

Solid and Hazardous Waste/Material Management

This SOP establishes policies of the Adjutant General of Kansas pertaining to the Management of Solid and Hazardous Waste Generated by the Kansas Army National Guard

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All required forms shall be reproduced at the local level.

CHAPTER 1

**HAZARDOUS MATERIAL/WASTE
KANSAS STANDING OPERATING PROCEDURES (KS SOP)**

1-1. **PURPOSE:** KS SOP 420-47 is the Kansas Army National Guard Solid and Hazardous Waste Management Plan. This plan prescribes responsibilities, standards, and procedures for the proper disposal of all solid and hazardous waste. The procedures are intended to minimize present and future threat to human health and the environment.

1-2. **APPLICABILITY:** This document applies to all activities, contractors and personnel (Federal, State and Civilian) in the Kansas Army National Guard (KSARNG). Persons, units, or activities not specifically mentioned, are not exempt from adhering to the intent and procedures contained in this SOP.

1-3. **AUTHORITY:** The Resource Conservation and Recovery Act (RCRA) Of 1976 (42 USC 6901 et seq) states "Each Department of the Federal Government engaged in any activity resulting in the disposal of solid waste or hazardous waste shall be subject to, and comply with all Federal, State, interstate and local laws."

1-4: **BACKGROUND:** The first effort to regulate hazardous waste management on a national level occurred in 1976 with the passage by Congress of the Resource Conservation and Recovery Act (RCRA). The primary goal of the Act was to encourage the conservation of natural resources through resource recovery. RCRA also provided the statutory basis for the federal hazardous waste regulations. A key section of the Act provided for states to operate the hazardous waste management program in lieu of the Environmental Protection Agency (EPA). The regulations which have evolved into the current regulatory program were first issued May of 1980. The State of Kansas first passed legislation regarding hazardous waste management in 1977. The Kansas laws have been amended and added to on several occasions since then. The Kansas Department of Health and Environment (KDHE) obtained authorization to administer the hazardous waste program from the EPA in October of 1985. Hazardous waste generators can thus deal exclusively with KDHE. With a few exceptions, KDHE has adopted the federal regulations by reference. In areas where the Kansas regulations have more stringent requirements than the federal program, the generator must comply with the state requirements.

1-5. **REFERENCES:** Applicable references are listed in Appendix A.

CHAPTER 2

RESPONSIBILITIES

2-1. **THE ADJUTANT GENERAL (TAG):** TAG is responsible for solid waste and hazardous waste management at all Kansas Army National Guard facilities.

2-2. **KANSAS ARMY NATIONAL GUARD (KSARNG) COMMANDER:** The KSARNG Commander will ensure that all subordinate commanders, through the command channels, comply with TAG Solid and Hazardous Waste Management Plan.

2-3. **DIRECTOR OF FACILITIES ENGINEERING (DOFE):** The DOFE will serve as TAG's representative for the management of all waste, unless otherwise directed .

2-4. **ENVIRONMENTAL PROTECTION SPECIALIST (EPS):** The EPS is responsible to the DOFE for establishing and maintaining environmental protection programs.

2-5. **INSTALLATION HAZARDOUS WASTE MANAGER (IHW):** The IHW is responsible for advising the EPS and the DOFE on hazardous materials and hazardous waste compliance, monitoring hazardous waste generator's activities, and providing technical assistance and information to KSARNG personnel.

2-6. **UNITED STATES PROPERTY & FISCAL OFFICER (USP&FO):** The USP&FO actively supports the DOFE in measuring progress to meet Federal, Army, and ARNG waste reduction goals and requirements. Coordinates with the DRMO to obtain certification that waste meet the Federal and state definition of hazardous waste before offering for off-site transportation.

2-7. **STATE SURGEON:** The state Surgeon will provide TAG with the hazardous waste management implications of new and revised medical practices for review and concurrence. Prepare and maintain a management plan for the disposal of medical waste.

2-8. **STATE SAFETY MANAGER (SSM):** The SSM will monitor the storage, packaging, transportation of hazardous waste to ensure compliance with current safety standards.

2-9. **OCCUPATIONAL HEALTH MANAGER (OHM):** The OHM will monitor the work environment to ensure that conditions, acts, and practices do not degrade personnel safety. The OHM also conducts or provides hazardous communication training.

2-10. **STATE ARMY AVIATION OFFICER (SAAO):** The SAAO is responsible to TAG for the proper management of Hazardous waste practices within the aviation maintenance operation.

2-11. **THE DIRECTOR OF MAINTENANCE (DOM):** The DOM is responsible to TAG for the proper management of solid waste and hazardous waste practices within the surface maintenance operation.

2-12. **THE ENVIRONMENTAL QUALITY CONTROL COMMITTEE (EQCC):** The EQCC is comprised of members representing the command, logistics, engineering, planning, legal, safety and health and maintenance. The EQCC acts on the broad range of environmental issues covered in this regulation. The EQCC advises the Adjutant General on environmental priorities, policies, strategies and programs.

2-13. **THE HAZARDOUS WASTE MANAGEMENT COMMITTEE (HWMC):** This committee is comprised of members representing the Director of Facilities Engineering-Environmental, Army Aviation Support Facilities, Combined Support Maintenance Shops, and the United States Property & Fiscal Office-Warehouse. The HWMC acts on the broad range of environmental issues covered in this regulation. The HWMC recommends strategies, priorities, and policies on hazardous waste management and hazardous waste minimization to the Environmental Quality Control Committee.

2-14. **DEFENSE REUTILIZATION AND MARKETING OFFICE (DRMO):** The DRMO is responsible for securing and maintaining contracts for the transportation and disposal of hazardous waste. Ensuring that contract transporters and disposal facilities possess all permits as required by Federal, State, and Local laws.

2-15. **KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT (KDHE):** The KDHE is responsible for over seeing compliance of all laws and regulations pertaining to solid waste and hazardous waste. The KDHE has jurisdiction over the KSARNG in the matters of solid and hazardous waste management.

2-16. **BRIGADE/BATTALION/COMPANY/DETACHMENT COMMANDER:** The UNIT commmander will have the primary responsibility for ensuring that solid waste and hazardous waste are properly managed within their units.

2-17. **The ADMINISTRATIVE OFFICER (AO):** The AO or OIC is the representative of the unit commander and will have responsibility to manage the solid waste and hazardous waste program for the unit on a daily basis.

2-18. ARMORY FACILITY MANAGER: The facility manager or designee is responsible to establish:

- a. Solid waste source separation, resource recovery, and recycling program.
- b. Hazardous waste accumulation program.
- c. Monitor programs to ensure regulatory compliance.

2-19. ORGANIZATIONAL MAINTENANCE SHOP CHIEF: The shop chief is responsible to establish or expand:

- a. Solid waste source separation, resource recovery, and recycling program. When the armory and OMS are co-located, the shop chief will coordinate with the armory facility manager or designee on a joint program.
- b. Hazardous waste management program for maintenance shop hazardous waste and provide disposal of hazardous waste generated by supported units.
- c. Monitor programs to ensure regulatory compliance.

2-20. COMBINED SUPPORT MAINTENANCE SHOP GENERAL FOREMAN; The foreman or designee is responsible to establish or expand:

- a. Solid waste source separation, resource recovery, and recycling program.
- b. Hazardous waste management program for maintenance shop hazardous waste.
- c. Monitor programs to ensure regulatory compliance.

2-21. MOBILIZATION and TRAINING EQUIPMENT SITE GENERAL FOREMAN: The General Foreman is responsible to establish or expand:

- a. Solid waste source separation, resource recovery, and recycling program.
- b. Hazardous waste management program for MATES.
- c. Monitor programs to ensure regulatory compliance.
- d. Adhere to all Ft. Riley solid and hazardous waste regulations

2-22. OTHER KSARNG MAINTENANCE ACTIVITY GENERAL FOREMAN: The general foreman of other maintenance activity is responsible to establish or expand:

- a. Solid waste source separation, resource recovery, and recycling program.
- b. Hazardous waste management program for maintenance shop hazardous waste.
- c. Monitor programs to ensure regulatory compliance.
- d. Adhere to all Ft. Riley solid and hazardous waste regulations.

2-23. ARMY AVIATION SUPPORT FACILITY COMMANDER: The facility commander or designee is responsible to establish or expand:

- a. Solid waste source separation, resource recovery, and recycling program.
- b. Hazardous waste management program for flight operations and maintenance shop hazardous waste.
- c. Monitor programs to ensure regulatory compliance.

2-24. KANSAS REGIONAL TRAINING CENTER COMMANDER: The director or designee is responsible to establish:

- a. Solid waste source separation, resource recovery, and recycling program.
- b. Hazardous waste management program.
- c. Monitor programs to ensure regulatory compliance.

2-25. LEADER DEVELOPMENT CENTER DIRECTOR: The manager or designee is responsible to establish:

- a. Solid waste source separation, resource recovery, and recycling program.
- b. Hazardous waste accumulation program.
- c. Monitor programs to ensure regulatory compliance.

2-26. USP&FO WAREHOUSE FOREMAN: The foreman is responsible to establish or expand:

- a. Solid waste source separation, resource recovery, and recycling programs.
- b. Hazardous waste management program.
- c. Monitor programs to ensure regulatory compliance.

2-27. THE COMMANDER, FOREMAN, or MANAGER DESIGNEE: The designee (additional duty appointment) is responsible to perform the duties in solid and hazardous waste management. Copy of appointment orders furnished to DOFE-E.

2-28. FACILITY ENVIRONMENTAL COORDINATOR (FEC): The FEC is the primary contact at the facility coordinating proper procedures for responding to a hazardous materials, hazardous waste, and petroleum spills.

2-29. INSTALLATION ON-SCENE COORDINATOR (IOSC): The IOSC is responsible for coordinating and directing KSARNG control and clean up efforts at the scene of petroleum, hazardous materials, and hazardous waste spills due to activities on or outside of the installation property. The IOSC is designated by the Installation Commander and is the Environmental Protection Specialist for the KSARNG.

CHAPTER 3

SOLID WASTE MANAGEMENT

3-1. **GENERAL:** Solid waste is defined as any garbage, refuse, sludge, or any other waste materials not regulated by environmental regulations. This includes waste that is discarded or being accumulated, stored, or treated prior to being discarded. A material is discarded if it is abandoned by being disposed of, burned, or treated.

3-2. **SOLID WASTE SOURCES:** Non-hazardous solid waste is any solid, liquid, semisolid, or contained gaseous material resulting from institutional, industrial, commercial, mining, agricultural, or community operations and activities.

3-3. **BACKGROUND:** The Kansas Army National Guard has facilities located in fifty-two (52) counties through out the state of Kansas. These facilities consist of armories, organizational vehicle maintenance shops, support vehicle maintenance shops, aviation flight operations and support aircraft maintenance shops, administration and maintenance training centers, troop billeting facilities, supply facilities, and over thirty-six hundred (3600) acres of land used for unit field training. Solid waste generated by the KSARNG facilities are collected by contractors. These contractors are responsible for collecting waste from eighty-one (81) refuse dumpsters located at these facilities. Many sanitary landfills throughout the state are closing due to the new upgrade standards. Therefore it is essential to reduce the amount of solid waste generated by KSARNG facilities.

3-4. **SOLID WASTE MANAGEMENT:** The production and disposal of solid waste are major environmental issues that the Kansas Army National Guard must manage. Proper management is vital to the protection of human health, our environment, and the future of the Kansas Army National Guard. With landfill space in critically short supply, the KSARNG must reduce the out flow of refuse. Effective management requires an integrated approach that includes source separation, source reduction, and recycling. All KSARNG facilities are required to establish or expand source separation, source reduction, and recycling programs to reduce the waste stream, prevent pollution, and conserve natural resources. Each KSARNG facility will develop an education program for all personnel to be made aware of the facility solid waste program and how the program operates. A valid belief of solid waste management maintains that waste can be utilized by recovering useful components. The recycling of some waste naturally reduces the amount of waste which goes to disposal facilities. A written Solid Waste and Recycling Plan shall be prepared by each armory manager and facility manager, then submit to the Director of Facilities Engineering-Environmental (DOFE-E) Office. A sample of this plan is in appendix I. Each plan will become a part of the Installation Solid Waste and Recycling Management Policy.

3-5. SOURCE SEPARATION: Source separation is used to reduce the amount of refuse by taking out marketable materials before these materials enter the solid waste stream.

3-6. SOURCE REDUCTION: Source reduction is procuring material so that the end item or it's components can be economically restored, reconstituted, or converted to other uses. The Resource Conservation and Recovery Act (RCRA) emphasizes the preeminence of source reduction and recycling as a strategy for managing solid waste. For waste minimization to gain acceptance among Kansas Army National Guard managers, they must realize how it can help meet their regulatory obligations, pay off in economic benefits, and improve their image with the public by demonstrating a commitment by Kansas Army National Guard to environmental quality. At this time, the government is providing products through the General Services Administration (GSA) supply system to meet environmental concerns. Such items are: Paint brushes with handles made from paper/paperboard which can be recycled. Paint rollers designed to release 33% more paint than ordinary rollers without matting or shedding. Fiber scouring pads made from 100% recycled beverage bottles. Also, the Defense General Supply Center (DGSC) provides many stock number items which are environmental safe chemical alternatives to products used by the KSARNG.

3-7. RECYCLING: Recycling is in many ways the simplest concept of waste management. While recycling has other applications, it can be the primary tool in waste minimization. There are many reasons why reuse of once used materials wherever possible is a preferred way of doing business. The first and most cited reason for recycling materials is that by reusing something like the metal in aluminum cans, it can substantially reduce the need for new materials. Since new materials can be made only by the use of natural resources, it is true that the pressure for new resources will be reduced.

3-8. RECYCLING REQUIREMENTS: The following materials are required to be source separated and kept free of contaminants for the purpose of recycling:

- Used Antifreeze
- Corrugated Cardboard
- Aluminum Cans
- Military Manuals
- Shredded Paper
- High-Grade White Paper
- Used Oil
- Used Oil Filters
- Scrap Metal
- Used Hydraulic Fluid

Used Transmission Fluid
Aerosol Cans
Metal Containers

a. **USED ANTIFREEZE:** Coolants are generally ethylene glycol, water, and additives that provide corrosion protection. Each full drum of used antifreeze will be sampled by DOFE-E to determine if the used antifreeze exhibits the characteristics of a hazardous waste. Based on characterization the used antifreeze could be handled as a non-regulated waste. Recycling provides an option for recovering resource and value from an otherwise discarded material. Recycling supports the Kansas Army National Guard goal of reducing the release of antifreeze to the environment 50% by 1999. Coolant recycling shall be performed on-site, off-site by MATES, or by a licensed recycling company.

b. **CORRUGATED CARDBOARD:** Corrugated cardboard is composed of an inner fluting of material and one or two outer linings. Wax or plastic corrugated cardboard is not acceptable. Corrugated cardboard shall be recycled locally, or turned into USP&FO Warehouse for recycling by Ft. Riley Recycling Center.

c. **ALUMINUM CANS:** The majority of aluminum cans are beverage cans. Aluminum cans are very light in weight and easily crushed. All non military aluminum cans may be recycled locally. The facility manager may determine the distribution of funds from the sale of aluminum beverage cans.

d. **MILITARY MANUALS:** Manuals, with all colored covers and pages removed, will be separated into two categories, glue-backed or stapled. Manuals may be recycled locally or turned into the USP&FO warehouse for recycling.

e. **SHREDDED PAPER:** Shredded paper shall be recycled locally or turned into the USP&FO warehouse for recycling.

f. **HIGH-GRADE WHITE PAPER:** High-grade white paper shall be recycled locally or turned into USP&FO warehouse for recycling.

g. **USED OIL:** Used oil containing less than 1000 ppm of halogens does not exhibit a listed hazardous waste. This used oil shall be recycled or burned for energy. The DOFE-E will conduct an annual sampling of used oil at each maintenance facility. Maintenance facility personnel can also obtain testing kits through DOFE-E for screening used oil. Containers or above ground storage tanks must be labeled or marked "Used Oil". Used oil generators, not co-located with a supporting maintenance shop, may transport off-site no more than 55 gallons of used oil at any

one time. Armory personnel will turn in all used oil to supporting maintenance shops for proper disposal.

h. USED OIL FILTERS: Used oil filters, completely drained, can be recycled locally or turned into Ft. Riley Recycling Center. Armory personnel will turn in all used oil filters to supporting maintenance shops for proper disposal.

i. SCRAP METAL: All scrap metal will be separated into types of metal and turned into the USP&FO warehouse.

j. USED HYDRAULIC FLUID: Used hydraulic fluid which is petroleum base, will be considered as used oil. Armory personnel will turn in all used hydraulic fluid to supporting maintenance shops for proper disposal.

k. USED TRANSMISSION FLUID: Used transmission fluid which is petroleum base, will be considered as used oil. Armory personnel will turn in all used transmission fluid to supporting maintenance shops for proper disposal.

l. AEROSOL CANS: All aerosol cans shall be punctured with approved aerosol puncturing equipment which is capable of capturing and filtering Volatile Organic Compounds (VOC). Aerosol cans will be recycled locally or turned into the Ft. Riley Recycling Center.

m. METAL CONTAINERS: All military metal containers will be completely drained of fluid then taken to Ft. Riley Recycling Center for crushing and recycling. The fluid must be disposed of properly.

n. PAINT CANS. Paint cans other than aerosol cans can be recycled once they are dried out.

3-9. RECYCLING OPTIONS: The following materials are optional in regards to recycling. They may be recycled either locally or in a region area if applicable.

- | | |
|-----------|-----------------------|
| Newspaper | Glass |
| Plastics | Telephone Directories |

3-10. RECYCLING COLLECTION PROCEDURES: Facility managers will use any collection technique they determine to be practicable for their operations. Special containers required for collection can be obtained through DOFE-E. Suggested source separation methods include but are not limited to:

- a. Desk-Top Containers: Extra “out” basket labeled recycled paper.
- b. Special Wastebasket: Labeled recycled paper.
- c. Cardboard boxes: Labeled for recycled paper.
- d. Barrels: Labeled or marked.

3-11. **RECYCLABLE STORAGE:** Recyclable items will be stored in such a manner that they:

- a. Are not a fire, health, or safety hazard.
- b. Do not provide food or harborage for disease vectors (i.e. flies, mosquitoes, and rodents).
- c. Are contained or bundled to prevent spills.

3-12. **SUMMARY:** The primary goals of solid waste management are reduction and recycling of as many waste streams as possible. Source reduction of solid waste also benefits the general health and safety of personnel. A through assessment of solid waste management opportunities in the KSARNG will generally result in a reduction in solid waste streams through recycling, as well as conservation of natural resources.

CHAPTER 4

HAZARDOUS MATERIAL

4-1. GENERAL. Hazardous materials are used and generated by most activities within the Kansas Army National Guard (KSARNG). For the purposes of this SOP, hazardous materials are those materials that, because of their ingredients, pose a potential health risk to personnel exposed to the material. The difference between a hazardous material and a hazardous waste is that a hazardous material is still suitable for use for its intended purpose.

4-2. HAZARDOUS MATERIAL SOURCES. Hazardous materials common to the KSARNG can be found in, but are not limited to, petroleum, oil and lubricant (POL) products, cleaners, degreasers, fluids and oils.

4-3. BACKGROUND. Hazardous materials stored and handled properly pose only a minimal threat to KSARNG soldiers. The intent of this chapter is to establish criteria for the storage, maintenance and turn in of hazardous material. The process of determining what hazardous material is required for unit operations is referred to as the "house cleaning standard". This standard closely resembles the hazardous material management program outlined in DA PAM 710-2-1 in chapter 13. Any KSARNG unit or activity that follows these criteria will have completed the following requirements:

- a. Completed and submitted a hazardous material inventory.
- b. Reduced the amount of material stored on site that are a potential health or environmental hazard.
- c. Turned in excess material for redistribution to other KSARNG units or activities that require resources.

