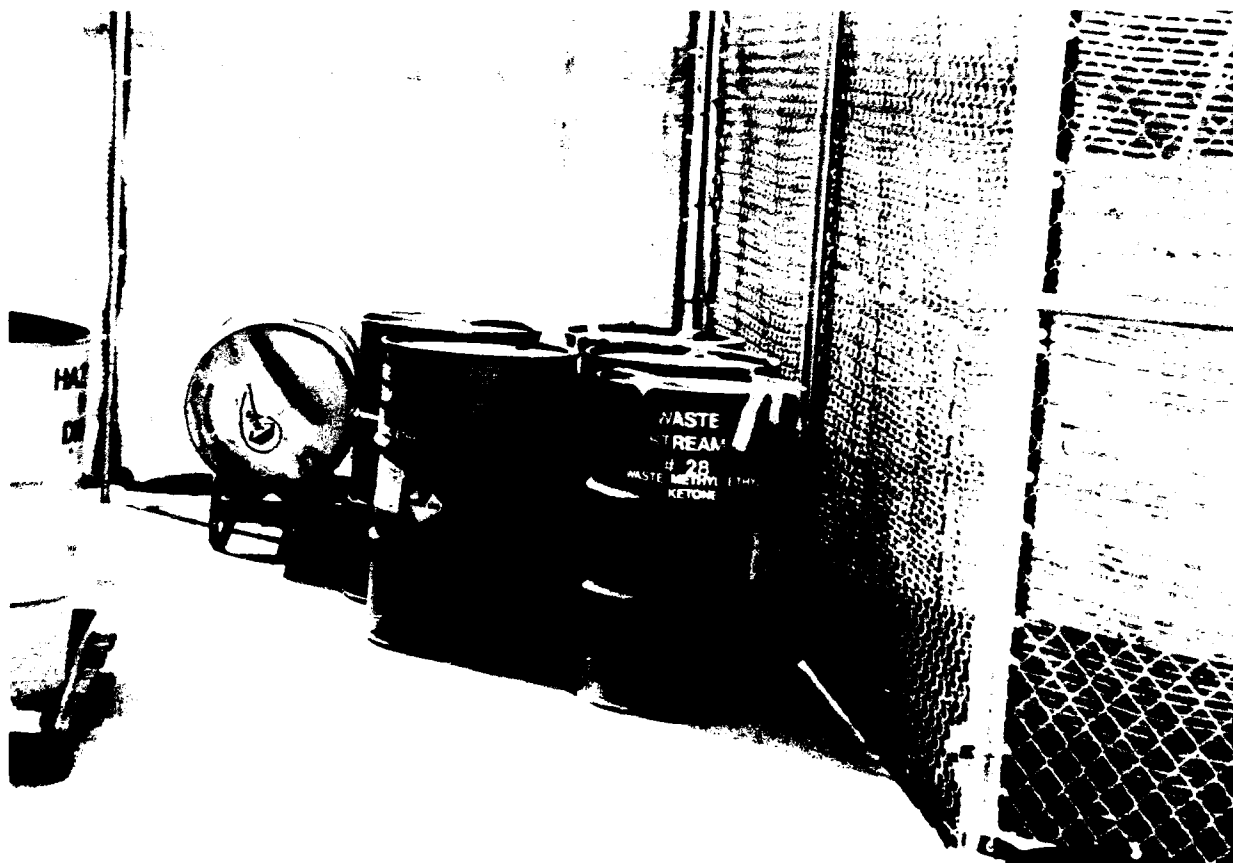


Figure 7: 944 CAMS Corrosion Control Accumulation Site

Shop: NDI
Contact: MSgt Livingston

Bldg: 1022
AUTOVON: 853-5544

Shop personnel are in the process of establishing NDI operations for 944 CAMS. Currently, all NDI operations are performed at 405 EMS NDI. The shop will have a dye-penetrant inspection line, magnetic particle inspection, and oil analysis spectrometry. The wastes will be drummed and disposed through DRMO.

Shop: Wheel and Tire
Contact: TSgt Kelley

Bldg: 1022
AUTOVON: 853-5540

Shop personnel are in the process of establishing wheel and tire operations for 944 CAMS. Currently, all wheel and tire work is performed at 405 EMS Wheel and Tire. The shop has three degreasing tanks that will contain Citrikleen X-PC and Citrikleen HD. The wastes will be drummed, taken to the accumulation site at 944 CAMS Corrosion Control, and disposed through DRMO.

Shop: Phase Docks
Contact: TSgt Vanderboegh

Bldg: 999
AUTOVON: 853-5537

Shop personnel perform periodic maintenance and inspection on the F-16 aircraft. Waste oil and fluid (<1 gallon/month) are stored in a 55-gallon bowser, transferred to the AGE shop, and disposed as POL through DRMO. Kim-Wipes, used for cleaning up small spills, are disposed as municipal waste.

I. 832 Civil Engineering Squadron (832 CES)

Shop: Entomolgy
Contact: SSgt Nedved

Bldg: 337
AUTOVON: 853-3961

Shop personnel perform pest and weed control on Luke AFB. Residual chemicals from triple-rinsing procedures are mixed with other chemicals and used in the field. Empty containers are rendered unusable and disposed in a landfill.

Shop: Power Production
Contact: Mr Stephens

Bldg: 360
AUTOVON: 853-6869

Shop personnel operate and maintain diesel powered generators throughout the base. Waste motor oil (55 gallons/month), synthetic oil (15 gallons/month), hydraulic fluid (2 gallons/month), 90 weight motor oil (2 gallons/month), and diesel (5 gallons/month) are stored in a 1000-gallon aboveground tank that is periodically pumped out by a DRMO contractor (see Figure 8). Spent antifreeze (10 gallons/month) is flushed with water down the drain to the sanitary sewer. Spray paint is used for touch-up painting on the equipment. The empty aerosol cans are disposed as municipal waste. Shop rags are disposed as municipal waste. Lead-acid batteries are emptied into a neutralization tank (see Figure 9); the electrolyte is neutralized with baking soda before being discharged to a holding tank. The empty battery casings are disposed through DRMO. A new accumulation site is being constructed at the shop (see Figure 10).

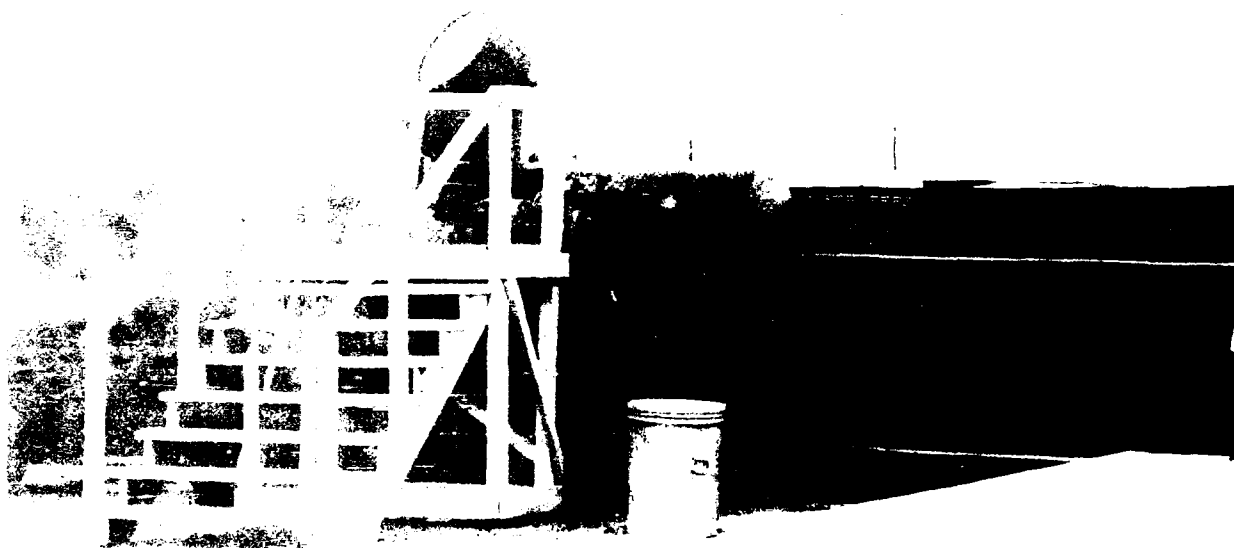


Figure 8: 832 CES Power Production Waste Oil Storage Tank

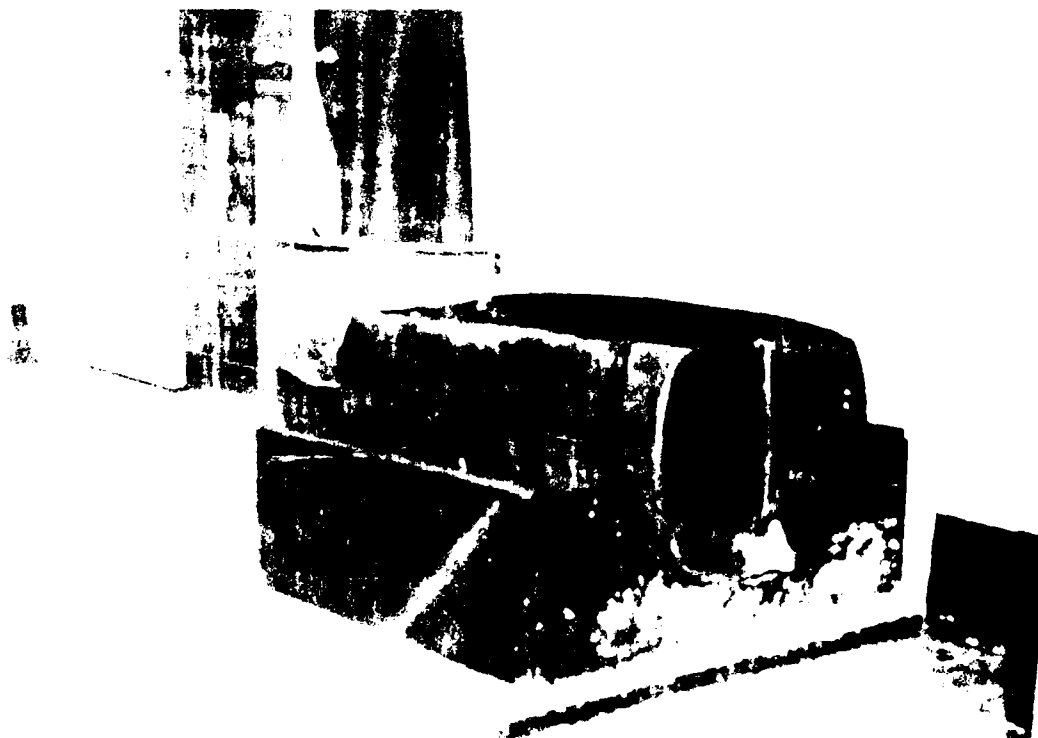


Figure 9: 832 CES Power Production Battery Neutralization Tank



Figure 10: 832 CES Power Production Accumulation Site

Shop: Zone 1 - Falcon
Contact: TSgt Moore

Bldg: 921
AUTOVON: 853-3640

Shop personnel perform carpentry, electrical, plumbing, refrigeration and heating work in CES Zone 1. Cutting oil (5 gallons/month) is taken to the POL Recovery Area, transferred to a waste storage tank, and disposed as POL through DRMO.

Shop: Zone 4 - Tiger
Contact: Mr McCorry

Bldg: 339
AUTOVON: 853-6091

Shop personnel perform carpentry, electrical, plumbing, refrigeration and heating work in CES Zone 4. Waste paints and thinners are drummed and disposed as hazardous waste through DRMO. Shop rags are disposed as municipal waste.

J. 832 Medical Group

Shop: Dental X-Ray
Contact: TSgt Brown

Bldg: 1130
AUTOVON: 853-7537

Shop personnel develop x-rays produced at the Dental Clinic. Fixer (5 gallons/month) is processed through a Peterson Silver Recovery Cell before being discharged down the drain to the sanitary sewer. Developer (5 gallons/month) is discharged down the drain to the sanitary sewer.

Shop: Laboratory
Contact: SMSgt Gaines

Bldg: 1130
AUTOVON: 853-7547

Shop personnel perform clinical analysis for the hospital. All chemical reagents are flushed with water down the drain to the sanitary sewer. Xylene is not used.

Shop: Medical X-Ray
Contact: TSgt Bates

Bldg: 1130
AUTOVON: 853-7618

Shop personnel develop x-rays produced at the Hospital. Fixer (40 gallons/month) is processed through a Peterson Silver Recovery Cell before being discharged down the drain to the sanitary sewer. Developer (40 gallons/month) is discharged down the drain to the sanitary sewer.

K. 607 Tactical Control Training Squadron (607 TCTS)

Shop: AGE
Contact: SSgt Duchak

Bldg: 1382
AUTOVON: 853-6431

Shop personnel train tactical control mobile radar personnel. Waste motor oil (20 gallons/year) is taken to 405 AGE and disposed with their waste oil.

L. 832 Morale, Welfare and Recreation (832 MWR)

Shop: Auto Hobby
Contact: Mr Arvizu

Bldg: 248
Autovon: 853-6107

The Auto Hobby Shop contains equipment for maintaining and repairing privately owned vehicles. Waste oil and transmission fluid (350 gallons/month) are stored in 55-gallon drums, transported to the POL Recovery Area, transferred to the waste storage tanks, and disposed as POL through DRMO. The shop has two 5-gallon degreasing tanks that contain aircraft cleaning soap. The waste is disposed with the waste oil. Waste paint, thinner and batteries are disposed by the patron. The waterfall paint booth is drained one or two times per week. The water is discharged down the drain to an oil/water separator connected to the sanitary sewer. Aircraft cleaning soap (NSN 6850-01-184-8182) is used for cleaning the shop floors. The shop floor drains lead to an oil/water separator connected to the sanitary sewer.

V. SUMMARY OF WASTE DISPOSAL PRACTICES AT LUKE AFB

The waste disposal practices for different waste categories are summarized in this section. A summary of disposal practices for each waste category is contained in Appendix D.