4-4. HAZARDOUS MATERIAL MANAGEMENT. The proper management of hazardous materials requires that the unit or activity understands what types of materials are on-hand and that they are properly stored. Hazardous materials **can not** be stored in unauthorized wall/foot lockers, mechanics tool boxes, on top of work benches, and inside of desks. This does not mean that a mechanic, clerk, or supply person can not have hazardous material in their work area as long as they return the hazardous material to the proper storage container at the end of their work shift. All KSARNG members must understand what types of threats these materials pose. To facilitate these requirements units must:

- a. Conduct a hazardous material/waste inventory.
- b. Determine the need for the materials noted during the inventory.
- c. Turn-in all hazardous waste (or unserviceable hazardous material).
- d. Turn in all excess hazardous material (serviceable).
- e. Obtain Material Safety Data Sheet Sheets (MSDSs) for remaining material.
- f. Segregate material according to hazard and compatibility.
- g. Store materials properly (IAW Appendix L and M).
- h. Revise previous on-hand inventory.
- i. Forward a copy of the inventory to DOFE-E NLT 31 Dec each year.
- j. Periodically update the inventory, MSDSs and storage based on changes in materials.
- k. Clean out all unauthorized hazardous material storage places.

4-5. TRAINING. Personnel conducting a hazardous material inventory must be trained in hazard communication and be aware of the physical, health and safety hazards associated with the materials that the unit or activity suspects or has knowledge of being on site.

4-6. INVENTORY SUBMISSION. All units/activities must conduct an inventory annually. The inventory and release log must include all materials that are used and stored within the fence line of the facility. This includes all materials stored in POL sheds or other buildings within the fence line. Each unit/activities must submit an inventory. Multi-unit armories may combine inventories.

- a. The inventory must be recorded on AGKS-DOFE-E Form 2 (Appendix G).
- b. A release log must be completed that illustrates the amount of the materials used for each calendar year on AGKS-DOFE-E Form 2.
- c. The inventory and the release log must be submitted to DOFE-E NLT 31 December of each year.

4-7. INVENTORIED ITEMS. Items that must be inventoried include:

- a. Petroleum, Oil and Lubricant (POL) products.
- b. Solvents.
- c. Industrial cleaners.
- d. Fuels.
- e. Pesticides and Herbicides.
- f. Any item that has a prominently positioned warning label.
- g. Paint and paint related products.

4-8. EXCESS MATERIALS. All excess material identified during the inventory, that is not mission essential, must be removed from the facility. This will reduce the storage requirement for the facility, especially for those units and activities that have limited storage capabilities. The storage capacity of a facility must be dedicated to only essential materials. What is mission essential must be determined by the local commander and/or the facility manager. These materials can be determined using the following considerations:

- a. Units will maintain only require POL products and solvents to conduct operator maintenance during Inactive Duty training (IDT).
- b. Organizational Maintenance Shop (OMS), Army Aviation Flight Facilities (AASFs) and the Mobilization and Training Equipment Site (MATES) must maintain only the POL to support their mission.
- c. Units will order, only required POL products, prior to Annual Training (AT) to support that AT. At the conclusion of AT the unit will turn in all servicable, unopened containers of POL products, to the United States Property and Fiscal Office (USP&FO) warehouse.
- e. Janitorial supplies, office supplies and CTA items must be maintained at required levels as determined by the local commander or facility commander.
- f. Excess paint must be cross leveled to other units or turned into the State Warehouse.

4-9. STORAGE SHORTFALLS. The ability to expand storage capabilities at any particular facility is limited. Units that have a significant shortfall should identify their storage shortfalls and provide DOFE-E with the following information:

- a. Materials and quantity requiring additional storage.
- b. Approximate square footage required for excess material.
- c. Proposed location of additional storage space.
- d. Narrative justification for excess material.

4-10. TURN-IN OF HAZARDOUS MATERIALS. Turn in of all hazardous material must be accomplished in accordance with DA PAM 710-2-1, paragraph 13.

- a. The state warehouse will accept the turn-in of any serviceable state item.
- b. Materials may be cross leveled between facilities. Every effort must be made to utilize materials that are still serviceable.

4-11. SHELF LIFE. A shelf-life item is one that has such inherently deteriorative or unstable characteristics that it must have an assigned storage or shelf-life period to ensure that the material will perform its intended function. Shelf-life items are classified as **Type I**, nonextendible, and **Type II**, extendible. Type I is assigned an alpha code and Type II an numeric code. Type I (nonextendible) materials have a specific storage life which is a conservatively estimated safe storage period. Type II (extendible) materials generally may be extended fifty (50) percent of the original shelf-life period, if materials meet established extension criteria. Qualified personnel are responsible for monitoring shelf-life at the unit and facilities. Shelf-life determination must be made in accordance with DA PAM 710-2-1, Chapter 12, para. 12-25 or the following:

Self Life Period	Type I	Type II
Nondeteriorative	O	O
1 month	A	
2 months	B	
3 months	C	1
4 months	D	
5 months	E	
6 months	F	2
9 months	G	3
12 months	H	4

15 months	J	
18 months	K	5
21 months	L	
24 months	M	6
27 months	N	
30 months	P	
36 months	Q	7
48 months	R	8
60 months	S	9
84 months	T	
96 months	U	
108 months	V	
120 months	W	
144 months	Y	
240 months	Z	

4-12. MATERIAL SAFETY DATA SHEETS (MSDSs). MSDSs or HMIS is required for each hazardous material on the inventory that will be stored in a facility. An MSDS or HMIS can be obtained from the following sources:

- a. OMSs.
- b. The USP&FO Warehouse.
- c. The vendor (if the material was purchased locally).
- d. The manufacturer.
- e. DOFE-E.

4-13. MSDS AND SPILL RESPONSE EQUIPMENT.

a. MSDSs must be collected for all of the materials at a given storage location and stored near but not necessarily within the storage location. The MSDSs must be kept close enough to the storage area that soldiers using the materials within the storage location do not have to physically leave the area to obtain an MSDS.

b. The facility must maintain a consolidated file of all of the MSDSs. These MSDSs must be accessible for all soldiers to review prior to working with the material as part of the **“employee-right-to-know”** program. The MSDSs must be maintained in a common area that is unlocked and readily accessible to each soldier.

c. Spill response equipment must be made available for soldiers working in hazardous material storage and work areas. The spill response equipment must be adequate to recover any spill of a hazardous materials. The storage area itself must be located in such a manner that a spill does not migrate into a floor drain, or bare soil. Spill response equipment can be found in Appendix K .

4-14. MATERIAL SEGREGATION, Materials must be segregated according to hazard. The hazard will be identified on the container itself or on the MSDS or HMIS. The type of hazard will determine storage compatibility. For example, flammable materials must not be stored with corrosive or oxygenated materials. The hazard categories are:

a. Corrosive.

b. Ignitable.

(1) Flammable (flash point below 100 degrees)

(2) Combustible (flash point above 100 degrees)

c. Reactive.

d. Toxic.

4-15. MATERIAL STORAGE. Materials must be segregated and stored in the following manner:

a. Flammable materials (flashpoint at or under 100 degrees) must be stored in a flammable cabinet with a two hour fire rating. Fire extinguishers must be mounted near any flammable materials. See chapter 9 of this SOP for additional information.

b. Combustible materials (flashpoint over 100 degrees) must be kept separate from corrosive materials. They do not have to be stored in cabinets that have a fire rating but they must be kept away from potential heat sources.

c. Toxic and corrosive materials must be stored in a manner that minimizes the potential for spills and accidental releases.

d. All materials must be stored in an area where access is controlled and protected from adverse weather conditions.

4-16. **MATERIAL WARNING PLACARDS.** The NFPA 704 placards shall be placed on each armory, maintenance facility, storage building, storage shed, or structure that is used to store hazardous materials. The NFPA 704 placard shall be placed ,at eye level, next to the main entrance door (s). To determine the numerical rate/code for the placard, consult the MSDS or HMIS, of each hazardous material. DOFE-E will provide the NFPA 704 placards as will as assistance on numerical rating.

4-17. **RECORD KEEPING.** Records pertaining to hazardous materials on-site must be maintained to ensure that soldier and regulators alike can ensure that the management of hazardous materials does not jeopardize the safety or health of any person working at or around the KSARNG facility. These records must be made available to any regulator (e.g., Kansas Department of Health and Environment (KDHE), Environmental Protection Agency (EPA) or other municipal regulators, e.g., fire and local health departments). The records that must be maintained are:

- a. Hazardous Material Inventory Log (AGKS-DOFE-E Form 2).
- b. Material Safety Data Sheets.
- c. All personnel environmental training documents.

4-18. **TRANSPORTATION .** Shipping papers, spill response plans, and MSDS and/or HMIS are required in every military vehicle that transports hazardous materials. Detailed information on these requirements are found in Chapter 11, para. 11-13 **SHIPPING PAPERS/EMERGENCY RESPONSE.** In addition to the information in Chapter 11, the requirement for shipping papers, spill response plan, and MSDS and/or HMIS also exist for POL items during transportation.

4-19. **SPILL REPORTING.** Any spill or release of five (5) gallons or more requires a reporting within twenty four (24) hours to DOFE-E. The report (see Appendix E) can be verbal at (913) 274-1150 or FAX at (913) 274-1619. Off-Duty hours emergency or reporting, call Maj. John Andrew (913) 271-1504, Mr. Ron Cockran (913) 246-1777, Ms. Pattie Haines-Lieber (913) 843-5298, or Mr. Sam Mryyan (913) 232-2773.

CHAPTER 5

HAZARDOUS WASTE MANAGEMENT

5-1. GENERAL: A hazardous waste is either a Characteristic Waste and/or a Listed Waste. The four characteristic hazardous waste are ignitable, reactive, corrosive, and toxic. A Listed Waste chemical will appear on one of four lists of chemicals and/or industrial processes established by EPA. Any product that is a Characteristic or Listed Waste will be regulated because of the dangerous situations they can cause when land filled. This is primarily to protect groundwater from contamination from toxic products. It is important that KSARNG personnel understand that disposal of a waste, that meets the definition of a hazardous waste, into a landfill is prohibited.

5-2. HAZARDOUS WASTE SOURCES: The major source of hazardous waste is the generator. Other sources are transporters, facilities that treat, and facilities that make final disposal of waste deemed hazardous by the generator.

5-3. BACKGROUND:

a. The Kansas Army National Guard has facilities that generate hazardous waste at twenty-one (21) sites throughout the state of Kansas. These facilities consist of organizational vehicle maintenance shops, vehicle maintenance support shops, aviation support maintenance shops, maintenance training centers, and troop billeting facilities. Hazardous waste generated by these KSARNG facilities are manifested, transported, and disposed of through a licensed contractor with the Defense Reutilization and Marketing Service (DRMS). Even through these services are provided by another Federal agency the final liability for hazardous waste generation, transportation, and disposal rest with the KSARNG generator.

b. There are three (3) Defense Reutilization and Marketing Office's (DRMO) located in Kansas which support the KSARNG. The DRMO contractor is responsible for the transportation, final treatment, and disposal of hazardous waste in accordance with all local, state, and federal laws and regulations.

c. The State regulatory agency, The Kansas Department of Health and Environment (KDHE) obtained authorization to administer the hazardous waste management program from EPA. There are three (3) categories of generators of hazardous waste. These categories are Small Quantity Generator, Kansas Generator, and EPA Generator.

5-4. HAZARDOUS WASTE MANAGEMENT: Hazardous waste management means properly identifying, labeling, packaging, accumulating, treating, storing, and disposal of hazardous waste according to the requirements of the law. The management of hazardous waste ensures that all hazardous waste generated by ARNG units/activities are monitored to minimize the potential for worker exposure, spill, or mixture with non-hazardous waste. Hazardous waste management requires ARNG personnel to maintain accountability and documentation of hazardous materials from the point of receipt to the point of turn-in for disposal. The final important part of hazardous waste management is minimizing waste generation wherever possible and feasible. A written hazardous waste management plan shall be prepared by the facility manager, designee, or generator. This facility hazardous waste management plan will be submitted to the DOFE-E. The hazardous waste management plan shall include the following:

- a. The KSARNG generator will identify the name, address, and EPA / State identification numbers for the facility.
- b. Specific type and quantity of hazardous waste generated at the facility.
- c. Include the responsibilities of facility personnel in generating, accumulating, and disposing of hazardous waste.
- d. Include procedures to analyze hazardous waste.
- e. Identify the location of all hazardous waste accumulation area(s).
- f. Include the procedures to inspect the hazardous waste area(s) for malfunctions, deterioration, and operator errors.
- g. Include procedures to prevent unauthorized entry to the hazardous waste area(s).
- i. Describe the program to train all applicable personnel on requirements to ensure facility compliance with the law.
- j. Spill Prevention, Control and Countermeasure Plan. This plan will be provided by DOFE-E.
- k. Describe current or on going waste minimization projects at the facility.

5-5. HAZARDOUS WASTE DETERMINATION:

- a. Wastes can be determined to be hazardous using one of two methods. They are:

(1) Common knowledge of all the constituents of the waste. If the MSDS is available or if a supervisor or other workers have knowledge of the waste.

(2) Laboratory analysis.

b. Chemical ingredients of a product can be found either in the Material Safety Data Sheet (MSDS) or Hazardous Materials Information System (HMIS). The MSDS or HMIS also identifies if the product is Ignitable, Corrosive, or Reactive. Once the chemical ingredients or the characteristics of the product have been determined, compare this information with Appendix "A" or Characteristic Hazardous Waste in the Kansas Department of Health and Environment (KDHE) Hazardous Waste Generator Handbook dated September 1994.

c. If the product contains any chemical or shows a hazardous characteristic it is a hazardous waste.

d. To determine the hazardous characteristic of Toxicity, a sample must be taken, and a laboratory analysis completed.

5-6. LABORATORY ANALYSIS: The laboratory analysis of waste will be performed:

a. To identify unknown waste.

b. To confirm the designation of a known waste.

c. When reasonable doubt exists as to whether a waste is hazardous.

d. What the specific constituents of the waste is.

e. The IHWM or a representative from DOFE-E will take samples of any material when requested by the generator. In some situations samples taken by the generator may be authorized by DOFE-E. Testing will be performed at an EPA certified laboratory. If operations or materials change by a generator, waste generated as a result of these changes, will be analysed prior to preparation of labels and shipment. The IHWM must be notified before changes are made to ensure that regulatory requirements are met.

5-7. PACKAGING BY THE GENERATOR: It is the responsibility of the generator to provide containers compatible with the hazardous waste stream. This does not necessarily mean that the containers need to meet DOT requirements. In most situations hazardous waste can be placed into the original container. In all cases when the original container is unserviceable place the container

in an overpack drum. The use of smaller containers are more practical for the accumulation of hazardous waste when a small quantity of waste is generated. Container size should be consistent with the amount of waste to be accumulated. Containers can be found in Appendix D.

5-8. LABELING BY THE GENERATOR: Each container of hazardous waste will have a label with the words "HAZARDOUS WASTE", contents, (product name) and start date (first day hazardous waste is placed into the container). While hazardous waste containers are at the accumulation area(s), a red sticker with this information is applicable.

5-9. MARKING BY THE GENERATOR: When hazardous waste containers are at the accumulation area(s) and if applicable, the container will be marked with the appropriate warning (i.e. flammable, corrosive, poison).

5-10. EMPTY CONTAINERS: Containers or container liners which have held hazardous materials are not regulated as hazardous waste if all wastes have been removed. For a container to be considered empty, there shall be no more than 3.0% by weight of the contents remaining or no more than one inch of residue. Empty containers which contained P-listed waste must be triple-rinsed using an appropriate solvent before they are considered empty.

5-11. TRANSPORTATION OF HAZARDOUS WASTE: Transporters of hazardous waste play an important role in the regulatory scheme. The safe transport of hazardous waste from generators to permitted Treatment, Storage, Disposal, Facilities (TSDF) is essential to the basic concept of cradle-to-grave management of hazardous waste. One of the major concerns that prompted Congress to enact the law was the need to prevent "midnight dumpers" from illegally transporting hazardous waste off-site and dumping it in fields, into lakes, and along highways. The KSARNG generators are not authorized or permitted to transport Hazardous waste over public roads or highways. They are authorized to move or relocate hazardous waste within the property line of the generation site. The only authorized transporters of hazardous waste are under contract. The contractor agrees to comply with, and ensure that all applicable subcontractors comply with, all requirements of the United States Department of Transportation (DOT) regulations. A complete listing of all transporters, to include EPA Identification Numbers, will be on file with each ARNG EPA/KANSAS generator. Small quantity generators (normally armories) may transport their small quantities (less than 55 lbs. per month) of hazardous waste to the supporting OMS, providing the shipment meets all applicable Department of Transportation (DOT) requirements. This authorization for ARNG Small Quantity Generators is according to KDHE letter dated 7 July 1995, which is on file with DOFE-E.

5-12. STORAGE OF HAZARDOUS WASTE: A facility will be permitted and regulated as a Treatment Storage and Disposal Facility (TSDF) facility if it engages in the holding of hazardous waste.

- a. KSARNG generators are not authorized or permitted to store hazardous waste.
- b. KSARNG generators of hazardous waste are authorized to accumulate hazardous waste on site for a period of time. It becomes important to adhere to the time requirements when accumulating hazardous waste so that the generator does not violate the law.
- c. KSARNG generators may have a **satellite accumulation point** at their facility. KSARNG generators are not satellite accumulation points, except at MATES. A Kansas or EPA generator may have up to 55 gal. of hazardous waste at or near the point of generation and under the control of the operator generating the waste. The container(s) must be marked "Hazardous Waste" and when full the accumulation start date placed on the container. The operator has 3 days in which to move the container to the accumulation site.
- d. The only authorized storage of hazardous waste is provided by the contractor. The contractor agrees to provide all services necessary for the storage of hazardous waste in accordance with all local, state, and federal regulations.

5-13. **TREATMENT OF HAZARDOUS WASTE:** Treatment means a facility uses any method, technique, or process designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize the waste. KSARNG generators are not authorized or permitted to treat hazardous waste on-site or off-site. The final treatment of hazardous waste is provided by the contractor. The contractor agrees to provide all services necessary for the final treatment of hazardous waste in accordance with all local, state, and federal regulations.

5-14. **DISPOSAL OF HAZARDOUS WASTE:** Disposal means a facility used for discharging, depositing, injecting, dumping, spilling, leaking, or placing hazardous waste into the land or water. KSARNG generators are not authorized to make final disposal of hazardous waste generated at the facility. The only authorized disposal of hazardous waste is under contract. The contractor agrees to provide all services necessary for the final disposal of hazardous waste in accordance with all local, state, and federal regulations.

5-15. **SINGLE UNIT ARMORIES:** All KSARNG military units generate hazardous waste. Armories with single units normally generate less than 55 lbs. per month, this classifies them as a Small Quantity Generator with the regulatory agency in the state of Kansas. The Kansas Department of Health and Environment considers a facility that generates hazardous waste to be an organization with a street address. This means that the facility manager of a single unit armory is the responsible person for managing the hazardous waste program at that site. Single unit armories that generate less than 55 lbs. of hazardous waste per month are not subject to any

notification or reporting requirements by KDHE. Small quantity generators shall be subject to the following:

- a. Hazardous waste in containers, being accumulated on-site, must be clearly labeled "Hazardous Waste", with accumulation start date, and contents.
- b. Prepare a hazardous waste inventory control log for each container of hazardous waste and maintain this log for documentation of monthly generation rate.
- c. Maintain the containers in good condition, use a container compatible with the waste, and keep containers closed except when adding waste.
- d. Maintain a secure accumulation area(s), providing secondary containment for hazardous waste, and applicable spill response equipment
- e. Inspect accumulation area(s) weekly and maintain a log of inspections.
- f. Package, label, and mark all shipments of hazardous waste in accordance with pretransportation requirements.
- g. Prepare a DA Form 2765-1 for turn-in of hazardous waste to supporting maintenance shop.
- h. Transport a maximum of 55 lbs. in a month of hazardous waste, in a safe and prudent manner, to the supporting maintenance shop.
- i. Personnel may contact their supporting maintenance shop chief or DOFE-E for technical assistance in matters pertaining to hazardous waste.