1. Waste oils and fluids are placed in bowsters, 55-gallon drums or waste oil USTs and disposed as POL through DRMO. The 55-gallon drums and bowsters are transported to the POL Recovery Area and emptied into a waste storage tank. The waste storage tanks and the USTs are emptied by a contractor.

In some cases, waste oils and fluids are discharged to oil/water separators that are periodically cleaned out by a contractor. The 832 CES Power Production shop stores waste oils and fluids in a 1000-gallon bowser that is pumped out by a contractor on-site. Currently, waste oils and fluids are sold to All Western Oil Co. for 3 cents/gallon. The payment received is based on demand at the time of disposal.

2. Waste paints and thinners are generally placed in 5-gallon cans or 55-gallon drums and stored at the appropriate accumulation site. The wastes are sampled by BES personnel before being transported to the DRMO storage facility. Once the waste is characterized, it is transported to the DRMO storage facility for storage until the contractor picks it up.

3. Waste JP-4 and MoGas are generally collected in drip pans or buckets and transferred to fuel bowsters. When full, the bowsters are taken to the POL recovery area and emptied into a waste storage tank. The fuel is analyzed by POL personnel. If possible the fuel is blended back into the main base fuel supply for use in either AGE or aircraft. If not, the fuel is used at the FTP for training purposes or disposed through DRMO as POL.

4. Used lead-acid aircraft or AGE batteries are drained into a plastic sink or drum. The electrolyte is neutralized with sodium bicarbonate before being drained to an UST. Used NiCad aircraft batteries are treated in a similar manner, except the electrolyte is neutralized with boric acid. The spent battery casings are disposed through DRMO. 832 TRANS vehicle batteries are exchanged on a one-for-one basis through Co-Pars.

5. Some waste solvents (e.g., PD-680 and Citrikleen) are drummed and disposed through DRMO. Other waste solvents (e.g., Citrikleen) are used on washracks; the waste is discharged down the drain to an oil/water separator.

6. Waste fixers are processed through a Peterson Silver Recovery Cell before being discharged down the drain to the sanitary sewer. All other photo chemicals are discharged down the drain to the sanitary sewer.

7. Waste dye-penetrant and emulsifier generated at NDI are drummed and disposed as hazardous waste through DRMO. Waste developer and rinse water are discharged down the drain to an oil/water separator. Magnetic particle solution is drummed and disposed through DRMO.

8. Dirty shop rags from most shops are taken to linen exchange and exchanged for clean ones. A few shops dispose of cloth and paper rags as municipal waste.

9. Paint filters from the dry paint booth at 405 EMS Corrosion Control Shop are disposed as municipal waste.

10. Speedy Dry, used to clean up small spills, is disposed as municipal waste.

11. Water from the 58 EMS Corrosion Control, 832 CSG Auto Hobby and 405 EMS AGE waterfall paint booths is discharged down the drain to an oil/water separator. The dried paint sludge is disposed as municipal waste.

12. Waste mop water from cleaning the floors at the 58 CRS Jet Engine Maintenance is drummed, sampled, analyzed, and disposed according to analytical results.

13. Empty aerosol cans are disposed as municipal waste.

14. Waste antifreeze is stored in 55-gallon drums at the accumulation site and disposed through DRMO. 832 TRANS Vehicle Maintenance is in the process of obtaining an antifreeze recycling unit.

15. Rinsewater generated from triple-rinsing pesticide containers, herbicide containers and cleaning equipment is used for mixing the chemicals.

16. Soaps and cleaning compounds are discharged down the drain to oil/water separators connected to either the sanitary sewer or the storm drainage system.

VI. CONCLUSIONS

A. DEV is responsible for training shop supervisors, who, in turn, train shop personnel in hazardous waste management. In the past, the training program was given at sporadic intervals. Additional training is scheduled for the future.

B. Luke AFB is in the process of obtaining a RCRA Part B permit for the DRMO storage facility. The Part B permit will require that 25% of the drummed wastes from each wastestream be sampled and analyzed.

C. The Arizona Department of Environmental Quality requires that wastestream characterizations be performed before the waste is transported to the DRMO storage facility. This is required because DRMO is located approximately two miles off base; transportation to DRMO occurs on public roads.

D. DRMO inspects waste storage containers at the accumulation sites before they are transported to the DRMO storage facility.

E. DRMO is in the process of establishing a profile sheet for each wastestream. The profile sheets will allow the base to establish documented rationale for classifying each wastestream as either hazardous or nonhazardous, in addition to meeting Resource Conservation and Recovery Act (RCRA) requirements. The sheets will also provide documentation of the percentage of drums sampled. It should also eliminate the need to sample and analyze all wastes leaving the base.

F. 58 EMS Corrosion Control has a Little Still solvent distillation unit (capacity 30 gallons/12 hours) that is used by both 405 EMS and 58 EMS Corrosion Control for recycling paint thinners. The recycled thinners are used for cleaning painting equipment. The distillation unit has eliminated the need for disposing waste thinners.

G. Most shops utilize the service of a local linen contractor for cleaning dirty rags.

H. 405 EMS NDI, 832 Medical Group Dental X-Ray and Medical X-Ray use Peterson Silver Recovery Cells rather than the usual silver recovery unit. This process requires much less space in the developing room and supposedly recovers more silver from the fixer than the usual process.

VII. RECOMMENDATIONS

A. A formalized hazardous waste education and training program should be implemented at Luke AFB. The program should provide opportunities for inputs from the BEE shop on the health hazards associated with hazardous wastes and materials since many shop personnel are physically involved with their handling. Also, DRMO should provide input on the present and future costs to the base of disposing hazardous wastes and the required turn-in procedures. DEV should insure that all hazardous waste monitors receive training before assuming the position.

B. 944 CAMS Corrosion Control should consider using smaller containers for storing waste paints and thinners. In order to be considered a satellite accumulation site, the shop must ensure that no more than 55 gallons of waste are stored at the shop at any one time. Also, 58 EMS Corrosion Control should be contacted to discuss the possibility of using the thinner distillation unit for recycling paint thinners.

C. All shops that use Speedy Dry should consider using an alternate absorbent material such as one that is siliceous-based. This type absorbent material reduces clean up time, is more absorbent, and reduces quantity of waste generated.

D. All shops on base should consider the possibility of establishing a contract with the local linen contractor for supplying cleaning rags. This option may not be feasible in all situations but may prove to be cost beneficial in others.

E. 832 CES Power Production should consider using biodegradable detergent rather than PD-680 when washing generators at various locations throughout the base. Eventually, the PD-680 usage could cause soil contamination around the generators.

F. Civil Engineering should ensure that all oil/water separators are connected to the sanitary sewer rather than the storm drainage system. The oil/water separators should also be routinely inspected and cleaned out. If the separators are full or are not working properly, the waste is discharged directly to the sanitary sewer system or the storm drainage system.

G. The used paint filters from 405 EMS Corrosion Control should be sampled and analyzed to determine whether or not they are hazardous. If they prove to be nonhazardous, the filters can continue to be disposed as municipal waste.

H. Spent chemicals from the dye penetrant and magnetic particle inspection processes at 944 CAMS NDI and 405 EMS NDI should be sampled and analyzed to determine which ones are actually hazardous. If any of the wastes are not hazardous, they can be disposed of down the drain or as POL, whichever is applicable.

I. Spent Paclei from the 58 EMS Armament gun cleaning tank should be sampled and analyzed for toxic metals to determine if it is actually hazardous. If the waste is not hazardous, it can be discharged down the drain to the sanitary sewer.

J. The water and sludge from the waterfall paint booths at 58 EMS Corrosion Control, 405 EMS AGE, and 832 MWR Auto Hobby shop should be sampled and analyzed for toxic metals to provide documentation of whether the wastes are hazardous or nonhazardous.

K. The spent Citrikleen from 944 CAMS Wheel and Tire and 405 EMS Wheel and Tire should be sampled and analyzed for toxic metals to determine if it is hazardous. The sludge layer should be sampled separately from the liquid layer. This sampling procedure might prove that only the sludge portion is hazardous and would reduce the amount of hazardous waste generated.

L. The spent bead blasting media from 405 EMS Wheel and Tire should be analyzed for EP Toxicity Metals to determine if it is hazardous. If the waste is nonhazardous, it can be disposed as municipal waste.

M. Civil Engineering personnel should determine where the neutralized battery electrolyte from 832 CES Power Production and 405 CRS Electric is discharged to. The neutralized electrolyte should be sampled and analyzed for toxic metals and pH. If the waste is not hazardous it can be discharged down the drain to the sanitary sewer.

N. The caustic soda tank at 832 TRANS Vehicle Maintenance should be sampled and analyzed for toxic metals and pH before it is discharged down the drain to the sanitary sewer.

O. Drip pans should be placed under bowzers to contain small leaks and spills.

P. Waste storage containers should be locked to prevent cross-contamination of wastes. Also, accumulation site managers should document the waste storage container contents in a log. This log should contain: (1) a unique sequence number to identify which wastestream generated the waste (each wastestream in a shop should have a unique number); (2) date, type, and amount of waste put into the drum (see Table 2 for example); (3) start and stop dates of filling each drum; and (4) name and signature of person putting the waste in the container. Also, a uniform system of documentation should be used by all site managers on base. This type of log can provide documented rationale for substituting user's knowledge for analytical results for waste disposal.

TABLE 2. Example Hazardous Waste Disposal Log

PAINT SHOP HAZARDOUS WASTE DISPOSAL
LOG FOR DRUM NUMBER: 1

Date	Type of Waste	Amount of Waste	Name & Signature
10 Jun 89	Enamel Paint	1 qt	
10 Jun 89	MEK	1 gal	
15 Jun 89	MEK	1 gal	
20 Jun 89	Polyurethane Paint	1 qt	
25 Jun 89	Polyurethane Thinner	1 gal	
30 Jun 89	MEK	10 gal	
5 Jul 89	Enamel Paint	1 qt	
6 Jul 89	MEK	2 gal	
6 Jul 89	Enamel Paint	1 qt	
7 Jul 89	MEK	2 gal	
8 Jul 89	MEK	2 gal	
9 Jul 89	MEK	2 gal	
11 Jul 89	MEK	2 gal	
13 Jul 89	Enamel Paint	1 qt	
13 Jul 89	MEK	2 gal	
14 Jul 89	MEK	2 gal	
16 Jul 89	Enamel Paint	1 qt	
16 Jul 89	MEK	5 gal	
18 Jul 89	Polyurethane Paint	2 qts	
18 Jul 89	Polyurethane Thinner	3 gal	
20 Jul 89	MEK	4 gal	
21 Jul 89	MEK	1 gal	
28 Jul 89	Enamel Paint	1 gal	
28 Jul 89	MEK	7 gal	

TOTAL: 50 gal

Amounts:

MEK	43.00 gal	86.00%
Polyurethane Thinner	4.00 gal	8.00%
Enamel Paint	2.25 gal	4.50%
Polyurethane Paint	0.75 gal	1.50%

References

1. Samplers and Sampling Procedures for Hazardous Waste Streams, EPA-600/2-80-018, Jan 1980.
2. United States Environmental Protection Agency, "Identification and Listing of Hazardous Waste," 40 CFR 261.

APPENDIX A
Request Letter

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DEPARTMENT OF THE AIR FORCE

832D MEDICAL GROUP (TAC)
LUKE AIR FORCE BASE, AZ 85309-5300

OW Sup
Action EQ

REPLY TO
ATTN OF: SGPB

28 July 1989

SUBJECT: Request for Assistance of AFOEHL Wastewater Team

TO: HQ TAC/SGPB *JP*
~~AFOEHL/EC~~
IN TURN

1. Luke AFB requests the support of the AFOEHL in the form of a wastewater Characterization Study, to be scheduled at the earliest possible date. This study is needed to identify the sources of various contaminants present in both stormwater and sanitary sewage, and to locate sites of cross connection between these two streams.
2. Luke is currently in application for renewal of its sewage treatment plant NPDES permit. One of the conditions for renewal is thorough characterization of potential industrial discharges to the sanitary sewage system. EPA representatives have made it clear that effluent limit exceedances, which have been fairly common, will have to be tracked down under the new permit.
3. A concurrent issue is the potential discharge, by various means, of industrial wastes into the stormwater drainage system. This may be occurring through the normal routes of leaks, spills and unauthorized dumping, but we strongly suspect that it is also caused by cross-connections. Because of an incident several months ago, our stormwater discharge is being closely watched by the local regulators, and the coming stormwater discharge permitting system will only intensify this scrutiny.
4. Recent publicity caused by the EPA and Arizona Department of Environmental Quality's apparent "get tough on Luke" policy is additional impetus to resolve these problems. Although we know that OEHL's wastewater team has a very full agenda, we would appreciate your earliest possible assistance. If you need more documentation or have any questions, please call me at AV 853-7521.

Alan C Thomas

ALAN C. THOMAS, 1 Lt, USAF, BSC
Chief, Bioenvironmental Engineering Svs

1st IND., HQ TAC/SGPB

15 AUG 1989

TO: USAF OEHL/CC *JCR*

Forwarded for your action. OEHL support of this request will be greatly appreciated.

Jerry P. Dougherty

JERRY P. DOUGHERTY, COLONEL, USAF, BSC

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APPENDIX B
Chemical Disposal Survey Form

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PLEASE RETURN THIS FORM TO LT THOMAS AT 832 MED GROUP/SGPB BY
8 NOV 89

SHOP:

BLDG:

CONTACT:

AUTOVON:

Please fill out this form as accurately and completely as possible. If you have any questions on filling it out, please call Lt Hedgecock at X7521.

Examples:

	Tank Capacity	Change Out Frequency	Method of Disposal
PD-680 used in tank	60 gal	4/year	55-gal drum

Comments: 1/2 gal of MEK per month is used as a wipe on/wipe off process for parts cleaning. None is disposed of.

OILS & FLUIDS

	Amt of Waste	Disposal Method
Brake Fluid	6 gal	placed in
Transmission Fluid	10 gal	same 600-gal
Hydraulic Fluid	3 gal	bowser
Motor Oil	50 gal	500-gal UGT
Synthetic Oil	8 gal	55-gal drum

QUESTIONS: If question does not apply to this shop put "N/A" beside it.