5-16. MULTIPLE UNIT ARMORIES: All KSARNG military units generate hazardous waste. Armories with multiple units may generate more than 55 lbs., but less than 2200 lbs. of hazardous waste per month. This classifies them as a Kansas Generator with the regulatory agency in the state of Kansas. KDHE considers a facility that generates hazardous waste to be an organization with a street address. This means the facility manager of a multiple unit armory is the responsible person for managing the hazardous waste program at that site. It is important that multiple unit armories strive to minimize the generation rate so as to become or stay a Small Quantity Generator. If a multiple unit armory is determined to be a Kansas Generator, they are subject to following requirements:

- a. Determine which waste are hazardous by knowledge process or laboratory analysis.

- b. Obtain an EPA identification number for the facility.
- c. Prepare a DOD Single Line Item Release/Receipt Document, DD Form 1348-1 and a Hazardous Waste Profile Sheet, DRMS Form 1930 for each hazardous waste then submit to DRMO.
- d. Review for accuracy and sign all hazardous waste manifest prepared by contractor.
- e. Prepare a hazardous waste inventory control log for each container of hazardous waste and maintain log for documentation of monthly generation rate.
- f. Package, label, and mark all shipments of hazardous waste in accordance with pre-transportation requirements.
- g. Prepare and maintain the following records for three (3) years on site.
 - (1) A copy of all completed and signed manifest initiated.
 - (2) Annual and biennial report(s)
 - (3). Manifest exception report(s)
 - (4). Hazardous waste analyses
 - (5) Weekly inspection reports
 - (6) Hazardous Waste Inventory Log
- h. Hazardous waste in containers, being accumulated on-site, must be clearly labeled "Hazardous Waste", with accumulation start date, and contents.
- i. Maintain a secure accumulation area(s), providing secondary containment for hazardous waste, and applicable spill response equipment.
- j. Maintain all containers in good condition, use a container compatible with the waste, and keep containers closed except when adding waste.
- k. Inspect accumulation area(s) weekly and maintain a log of inspections.

l. Meet the following emergency preparedness requirements

(1) Designate an emergency coordinator, for on-site or on call at all times.

(2) Post the name and phone number of the emergency coordinator, phone number of the fire department, and any other emergency information required next to one phone which is accessible during an emergency.

(3) Ensure that all employees are thoroughly familiar with proper waste handling and emergency procedures.

(4) Carry out the appropriate response to any emergency that arises.

m. Personnel may contact supporting maintenance shop chief or DOFE-E for technical assistance in matters pertaining to hazardous waste.

5-17. MAINTENANCE, SUPPLY, TRAINING, and TROOP BILLETING FACILITIES: All Maintenance, supply, training, and troop billeting supporting facilities generate hazardous waste. These facilities normally generate more than 55 lbs., but less than 2200 lbs. per month, this classifies them as a Kansas Generator with the regulatory agency in the state of Kansas. KDHE considers a facility that generates hazardous waste to be an organization with a street address. This means the facility manager or responsible person at the facility is responsible for managing the hazardous waste program at the site. It is important that the facilities strive to minimize the generation rate so as to stay a Kansas Generator. If a facility does meet the requirements of a Kansas Generator, they are then subject to the same requirements as described in paragraph 5-16 Multiple Unit Armories.

5-18. MOBILIZATION and TRAINING EQUIPMENT SITE: (MATES) The Mobilization and Training Equipment Site facility generates hazardous waste. The facilities, located at Ft. Riley, normally generates more than 2200 lbs. per month, this classifies them as a EPA generator with the regulatory agency in the state of Kansas. Even through the generation rate drops below the 2200 lbs, the MATES is a tenant of Ft. Riley and falls under Ft. Riley EPA hazardous waste ID number. EPA generators are subject to the following requirements:

a. Determine which wastes are hazardous by knowledge or laboratory analysis.

b. Prepare a DOD Form 1348 and Hazardous Waste Profile Sheet, DRMS Form 1930 for each hazardous waste then submit to DRMO.

- c. Properly Package, Label, and Mark all hazardous waste before transporting to the DRMO.
- d. Maintain the hazardous waste analyses and weekly inspection reports for three (3) years on site.
- e. Maintain all containers in good condition.
- f. Maintain secure Hazardous Waste Accumulation Points and accumulate hazardous waste at the accumulation points for no more than sixty (60) days.
- g. Prepare a contingency plan and implement emergency procedures to ensure that releases of hazardous waste are properly handled.

5-19. GENERATOR CLASSIFICATION/ACCUMULATION TIME: The following is an overview of the regulatory requirements of hazardous waste generator classification and accumulation time.

- a. Small Quantity Generator: Any person, on a specific site, whose action or process produces no more than 55 lbs. of hazardous waste in a calendar month and accumulates on-site no more than 2200 lbs.
- b. Kansas Generator: Any person, on a specific site, whose action or process produces more than 55 lbs. but less than 2200 lbs. of hazardous waste in a calendar month and accumulates on-site no more than 2200 lbs.
- c. EPA Generator: Any person, on a specific site, whose action or process produces more than 2200 lbs. of hazardous waste in a calendar month.
- d. Kansas Generator: A Kansas Generator may accumulate, on-site, no more than 2200 lbs. of hazardous waste for no more than 180 days. The generator must abide by the 180 day rule no matter what quantity of hazardous waste is accumulated. **The cost of disposal is not a factor for small quantities of hazardous waste accumulate on site.** If the Kansas generator's waste requires transportation to a TSDF more than 200 miles away, then the generator may accumulate on site 270 days. It is important to remember that the generator must have all hazardous waste moved off site in the required time limits.

e. EPA Generator: A EPA Generator may accumulate hazardous waste, no-site, no more than 90 days.

f. It must be remembered that for a Kansas Generator, once the DD Form 1348-1 and the DRMS Form 1930 are submitted to the DRMO and then signed by a DRMO representative, the contractor has only 90 days in which to remove the hazardous waste from the KSARNG site. This means that 90 days must be subtracted from the accumulation times for Kansas Generators.

g. The information above applies only to generators without a Treatment, Storage, Disposal, Facility (TSDF) permit or having interim status for being a (TSDF). If a facility exceeds any of the above requirements, they are in violation of the law

5-20. **MANIFEST:** The hazardous waste manifest is a tracking and recording device used for all shipments of hazardous waste. In order to accomplish the “forever” connection between a generator the hazardous waste, each shipment of waste must be accompanied by a properly executed Uniform Hazardous Waste Manifest EPA Form 8700-22. The hazardous waste manifest is completed by the contractor with information furnished from the generator. The generator will sign block number 17 and retain the Generator’s copy. When the shipment of waste reaches the TSDF that facility will sign block number 20 and return the Original to the generator. If the Original copy of the manifest is not returned to generator within 35 days of the date shipped, the generator must contact DOFE-E. If the Original copy of the manifest is not returned to the generator within 45 days of the date shipped, an exception report must be filed with KDHE. Photocopies of all manifests must be forwarded to DOFE-E.

5-21. **MATERIAL SAFETY DATA SHEET (MSDS):** Chemical manufactures are required to provide an MSDS with each product they produce. As an employer the KSARNG is required to provide an MSDS on each chemical product used in each work place. Each MSDS will provide information on the material identification, chemical ingredients, physical data, fire and explosion data, reactive data, health hazard information, spill leak and disposal procedures, special protection information, and special precautions or comments. MSDS information is required when working with hazardous materials and when disposing of hazardous waste. MSDS’s are required for each product and each manufacturer of that product that is physically on hand.

5-22. **HAZARDOUS MATERIALS INFORMATION SYSTEM (HMIS):** The Department of Defense (DOD) developed a system for National Stock Numbered items with the information from the MSDS. The HMIS can be used instead of the MSDS when working with hazardous materials or disposing of hazardous waste.

5-23. **RECORDKEEPING FOR SINGLE UNIT ARMORIES:** Single unit armories which are Small Quantity Generators are required to maintain environmental documents on file for three (3)

years. These records and accumulation area(s) are subject to periodical assessment by DOFE-E. The following are required documentation:

a. Hazardous Waste Accumulation Weekly Inspection Log: The inspection log, Appendix F, KS SOP 420-47, will be used to record all inspections. In the event that a generator does not have an accumulation on hand, the following statement must be noted on the weekly inspection sheet "No Accumulation At This Time".

b. Hazardous Waste Inventory Control Log. The hazardous waste inventory control log, Appendix O, KS SOP 420-47, will be used to document the monthly generation rate for each container.

b. Copies of DA Form 2765-1 and/or the Document Register DA Form 2064 for turn-in of hazardous waste.

c. Copies of environmental assessments conducted by DOFE-E or other authorized agencies.

d. Correspondence on hazardous waste management.

5-24. ENVIRONMENTAL REFERENCES FOR SMALL QUANTITY GENERATORS: Small Quantity Generators will maintain a copy of the following:

a. KS SOP 420-47.

b. KS SOP 200-1.

c. DRMO "Hazardous Property Turn-in Procedures" guide.

d. Personnel training records, Appendix H, KS SOP 420-47.

e. Facility Spill Contingency Plan. This plan will be provided by DOFE-E and one copy should be posted next to the hazardous waste accumulation area in case of spills or releases.

5-25. RECORDKEEPING FOR MULTIPLE UNIT ARMORIES, SUPPORTING MAINTENANCE, SUPPLY, TRAINING, AND TROOP BILLETING FACILITIES: Multiple Unit Armories, Maintenance, Supply, Training, and Troop Billeting Facilities which are Kansas Generators are required to maintain environmental records on file for three (3) years. These records and accumulation area(s) are subject to periodical assessment by DOFE-E. The following is required documentation:

- a. Signed copies of all hazardous waste manifest. Copy furnished to DOFE-E.
- b. Waste Generation and Shipment Reports Copy furnished to DOFE-E.
- c. Manifest Exception Reports.
- d. Laboratory analysis.
- e. Hazardous Waste Inventory Control Log
- f. Weekly accumulation area(s) inspection log.

5-26. ENVIRONMENTAL RESOURCES FOR KANSAS GENERATORS: Kansas Generators will maintain a copy of the following:

- a. KS SOP 420-27.
- b. KS SOP 200-1.
- c. DRMO "Turn In Guidance For Hazardous Property".
- d. KDHE "Hazardous Waste Generator Handbook" dated September 1994.
- e. Personnel training records.
- f. Spill Prevention, Control and Countermeasure Plan.

5-27. DOD SINGLE LINE ITEM RELEASE/RECEIPT DOCUMENT DD FORM 1348-1: Complete DD Form 1348-1 per instructions in DRMO "Turn In Guidance For Hazardous Property", Section II. Complete the form with the following information:

- a. Note n, Rp 45-50 Billing DoDAAC. This is the USP&FO "W55RHF".
- b. Note g, Rp 52-53 Fund code (Millsbills). The first number will always be last number of the fiscal year and the second number is always the number two 2 (i.e. 52, 62, 72)
- c. Add in block 2, the type of container.
- d. Add in block 5, the number of container(s)

e. Add in block FF the statement "I CERTIFY THAT FUNDS ARE AVAILABLE", with a signature from DOFE-E representative.

5-28. HAZARDOUS WASTE PROFILE SHEET, DRMS FORM 1930: Complete DRMS Form 1930 per instructions in DRMO "Turn In Guidance For Hazardous Property", Section V.

5-29. CONTRACT LINE ITEM NUMBER (CLIN): Identify the selection and assignment of the CLIN per instructions in DRMO "Turn In Guidance For Hazardous Property", Section VII. Waste regulated by RCRA are identified in the schedule according to the EPA waste number listed in 40 CFR part 261, and referenced by the CLIN headings (i. e. IGNITABLE WASTE DOO1).

5-30. RESOURCE CONSERVATION and RECOVERY ACT (RCRA) WASTE: The following is a list of RCRA waste normally generated by KSARNG activities. This list provided, is offered solely for the generator's consideration, investigation, and verification.

a. BATTERIES: Lead-acid (LA), Lithium-Sulfur Dioxide (Li-SO₂) (Not Completely Discharged), Lithium-Thionyl Chloride (Li-SOCl₂), Magnesium (MG) (Less Than Eight Hours Charge Remaining), Mercury (HG), Nickel-Cadmium (NI-CD), Silver (AG), and Thermal (THR).

b. CHEMICAL DEFENSE EQUIPMENT: Food Test Kit M3, Decontaminating Agent DS2, Decontaminating Kit M258, Detector Kit M256, ABC-H18A2, Paper Kit M9, Refill Kit M229, Sampling Kit M19, Skin Decontaminating M58, Simulator Detector M256, Water Testing Kit H272.

c. PAINT/PAINT RELATED MATERIALS: Thinner Dope/Lacquer, Primer Coating, Thinner Paint, Thinner Enamel, Paint Remover, Thinner Aircraft Paint, Polyurethane Coating, Epoxy Primer, MEK, Xylene Technical, Lacquer Aerosol, Mineral Spirits, Thinner Aliphatic, Enamel, Toluene, Acetone. and Methanol.

d. PETROLEUM PRODUCTS: Contaminated Fuels (not off-spec.), Contaminated Oils(waste oil), Cutting Oils, Contaminated Grease, Lubricant Solid, Cleaner Lubricant, Contaminated Hydraulic Fluids, and Corrosion Preventive Compound.

e. SOLVENTS: PD 680 (all types), Cleaning Compound Solvents, Carbon Removing Compound, CLP, and Safety Kleen (all types). Safety Kleen solvent is a known hazardous waste. The Safety Kleen contractor provides a service to the KSARNG generators for parts washers, the solvent, and for the removal of the hazardous waste. In order to determine the quantity of hazardous waste generated, the generator needs to determine the number of pounds

each parts washer contains. The total number of pounds from all parts washers should be used to determine the generation rate. The month when the parts washers are serviced is the month the hazardous waste is generated. The generator can not average the number of pounds collected in one month over the number of months in which the parts washers were in service. Even when a disposal company takes title to the waste fluids, the generator must monitor the operation for proper manifesting and removal of the hazardous waste solvent.

f. **SPILL RESIDUE AND DEBRIS:** All residue or debris material that is contaminated with a listed or characteristic hazardous waste.

g. **MISCELLANEOUS RCRA WASTE:** Contaminated Antifreeze, Medical Facilities Waste (which has a listed or is a characteristic waste), and Fluorescent Light bulbs(containing Mercury), and Clean Up Material from Indoor Firing Ranges.

5-31. **NON RCRA WASTE:** The following is a list of Non RCRA waste normally generated by KSARNG activities. This list provided, is offered solely for the generator's consideration, investigation, and verification.

a. **BATTERIES:** Alkaline (ALK), Carbon-Zinc (LCE), Lithium-Manganese Dioxide (Li-MnO₂), Lithium-Sulfur Dioxide (Li-SO₂) (Completely Discharged), Magnesium (MG) (More Than Eight Hours Remaining)

b. **PETROLEUM PRODUCTS:** Grease Aircraft, Grease Automotive, and Brake Fluid.

c. **SPILL RESIDUE AND DEBRIS:** All residue or debris that is not contaminated with a listed or characteristic hazardous waste (i.e. oil dry, oil rags).

5-32. **USED OIL MANAGEMENT:** Used oil management regulations are detailed and complex, but the following information is an overview.

a. EPA presumes that used oil is to be recycled.

b. Used oil mixed with a listed or a characteristic hazardous waste is regulated as a hazardous waste, not used oil.

c. Used oil containing more than 1,000 ppm total halogens is presumed to be hazardous waste containing a listed waste. The presumption that used oil containing more than 1,000 ppm of total halogens is hazardous waste may be verified by laboratory analysis.

d. Used oil storage is subject to the requirements of the Spill Prevention Control Countermeasure (SPCC) plan. The container requirements for used oil are basically the same as for hazardous waste.

e. A transporter with an EPA identification number for used oil must be used, unless the generator transports no more than 55 gallons, generated on site, at a time, and in a government vehicle to the supporting maintenance shop.

f. A manifest is not required for used oil shipments, but the transporter and the generator are required to keep detailed records of each shipment.

g. The KSARNG generator is responsible to confirm that used oil is not a hazardous waste before shipment. The screening test and documentation is the responsibility of the generator. The generator can notify DOFE-E when screening test kits are required.

5-33. SPILL REPORTING. Any spill or release of hazardous waste requires a reporting within twenty four (24) hours to DOFE-E. The report (see Appendix E) can be verbal at (913) 274-1150 or FAX at 274-1619. Off-Duty hours emergency or reporting, call Maj. John Andrew (913) 271-1504, Mr. Ron Cockran (913) 246-1777, Ms. Pattie Haines-Lieber (913) 843-5298, Mr. Sam Mryyan, (913) 232-2773.

CHAPTER 6

WASTE MINIMIZATION

6-1. **GENERAL:** The principle objective of waste minimization is to achieve the maximum feasible reduction of chemicals used and generated at KSARNG facilities. The generally accepted waste minimization program begins with source reduction, which is the highest priority, followed by recycling, treatment, and disposal. There are two methods of source reduction that can be used in waste minimization, they are product changes and process changes. Product changes generally involve substitution of less hazardous product for products currently in use. Process changes may involve changes to input materials, changes in technology, and improved operating practices.

6-2. **BACKGROUND:** All KSARNG facilities that generate hazardous waste are required to develop a waste minimization program. The facility waste minimization program is a part of the facility Pollution Prevention Program. Pollution Prevention is required by Executive Order 12856, dated August 1993. The KSARNG will comply with the executive order on Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements. When the Pollution Prevention program is developed for an KSARNG facility, the waste minimization part of that plan will become paragraph "5-4 k". of the facility Hazardous Waste Management Plan.

6-3. **SUMMARY:** The Waste Minimization Plan identifies and describes how waste minimization principles are implemented at each KSARNG facility.

CHAPTER 7

POLLUTION PREVENTION AND COMMUNITY RIGHT-TO-KNOW IN THE GOVERNMENT

7-1. **GENERAL:** On August 3, 1993, President Clinton signed a new Executive Order pledging the Federal government to protect the environment by preventing pollution at the source. Executive Order 12856 commits the Federal government to publicly report toxic waste and emissions, and reduce toxic releases at least 50% by 1999.

7-2. **PRINCIPAL REQUIREMENTS of the EXECUTIVE ORDER: (Right-to-Know)** Federal facilities that manufacture or process 25,000 pounds, or otherwise use 10,000 pounds of toxic chemicals must annually report their releases and off-site transfers as part of the Toxic Release Inventory (TRI) under the Emergency Planning and Community Right-to Know Act of 1986 (EPCRA) and the Pollution Prevention Act (PPA). This requirement applies to all facilities whether or not they are engaged in manufacturing. The reporting requirements take effect in calendar year 1994, with the first reports due to EPA July 1, 1995. Federal facilities must also comply with the emergency planning and notification requirements of EPCRA. These requirements include notification to Local Emergency Planning Committees of chemicals stored or used on the facility and an annual chemical inventory reporting requirement.

7-3. **PRINCIPLE REQUIREMENTS of the EXECUTIVE ORDER(50% Reduction Goal)** Each Federal agency must establish goals to reduce total releases and off-site transfers of toxic chemical or toxic pollutants 50% by 1999. The Federal agencies must achieve these reductions through source reduction practices to the extent possible.

7-4. **PLANNING:** Each Federal agency must develop a written strategy which includes a policy statement committing the agency to source reduction. DOFE-E will develop a Pollution Prevention KSARNG Installation Plan which will be come a part of the Hazardous Waste Management Plan.