1. Does this shop have any underground storage tanks? _____

If yes: How many? _____

Capacity? _____

What is stored in the tank? _____

How often is it cleaned out? _____

Has it ever been leak-tested? _____

2. Do the floor drains of the shop lead to an oil/water separator? _____

If yes: How often is it cleaned out? _____

3. Does the shop have any Safety Kleen units? _____

If yes: How many? _____

Tank capacity? _____

How often are they serviced? _____

4. What does the shop do with dirty rags? _____

5. What does the shop do with used "Speedy Dry"? _____

6. Describe shop activities and responsibilities below:

PAINTS

Disposal
Method

Latex

Polyurathane

Enamel

Other

Comments

THINNERS (list below)

Comments

STRIPPERS

Name of Stripper

National
Stock #

Amount of Waste OR Tank
per Month Size

Change
Out Freq

Comments

ACIDS

Name of Acid	Manufacturer	Amount of Waste generated/month	Method of Disposal
--------------	--------------	------------------------------------	-----------------------

Comments

BATTERIES

Type of Battery	#/Month	Neutralized in Shop or Turned in Wet
-----------------	---------	---

Comments:

SOAPS/CLEANERS

Name of Soap	Dilution Ratio	National Stock#	Amt Used / month	Disposal Method
--------------	----------------	-----------------	---------------------	--------------------

Comments

OILS AND FLUIDS

Amt. of Waste
Generated/month

Disposal Method

Brake Fluid

Transmission Fluid

Hydraulic Fluid

Motor Oil

Synthetic Oil

Other

Comments

SOLVENTS/DEGREASANTS

Name of Chemical	Amt. of Waste OR generated/mo.	Tank Size	Change Out Freq	Disposal Method
------------------	-----------------------------------	--------------	--------------------	--------------------

Carbon Remover

PD-680 used in tank

Pd-680 used on washrack

Other:

Comments

PHOTO CHEMICALS

Name of Chemical	Manufacturer	Amt/mo	OR Tank Size	Change Out freq	Disposal Method
------------------	--------------	--------	-----------------	--------------------	--------------------

Is the fixer processed through a silver recovery unit before disposal? _____

NDI Chemicals

Name of Chemical	Manufacturer	National Stock #	Tank Size	Change Out Freq	Disposal Method
------------------	--------------	------------------	-----------	-----------------	-----------------

Emulsifier

Dye Penetrant

Developer

Comments

FUELS

Name of Fuel	Amount/Month	Disposal Method
--------------	--------------	-----------------

ANTIFREEZE

Amount/Month	Disposal Method
--------------	-----------------

OTHER CHEMICALS (Please list any chemicals that contain phenols)

Name of Chemical	Manufacturer	National Stock #	Tank Size	Change Out Freq	Disposal Method
------------------	--------------	---------------------	--------------	--------------------	--------------------

Signature of person filling out this
form _____

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APPENDIX C
Accumulation Site Survey Form

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HAZARDOUS WASTE ACCUMULATION SITE INSPECTION FORM

LOCATION: _____
ACCUMULATION SITE MANAGER: _____

DATE: _____
PHONE: _____

ITEM	CONDITIONS	STATUS		COMMENTS
		YES	NO	
STORAGE SITE	Secure			
	Gates Locked			
	Warning Signs			
	No smoking			
	Impermeable Floor			
	Diked/Burmed			
SPILL EQUIPMENT	Valve in Burm to drain water			
	Empty Overpack Container			
FIRE PROTECTION	Materials and Supplies			
	Extinguisher			
STORAGE CONTAINERS	Funnels in Containers			
	Containers Closed			
	Deteriorating			
	Leaking			
	Spills			

Overall Rating of Accumultion Site: _____

LISTING OF WASTES AT ACCUMULTION SITE				
EPA WASTE NUMBER	NUMBER OF CONTAINERS	TYPE OF WASTE	ACCUMULATION START DATE	COMMENTS

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APPENDIX D

Summary of Waste Disposal Practices for Each Waste Category

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SUMMARY OF WASTE DISPOSAL PRACTICES FOR EACH WASTE CATEGORY

WASTE: Oil and Fluid

SHOP	WASTE	QTY(GAL/YR)	DISPOSAL
832 CES Zone i	Cutting Oil	60	POL
58 AGS 310 AMU	7808 Oil	2400	POL
58 CRS Hush House	Hydraulic Fluid	-	OWS
832 TRANS Refueling Maint	Oil & Fluid	-	POL
944 CAMS Propulsion	PD-680 & 7808 Oil	10	POL
405 CRS Jet Engine Maint	7808 Oil	4	POL
832 MWR Auto Hobby	Oil & Fluid	4000	POL
58 EMS AGE	Oil & Fluid	3600	POL
832 TRANS Vehicle Maint	Hydraulic Fluid	240	POL
832 TRANS Vehicle Maint	Transmission Fluid	300	POL
832 TRANS Vehicle Maint	Brake Fluid	12	POL
405 EMS NDI	Oil	120	POL
405 CRS Small Gas Turbine	7808 Oil	60	POL
405 EMS AGE	Oil & Fluid	7500	POL
832 TRANS Vehicle Maint	Motor Oil	1200	POL
58 EMS Phase Dock	Oil & Fluid	12	POL
405 EMS Phase Dock	Oil & Fluid	-	POL
58 CRS Pneudraulics	Hydraulic Fluid	120	POL
405 AGS 426 AMU	7808 Oil	1200	POL
832 CES Power Production	Motor Oil	660	POL
832 CES Power Production	90 WT Oil	24	POL
944 CAMS AGE	Oil & Fluid	7200	POL
944 CAMS Pneudraulics	Hydraulic Fluid	2	POL
832 CES Power Production	7808 Oil	180	POL
944 CAMS Propulsion	Oil	72	POL
944 CAMS Phase Docks	Oil & Fluid	12	POL
58 CRS Hush House	Oil	-	OWS
607 TCTS AGE	Motor Oil	20	POL
832 CES Power Production	Hydraulic Fluid	24	POL

TOTAL: 29632

SUMMARY OF WASTE DISPOSAL PRACTICES FOR EACH WASTE CATEGORY (Cont'd)

WASTE: Paint, Thinner, and Filters

SHOP	WASTE	QTY(GAL/YR)	DISPOSAL
58 EMS Corrosion Control	Polyurethane Paint	660	DRMO
832 CES Zone 4	Paint and Thinner	-	DRMO
944 CAMS Corrosion Control	Thinners	55	DRMO
405 EMS Wheel & Tire	Fine Organics 8010	300	DRMO
405 EMS Corrosion Control	Filters	960*	MW
405 EMS Corrosion Control	Thinners	-	REC
832 TRANS Allied Trades	Paint & Thinner	160	DRMO
58 EMS Corrosion Control	Thinners & MEK	-	REC
405 EMS Corrosion Control	Polyurethane Paint	660	DRMO
944 CAMS Corrosion Control	Polyurethane Paint	55	DRMO
58 EMS Corrosion Control	B&B 1567-C	180	DRMO
405 EMS Corrosion Control	B&B 1567-C	90	DRMO
405 EMS AGE	Polyurethane Paint	55	DRMO