7-5. **PROCUREMENT:** Each Federal agency will develop a plan and goals for eliminating or reducing the unnecessary acquisition of products containing extremely hazardous substances or toxic chemicals.

7-6. **REPORTS:** Beginning October 1, 1995 each Federal agency must submit an annual report to EPA on the agency's progress towards meeting the 50% reduction goal and the acquisition goals.

7-7. RIGHT-to-KNOW MANAGEMENT: To properly manage the requirements of the Executive Order, all KSARNG facilities will complete and submit the Hazardous Material Inventory Log to the local Fire Department and to DOFE-E. The form must be current at all times. Each facility must complete and submit to DOFE-E NLT 31 December of each year the Hazardous Material Release Log. The purpose of this report is to provide basic information for the report to the Local Emergency Planning Committee (LEPC), State Emergency Response Commission (SERC), and EPA.

7-8. POLLUTION PREVENTION MANAGEMENT: The Army National Guard (ARNG) Toxic Pollutant Report, must be completed and submitted to NGB by March 1, of each calendar year. The report is used to establish the ARNG Toxic Pollutant release baseline and monitor reductions of that baseline in accordance with the Executive Order. The information from the Hazardous Material Release Log is used for submission of the ARNG Toxic Pollutant Report.

7-9. TOXIC POLLUTANTS: The data to be reported are the total purchases and releases of all hazardous material procured through the Federal and State supply system and products locally purchased. Toxic Pollutants are defined as:

a. **CHEMICALS or SOLVENTS:** Any chemicals or solvents used in degreasing, cleaning, paint-cleaning, or paint-thinning systems/processes.

b. **BULK SOLVENTS:** Any solvent that is composed of at least 60% of a non-EPCRA listed chemical.

c. **BULK SOLVENTS:** Any hazardous material that is used as a solvent that contains an EPCRA reportable chemical that is below the reporting threshold.

d. **ANTIFREEZE:** Any new Ethylene Glycol use in the facility operation. Ethylene Glycol weights 9.3 pounds per gallon. It is important to remember that the best way to reduce the releases of antifreeze is to recycle all antifreeze when possible.

7-10. CHEMICAL WEIGHT CALCULATIONS: When determining the hazardous material products for a facility Hazardous Material Release Log, the following information may be of assistance.

a. **AEROSOL MATERIAL:** An example is LACQUER (AEROSOL) FSN 8010-00-721-9743. The container reads "ONE PINT CAN NET WT. 10.25 OZ. (290g)". The first step is to determine the number of cans on hand at the beginning of the year, then determine the number

paint cans used for painting during the year. When this has been determined, take that number of cans times 10.25 OZ. and convert the total ounces to total pounds and report.

b. LIQUID MATERIAL: An example is THINNER DOPE & LACQUER CELLULOSE NITRATE, FSN 8010-00-160-5787. The container reads "6.89 LB/GL. The determination is calculated like the example in "a" above, but there is no need to convert from ounces to pounds.

7-11. SUMMARY: The EPA defines pollution as source reduction and other practices that reduce the amount of pollutants entering a waste stream prior to out-of-process recycling, treatment, or disposal. Prevention for the KSARNG includes substitution, recycling, modification of processes, and housekeeping improvement.

CHAPTER 8

**SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN
INSTALLATION SPILL CONTINGENCY PLAN**

8-1. **GENERAL:** It is required by the Code of Federal Regulation (CFR) that the KSARNG establish and maintain the capability to contain and cleanup KSARNG caused spills of oil and hazardous substances. The KSARNG will use and store all oil and hazardous substances in such a fashion as to avoid or minimize their discharge, either accidental or otherwise, to the land, air, or water.

8-2. **THE SPILL PREVENTION CONTROL COUNTERMEASURE (SPCC) PLAN:** The KSARNG SPCC Plan provides a current inventory of all potential sources of harmful discharges of oil and hazardous substances. The KSARNG SPCC Plan identifies storage, transfer, handling facilities and operations, and evaluates their adequacy for preventing and controlling potential discharges. It also serves as a basis to provide training in spill prevention and control for those personnel who require such training. DOFE-E will develop the KSRNG Installation Spill Prevention, Control and Countermeasure Plan.

8-3. **THE SPCC PLAN CONTENTS:** As a minimum, the SPCC plan will contain the following:

a. **GENERAL REQUIREMENTS:** General information on the facility, to include drainage patterns and location maps.

b. **RESPONSIBLE PERSONNEL:** Names and titles of personnel responsible for coordinating emergency responses to releases.

c. **POTENTIAL SPILL AREAS:** List all storage, handling, and transfer sites that could possibly produce a significant spill of oil or hazardous substance, to include direction of flow.

d. **INVENTORIES:** Provide listing of all oil and hazardous substances.

e. **CONTROL and COUNTERMEASURES:** Provide a detailed description of equipment and procedures for diversion and containment of spills for each site. Hazardous waste storage facilities require more stringent regulations.

f. **DEFICIENCIES:** A description of deficiencies of each site to include corrective measures required and procedures to be followed to correct those deficiencies.

g. **OPERATION PROCEDURES:** Written procedures to preclude spills of oil or hazardous substances to include inspections and recordkeeping.

h. **FEDERAL and STATE GUIDELINES:** A discussion of conformance with applicable guidelines.

8-4. **EFFECTIVE DATE of SPCC PLAN:** The KSARNG SPCC plan and amendments will be dated and become effective on the date on which a registered professional engineer (PE) certifies that the document has been prepared according to sound engineering practices.

8-5. **REVIEW of SPCC PLAN:** The SPCC plan will be reviewed, by a PE, and amended at least once every two (2) years or whenever there is a change in facility design, construction, operation, or maintenance that affects the potential for spills.

8-6. **TRAINING on SPCC PLAN:** Spill prevention training for operating personnel will be conducted at intervals frequent enough to ensure adequate understanding of the SPCC plan. This training will be conducted at least once a calendar year.

8-7. **INSTALLATION SPILL CONTINGENCY (ISC) PLAN:** The National Contingency Plan (NCP) was established under the Clean Water Act (CWA), as amended, and the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), as amended, and it requires Federal agencies to make plans for emergency response to spills of oil and hazardous substances for which the agency is responsible.

8-8. **THE ISC PLAN CONTENTS:** As a minimum, the ISC plan will contain the following:

a. **RESPONSIBILITIES/DUTIES:** Provide provisions specifying the responsibilities, duties, procedures, and resources to be used in a spill clean up.

b. **RESPONSE ACTIONS:** A description of immediate response actions that would be taken when a spill is first discovered.

- c. **RESOURCES:** Identification of resources for possible use
 - d. **RESPONSIBLE PERSONNEL:** Names and titles of personnel responsible for on scene efforts of an oil or hazardous substance spill.
 - e. **TRAINING PLANS:** Provide training plans for an emergency response team.
 - f. **ALERT:** Information on key personnel for an actual response to a oil or hazardous substance spill.
 - g. **SURVEILLANCE PROCEDURES:** Provide procedures for an early detection of a spill.
 - h. **EQUIPMENT:** Provide information on quantities and location of equipment, vehicles, supplies, and material resources.
 - i. **OTHER RESOURCES:** The plan will include prearranged procedures to request outside assistance and agreements to acquire resources during a response situation.
 - j. **REPORTING:** Procedures for reporting oil or hazardous substances.
 - k. **PUBLIC AFFAIRS:** Procedures describing responsibilities and methods for releasing information in the event of a spill.
- 8-9. **SUMMARY:** The SPCC and the ISC plan will be prepared to include the basic information necessary to comply with existing laws and regulations. All personnel should be familiar with and understand the requirements for and contents of the KSARNG SPCC/ISC plan.

CHAPTER 9**POL STORAGE**

9-1. **GENERAL.** This chapter lists the requirements for the handling and storing of flammable and combustible liquids and gases. Petroleum, Oil and Lubricants (POL) commonly used by KSARNG units and activities fall within the requirements outlined in this chapter. Basic housecleaning and housekeeping will eliminate a majority of the problems.

9-2. **BACKGROUND.**

a. Activities needing to correct violations of the regulations will fall under three categories:

- (1) Those issues requiring major funding
- (2) Those that require minor funding
- (3) Activities requiring no funding.

b. Chapter 4 of this SOP provides guidance regarding the determination of what materials must be stored on-site.

c. Determine, by the products label or MSDS, whether a material is a flammable or combustible. Segregate and store all flammable material allowable in storage cabinets, areas or buildings.

9-3. **INTERIM STORAGE REQUIREMENTS.** Units that do not have adequate flammable material or POL storage must use existing storage spaces. Flammable material or POL that cannot be stored in existing flammable cabinets will be stored in temporary designated storage areas/buildings. The following are suggested procedures to minimize the risk of releases and reduce the cost of any potential remediation within such areas.

a. Clean out present shed/building area and remove any combustible items, i.e., trash, wood, etc., incompatible materials and any unnecessary items.

b. Absorb and remove any free product and dispose of properly.

c. Line the floor with plastic sheeting (with no seams, breaks or tears) and carry it up the sides of the wall at least 6 to 8", forming a dike/lip. Line the walls with sand bags, including the doorway. The point of achievement is to construct an area of containment which will hold the maximum amount of product stored, and not allow it to release into the environment.

d. Construct a ramp over the sandbags in the doorway to allow for free egress into and out off the building. A procedure can also be established in which sandbags are moved to the side when loading or unloading the area, and then replaced when the job is completed.

e. Return the products/materials to the storage area following the guidance on "CONTAINER STORAGE INSIDE or OUTSIDE BUILDINGS" (Appendix L) to determine the number of drums and quantity in a limited area, compatibility of products, no double stacking, aisle spacing, etc.

f. Follow the guidance for FIRE CONTROL (Fire extinguisher locations, size, etc.) in paragraph 10-24 of this SOP.

g. Labeling is required. Such labeling shall include, but is not limited to "No Smoking" and/or the NFPA 704 placard. The signs/lables required is dependent upon the type of storage area. (See all sections referring to Signs/Labels.) The NFPA 704 placard can be obtained from the DOFE-E office, once the facility has conducted an overall inventory of Hazardous Materials.

h. Spill response equipment compatible with the materials stored, is also required. The equipment shall be located near the storage area where it can be easily obtained in case of a spill or release.

i. A copy of the Material Safety Data Sheets for all materials/products stored in a specific storage area/building, shall be available within that particular area.

9-4. FLAMMABLE LIQUIDS. Flammable liquids are defined as those liquids that have a flashpoint below 100° F (37.8° C). The execption to this will be any mixture having components with flashpoints of 100° F (37.8° C) or higher, the total of which make up 99 percent or more of the total volume. Flammable liquids are catagorized as class I liquids and can be separated in three subclasses.

Class	Flash Point	Boiling Point
IA	below 73° F (22.8°C)	below 100° F (37.8°C)
IB	below 73° F (22.8°C)	at or above 100° F (37.8°C)
IC	at or above 73° F (22.8°C)	below 100° F (37.8°C)

9-5. **COMBUSTIBLE LIQUIDS.** Combustible liquids are those that have a flashpoint at or above 100° F (37.8°). Combustible liquids are divided into two classifications, Class II or III.

Class	flashpoint
II	at or above 100° F (37.8°) and below 140° F (60° C) ^a
III	at or above 140° F (60° C)
IIIA	at or above 140° F (60° C) below 200° F (93.3° C) ^b
IIIB	at or above 200° F (93.3° C)

^aException: Any mixture having components with flashpoints of 200° F (93.3° C) or higher, the volume of which make up 99 percent or more of the mixture.

^bException: Any mixture having components with flashpoints of 200° F (93.3° C) or higher, the total volume of which make up 99 percent or more of the total volume of the mixture, and

9-6. **FLAMMABLE AND COMBUSTIBLE MATERIAL CONTAINERS.**

a. Flammable and combustible materials may be stored in drums or other containers (including aerosol cans) which, individually, do not to exceed sixty (60) gallons capacity. The capacity of a containers for flammable liquids is based on the design of the containers and the material used for it's construction (Appendix L). Exceptions to this are:

(1) Fuel tanks on motor vehicles, aircraft or stationary or portable engines.

(2) Flammable or combustible paints, oils, varnishes and similar mixtures used for painting or maintenance when kept for more than thirty (30) days.

9-7. **STABILIZATION AND SUPPORT.** Containers under thirty (30) gallon capacity, shall not be stacked more than three (3) feet or two (2) containers high, which ever is greater, unless on fixed shelving or otherwise satisfactorily secured. Therefore, containers and piles shall be separated by pallets or dunnage to provide stability. Pallets/dunnage shall be non-combustible material or of wood not less than 1 inch in thickness. Containers over thirty (30) gallons shall not be stored more than one container high. All containers shall be stored in an upright position.

9-8. **CONTAINER HANDLING GUIDELINES.** Containers shall be handled with extreme care to prevent rupture or breakage.

a. Containers will be inspected for leaks before being placed in storage and will be inspected periodically while in storage.

b. Immediately upon discovery, leaking containers shall be taken to a safe location and the contents transferred to an undamaged container.

c. Containers will be stored in a manner which will enable issue or use in the order of dates of manufacture, with material bearing the oldest date issued first.

d. Hazardous materials in any quantity will not be stored in open containers.

e. Containers of paint shall be palletized before storing.

f. Aerosol containers must be stored in cool dry storage areas.

g. There shall be no release of petroleum substances on sidewalks, streets, highways, drainage ditches, storm drains, sewers, flood control channels, lakes, rivers or on the ground.

9-9. EMPTY CONTAINERS. The storage of empty containers previously used for the storage of flammable or combustible liquids, unless free from explosive vapors, shall be stored like full containers. Containers when empty, shall have the covers or plugs immediately replaced in the opening.

9-10. STORAGE CABINETS. A room shall not contain more than three (3) cabinets unless groups of up to three (3) cabinets are located in the same room and they are no less than 100 feet apart from the first group.

a. Each storage cabinet shall not hold more than sixty (60) gallons of Class I or II liquids or one hundred and twenty (120) gallons of Class IIIA liquids or of all liquids combined.

b. No cabinet shall be used to store any other types of products/items other than flammable or combustible products.

c. Shelves within the cabinets shall be of sufficient depth and be provided with a lip or guard to prevent individual containers from being easily displaced.

9-11. STORAGE CABINET LABELING. Cabinets shall be labeled when containing flammable or combustible liquids with "FLAMMABLE - KEEP FIRE AWAY" . Signs shall be posted prohibiting any open flames or smoking near the storage area.

9-12. VENTING OF STORAGE CABINETS. Venting of storage cabinets is not required or recommended.

9-13. INSIDE STORAGE CRITERIA FOR HAZARDOUS LIQUIDS. Inside storage configurations vary. The locations of storage areas depend upon space availability, accessibility, and utility locations. Appendix L gives examples of various configurations type that can be used depending upon the layout of the facility. Once the type storage area is identified, then the allowable quantities, stacking heights and other requirements can be determined by using Appendix M.

9-14. INDOOR STORAGE REQUIREMENTS. These requirements are for the storage of drums or other containers of less than sixty (60) gallons:

- a. All storage areas shall be constructed to meet the specified fire-resistant ratings.
- b. Openings in interior walls to adjacent rooms or buildings and openings in exterior walls with fire-resistance ratings, shall be provided fire doors with fire-resistance ratings corresponding to the fire-resistance rating of the wall. (See NFPA 30, Standard for Flammable and Combustible Liquids.)
- c. Doors may be left open during material handling operations if the doors are designed to close automatically in a fire emergency. (See NFPA 80, Standard for Fire Doors & Fire windows for further information.)
- d. Except for drains, floors shall be liquid tight and the storage area shall be liquid tight where the walls join the floor.
- e. Barriers must be provided to prevent the flow of liquids under emergency conditions into adjoining building areas. The containment must be large enough to contain 10 percent of the volume of all of the containers or the volume of the largest container, which ever is greater. This must be accomplished by providing one or a combination of the following across the entire width of each opening.

(1) Non-combustible liquid tight raised sills, curbs, or ramps of suitable height. The appropriate height for sills, curbs, etc., will depend on the maximum expected spill volume, the floor area, and/or the existence of any drainage systems. A guideline to determine the height of a curb is: 1 sq. ft. area of water at 1 inch height equals 0.62 gallons.

(2) Open-grate trenches

(3) Any other acceptable method. Contact DOFE-E to determine acceptable.

f. A continuous supply of spill response equipment shall be maintained in or near the storage area.

g. Flammable or combustible liquids shall not be stored so as to limit use of exits, stairways, or areas normally used for the safe egress of people.

h. Shelves shall be of sufficient depth and be provided with a lip or guard to prevent individual containers from being easily displaced. Pallets/dunnage shall be non-combustible material or of wood not less than 1 inch in thickness.

i. Containers under thirty (30) gallon capacity, shall not be stacked more than three (3) feet or two (2) containers high, whichever is greater, unless on fixed shelving or otherwise satisfactory secured. Therefore, containers and piles shall be separated by pallets or dunnage to provide stability. Containers over thirty (30) gallons shall not be stored more than one container high. All containers shall be stored in an upright position.

j. Where storage on racks exists, as permitted, a minimum of four (4) feet wide aisle shall be provided between adjacent rack sections and any adjacent storage of liquids. Main aisles shall be a minimum of eight (8) feet wide.

k. Piles shall be separated from each other by at least four (4) foot aisles. Aisles shall be provided so that all containers are twelve (12) feet or less from an aisle. Main aisles shall be a minimum of eight (8) feet. Piles shall not be closer than three (3) feet to the nearest beam, chord, girder or other obstruction and shall be three (3) feet below sprinkler deflectors or discharge orifices of water spray or other overhead fire-protection systems. Additional aisles shall be provided for access to doors, windows, ventilation, or switches.

l. **Class I liquids shall not be stored in basement areas.** Class II and Class IIIA liquids may be stored in basements, provided that automatic sprinkler protection and other fire protection facilities are provided.

m. Containers in unprotected liquid storage areas shall not be stored closer than three (3) feet to the nearest beam, chord, girder or other obstruction.

9-15. **INDOOR STORAGE AREA FIRE PROTECTION.** Where automatic sprinkler protection is provided, barriers must be present to prevent the spread of burning liquids to other unaffected

areas throughout the facility. It will be necessary to control the flow of liquids and safely remove it from the effected areas.

9-16. INDOOR STORAGE AREA DISPENSING.

- a. Dispensing shall be by approved pump or self-closing faucets only.
- b. Liquid storage areas, where dispensing is conducted, shall be provided with either a gravity or a continuous mechanical exhaust ventilation system.
 - a. Mechanical ventilation shall be used if Class I liquids are dispensed within the room.
 - b. Any electrical equipment and/or wiring located in an area where Class I liquids are being dispensed or Class II or III are at temperatures at or above flashpoint are dispensed, shall be suitable for Class I, Division 2 hazard locations. (NFPA 70, National Electrical Code)

9-17. COMBINING FLAMMABLE AND COMBUSTIBLE MATERIALS.

- a. Flammable and combustible materials can be stored together if they compatible. Incompatible materials must be stored in separate locations.
- b. The amount of material that can be stored in any one place will depend upon the amount and class of the material.

CLASS	MAXIMUM AMOUNT THAT CAN BE STORED IN A BUILDING (GALLONS)
I-A	60
I-B	120
I-C	180
II	240
III-A	660
ANY COMBINATION OF I-A & II	240

- c. The materials can be stacked within the limitations established in paragraph 9-20, a-e.
- d. If both flammable and combustible material are stored together, the standard for the most sensitive class of material will be used when determining how much material can be stored in

one place and how high it can be stacked. For example: If twenty gallons of a class I flammable and a class III-A are going to be stored together, the chart above indicates that the class I-A material has the most stringent storage requirement dictating how much can be stored (60 Gallons). Paragraph 9-20 does not authorize stacking any class I-A, and class III-A can be stacked 10 feet high. Since the Class I-A is the most stringent, none of the class I-A or class III-A can be stacked if they are stored together. In this example our storage area can only store 60 gallons and none of it may be stacked.

9-18. **QUANTITIES ALLOWED WITHIN BUILDINGS.** Storage shall not exceed sixty (60) gallons of Class I-A, one hundred and twenty (120) gallons of Class I-B, one hundred and eighty (180) gallons of Class I-C, two hundred and forty (240) gallons of Class II or six hundred and sixty (660) of Class III-A liquids, or two hundred and forty (240) gallons in any combination of Class I & II liquids. **Quantities exceeding these limitations shall be stored in an approved inside liquid STORAGE ROOM or WAREHOUSE.** Ten (10) gallons only, of Class I, II or III-A, may be stored outside of cabinets if it is being used for maintenance purposes or for the operation of equipment.

9-19. **INDOOR STORAGE ROOMS DESIGN AND CONSTRUCTION.** Openings to other rooms or buildings shall be provided with non-combustible, liquid tight raised sills or ramps at least 4 inches in height. Openings shall be provided with self-closing fire doors. The room shall be liquid tight where the wall joins the floor. See Appendix M, Table III for Capacity and Arrangement. For storage of Class II or III liquids **ONLY**, general use specifications apply.

a. Wiring in rooms containing Class I liquids shall comply with Class I, Division 2 Hazardous Locations, specifications. For storage of Class II or III liquids only, general use specifications apply.

b. Every inside storage room shall be provided with either a gravity or mechanical exhaust ventilation system. Such a system shall be designed to provide for complete change of air within the room at least six (6) times per hour. If a mechanical system is used, the switch shall be located outside of the door. Any lighting fixtures within the room shall also be connected to the same switch.

b. All rooms shall be provided with adequate drainage. Drainage systems shall be designed and sized to carry off any anticipated spill, plus the minimum calculated flow from the sprinkler system to a safe location. If connected to a public drain or sewer system, a separator/clarifier shall be installed.

9-20. **LIQUID STORAGE WAREHOUSES DESIGN CONSTRUCTION AND LOCATION.**

a. General purpose warehouses storing liquids shall be separate, detached buildings located fifty (50) feet or less from other buildings or line of adjoining property that may be built upon.

b. The exposed wall shall be a blank wall having a fire-resistance rating of at least four (4) hours or an approved fire partition having a fire resistance rating of not less than two (2) hours.

c. Warehouse operations involving the storage of liquids shall be restricted to inside liquid storage areas in accordance with the requirements under **GENERAL REQUIREMENTS** (for all indoor areas.)

d. The total quantity of liquids shall not be restricted. However, the storage heights and maximum quantities per pile shall the storage heights and maximum quantities per pile shall comply with Appendix M, Table V which ever is applicable.

9-21. **LIQUID STORAGE WARHOUSE LIMITATIONS.** Class IB and IC liquids in containers of one (1) gallon or less capacity, Class II liquids in containers of 5 gallons or less, and Class III liquids in containers of 60 gallons or less, shall be permitted to be stored in warehouses that handle other combustible commodities, provided that the storage area is protected with automatic sprinklers and the quantities and height of liquid storage is limited to:

- a. Class IA liquids: not permitted
- b. Class IB & IC: 660 gallon, max 5 ft high
- c. Class II: 1,375 gal, max 5 ft high
- d. Class IIIA: 2,750 gal, max 10 ft high
- e. Class IIIB: 13,750 gal, max 15 ft high

9-22. **PLASTIC CONTAINERS.** Class I & Class II liquids in plastic containers shall not be stored in general-purpose warehouses, but shall be stored inside liquid storage areas that meet their requirements.

9-23. **WAREHOUSES STORAGE OF FLAMMABLE/COMBUSTIBLE LIQUIDS & ORDINARY COMBUSTIBLE MATERIALS.** The following applies to the storage of liquids and ordinary commodities:

a. Liquids shall not be stored in the same pile or rack as ordinary commodities unless packaged together, such as in kits. Then the manner of storage shall be considered on the basis of whichever commodity predominates.

b. Ordinary commodities shall be separated from liquids in containers by a minimum distance of eight (8) ft.

9-24. **SIGNS AND LABELS AT LIQUID STORAGE WAREHOUSES.** Signs shall be posted prohibiting any open flames or smoking near the storage area.

9-25. **FIRE CONTROL MEASUREMENTS.**

a. Suitable fire control devices, such as, small hose or portable fire extinguishers, shall be available at locations where flammable or combustible liquids are stored.

b. At least one portable fire extinguisher having a rating of not less than 20-B units shall be located not less than ten (10) feet, nor more than twenty five (25) feet, from any Class I or II liquid storage area located **outside of a storage room but inside a building.**

c. At least one portable fire extinguisher having a rating of not less than 20-B units shall be located outside of, but not more than ten (10) feet from **the door opening into any storage building.**

d. Purple K extinguishers have a B/C ratings. Check label to determine the poundage, i.e. 20 means 20 lbs, 12 - 12 lbs, etc.

e. Water-based fire protection systems shall be inspected, tested, and maintained in accordance with the NFPA standards.

f. The water supply shall be sufficient to meet the specified fire-protection demand, to include at least five hundred (500) gallons per minute for in and outside hose lines.

g. In warehouses, no less than one (1) inch rubber hand hose lines shall be installed to reach all liquid storage areas.

h. Any materials that react with water or other liquids, shall not be stored in the same room with flammable or combustible liquids.

9-26. **SMOKING/OPEN FLAME POLICY.** Open flames and smoking shall not be permitted in flammable or combustible storage areas. Smoking is prohibited in all federal facilities.

9-27. OUTSIDE STORAGE BUILDINGS DESIGN AND CONSTRUCTION.

a. Construction design of exterior walls shall provide ready accessibility for fire fighting operations through doors, windows, or lightweight non-combustible wall panels.

b. Where Class IA or Class IB liquids are dispensed, or where Class IA liquids are stored in containers larger than 1 gal, the exterior wall or roof shall incorporate deflagration venting.

c. Storage areas shall be protected against tampering or trespassers by fencing or other control measures.

9-28. OUTDOOR STORAGE CAPACITY. The storage capacity and required distance from property lines for outdoor storage buildings shall comply with Appendix M, Table V.

9-29. OUTDOOR STORAGE LOCATION. Storage sheds shall not be more than one hundred and fifty (150) feet from a twenty (20) foot wide access way that will allow fire-control apparatus to approach the storage area.

9-30. OUTDOOR STORAGE CAPACITY FOR MIXED MATERIALS. If a variety of classes of materials are stored in a single location, Consult Appendix M, Table V in to determine the maximum amount of material that can be stored. The maximum amount of material stored must be equal to the most sensitive material stored in the building.

<p>Example:</p> <p>Class I-A Class II Class III</p> <p>Refer to Appedix F, Table IV, and look in the "Maximum Quantity/Pile" column. You note the maximum allowable quantities as: (Continued)</p> <table> <tr> <td>CLASS I-A</td> <td>1,100 gallons</td> </tr> <tr> <td>CLASS II</td> <td>1,500 gallons</td> </tr> <tr> <td>CLASS III</td> <td>2,000 gallons</td> </tr> </table> <p>The item with the smallest quantity is Class I-A at 1,100 gallons, therefor, you may store no more than 1,100 gallons of you POL inventory in your outside storage area.</p>	CLASS I-A	1,100 gallons	CLASS II	1,500 gallons	CLASS III	2,000 gallons	<p>From your POL inventory, you identify that you will store the following Items in a designated outdoor storage area:</p>
CLASS I-A	1,100 gallons						
CLASS II	1,500 gallons						
CLASS III	2,000 gallons						

9-31. OUTDOOR STORAGE OF REACTIVE MATERIALS. Any materials that react with water or other liquids, shall not be stored in the same room with flammable or combustible liquids.

**9-32. CONTAINER STORAGE NEAR BUILDINGS ON THE SAME PROPERTY
CONSTRUCTION & CAPACITY.**

a. A maximum of 1,100 gallons of liquid stored in closed containers is allowed adjacent to a building located on the same premises and under the same management provided:

(1) The exterior building wall adjacent to the storage area shall have no openings at or above-grade areas within 10 ft horizontally and no openings to below-grade areas within 50 ft horizontally of such storage.

(2) The adjacent wall has an exterior fire resistance rating of two (2) hours, and

(3) There are no openings directly above the storage.

b. The area shall be graded in a manner to divert possible spills away from buildings or others exposures or shall be surrounded by a curb at least six (6) inches high. When curbs are used, provisions shall be made for draining of accumulation of ground or rain water or spills of flammable or combustible liquids. Drains shall terminate at a safe location and shall be accessible to operation under fire conditions.

c. Where storage on racks exist as permitted in this code, racks storing Class I or Class II liquids shall be either single-row or double-row.

9-33 OUTDOOR STORAGE AREA FIRE PROTECTION.

a. No container in a pile shall be more than 200 ft from a 12 ft wide access way to permit approach of fire control equipment/trucks under all weather conditions.

b. At least one portable fire extinguisher having a rating of not less than 20-B units shall be located outside of, but not more than 10 feet from the door opening into any room used for storage.

c. Signs shall be posted prohibiting any open flames or smoking near the storage area.

d. The area shall be kept free of weeds, debris, etc. The area surrounding an exterior storage building shall be kept clean of such material for a minimum distance of 15 ft.

9-34 **STORAGE OF VEHICLES INSIDE BUILDINGS.** There shall be no source of ignition or open flame below eighteen inches (18") from the floor when storing/parking vehicles in the same area.

9-35. **STORAGE OF OPEN FLAME DEVICES.** Open flame devices will not be used in the flammable storage facility. Avoid storing items against pipes or coils producing heat.

9-36 **CONTAINER LABELS.** Handling of all stock should be conducted so as to avoid damage to labeling. **CAUTION:** Relabeling of materials whose original labels have been obliterated must be done with utmost caution to avoid mislabeling with consequent danger of misuse or waste of materials.

9-37. **SHELF LIFE.** When materials are received for storage, they will be checked for date of manufacture and in the case of mandatory shelf life material, for shelf life expiration date. Materials received without date of manufacture labeling will be marked with shipping document date. This date will then serve as the manufacture date for the purpose of age control.

9-38. **MOTORIZED EQUIPMENT.** Gasoline motorized industrial vehicles will be prohibited from use in the flammable storage facility. Industrial trucks approved for use in hazardous locations will be used.

9-39 **SPILL REPORTING.** Any spill or release of five (5) gallons or more requires a reporting within twenty four (24) hours to DOFE-E. The report (see Appendix E) can be verbal at (913) 274-1150 or FAX at (913) 274-1619. Off-Duty hours emergency or reporting, call Maj. John Andrew (913) 271-1504, Mr. Ron Cockran (913) 246-1777, Ms. Pattie Haines-Lieber (913) 843-5298, Mr. Sam Mryyan (913) 232-2773.

CHAPTER 10
COMPRESSED GASES

10-1. DEFINITIONS:

a. Anesthetic Gases. Some gases are anesthetic when inhaled, and when absorbed in the blood, exert a drug-like action. The inhalation of considerable quantities can cause death.

b. Asphyxiating Gases. Some gases are considered harmless in small quantities, but inhaling large quantities of gases that prevent oxygen from reaching the lungs can cause suffocation. Examples: hydrogen, nitrogen, helium.

c. Compressed Gases. Any material or mixture having in the container an absolute pressure exceeding 40 psi (pounds per square inch) at 70° F, having an absolute pressure exceeding 104 psi at 130° F; or any liquid flammable material having a vapor pressure exceeding 40 psi at 100° F as determined by ASTM Test D-323.

d. Flammable Gas. Classified as "flammable compressed gas" if any of the following occurs:

(1) Either a mixture of 13 percent or less (by volume) with air forms a flammable mixture or the flammable range with air is wider than 12 percent regardless of the lower limit. These limits will be determined at atmospheric temperature and pressure.

(2) Using the Bureau of Explosive's flame projection apparatus, the flame projects more than 18 inches beyond the ignition source with the valve fully opened or the flame flashes back and burns at the valve with any degree of valve opening.

(1) Using Bureau of Explosive's open drum apparatus, there is any significant propagation of flame away from the source.

e. Irritant Gases. Irritant gases are not absorbed into the blood, but when inhaled, injure the surface tissue of the breathing passages. Death may result from continuous exposure because of the contraction of the respiratory tract. Examples: Ammonia, chlorine, sulfur dioxide

f. Liquefied Gas. A gas, other than in solution, that in a packaging under the charged pressure exists both as a liquid and a gas at a temperature of 20°C (68°F).

g. Toxic Gas. All gases that are hazardous to life or health under normal conditions and has a health hazard rating of 3 or 4 as defined in the National Fire Protection Agency (NFPA) 704, Standard System for the Identification of the Fire Hazards of Materials.

10-2. GENERAL PRECAUTIONS. Because compressed gases are under pressure, such gases must be handled with extreme care, particularly the flammable and explosive gases. Compressed gas cylinders must never come in contact with fire, sparks, or electrical circuits. An exploded steel container would have the same destructive effect as a bomb explosion. Therefore, general precautions for handling and storing compressed gases are as follows:

- a. Safety devices in valves of cylinders will **not** be tampered with.
- b. Cylinders will not be handled, shipped or stored without valve protection caps. However, small cylinders of less than 40-pound capacity, "ram-bottom" type cylinders, and cylinders with less than 625 cubic inches of volumetric capacity, such as, carbon dioxide and medical gases, do not require valve protection covers.
- c. The valve outlet connectors of both full and empty cylinders must have an authorized dust cap.
- d. Oxygen cylinders must be free from grease or oil.
- e. For storage and handling purposes, all cylinders with or without residual product, will be considered full and corresponding care must be exercised.
- f. Empty cylinders will be stored separately but in the same manner as full cylinders. Therefore, empty cylinders will not be stored with full cylinders on the same pallet or in the same stack.
- g. Cylinders will not be lifted by the valve protection cap.
- h. Cylinders in use or in storage shall be secured to prevent them from falling or being knocked over.
- i. Cylinders shall not be placed where they could become a part of an electrical circuit.
- j. Cylinders will not be lifted by cranes or mechanical lifts unless fastened in proper containers, racks, and cradles. Rope and chain slings and electromagnets will not be used to lift cylinders.

k. Cylinders will not be used as rollers, supports, or for any purpose other than for containing compressed gases.

l. Compressed gas will not be used to dust off clothing.

m. Flames will not be used to test for leaks in compressed gas cylinders.

n. Valves on empty cylinders will be kept closed.

o. Cylinder valves will be closed before moving cylinders.

p. Suitable materials handling equipment will be used for lifting and transporting cylinders.

q. Suitable hand trucks should be provided for conveying cylinders; cylinders moved on hand truck must be held securely in position.

r. When suitable hand trucks are not available, cylinders will be moved by tilting and rolling.

s. Cylinders will not be dropped or permitted to strike against each other violently.

t. Any cylinder of compressed gas which is not definitely identifiable as to contents will not be issued until the content is identified.

10-3. INDOOR STORAGE CRITERIA FOR GAS CYLINDERS. The following criteria will apply to all cylinder storage of compressed gases. Future construction of structures for storage of these gas cylinders must meet these criteria and should be examined by safety personnel to verify conformity with safety standards prior to acceptance by supply.

a. Storage areas shall be secured against unauthorized entry.

b. All cylinders shall be separated by compatibility when stored (Appendix N). When a gas is classified in more than one category, all compatibility's shall be checked and the most stringent separation shall be used.

c. Spill control, drainage and secondary containment shall not be required.

d. Floors of storage areas shall be of noncombustible or limited-combustible construction.

e. Shelves used for the storage of cylinders shall be of noncombustible construction and designed to support the weight of the cylinders.

f. Separation from incompatible or combustible materials, storage of compressed gases shall be either:

(1) Segregated from any incompatible or combustible materials storage by a minimum distance of 20 ft; or

(2) Isolated from any incompatible or combustible materials storage by a barrier of noncombustible material at least 5 ft high having a minimum fire resistance rating of one half hour.

g. Liquefied flammable gas cylinders (Flammable gases) shall be stored in the upright position or such that the pressure relief valve is in direct communication with the vapor space of the cylinder.

h. (Flammable gases) Different flammable gases shall be permitted to be stored together in a group.

i. (Toxic gases) Toxic gases have additional requirements according to the National Fire Protection Agency. Refer to NFPA 55 for such requirements.

10-4. OUTDOOR STORAGE CRITERIA FOR GAS CYLINDERS

a. Roofed, open-sided shed storage on a concrete slab, above grade, is the preferred type of storage facility if climatic conditions are favorable and security precautions are adequate.

b. All storage facilities for compressed gases will be separated from other buildings by at least 50 feet.

c. Gases which support combustion must be stored in separate sheds with a distance of at least 50 feet between sheds.

d. Preferably, sheds should be constructed of light, non-combustible materials.

e. If one or more sides are installed, provisions must be made to insure a complete change of air at least six times each hour.

f. All electrical installation will be in accordance with Class I, Division 2 locations as defined in Article 500 of the National Electrical Code. The use of skylights is recommended.

g. Sheds will not be heated. The use of stationary or rotating roof vents may be necessary to lower the temperature near the ceiling to ambient conditions during warm weather.

h. Storage areas shall be kept clear of dry vegetation and combustible materials for a minimum distance of 15 ft.

i. Any cylinder stored outside shall not be placed directly on the ground (earth) or on surfaces where water can accumulate.

j. Storage areas shall be provided with physical protection from vehicle damage.

k. If all of the above requirements are observed, then storage areas shall be permitted to be covered with canopies of non-combustible construction.

10-5. ENCLOSED STORAGE FACILITIES CRITERIA FOR GAS CYLINDERS.

a. A single story building, above grade, must be utilized.

b. Separate storage rooms or compartments must be constructed for flammable gases and for gases which support combustion. Additional compartments for specific types of gases may also be constructed.

c. Heated indoor storage areas shall be arranged so that stored cylinders or other containers cannot be spot heated or heated above 125°F.

d. The walls, partitions, floors and ceilings will be of non-combustible, non-porous material. All walls and partitions will be continuous from floor to ceiling, and will be securely anchored and sealed with mineral wool, rubberized grouting or other non-porous sealant. At least one wall of each storage room or compartment, for combustible gasses, must be on an exterior wall.

e. It is recommended all doors to storage rooms or compartments be directly through exterior walls. All doors to storage areas will have a fire resistance rating of at least 1 1/2 hours. All doors to storage areas from interior parts of the buildings (when necessary) will be protected by a swinging type, self-closing fire doors for Class B openings.

f. Windows will be wired glass with approved metal frames and fixed sash. Installation will be in accordance with Standards for the Installation of Fire Doors and Windows, NFPA 80.

g. Every inside storage room or compartment will be provided with either a gravity or a mechanical exhaust ventilation system or a combination of each type. Such systems will be designed to provide for a complete change of air within each room or compartment at least six times per hour. Where gravity ventilation is provided, the fresh air intake as well as the exhaust outlet from the room or compartment will be on the exterior roof or exterior wall of the building in which the room is located. Provisions will be made for exhaust outlets to accommodate gases heavier than air and lighter than air. Exhaust outlets for heavier than air gases will be within 6 inches of the floor. If a mechanical exhaust system is used, it will be controlled by a switch located outside the door of the storage room.

h. All electrical installations will be in accordance with Class I, Division 2, locations as defined in Article 500 of the National Electrical Code.

i. A fire suppression system for shed and enclosed storage should be installed if the cost of the facility and stored material indicates a need. If temperatures reach the freezing point of water a dry pipe sprinkler system should be used. If temperatures do not reach freezing, an automatic wet-pipe sprinkler system should be installed in accordance with NFPA Standard 13. The system should deliver an application density of 0.50 gallons per minute per square foot for a minimum area of 2,000 square feet. Floor drains should be provided to remove discharged water in enclosed storage facilities.