TOTAL: 2215

* - indicates # Filters/Yr

WASTE: Fuel

SHOP	WASTE	QTY(GAL/YR)	DISPOSAL
58 AGS 310 AMU	JP-4	4000	REC
944 CAMS Fuel System Repair	JP-4	-	REC
58 CRS Jet Engine	JP-4	-	REC
832 CES Power Production	Diesel	60	POL
832 TRANS Vehicle Maint	Diesel	24	DRMO
832 TRANS Vehicle Maint	MoGas	60	DRMO
58 CRS Fuel System Repair	JP-4	540	REC
58 CRS Fuel System Repair	JP-4	300	OWS
832 TRANS Refueling Maint	JP-4	-	REC
944 CAMS Propulsion	JP-4	-	REC
405 AGS 426 AMU	JP-4	2400	REC
944 CAMS AGE	Fuel	3600	REC
58 CRS Hush House	JP-4	-	OWS

TOTAL: 11784

WASTE: Soap

SHOP	WASTE	QTY(GAL/YR)	DISPOSAL
405 EMS AGE	Alfakleen	-	OWS
58 EMS AGE	Aircraft Soap	-	OWS
58 EMS Armament Systems	Paclei	600	D
58 EMS AGE	Calla 800	660	OWS
832 MWR Auto Hobby	Aircraft Soap	300	OWS
405 AGS 426 AMU	Calla 800	-	DD

TOTAL: 1560

SUMMARY OF WASTE DISPOSAL PRACTICES FOR EACH WASTE CATEGORY (Cont'd)

WASTE: Solvent

SHOP	WASTE	QTY(GAL/YR)	DISPOSAL
405 CRS Manual Test Station	Freon-113	100	DRMO
405 EMS NDI	1,1,1 TCA	-	UIP
405 EMS Wheel & Tire	PD-680	600	DRMO
405 EMS AGE	Citrikleen HD	150	OWS
405 EMS AGE	Citrikleen	-	POL
58 EMS AGE	Citrikleen	3000	OWS
405 CRS Jet Engine Maint	Citrikleen	-	DRMO
832 TRANS Vehicle Maint	Citrikleen	100	OWS
944 CAMS Pneudraulics	Penetone Formula 724	20	POL
405 CRS Jet Engine Maint	Carbon Remover	4	DRMO
405 EMS Wheel & Tire	PD-680	300	DRMO
405 EMS AGE	Citrikleen	-	OWS
58 CRS Pneudraulics	PD-680	1200	POL
944 CAMS Pneudraulics	Solvent	-	UIP
832 TRANS Vehicle Maint	360 Solvent	240	POL
405 CRS Jet Engine Maint	Fingerprint Remover	4	DRMO
405 EMS AGE	Citrikleen	150	OWS
405 CRS Jet Engine Maint	PD-680	5	POL
405 EMS Wheel & Tire	Magnaflux	-	UIP

TOTAL: 5953

WASTE: Antifreeze

SHOP	WASTE	QTY(GAL/YR)	DISPOSAL
832 TRANS Vehicle Maint	Antifreeze	36	REC
832 CES Power Production	Antifreeze	120	DD
832 TRANS Refueling Maint	Antifreeze	-	DRMO
832 MWR Auto Hobby	Antifreeze	25	DRMO

TOTAL: 181

WASTE: Battery Electrolyte

SHOP	WASTE	QTY(#/YR)	DISPOSAL
405 CRS Electric	NiCad	200	HT
405 CRS Electric	Sulfuric Acid	-	HT
832 TRANS Vehicle Maint	Batteries	-	REC

TOTAL: 200

SUMMARY OF WASTE DISPOSAL PRACTICES FOR EACH WASTE CATEGORY (Cont'd)

WASTE: NDI and Photo

SHOP	WASTE	QTY (GAL/YR)	DISPOSAL
405 EMS NDI	X-Ray Developer	400	OVS
832 Med Grp Dental X-Ray	X-Ray Fixer	50	SRDD
832 Med Grp Medical X-Ray	X-Ray Fixer	480	SRDD
405 EMS NDI	Developer	100	DD
405 EMS NDI	Penetrant	110	DRMO
405 EMS NDI	Emulsifier	110	DRMO
832 Med Grp Dental X-Ray	X-Ray Developer	60	DD
832 Med Grp Medical X-Ray	X-Ray Developer	480	DD
405 EMS NDI	Mag Part Soln	55	DRMO
405 EMS NDI	X-Ray Fixer	480	SRDD

TOTAL: 2425

WASTE: Speedy Dry

SHOP	WASTE	DISPOSAL
58 AGS 310 AMU	Speedy Dry	MW
405 AGS 426 AMU	Speedy Dry	MW
405 EMS Phase Dock	Speedy Dry	DRMO
405 EMS AGE	Speedy Dry	DRMO
832 TRANS Vehicle Maint	Speedy Dry	MW

WASTE: Rags

SHOP	WASTE	DISPOSAL
405 EMS Wheel & Tire	Rags	LE
58 CRS Pneudraulics	Kim-Wipes	MW
58 EMS AGE	Rags	LE
832 CES Zone 4	Rags	MW
58 EMS Armament	Rags	LE
832 TRANS Vehicle Maint	Rags	LE
832 TRANS Allied Trades	Rags	LE
944 CAMS Propulsion	Rags	LE
58 CRS Fuel System Repair	Rags	MW
58 CRS Jet Engine	Rags	LE
58 EMS Phase Dock	Kim-Wipes	MW
405 EMS Corrosion Control	Rags	MW
405 CRS Jet Engine Maint	Rags	LE

SUMMARY OF WASTE DISPOSAL PRACTICES FOR EACH WASTE CATEGORY (Cont'd)

WASTE: Rags (Cont'd)

SHOP	WASTE	DISPOSAL
405 EMS Phase Dock	Rags	LE
405 CRS Small Gas Turbine	Rags	LE
944 CAMS AGE	Rags	LE
944 CAMS Pneudraulics	Rags	MW
944 CAMS Phase Docks	Kim-Wipes	MW
832 CES Power Production	Rags	MW
58 EMS Corrosion Control	Rags	MW
944 CAMS Fuel System Repair	Rags	MW
832 TRANS Refueling Maint	Rags	LE
405 EMS AGE	Rags	LE

WASTE: Sodium Hydroxide

SHOP	WASTE	QTY (GAL/YR)	DISPOSAL
832 TRANS Allied Trades	Sodium Hydroxide	400	DD
		TOTAL:	400

WASTE: Mop Water

SHOP	WASTE	DISPOSAL
58 CRS Jet Engine	Mop Water	D

LEGEND: DRMO DRUMMED AND DISPOSED THROUGH DRMO
 SRDD SILVER RECOVERY THEN DOWN DRAIN
 NDD NEUTRALIZED THEN DOWN DRAIN
 POL DISPOSED AS POL
 UIP USED IN PROCESS
 OWS OIL/WATER SEPARATOR
 REC RECYCLED
 MW MUNICIPAL WASTE
 DD DOWN DRAIN
 LE LINEN EXCHANGE
 HT HOLDING TANK
 D DRUMMED AND DISPOSED ACCORDING TO ANALYTICAL RESULTS

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APPENDIX E

Summary of Wastes Drummed and Disposed through DRMO

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WASTES DRUMMED AND DISPOSED THROUGH DRMO