10-6. SAFETY PRECAUTIONS.

a. "NO SMOKING" signs will be posted, and smoking or open flames shall not be permitted within 20 ft of any area where compressed gases are stored.

b. When flammable gases are involved, at any time where they can be ignited by static electricity, means shall be provided to prevent static discharge.

c. Electrical equipment and wiring in areas where flammable gases are stored, handled or used, shall be installed in accordance with the provisions of the National Fire Protection Agency's, National Electrical Code.

d. Approved, supervised smoke-detection systems shall be provided in rooms or areas where cylinder gases are used or stored. The activation of the system shall sound a local alarm.

e. Any compressed gas cylinder that has been exposed to fire shall not be used until they have been requalified in accordance with their pressure vessel code.

10-7. HAZARD WARNINGS.

- a. Material Safety Data sheets shall be available for all gases stored on site.
- b. A complete inventory of the types and quantity of all pressurized gases stored on site shall be maintained as well as a copy submitted to the local supporting Fire Department.
- c. Hazard identification signs shall be placed at all entrances to locations where compressed gases are stored or used.
 - (1) Such signs shall not be obscured or removed.
 - (2) Signs prohibiting smoking or open flames shall also be provided.
- d. Identification of cylinders will bear color code of noun in accordance with MIL STD-101. Filled cylinders will be tagged/labeled with two stock numbers-one for the gas and one for the cylinder. The empty cylinder tag will be over-stamped "MT" to designate "empty".
- e. Gases should be referred to by proper name, rather than just "gas".
- f. The labels applied by the gas manufacture to identify the compressed or liquefied gas cylinder contents shall not be altered or removed nor will additional marks be applied to cylinders without proper approval.

10-8. PROTECTIVE EQUIPMENT. When entering areas known to be highly contaminated or when rescuing personnel from gassed areas, rescuers will be properly equipped with self-contained breathing apparatus or other appropriate respiratory equipment. Mechanical filter respirators offer NO protection against high percentages of gas concentrations and should NOT be used. When entering areas containing hazardous concentrations of atmospheric contaminants, necessary protective equipment will be worn as prescribed by the installation Safety Officer. Personnel shall be trained in the use and care of respiratory protective equipment and in inspection for operational capability. This training will be the responsibility of the installations fire department or appropriate personnel of the respective service.

10-9. RELEASE REPORTING. Any release of chlorofluorocarbons (CFC), halons, or other halogenated chemicals requires a reporting within twenty four (24) hours to DOFE-E. The report (see Appendix E) can be verbal at (913) 274-1150 or FAX at (913) 274-1619. Off-Duty hours emergency or reporting, call Maj. John Andrew (913) 271-1504, Mr. Ron Cockran (913) 246-1777, Ms. Pattie Haines-Lieber (913) 843-5298, or Mr. Sam Mryyan (913) 232-2773.

CHAPTER 11

MOBILE FUEL VEHICLES

11-1. TRAINING.

a. The Army Commercial Drivers License (ACDL) is required for all DoD and contractor-employed civilians who operate Government owned or leased vehicles transporting hazardous materials.

b. The ACDL is the Army's counterpart to the Commercial Driver's License (CDL) which is applicable only within the United States.

c. The training and licensing requirements for the ACDL are in addition to all routine equipment training and performance testing requirements.

d. Such training is not limited to, but would include:

(1) The thorough training in the proper method of operating mobile carriers.

(2) The proper procedures for loading and unloading mobile fuel carriers.

(3) Procedures for fueling and defueling operations.

e. Only qualified personnel shall be allowed to operate mobile fuel carriers.

f. Additional guidance on the ACDL can be found in the AR 600-55 and KS SOP 600-55.

11-2. MOBILE FUEL VEHICLE STORAGE REQUIREMENTS.

a. Vehicle Location with Respect to Property Lines, Public Ways, and Buildings on the Same Property are:

(1) Minimum distance from property line that is or can be built on, including the opposite side of a public way: **50 Feet.**

(2) Minimum distance from nearest side of any public way or nearest important building (i.e. office, educational, institutional occupancies or building storing flammable and combustible materials) on the same property: **25 Feet.**

11-3 PARKING RESTRICTIONS FOR FUEL SERVICING MOBILE FUEL CARRIERS.

a. During the receipt and issue operations, mobile fuel carriers shall not be parked closer than 25 ft between each shell, from any direction, i.e. side to side or end to end.

b. Unattended fuel servicing mobile fuel carriers shall be parked allowing for a clear space between each vehicle of no less than 10 ft.

11-4. MOBILE FUEL CARRIER ORIENTATION.

a. When mobile fuel carriers are parked during times not in use, they will be aligned with the longitudinal axis parallel to the nearest important exposure. This orientation is required because when fuel containers shaped like those on the HEMTT or TPU explode, they rupture at either end and the force of the explosion will be directed to the front and back of vehicle. Therefore, occupied areas and buildings are to be considered as the primary areas of concern, followed by mobile fuel carriers and lastly, unoccupied storage sheds, buildings, etc. (See the following diagram.)

b. When mobile fuel carriers are being utilized during the transfer of fuels, then the vehicles should be facing toward the nearest exit and away from all buildings and/or other obstructions. Do not let other vehicles block exit routes.

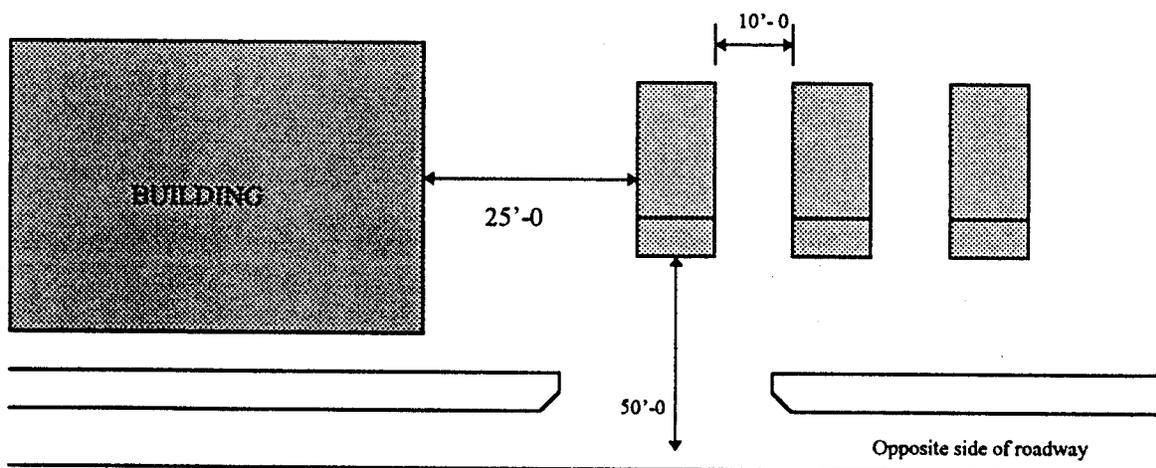


Diagram 1: Mobile Fuel Carrier parking orientation

11-5. WARNING PLACARDS FOR MOBILE FUEL CARRIER STORAGE AREAS.

a. Placards need to be located where they can be readily seen, and not directly on the tank. The NFPA 704 placard shall be located at the entrance of the area. To determine the numerical rate/code for the placard, consult the MSDS for all the products being stored in the area. Consolidate the products ratings and use the highest overall rate for each area.

Example:	HEALTH (Blue)	FIRE (Red)	REACTIVITY (Yellow)
Gasoline	1	3	1
JP 8	0	2	0
<u>Diesel</u>	<u>0</u>	<u>2</u>	<u>0</u>
Combined highest rate	1	3	1

Therefore, the placard would appear as:

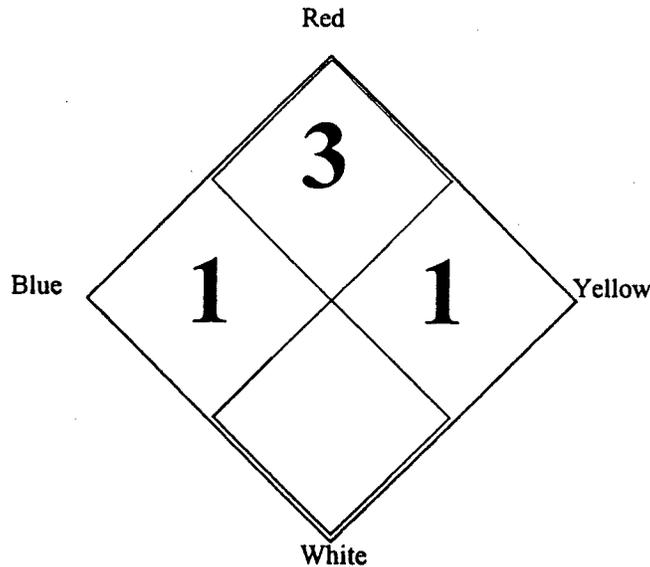


Diagram 2: NFPA 704 placard

b. Signs which prohibit smoking should also be located at least at the entrance of the area. No smoking materials, including matches and lighters shall be used within 50 ft of any area used for fueling or for servicing the fueling systems. Placards/signs specifying this requirement need to be conspicuously placed. See the following for an example.

NO SMOKING WITHIN 50 FEET

11-6. FIXED FIRE CONTROL EQUIPMENT FOR MOBILE FUEL CARRIER STORAGE AREAS.

- a. A reliable water supply shall be available in pressure and quantity to meet the fire demands.
- b. Fire hydrants and any other fire fighting equipment must be within a reasonable distance to the storage location of mobile fuel carriers.
- c. Fire extinguishers (at least class 20B) must be located no closer than 10 ft and no further than 50 ft from the storage area.
- d. A covered storage point should be constructed to contain the extinguishers and sand to be used in the storage area.

11-7. GENERAL OPERATING CONDITIONS OF MOBILE FUEL CARRIERS. Mobile fuel vehicles should be operated according to their appropriate TM. (See TM's 9-2320-279-10-1, 9-2330-292-14, and 5-4930-230-13.)

11-8. MOBILE FUEL CARRIER LOADING AND UNLOADING. The following are requirements that will minimize the potential of the release of fuels, fuel fires and/or explosion hazards that may occur during the loading and unloading of fuel vehicles. For further guidance on basic operational procedures, refer to the appropriate TM's.

- a. When setting up a fueling station, mobile fuel carriers shall not be located near any water ways, i.e. streams, rivers, ponds, etc. or where storm or sanitary drains exist and there is the potential that a release would come into contact with the waters.
- b. Never load or unload mobile fuel carriers during electrical storms or when there is the threat of one.

c. The vehicle must be on level ground with the parking brake set and chock blocks in place to prevent any motion of the vehicle before transferring flammable or combustible liquids.

d. The driver, operator, or attendant of the mobile fuel carrier must not remain in the vehicle. The vehicle must be attended during the loading or unloading process. A person "attends" a mobile fuel carrier when their view is unobstructed and they are within 25 ft of the mobile fuel carrier. Any delivery hose, when attached to the mobile fuel carrier, is considered to be a part of the vehicle.

e. Prior to opening the dome covers on a tank, all bond-wires shall be properly connected. The wires shall remain in place during the entire filling operation and until the dome covers have been securely closed, before they can be disconnected from the mobile fuel carrier.

f. Bond wires may be insulated or non insulated. A non-insulated wire permits ready visual inspection for continuity of the bond. Insulated types must be electrically tested or inspected periodically for continuity of the entire bond circuit including clamps and connectors.

g. Hatches or bungs of mobile fuel carriers which contain flammable and combustible liquids should be carefully opened since pressure build up may have occurred. Pressure will build up after periods of increased temperatures or agitation.

h. When a mobile fuel carrier is filled through bottom loading, a positive means must be provided for loading a predetermined quantity of liquid. An automatic secondary shutoff control must also be in place in each compartment to prevent overfill.

i. When filling a mobile fuel carrier through a top opening, the mobile fuel carrier must be bonded to the fill stem or some part of the rack structure which is electrical interconnected with the fill stem piping. Before the actual transfer of fuel begins, make sure the drop tube or discharge hose is close to the bottom of tank. This will reduce the amount of vapors and static electricity. (If jet fuel is being loaded, then pump at a reduced rate until the lower end of the drop tube or hose is covered with product.)

j. No external bond-wire connection or bond-wire integral with a hose is required if a mobile fuel carrier is being loaded or unloaded through tight connections, i.e., an aboveground tank or through bottom connections.

k. Mobile fuel carriers used for holding flammable liquids, shall not be loaded with combustible liquids. Observing this requirement eliminates the occurrence of flash point changes due to the introduction of a dissimilar liquid, thus minimizing any explosion or flash fire hazards.

If fuel types must be exchanged, then the tank, all compartments, all piping, pumps, meters, and hose connections must be completely drained. If the tank, compartment, piping, pump, meter, or hose do not drain completely, then flush the tank at the loading point. The quantity of combustible liquid used, must equal to twice the capacity of piping, pump, meter, and hose, to clear any residue of flammable liquid from the system.

l. No mobile fuel carrier or compartment used for the transportation of any flammable or combustible liquid, shall be loaded liquid full. Sufficient space (outage) of no less than 1%, shall be provided in every tank or compartment. This standard prevents the occurrence of leaks from the tank or compartments caused by the expansion of their contents when temperatures rise.

m. Mobile fuel carriers that are not completely clean of all product, shall be handled as though it were still a full container/tank. This includes parking practices, using spark resistant tools and materials around the tank, no smoking or open flames, etc. Empty storage tanks, drums, or containers that has held a flammable or combustible product are potentially more dangerous than a filled container because of the vapors still present.

n. Repairs on mobile fuel carriers shall only be initiated when the potential for hazards to occur, have been eliminated. Never use any method of employing a flame, arc or other sources of ignition for repairs unless the tank has been rendered gas free or otherwise made safe. Never repair a fully loaded mobile fuel carrier in a closed garage. Verify that there is a sufficient exchange of air, thus limiting the amount of vapor build-up in an enclosed area.

o. All pressure hoses and couplings shall be inspected at intervals appropriate to the service. With the hose extended, apply pressure to the hose and couplings to the maximum operating pressure. Any hose showing material deterioration, signs of leakage, or weakness in its carcass or at the couplings shall be withdrawn from service and repaired or discarded.

p. Smoking is forbidden when on or about any mobile fuel carrier while loading or unloading any flammable or combustible liquid. Extreme care shall be taken in the loading or unloading of any flammable liquid into or from any mobile fuel carrier. Keep fire away and prevent persons in the vicinity from smoking, lighting matches, or carrying any flame or lighted cigar, pipe, or cigarette.

11-9 FIRE PREVENTION.

a. Never mix incompatible fuels in a tank. A reaction can occur that could create toxic fumes or an explosion which could result in a fire.

b. All electrical equipment used to service any fueling vehicle should be explosion-proof.

c. If a fire should occur in one of the tank compartments, stop the flow of the fuel and close the manhole cover.

11-10. FIRE EXTINGUISHERS.

a. Mobile fuel carriers shall be provided with at least one portable fire extinguisher having a 20-B, C rating.

b. If more than one extinguisher is provided, then each of those extinguishers should have a 10-B, C rating.

c. Each mobile fuel carrier manufactured after January 1, 1980 must be provided with at least one portable fire extinguisher having at least a 20-A or a 20-B, C rating, in lieu of the above.

d. When conducting any type of mobile fuel carrier operations, all vehicle extinguisher must be manned and ready for use.

e. Extinguishers must be located in areas of easy access for quick availability, i.e., in each mobile fuel carrier's roadside equipment cabinet.

f. Fire extinguishers must be visually inspected monthly to ensure that the extinguishers are not damaged and that the nose nozzles are not clogged.

g. Weight-tests must be conducted every six (6) months. The extinguisher must be recharged if necessary. Maintain inspection records for all extinguishers with the inspection dates and initials or name of the inspector and include the date of the last weight-test.

11-11. DISPOSAL OF WASTE BY-PRODUCTS GENERATED FROM THE FUELING PROCESS.

a. During fueling and maintenance operations, waste by-products are generated. Listed below are a few of the occasions in which they are generated. Additional waste by-products may be identified during operating procedures, that are not listed. In any situation, each waste must be identified and the method for disposal determined.

(1) Replacement of the filtering elements in the filter/separator. If the filtering element comes from a diesel mobile tanker, the used elements will need to be containerized and disposed of as a non-RCRA waste.

(2) Water collected in the filter/separator sump then must be collected and containerized instead of allowing it to be released through the sump drain onto the roadside/ground.

(3) Product remaining in the 2 1/2 and 3 inch hoses, i.e., the fuel station suction hoses, after fueling operations have been conducted. When draining the hoses, collect the product and dispose of appropriately.

(4) Fuel drained from the drain valve of the fuel-separator. Drain and collect the product from the valve and dispose of appropriately.

(5) Bulk Receptacle (for unfiltered process) when draining fuel from piping by connecting the suction hose to the open bulk delivery valve.

(6) Cleaning the interior of the tank when it has been determined that the mobile fuel carrier is unfit for service due to the build up of sediment and solid deposits or a change of petroleum products is required and the products are incompatible. Prior to cleaning, arrangements must be made for the collection and disposal of contaminated rinse from the cleaning process and for the one hundred (100) gallons of fuel used to purge the piping, tank and fuel dispensing system.

11-12. RETESTING/INSPECTION OF FUEL/CARGO TANKS

a. Any mobile fuel carrier that has been involved in any of the following incidents, must be tested/inspected prior to further use.

(1) The fuel/cargo tank show signs of corrosion, leakage or has bad dents or any other condition that might render it unsafe for transport.

(2) The fuel mobile fuel carrier has been in an accident and the fuel/cargo tank was damaged to an extent that may adversely affect it's retention ability.

(3) The mobile fuel carrier has been out of service for a period of one year or more.

b. If none of the above conditions apply then the following test schedule must be observed for all mobile fuel carriers.

<u>Test or Inspection</u>	<u>Date the First Test was to be Completed</u>	<u>Test Intervals After First Test</u>
1) External Visual Inspection	9/1/91	1 year
2) Internal Visual Inspection	9/1/95	5 years
3) Leakage Test	9/1/91	1 year

4) Pressure Retest

9/1/95

5 years

c. Any person performing the inspections and tests must be registered with the Department of Transportation.

d. The specific requirements for each test can be found in 49 CFR 180.407(a)-(i).

e. Once a mobile fuel carrier has passed inspection, it must be marked, as required per 49 CFR 180.415. All reports, certifications and related papers certifying that a mobile fuel carrier has been tested in accordance with specifications, must be kept on file for the life of the vehicle and one year thereafter.

11-13. SHIPPING PAPERS/EMERGENCY RESPONSE.

a.. Shipping Papers. Every military vehicle that transports hazardous materials must have in the drivers compartment DD Form 836-R (Emergency Information for Operators and Initial Responders) per FORSCOM/ARNG Regulation 55-1 para 7-11. It must be prepared with the following information:

(1) The proper shipping name for the HM must be that prescribed in the Title 49 CFR, section 172.101 or 172.102 or from the transportation section of the HMIS..

(2) The hazard class prescribed for the material in the Title 49 CFR, section 172.101 must be inserted. Except for a proper shipping name that contains words describing more than one hazard class, inclusion of the hazard class is not required when the words of the proper shipping name contain the key words of the hazard class of the material, i.e., FLAMMABLE LIQUID; POISON B, LIQUID; RADIOACTIVE DEVICES; OR CORROSIVE LIQUID.

(3) The description must include the identification number prescribed for the material in Title 49 CFR section 172.101 or 172.102 or the transportation section of the HMIS.

(4) The description must also show the total quantity by net or gross weight as appropriate, and the unit of measure of the HM covered by the description (e.g., 800 lb. 55 gal). This requirement does not apply to empty packaging, cylinders of compressed gases, and packaging with capacity greater than 110 gallons.

(5) Material shipped under DOT exemptions must be identified by the notation "DOT-E" followed by the number.

(6) As required by Title 49 CFR, section 172.204, the following shipper's certificate will be entered on the face of the GBL:

"This is to certify that the above named materials are properly classified, described, and packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation."

b. **Spill Response Plans.** Every military vehicle that transports hazardous material must also have in the drivers compartment a spill response plan. This plan can be attached to the DD Form 836-R. It must be prepared with the following information:

(1) Describes the manner of response to discharges/releases that may occur during transportation;

(2) Takes into account the maximum potential release of the contents from the mobile fuel carrier;

(3) Identifies who will respond to the release;

(4) Identifies the appropriate persons and agencies, including their telephone numbers, to be contacted in case of a release and the need for spill clean up. (i. e. Bn S-4 or OIC, Facility OIC, or Activity OIC/NCOIC) . The person(s) who is(are) assigned to monitor the number must have a comprehensive knowledgeable in emergency response and incident mitigation information of the material being shipped or they must have immediate access to a person(s) who possess such knowledge and information. DOFE-E will be the agency for reporting.

(5) For each military vehicle transporting hazardous materials, a copy of the spill response plan is retained on file at the unit, facility, or activity and at each location where dispatching of the motor vehicles occurs.

c. **MSDS and/or HMIS.** Every military vehicle that transports hazardous material must have in the drivers compartment a copy of a MSDS and/or HMIS for each hazardous material.

d. **Emergency response information** must be available for use at all times during the loading, transportation and for any other handling of hazardous materials from cargo tanks. It must also be made available, when requested, to any representative of the Federal, State or local government agencies that respond to an incident involving a hazardous material:

11-14. TANK PLACARDING.

a. Any mobile fuel carrier containing a hazardous material for transportation must be affixed with the required identification numbers either on panels or placards prior to or at the time the vehicle is offered for transportation.

b. Tanks of 1,000 gallon capacity or more, must have the identification numbers located on each side and each end of the mobile fuel carrier. The front placarding the mobile fuel carrier can be alternately located on to the front of the track-trailer. Tank & Pump units are required to be marked only on two opposite sides.

c. There are only two methods available in which a motor vehicle can be placard. One is to use the placard which pictorially shows the hazard class associated with the product. An area is provided where the identification numbers must be added. (See below.)



Gasoline or Diesel fuel



Jet fuel

d. The second is a duo placarding method, one shows only the identification number, and the second has pictorial representation of the hazard class only. (See below.)



1202

Gasoline



1202

Diesel fuel



1863

Jet fuel

e. The size of the lettering shall be of a width of at least .24 inches and a height of at least 2.0 inches for cargo tanks and other bulk packages.

f. Identification numbers must be displayed on orange panels or placards, must not be obscured in any way and must be the correct number or shipping name of the material being transported.

g. Additional information referring to the appropriate size and shape of the hazardous placard and the identification numbers can be located in the 49 CFR 172. Never add any other color, number, words or letters to the placard than what is specified in the 49 CFR.

h. Identification numbers are not required on a cargo tank containing only gasoline, if the cargo tank is marked "Gasoline" on each side and rear of the tank in letters no less than 2 inches high.

i. DoD requires that vehicles carrying bulk fuels be marked on both sides and on the back of the tank body with the words FLAMMABLE and NO SMOKING WITHIN 50 FEET. The word FLAMMABLE must be printed in block letters 6 inches high.

j. The words NO SMOKING WITHIN 50 FEET must be printed in block letters and numbers, 3 inches high. The words NO SMOKING must be placed directly under FLAMMABLE or to the right of it on the same line.

k. Labels on vehicles used in combat must be of registration marking, i.e., black on olive drab and for vehicles used on public highways, the marking must be in red letters on white background.

l. Every mobile fuel carrier marked with a proper shipping name, common name or identification number as required, must remain marked even when it is empty unless it has been sufficiently cleaned of residue and purged of vapors to remove any potential hazard; or it has been refilled, with a material requiring different markings or no markings, to such an extent that any residue remaining in the packaging is no longer hazardous.

11-15. FUEL SPILLS

a. Fuel Spills. Fuel spills can be categorized by the square area of ground that they cover. They are defined by the area that is covered not by the quantity released.

(1) A *small priming spill* - a spill that covers less than 18 inches in all directions.

(2) A *small spill* - covers an area less than 10 feet in any direction, but covers less than 50 square feet and the leak or release is not continuous.

(3) A *large spill* - is one that is larger than 10 feet in any direction, covers an area larger than 50 square feet and is continuous, i.e., a mobile fuel carrier leak.

b. Every spill or release should be treated individually since the type of product, the amount lost, the environmental conditions and the equipment available will always vary. None the less, every spill should be reported to the Facility Environmental Coordinator and DOFE-E in accordance with the procedure listed in Appendix E of this SOP. The cause should be determined so that the reoccurrence of such a release can be prevented.

11-16. SPILL CONTROL.

a. There are several methods and practices that serve to minimize the potential for spills. Listed below are a few of the more common procedures for fueling operations:

(1) Carefully, avoiding overfilling. Gauge both the receiving tank and the mobile fuel carrier before and after a load has been transferred.

(2) Always attend discharge nozzles and loading hose when refueling;

(3) Keep the nozzles and hoses well within the container to avoid spraying fuel.

(4) Top off a container at a reduced rate.

(5) Inspect all equipment for any leaks, and if a release does occur, prevent it from reaching the soil by placing a drainage tub, catch basin, or absorbent materials constructed of non-sparking material, i.e., plastic, polyurethane, under hose connections, faucets, and similar equipment. At the earliest opportunity, repair leaks by replacing defective hoses, gaskets and faucets.

b. Secondary containment is also recommended. Two methods are discussed below. They can be constructed as permanent structures or temporarily for immediate spills. A combination of the two can also be modified if there is a lack of space available for remote impounding alone.

(1) *Remote Impounding* - Basic concept: Remove any released liquids away from the mobile fuel carrier area to minimize fire and environmental damage to adjacent properties and/or other mobile fuel carriers. Requirements for remote impounding include:

(a) A slope of not less than 1% away from the mobile fuel carrier and at a distance of 50 ft from the vehicle or any buildings.

(b) The capacity must be of 100% of the largest tank.

(c) The drainage system must be located so that, if the released liquids become ignited, the fire shall not threaten any other mobile fuel carriers or buildings.

(d) The impounding area, when full, must not be closer than 50 ft to any property line.

(2) *Diking* - Basic concept: When spacing limitations restrict the construction of impounding areas, diking is an alternative method to containing liquids. The disadvantage is that the contained liquids surround other mobile fuel carriers, therefore any ground fires would involve all vehicles within the diked area. Requirements for diking are:

(a) A slope of not less than 1% away from the mobile fuel carrier to the base of the dike.

(b) The capacity of the diked area must be 110% of the greatest amount of liquid that can be released from the largest tank;

(c) The outside base of the dike at ground level must be at least 10 ft to any property line.

(d) The dike must be constructed of earth, steel, concrete, or solid masonry which is designed to be liquid-tight and can withstand full hydrostatic head. Areas for mobile fuel carriers containing flammable liquids located in porous soils may require additional structural reinforcement to prevent seepage into the floor soils. If earthen walls are used, specific dimensions are required for it's construction;

(e) Walls of diked areas must not exceed 6 ft interior height.

(f) If two or more mobile fuel carriers are contained within a diked area, they must be sub-divided by intermediate dikes or by drainage channels. Intermediate diking must be constructed to hold at least 10% of the capacity of the mobile fuel carrier so enclosed, not including the volume displaced by the vehicle.

(g) The dikes and drainage channels must be located between mobile fuel carriers to take full advantage of available space considering the individual vehicle's capacity. The intermediate dikes, should be no less than 18 inches in height.

(h) There needs to be drainage control from the diked areas which can be controlled from outside the dike wall. It should also be controlled so that no flammable or combustible liquids are able to enter any waterway, public sewers or public drain.

(i) No combustible materials, empty or full drums or barrels shall be stored within the diked area.

11-17. FEDERAL SPILL RESPONSE AGENCY NOTIFICATION.

a. The USEPA has mandated that the occurrence of specific events requires immediate notification to the Federal Spill Response Agency. The following list describes those circumstances. The Federal Spill Response number to call if such event occurs is, 1(800) 424-8802.

b. If any hazardous material is released during the course of transportation, loading, unloading and temporary storage and any of the following incidents occurs as a result of the release, then the Federal Spill Response agency must be notified:

- (1) A person receives injuries requiring hospitalization; or
- (2) Property damage exceeds \$50,000; or
- (3) An evacuation of the general public occurs lasting for more than one hour; or
- (4) One or more major highways or roadways are closed down for more than one

hour.

(5) A situation exists such as a continuing danger to life exists at the scene, that it is judged that even though it does not meet the above criteria, it is decided that it should be reported.

11-18. REPORTING AND CONTAINMENT OF SPILLS DURING AN FTX. There are five (5) particular field training exercises where the potential is greater for leaks or spills. The first being when the fuel carrier is parked at the armory, the second, during transportation across public roadways, the third while operating at a military installation, the fourth, while operating at a National Guard training site, and the fifth, while operating at a local training area. The following describes the procedure to follow for each individual site if a spill should occur.

- a. Fuel carriers parked at the armory:
 - (1) Turn off the vehicle's electrical system
 - (2) If the vehicle is a semi trailer, then lower it's landing legs and disconnect the trailer from the tractor, moving it to a safe distance.
 - (3) Remove and man the vehicle's fire extinguisher.
 - (4) Eliminate the source of the leak by using a wooden plug, repair putty, rubber matting, etc., if feasible.
 - (5) Contain the spill by constructing a berm or dike.
 - (6) Contact the DOFE-E office (913) 274-1150 to report the following information and to receive any additional instruction:
 - (a) Identification of the caller.
 - (b) Identify the time and place the spill occurred or was first noticed.
 - (c) The type of material lost.
 - (d) The quantity lost.
 - (e) Any unusual conditions that may contribute to the spread of the release, i.e., rain, hilly terrain, etc.
 - (f) If there has been any release into public waters or sewers or other areas of concern.
 - (g) What agencies have been notified.
 - (h) What action is being taken.
 - (7) Excavate and containerize any affected soils and absorbent materials used.
 - (8) Label the containers appropriately, to be determined by the material released.

b. During transportation across public roadways.

- (1) Remove the vehicle from the traveled part of the highway.
- (2) Keep all unnecessary persons away from the vehicle.
- (3) Extinguish all fires, flames, cigarettes, etc.
- (4) Turn off the vehicle's electrical system
- (5) If the vehicle is a semi trailer, then lower it's landing legs and disconnect the trailer from the tractor, moving it to a safe distance.
- (6) Remove and man the vehicle's fire extinguisher.
- (7) Eliminate the source of the leak by using a wooden plug, repair putty, rubber matting, etc., if feasible.
- (8) Prevent the liquid from spreading over a large area or from flowing into sewers and streams, containing the spill by constructing berms, dikes, or trenches, or by diverting the liquid to a hole or depression in the ground.
- (9) Notify the State Highway Patrol office or Police Department as soon as possible.
- (10) Contact the DOFE-E office (913) 274-1150 to report the following information and to receive any additional instruction:
 - (a) Identification of the caller.
 - (b) Identify the time and place the spill occurred or was first noticed.
 - (c) The type of material lost.
 - (d) The quantity lost.
 - (e) Any unusual conditions that may contribute to the spread of the release, i.e., rain, hilly terrain, etc.
 - (f) If there has been any release into public waters or sewers or other areas of concern.

(g) What agencies have been notified.

(h) What action is being taken.

c. Operating at a military installation.

(1) Prior to a field exercise at a military installation, obtain a copy of the that installation's spill contingency plan.

(2) Turn off the vehicle's electrical system

(3) If the vehicle is a semi trailer, then lower it's landing legs and disconnect the trailer from the tractor, moving it to a safe distance.

(4) Remove and man the vehicle's fire extinguisher.

(5) Eliminate the source of the leak by using a wooden plug, repair putty, rubber matting, etc., if feasible.

(6) Contain the spill by constructing a berm or dike.

(7) Contact the DOFE-E office (913) 274-1150 to report the following information and to receive any additional instruction:

(a) Identification of the caller.

(b) Identify the time and place the spill occurred or was first noticed.

(c) The type of material lost.

(d) The quantity lost.

(e) Any unusual conditions that may contribute to the spread of the release, i.e., rain, hilly terrain, etc.

(f) If there has been any release into public waters or sewers or other areas of concern.

(g) What agencies have been notified.

(h) What action is being taken.

(8) Follow the guidelines for cleanup and disposal of the released material given in the spill contingency plan.

d. Operating a National Guard Training Site.

(1) Prior to a field exercise at a military installation, a copy of that installation's spill contingency plan should be obtained.

(2) Turn off the vehicle's electrical system

(3) If the vehicle is a semi trailer, then lower it's landing legs and disconnect the trailer from the tractor, moving it to a safe distance.

(4) Remove and man the vehicle's fire extinguisher.

(5) Eliminate the source of the leak by using a wooden plug, repair putty, rubber matting, etc., if feasible.

(6) Contain the spill by constructing a berm or dike.

(7) Contact the DOFE-E office (913) 274-1150 to report the following information and to receive any additional instruction:

(a) Identification of the caller.

(b) Identify the time and place the spill occurred or was first noticed.

(c) The type of material lost.

(d) The quantity lost.

(e) Any unusual conditions that may contribute to the spread of the release, i.e., rain, hilly terrain, etc.

(f) If there has been any release into public waters or sewers or other areas of concern.

(g) What agencies have been notified.

(h) What action is being taken.

(8) Follow the guidelines for cleanup and disposal of the released material given in the spill contingency plan.

e. Operating at a local training area.

(1) Turn off the vehicle's electrical system.

(2) If the vehicle is a semi trailer, then lower it's landing legs and disconnect the trailer from the tractor, moving it to a safe distance.

(3) Remove and man the vehicle's fire extinguisher.

(4) Eliminate the source of the leak by using a wooden plug, repair putty, rubber matting, etc., if feasible.

(5) Contain the spill by constructing a berm or dike.

(6) Contact the DOFE-E office (913) 274-1150 to report the following information and to receive any additional instruction:

(a) Identification of the caller.

(b) Identify the time and place the spill occurred or was first noticed.

(c) The type of material lost.

(d) The quantity lost.

(e) Any unusual conditions that may contribute to the spread of the release, i.e., rain, hilly terrain, etc.

(f) If there has been any release into public waters or sewers or other areas of concern.

(g) What agencies have been notified.

(h) What action is being taken.

(7) Notify the land owner as soon as possible.

11-19. SAFETY. Health hazards are inherent when working with petroleum products. They can physically effect a person in more than one form and has the potential to produce a combination of effects. There is no means to eliminate those hazards, therefore persons working with fuels and fuel carrying vehicles should constantly be aware of personnel safety. The following are practices that promote safe working conditions and those working with petroleum should comply with, to protect their safety. Personnel should:

- a. Never work or climb on fuel carrying vehicles without grounding one's self first.
- b. When working directly with the product, i.e., loading or unloading of fuels, wear gloves and protective clothing to keep fuels off the skin. Never wear nylon, wool, or rayon clothing when handling any petroleum products. High electrostatic charges can build up in such fabrics. Cotton clothing must be worn with no metal zippers.
- c. If clothes get soaked with fuel, remove immediately after wetting clothes thoroughly with water. If water is unavailable, then create a grounding action by momentarily holding a piece of grounding equipment with both hands, then removing your hands to remove the soaked clothing.
- d. Personnel working the fueling process should have at least training in first aid and artificial respiration.
- e. Keep the work areas free of loose tools, lumber and other items that may cause accidents. Clear all tall vegetation when parked off road to minimize fire hazards.
- f. Additional safety information can be found in the appropriate technical manual for the particular type of mobile fuel vehicle being used.

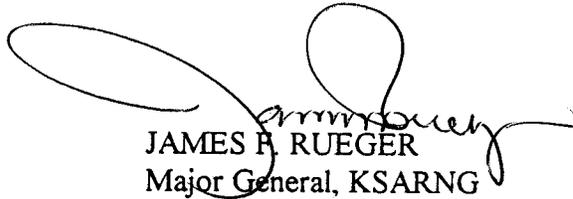
11-20. SPILL REPORTING. Spills or releases of twenty five (25) gallons or more requires reporting within twenty four (24) hours to DOFE-E. The report (see Appendix E) can be verbal at (913) 274-1150 or FAX at (913) 274-1619. Off-Duty hours emergency or reporting, call Maj. John Andrew (913) 271-1504, Mr. Ron Cockran (913) 246-1777, Ms. Pattie Haines-Lieber (913) 843-5298, or Mr. Sam Mryyan (913) 232-2773.

CHAPTER 12

REVIEW AND AMENDMENTS

12-1. **GENERAL:** The Solid and Hazardous Waste/Material Management (420-47) shall be reviewed and updated annually or as needed to incorporate changes in operation, personnel, mission or regulation. The review shall be accomplished by the Installation Hazardous Waste Manager. Users are invited to send comments and suggested improvements to The Adjutant General's Department, Director of Facilities Engineering, ATTN; DOFE-E, 131 SW 27th, Topeka, KS 66611-1159.

OFFICIAL:



JAMES F. RUEGER
Major General, KSARNG
The Adjutant General

ROBERT A. DALTON
COL, GS KSARNG
Chief of Staff

DISTRIBUTION:

A

APPENDIX A

REFERENCES

1. FM 10-68 Aircraft Refueling
2. FM 10-69 Petroleum Supply Point Equipment and Operations
3. FM 10-71 Petroleum Tank Vehicle Operations
4. TM 10-1113 Petroleum Tank Vehicle Operations
5. National Fire Protection Act (NFPA) 407-18
6. AR 200-1, Environmental Protection and Enhancement, dated 23 April 1990
7. AR 420-47, Solid and Hazardous Waste Management
8. Title 49, Code of Federal Regulations, parts 100-177 (Transportation)
9. Title 40, Code of Federal Regulations, parts 190-399 (Protection of the Environment)
10. Title 29, Code of Federal Regulations, parts 1900-1910 (OSHA Labor)
11. Hazardous Waste Generator's Handbook - Kansas Department of Health & Environment
12. Kansas Statutes Annotated, Hazardous Waste Management, Article 34
13. Kansas Administrative Regulations - Hazardous Waste Management, Article 31
14. Environmental Compliance Assessment System - Corps of Engineers
15. TM 9-2320-279-10-1 Operations Manual, Vol 1 for M977 Series HEMMTS
16. TM 9-2330-272-14 General Support Maintenance Manual - Semi Trailers
17. TM 5-4930-230-13 General Support for Tank & Pump Units

APPENDIX B

GLOSSARY

ABATEMENT: Reducing the degree or intensity of, or eliminating, pollution.

ACCUMULATION POINT. A designated area at the generation site used for the short term storage of hazardous waste.

AEROSOL. A suspension of liquid or solid particles in gas.

BOOM. A disposable floating device used to contain oil in water.

CARCINOGEN. Any substance that can cause or contribute to the production of cancer.

CHARACTERISTIC. Any one of the four categories used in defining hazardous waste.

CHLORINATED HYDROCARBONS. Classes of persistent, broad spectrum insecticides that linger in the environment and accumulate in the food chain.

CHLORINATED SOLVENT. An organic solvent containing chlorine atoms.

CHLOROFLOUROCARBONS (CFCs). A family of inert, non-toxic, and easily liquefied chemicals which can drift into the upper atmosphere and the compounds can destroy the ozone.

CLEANUP. Actions taken to deal with a release or threat of a release of a hazardous substance.

CLOSED-LOOP RECYCLING. Reclaiming or reusing wastewater for non-potable purpose in an enclosed process.

CONTINGENCY PLAN. A document that establishes an organized, planned and coordinated course of action to be followed in the event of a release of a hazardous substance.

CORROSIVE. A chemical agent that reacts with the surface of a material.