Type of Waste: Paint And Thinner

SHOP	BLDG	PRODUCT	QTY (GAL/YR)
832 TRANS Allied Trades	291	Paint & Thinner	160
405 EMS Wheel & Tire	400	Fine Organics 8010	300
832 CES Zone 4	339	Paint and Thinner	-
405 EMS Corrosion Control	922	Polyurethane Paint	660
944 CAMS Corrosion Control	1018	Polyurethane Paint	55
58 EMS Corrosion Control	922	Polyurethane Paint	660
58 EMS Corrosion Control	922	B&B 1567-C	180
405 EMS Corrosion Control	922	B&B 1567-C	90
944 CAMS Corrosion Control	1018	Thinners	55
405 EMS AGE	404	Polyurethane Paint	55

TOTAL: 2215

Type of Waste: Gun Cleaner

SHOP	BLDG	PRODUCT	QTY (GAL/YR)
58 EMS Armament	926	Paclei	600

TOTAL: 600

Type of Waste: Solvent

SHOP	BLDG	PRODUCT	QTY (GAL/YR)
405 CRS Manual Test Station	417	Freon-113	100
405 CRS Jet Engine Maintenance	930	Fingerprint Remover	4
405 CRS Jet Engine Maintenance	930	Carbon Remover	4
405 CRS Jet Engine Maintenance	930	Citrikleen	0
405 EMS Wheel & Tire	400	PD-680	600
405 EMS Wheel & Tire	400	PD-680	300

TOTAL: 1008

Type of Waste: Antifreeze

SHOP	BLDG	PRODUCT	QTY (GAL/YR)
832 MWR Auto Hobby	248	Antifreeze	25

TOTAL: 25

WASTES DRUMMED AND DISPOSED THROUGH DRMO (Cont'd)

Type of Waste: NDI

SHOP	BLDG	PRODUCT	QTY (GAL/YR)
405 EMS NDI	966	Penetrant	110
405 EMS NDI	966	Emulsifier	110
405 EMS NDI	966	Mag Part Soln	55

TOTAL: 265

Type of Waste: Speedy Dry

SHOP	BLDG	PRODUCT	QTY (GAL/YR)
405 EMS Phase Dock	914	Speedy Dry	-
405 EMS AGE	404	Speedy Dry	-

Type of Waste: Mop Water

SHOP	BLDG	PRODUCT	QTY (GAL/YR)
58 CRS Jet Engine	931	Mop Water	-

Type of Waste: Fuel

SHOP	BLDG	PRODUCT	QTY (GAL/YR)
832 TRANS Vehicle Maint	291	MoGas	60
832 TRANS Vehicle Maint	291	Diesel	24

TOTAL: 84

APPENDIX F
Master List of Shops

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MASTER LIST OF SHOPS

SHOP	CONTACT	BUILDING	EXTENSION
832 TRANS			
Allied Trades	Sgt Whitney	291	6085
Refueling Maintenance	MSgt Rork	353	6209
Vehicle Maintenance	MSgt Rork	291	6216
58 EMS			
AGE	SMSgt Withers	930A	3463
Armament Systems	SMSgt Reid	926	7335
Corrosion Control	TSgt Brown	922	6797
Phase Docks	MSgt Hairston	985	3877
58 CRS			
Fuel System Repair	MSgt Byer	983	6473
Hush House	TSgt Johnson	1016	6693
Jet Engine Maintenance	MSgt Bradford	931	6561
Pneudraulics	MSgt Etzler	931	6760
58 AGS			
310 AMU	TSgt Lishka	913	6326
405 EMS			
AGE	MSgt Isgro	404	3276
Corrosion Control	SSgt Pinto	922	6456
NDI	TSgt Chase	966	6191
Phase Docks	MSgt Deyo	914	6731
Wheel and Tire	TSgt Guthery	400	6179
405 CRS			
Manual Test Station	TSgt Ickes	417	7301
Electric	Mr Healis	913	6198
Jet Engine Maintenance	MSgt Jones	930	3537
Small Gas Turbine	MSgt Baum	1026	6050
405 AGS			
426 AMU	MSgt Sroessner	482	3324

MASTER LIST OF SHOPS (Cont'd)

SHOP	CONTACT	BUILDING	EXTENSION
944 CAMS			
Pneudraulics	TSgt Tuckett	999	5521
Fuel System Repair	MSgt Van	1022	5562
Propulsion	SMSgt Davis	993	5423
AGE	SMSgt Harvey	1018	5556
Corrosion Control	TSgt Webber	1018	5563
NDI	MSgt Levingston	1022	5544
Wheel and Tire	TSgt Kelley	1022	5540
Phase Docks	TSgt Vanderboegh	999	5537
832 CES			
Entomology	SSgt Nedved	337	3961
Power Production	Mr Stephens	360	6869
Zone 1 - Falcon	TSgt Moore	921	3640
Zone 4 - Tiger	Mr McCorry	339	6091
832 Medical Group			
Dental X-Ray	TSgt Brown	1130	7537
Laboratory	SMSgt Gaines	1130	7547
Medical X-Ray	TSgt Bates	1130	7618
607 TCTS			
AGE	SSgt Duchak	1382	6431
832 MWR			
Auto Hobby	Mr Arvizu	248	6107

APPENDIX G
Summary of Waste Disposal Practices by Shop

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DISPOSAL PRACTICES BY SHOP FOR LUKE AFB

SHOP: 832 TRANS Allied Trades

Building: 291

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Rags	-	LE
Sodium Hydroxide	400	DD
Paint & Thinner	160	DRMO
TOTAL: 560		

SHOP: 832 TRANS Refueling Maintenance

Building: 353

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Antifreeze	-	DRMO
Rags	-	LE
JP-4	-	REC
Oil & Fluid	-	POL

SHOP: 832 TRANS Vehicle Maintenance

Building: 291

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Citrikleen	180	OWS
Speedy Dry	-	MW
Rags	-	LE
Motor Oil	1200	POL
Hydraulic Fluid	240	POL
Brake Fluid	12	POL
Transmission Fluid	300	POL
Diesel	24	DRMO
Antifreeze	36	REC
360 Solvent	240	POL
MoGas	60	DRMO
Batteries	-	REC
TOTAL: 2292		

SHOP: 58 EMS AGE

Building: 930

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Calla 800	660	OWS
Citrikleen	3000	OWS
Aircraft Soap	-	OWS
Rags	-	LE
Oil & Fluid	3600	POL
TOTAL: 7260		

DISPOSAL PRACTICES BY SHOP FOR LUKE AFB (Cont'd)

SHOP: 58 EMS Armament Systems Building: 926

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Paclei Gun Cleaner	600	D
Rags	-	LE

TOTAL: 600

SHOP: 58 EMS Corrosion Control Building: 922

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Polyurethane Paint	660	DRMO
Rags	-	MW
Thinners & MEK	-	REC
B&B 1567-C	180	DRMO

TOTAL: 840

SHOP: 58 EMS Phase Dock Building: 985

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Kim-Wipe	-	MW
Oil & Fluid	12	POL

TOTAL: 12

SHOP: 58 CRS Fuel System Repair Building: 983

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
JP-4	540	REC
JP-4	300	OWS
Rags	-	MW

TOTAL: 840

SHOP: 58 CRS Hush House Building: 1016

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Fluid	-	OWS
Oil	-	OWS
JP-4	-	OWS

DISPOSAL PRACTICES BY SHOP FOR LUKE AFB (Cont'd)

SHOP: 58 CRS Jet Engine Maintenance

Building: 931

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
JP-4	-	REC
Rags	-	LE
Mop Water	-	D

SHOP: 58 CRS Pneudraulics

Building: 931

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Kim-Wipes	-	MW
PD-680	1200	POL
Hydraulic Fluid	120	POL

TOTAL: 1320

SHOP: 58 AGS 310 AMU

Building: 913

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Speedy Dry	-	MW
JP-4	4800	REC
Oil	2400	POL

TOTAL: 7200

SHOP: 405 EMS AGE

Building: 404

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Rags	-	LE
Citrikleen	-	OVS
Speedy Dry	-	DRMO
Citrikleen (tank)	-	POL
Alfakleen (in shop)	-	OVS
Citrikleen (on washrack)	150	OVS
Oil & Fluid	7500	POL
Citrikleen HD (on washrack)	150	OVS
Polyurethane Paint	55	DRMO
Waterfall Paint Booth Water	-	OVS
Paint Sludge	-	MW

TOTAL: 7855

DISPOSAL PRACTICES BY SHOP FOR LUKE AFB (Cont'd)

SHOP: 405 EMS Corrosion Control Building: 922

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Rags	-	MW
Filters	960	MW
Thinners	-	REC
Polyurethane Paint	660	DRMO
B&B 1567-C Stripper	90	DRMO

TOTAL: 1710

SHOP: 405 EMS NDI Building: 966

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Magnetic Particle Solution	55	DRMO
X-Ray Developer & Rinsewater	480	OWS
1,1,1 TCA	-	UIP
X-Ray Fixer	480	SRDD
Penetrant	110	DRMO
Emulsifier	110	DRMO
Oil	120	POL
Developer	110	DD

TOTAL: 1465

SHOP: 405 EMS Phase Dock Building: 914

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Oil & Fluid	-	POL
Speedy Dry	-	DRMO
Rags	-	LE

SHOP: 405 EMS Wheel & Tire Building: 400

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
PD-680	300	DRMO
Rags	-	LE
Magnaflux Cleaner	-	UIP
PD-680 (bearing room)	600	DRMO
Fine Organics 8010	300	DRMO

TOTAL: 1200

DISPOSAL PRACTICES BY SHOP FOR LUKE AFB (Cont'd)

SHOP: 405 CRS Manual Test Station Building: 417

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Freon-113	100	DRMO

TOTAL: 100

SHOP: 405 CRS Electric Building: 913

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
NiCad Battery Electrolyte	200	HT
Sulfuric Acid	-	HT

TOTAL: 200

SHOP: 405 CRS Jet Engine Maintenance Building: 930

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
7808 Oil	4	POL
Citrikleen	-	DRMO
Carbon Remover	4	DRMO
PD-680	5	POL
Fingerprint Remover	4	DRMO
Rags	-	LE

TOTAL: 17

SHOP: 405 CRS Small Gas Turbine Building: 1026

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Rags	-	LE
7808 Oil	660	POL

TOTAL: 660

SHOP: 405 AGS 426 AMU Building: 482

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Speedy Dry	-	MW
Calla 800	-	DD
JP-4	2400	REC
7808 Oil	1200	POL

TOTAL: 3600

DISPOSAL PRACTICES BY SHOP FOR LUKE AFB (Cont'd)

SHOP: 944 CAMS Pneudraulics

Building: 999

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Solvent	-	UIP
Hydraulic Fluid	2	POL
Rags	-	MW
Penetone Formula 724	20	POL

TOTAL: 22

SHOP: 944 CAMS Fuel System Repair

Building: 1022

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Rags	-	MW
JP-4	-	REC

SHOP: 944 CAMS Propulsion

Building: 993

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
PD-680 & 7808 Oil	10	POL
JP-4	-	POL
Rags	-	LE
Oil	72	POL

TOTAL: 82

SHOP: 944 CAMS AGE

Building: 1018

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Fuel	3600	REC
Oil & Fluid	7200	POL
Rags	-	LE
Penetone Formula 724	20	POL

TOTAL: 10820

DISPOSAL PRACTICES BY SHOP FOR LUKE AFB (Cont'd)

SHOP: 944 CAMS Corrosion Control Building: 1018

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Polyurethane Paint	55	DRMO
Thinners	55	DRMO

TOTAL: 110

SHOP: 944 CAMS Phase Docks Building: 999

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Kim-Wipes	-	MW
Oil & Fluid	12	POL

TOTAL: 12

SHOP: 832 CES Entomology Building: 337

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Triple-Rinse Water	-	REC
Containers	-	MW

SHOP: 832 CES Power Production Building: 360

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Aerosol Cans	-	MW
Diesel	60	POL
Hydraulic Fluid	24	POL
7808 Oil	180	POL
Motor Oil	660	POL
Rags	-	MW
90 WT Oil	24	POL
Antifreeze	120	DD

TOTAL: 1068

SHOP: 832 CES ZONE 1 Building: 921

WASTE PRODUCT	QTY (GAL/YR)	DISPOSAL
Cutting Oil	60	POL

TOTAL: 60

DISPOSAL PRACTICES BY SHOP FOR LUKE AFB (Cont'd)

SHOP: 832 CES Zone 4

Building: 339

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Rags	-	MW
Paints and Thinners	-	DRMO

SHOP: 832 Med Grp Dental X-Ray

Building: 1130

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
X-Ray Fixer	60	SRDD
X-Ray Developer	60	DD

TOTAL: 120

SHOP: 832 Med Grp Laboratory

Building: 1130

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Reagents	-	DD

SHOP: 832 Med Grp Medical X-Ray

Building: 1130

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
X-Ray Developer	480	DD
X-Ray Fixer	480	SRDD

TOTAL: 960

SHOP: 607 TCTS AGE

Building: 1382

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Motor Oil	20	POL

TOTAL: 20

DISPOSAL PRACTICES BY SHOP FOR LUKE AFB (Cont'd)

SHOP: 832 MWR Auto Hobby

Building: 248

WASTE PRODUCT	QTY(GAL/YR)	DISPOSAL
Antifreeze	25	DRMO
Oil & Fluid	4000	POL
Aircraft Soap	300	OWS

TOTAL: 4325

LEGEND: DRMO DRUMMED AND DISPOSED THROUGH DRMO
 SRDD SILVER RECOVERY THEN DOWN DRAIN
 NDD NEUTRALIZED THEN DOWN DRAIN
 POL DISPOSED AS POL
 UIP USED IN PROCESS
 OWS OIL/WATER SEPARATOR
 REC RECYCLED
 MW MUNICIPAL WASTE
 DD DOWN DRAIN
 LE LINEN EXCHANGE
 HT HOLDING TANK
 D DRUMMED AND DISPOSED ACCORDING TO ANALYTICAL RESULTS

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832 CES/DEV Luke AFB AZ 85309-5010	2
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