"CRADLE-TO-GRAVE". See material tracking system.

DIKE. A low wall that can act as a barrier to prevent a spill from spreading.

DISPOSAL. Final placement or destruction of a hazardous substance.

DUMP. A site used to dispose of solid waste without environmental controls.

EFFLUENT. Wastewater, treated or untreated that flows out of an area.

EMISSION. Pollution discharge into the atmosphere.

ENFORCEMENT. Environmental Protection Agency (EPA), Kansas Department of Health & Environment (KDHE) or local legal actions to ensure compliance with environmental laws..

ENVIRONMENT. The sum of all external conditions affecting the life, development and survival of an organism.

EPA. The Environmental Protection Agency. The EPA is the federal environmental policy and enforcement agency.

EPA GENERATOR. An EPA generator is a facility which generates greater than 1000 kilograms of hazardous waste over a period of time. Any facility generating P-listed hazardous waste in quantities greater than one kilogram per month is also considered an EPA generator and must comply with all applicable regulations. EPA generators may store hazardous waste for 90 days without a storage permit. The 90-day time period for each container begins the day that hazardous waste is first placed in the container.

EROSION. The wearing away of surface soil by wind, water or wear.

EXTREMELY HAZARDOUS SUBSTANCES. Any chemical identified by the EPA on the basis of toxicity and being listed as toxic under the Superfund Authorization Reauthorization Act (SARA) Title III.

FACILITY. A building, structure or other real property improvement.

FORMAL TRAINING. Instruction received through a military or civilian sponsored school or seminar.

GENERATOR. A facility that emits pollutants into the air or releases hazardous waste into the water or soil.

GROUND WATER. The supply of fresh water found beneath the earth's surface.

HAZARDOUS MATERIALS. May be a solid, liquid, or gas. Some type of physical damage will occur to the body if a human is exposed to this material. This damage may be noticeable immediately as dizziness, headaches, or a skin rash, i.e., after exposure to a cleaning solvent. Or, the damage may finally be noticed after many years, such as lung cancer after exposure to asbestos. The implementation and use of engineering, administrative, or personal protective equipment controls are necessary to prevent this physical damage when the employee is working with the hazardous material.

HAZARDOUS SUBSTANCE. Any material that poses a threat to human health or the environment.

HAZARDOUS WASTE. Used or contaminated hazardous materials which are regulated for disposal purposes are classified as hazardous waste. However, not all Kansas Administrative Regulations - HW Management Article 31 used hazardous material create a hazardous waste. Hazardous waste is any waste which, because of a particular characteristic(s) (as defined in para 3-2), may endanger human health or the environmental through misuse or improper disposal procedures.

HEAVY METALS. Metallic elements with high atomic weights, e.g., mercury, chromium, arsenic, and lead. They can initiate chronic and/or acute health effects in people at low concentrations and tend to accumulate in the food chain.

HERBICIDE. A chemical pesticide designed to control or destroy plant, weeds or grasses.

HYDROCARBONS. Chemical compounds that consist entirely of carbon and hydrogen.

IGNITABLE. Capable of burning or causing a fire.

INCINERATION. Burning of certain types of solid, liquid and gaseous material.

INJECTION WELL. A well into which fluids are injected for the purpose of waste disposal. This method is not approved for DOD or Kansas Army National Guard Activities.

INORGANIC CHEMICALS. Chemical substances of mineral origin, not of carbon structure.

INSECTICIDES. A pesticide compound specifically used to kill or control the growth of insects.

KANSAS GENERATOR. A Kansas generator is a facility which generates greater than 25, but less than 1,000 kilograms of hazardous waste per month. Such a facility may accumulate up to

1,000 kilograms of hazardous waste without being subject to the 90-day restriction that applies to EPA generators.

LAND FARMING. A treatment method used with hazardous material/waste in which the material/waste is deposited on or in the soil and is naturally degraded by microbes.

LANDFILLS. Land disposal sites for non-hazardous solid waste at which the waste is spread in layers, compacted to the smallest practical volume, and cover material applied at the end of each operating day.

LEACHATE. A liquid that results from water collecting contaminants as it trickles through waste.

LISTED WASTE. A list of hazardous waste that is specifically identified as hazardous in 40 CFR.

MAINTENANCE SUPERVISOR. The individual responsible for maintenance operations at shop level. Maintenance supervisors include Shop Chiefs, Aviation Maintenance Foremen, General Foremen (MATES/CSMS) and/or Motor Sergeants as applicable.

MATERIAL TRACKING SYSTEM. An in-house system designed to ensure that all hazardous materials and wastes are controlled from purchase to disposal.

MATERIAL SAFETY DATA SHEETS (MSDSs). A document produced by the manufacturers of substances that illustrates the substances adverse physical and health effects, composition, precautions needed when handling and actions to take when mishandled. It serves as a compilation of information required under the OSHA communication standard on the identity of hazardous chemicals.

NATIONAL RESPONSE CENTER. The federal operations center that receives notification of releases.

OFF-SITE FACILITY. A hazardous waste treatment, storage or disposal area that is located at a place away from the site of generation.

ON-SITE FACILITY. A hazardous waste treatment, storage or disposal area that is located on the site of generation.

QUALITY ASSURANCE/QUALITY CONTROL. A system of procedures, checks, audits and corrective actions to ensure that all EPA research design and performance environmental

monitoring and sampling, and other technical and reporting activities are of the highest achievable quality.

RECYCLABLE MATERIALS. Materials that normally have been or would be discarded (such as scrap and waste) and materials that may be reused after undergoing some type of physical or chemical processing. Recyclable materials may include discarded materials that have undergone demilitarization or mutilation prior to transfer to the property disposal office for sale. Recyclable materials do not include:

- a. Precious metal-bearing scrap.
- b. Those items that may be used again for their original purposes or functions without any special processing such as used vehicles, vehicle or machine parts, bottles (not scrap glass), electrical components, and unopened containers of unused oil or solvent.

RECYCLING. The process by which recovered materials are transformed into new or usable products.

SMALL QUANTITY GENERATOR. A small quantity generator is a facility which generates less than 25 kilograms (55 pounds) of hazardous waste per month. Small quantity generators may accumulate up to 1,000 kilograms (2,200 pounds) of hazardous waste.

SOURCE SEPARATION. The separation of recyclable materials at their point of generation as a waste.

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN (SPCCP). A plan covering the release of hazardous substances as defined in the Clean Water Act.

STORAGE FACILITY. A facility that is designed and licensed to except and store HW in quantities greater than 2,200 lbs and for periods longer than 90 days.

TREATMENT. Any method, technique or process (including neutralization) designed to change the physical, chemical or a biological character or composition of any hazardous waste.

VECTOR. An organism, often an insect or rodent, that carries disease.

WASTE. Unwanted materials left over from manufacturing process, or human or animal habitation.

WHETLERITE. The common name for ASC activated carbon which is found in most chemical protective masks and collectible protective equipment.

APPENDIX C**EXPLANATION OF ABBREVIATIONS**

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
DOD	Department of Defense
DOFE-E	Director of Facilities Engineering-Environmental
DOT	Department of Transportation
DRMO	Defense Reutilization and Marketing Office
DRMS	Defense Reutilization and Marketing Service
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-To-Know Act
HMIS	Hazardous Materials Information System
HM/HAZMAT	Hazardous Material
HW	Hazardous Waste
HWMC	Hazardous Waste Management Committee
KDHE	Kansas Department of Health and Environment
KDHE	Kansas Department of Health and Environment
IHWM	Installation Hazardous Waste Manager
ISC	Industrial Source Complex
KDHE	Kansas Department of Health and Environment
LEPC	Local Emergency Planning Committee
MSDS	Material Safety Data Sheet
NFPA	National Fire Protection Association
NOV	Notice of Violation
OSHA	Occupational Safety and Health Administration
PPE	Personal Protective Equipment
RCRA	Resource Conservation and Recovery Act
SPCC	Spill Prevention, Containment, and Countermeasure
SWDA	Solid Waste Disposal Act
USPFO	United States Property and Fiscal Office

APPENDIX E

INCIDENT POLLUTION REPORT

1. LOCATION
2. DATE/TIME
3. TYPE MATERIAL/QUANTITY/DURATION OF RELEASE
4. SOURCE/CAUSE
5. TYPE ADJACENT WATER
6. INJURIES/PROPERTY DAMAGE
7. NOTIFICATION:
 AGENCY

 POC

 PHONE
8. CLEAN-UP ACTION
9. PERSON COMPLETING REPORT

 PHONE
10. ADDITIONAL REMARKS

Complete this information if an incident occurs. BE SPECIFIC, "unknown" is not acceptable. Forward copy to AGKS DOFE-E within 5 working days.

APPENDIX I

SOLID WASTE & RECYCLING PLAN

This plan may be used as a guide for producing a solid waste plan as identified in paragraph 3-5 of this SOP. Some of the information will vary based on the availability of local recycling vendors and the unit's proximity to an active component installation.

[office symbol] (200)

[date]

MEMORANDUM FOR [site location] Station Personnel

SUBJECT: Solid Waste and Recycling Policy

1. Reference: KS SOP 420-47, Chapter 3, dated 1 October 1995.

2. GENERAL. Solid waste must be managed to ensure that it does not degrade the environment that we live in.

3. PRACTICE. Solid waste will be disposed of in one of _____ dumpsters located at the facility.

a. The dumpster located at _____ will be used for _____ debris only.

b. The dumpster located at _____ will be used for _____.

c. The dumpster used by the dining facility for the disposal of food products must be marked "entry by unauthorized personnel is prohibited".

d. The dumpsters are emptied weekly by _____ (solid waste transporter). The POC for the solid waste transporter is _____ at _____ (phone number).

e. The landfill used is _____. The landfill is located at _____
_____. The landfill POC is _____. The POC
phone number is _____. The landfill EPA # is _____.

f. The transfer station is operated by _____. The transfer station is
located _____. The transfer station POC is _____.
The POC phone number is _____. The transfer station EPA # is
_____.

g. Access must be controlled to all dumpsters and trash cans to discourage "Public Dumping".

h. All solid waste must be disposed of in the dumpsters on-site. The only exception permitted will be to recycle materials. The types of solid waste generated at this station are:

- (1) Cardboard.
- (2) Card Stock Paper.
- (3) Commercial Packaging Material.
- (4) Wood.
- (5) Empty Cans (Various Uses).
- (6) Drained Fuel and Oil Filters.
- (7) Floor Sweep.
- (8) Office Paper.

i. Materials that must not be disposed of in the on-site dumpsters include but are not limited to:

- (1) Oil.
- (2) Oil or solvent soaked rags.
- (3) Batteries.

- (4) Florescent light bulbs.
- (5) Full paint containers.
- (6) Pesticides, herbicides or rodenticides.
- (7) Wet oil or fuel filters.
- (8) NBC mask filters.
- (9) Contents of containers marked as hazardous.
- (10) Ammunition or pyrotechnics.

4. **MANAGEMENT.** The solid waste policy will be managed by a person designated by the station commander. That person will conduct the following activities:

a. Conduct a quarterly inspection of the dumpsters and trash cans on-site to determine if the restricted wastes listed in paragraph 2h have been disposed of as solid waste. If any restricted wastes are found in solid waste containers it must be removed immediately. If the restricted waste cannot be removed DOFE-E must be notified and the solid waste transported must be notified to delay solid waste pickup until the restricted waste can be removed.

b. Post a list of the restricted materials from paragraph 2h of this memorandum prominently to discourage inadvertent disposal of restricted waste. This list will serve as training on the types of solid waste that cannot be thrown into trash cans or dumpsters.

5. **RECYCLING.** Solid waste can be reduced by recycling. The following materials are required to be separated and kept free of contaminants for the purpose of recycling.

- a. Used antifreeze.
- b. Corrugated cardboard.
- c. Aluminum cans.
- d. Military manuals.
- e. Shredded paper.

- f. High-grade white paper.
 - g. Used oil.
 - h. Used oil filters.
 - i. Scrap metal.
 - j. Used hydraulic fluid.
 - k. Used transmission fluid.
 - l. Aerosol cans.
 - m. Metal containers.
6. **USED ANTIFREEZE.** Used antifreeze can be turned into the Mobilization and Training Equipment Site (MATES) or the Ft. Riley Recycling Center to be recycled. Antifreeze can be transported over the public roadway in a military vehicle to MATES or the Ft. Riley recycling center as long as the appropriate spill response equipment is transported to contain any spill that might occur.
7. **CORRUGATED CARDBOARD.** Cardboard can be turned into the USP&FO Warehouse (using the area truck) for recycling at Ft. Riley. When traveling to Ft. Riley for drill, every effort must be made to transport this material to the recycling center directly.
8. **ALUMINUM CANS** can be transported to the Ft. Riley recycling center or be disposed of through a local recycler.
9. **MILITARY MANUALS** can be turned into the USP&FO warehouse (using the area truck) or to the recycling center at Ft. Riley.
10. **SHREDDED PAPER** can be turned in to the USP&FO warehouse (using the area truck) or to the recycling center at Ft. Riley.
11. **HIGH GRADE WHITE PAPER** can be turned in to the USP&FO warehouse (using the area truck) or to the recycling center at Ft. Riley.
12. **USED OIL** will be placed into a used oil container located at the facility or at the OMS shop. This oil will be picked up by Radium Oil Company to be used as heating fuel.

13. **USED OIL FILTERS** will be completely drained into a container. The used oil from the filter will be placed in the used oil tank. The filter will be crushed and disposed of.

14. **SCRAP METAL** must be turned in to DAS3.

15. **USED HYDRAULIC FLUID** will be treated as used oil.

16. **USED TRANSMISSION FLUID** will be treated as used oil.

17. **AEROSOL CANS** that are still under pressure must have all the pressure released by:

a. Puncturing the can with an approved aerosol puncturing device that allows the volatile organic compounds (VOCs) to escape into a drum or container.

b. Using all of the contents of the can prior to disposal.

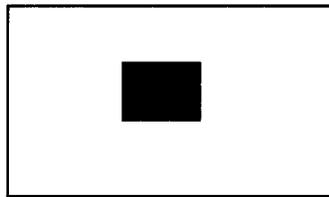
18. **EMPTY METAL CONTAINERS** must be rinsed and taken to the Ft. Riley Recycling Center to be crushed and recycled.

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Commanding

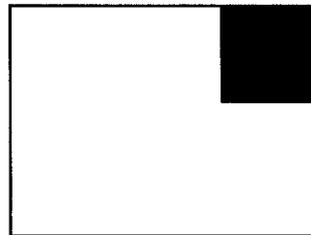
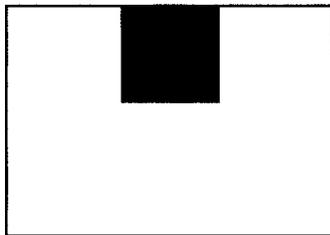
APPENDIX L

INSIDE STORAGE CRITERIA FOR HAZARDOUS LIQUIDS

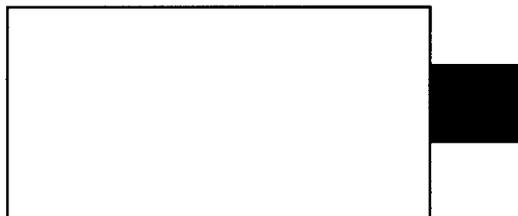
The following diagrams are examples of inside hazardous liquid storage configurations:



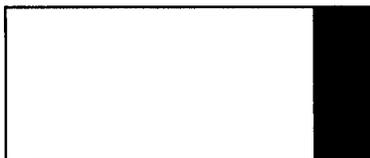
Inside Room



Cut-off Rooms



Attached Building



Liquid Warehouse (attached)



Liquid Warehouse (detached)

APPENDIX M

MATERIAL STORAGE REQUIREMENTS (TABLES I-V)

APPROVED MATERIALS FOR FLAMMABLE/COMBUSTIBLE LIQUID CONTAINERS

TABLE I

Class	Metal/Plastic	Safety Can	Metal Drums (DOT Specification)
Class I-A	1 gallon	2 gallon	60 gallon
Class I-B	5 gallon	5 gallon	60 gallon
Class I-C	5 gallon	5 gallon	60 gallon
Class II	5 gallon	5 gallon	60 gallon
Class III	5 gallon	5 gallon	60 gallon

STORAGE CAPACITY FOR INSIDE ROOMS

TABLE II

Fire Protection Provided	Fire Resistance	Maximum Size	Total Allowable Quantities (gals/sq ft/ floor area)
Yes	2 hr	500 sq ft	10
No	2 hr	500 sq ft	5
Yes	1 hr	150 sq ft	4
No	1 hr	150 sq ft	2

INDOOR PROTECTED STORAGE REQUIREMENTS

TABLE III

Class	Storage Level (Containers)	Allowable Pile Height (Containers)	Maximum Quantity/ Pile (Containers)	Max. Total Quantity (gal)**
IA	Ground	5 ft	3,000 gal. (54 drums)	12,000 gal. (218 drums)
	Upper	5 ft	2,000 gal. (36 drums)	8,000 gal. (145 drums)
	Basement	Not Permitted		
IB	Ground	6 1/2 ft	5,000 gal. (90 drums)	15,000 gal. (273 drums)
	Upper	6 1/2 ft	3,000 gal. (54 drums)	12,000 gal. (218 drums)
	Basement	Not Permitted		
IC	Ground	6 1/2 ft*	5,000 gal. (90 drums)	15,000 gal. (273 drums)
	Upper	6 1/2 ft*	3,000 gal. (54 drums)	12,000 gal. (218 drums)
	Basement	Not Permitted		
II	Ground	10 ft	10,000 gal. (182 drums)	25,000 gal. (454 drums)
	Upper	10 ft	10,000 gal. (182 drums)	10,000 gal. (182 drums)
	Basement	5 ft	7,500 gal. (136 drums)	7,500 gal. (136 drums)
III	Ground	20 ft	15,000 gal. (272 drums)	55,000 gal. (1,000 drums)
	Upper	20 ft	15,000 gal. (272 drums)	55,000 gal. (1,000 drums)
	Basement	10 ft	10,000 gal. (182 drums)	25,000 gal. (454 drums)

* These height limitations shall be increased to 10 ft for containers of 5 gal capacity or less.

** Applies only to cutoff rooms and attached buildings.

INDOOR UNPROTECTED STORAGE REQUIREMENTS

TABLE IV

Class	Storage Level	Allowable Pile Height (Drums)	Containers	Maximum Quantity/ Pile	Max. Total Quantity (gal)*
I-A	Ground	1	5 ft	660 gal. (12 drums)	660 gal. (12 drums)
I-B	Ground	1	5 ft	1,375 gal (25 drums)	1,375 gal. (25 drums)
I-C	Ground	1	5 ft	2,750 gal (50 drums)	2,750 gal. (50 drums)
II	Ground	3	10 ft	4,125 gal (75 drums)	8,250 gal. (150 drums)
IIIA	Ground	5	15 ft	13,750 gal (250 drums)	27,500 gal. (500 drums)
IIIB	Ground	5	15 ft	13,750 gal (250 drums)	55,000 gal. (1,000 drums)

* Refers to areas inside buildings or in portions of such buildings cut off by standard fire walls and/or attached buildings.

OUTDOOR STORAGE REQUIREMENTS

TABLE V

Class	Container storage Max/pile quantity		Min. distance /pile height	Min. distance to property line*	Min. distance to street, alley or public way
I-A	1,100	10 ft	5 ft	50 ft	10 ft
I-B	2,200	12 ft	5 ft	50 ft	10 ft
I-C	4,400	12 ft	5 ft	50 ft	10 ft
II	8,800	12 ft	5 ft	25 ft	5 ft
III	22,000	18 ft	5 ft	10 ft	5 ft

* The distances listed apply to properties that have protection for exposures. If there are exposures, and such protection for exposures does not exist, then the “distance to property line” shall be doubled. Protection for exposure consists of fire protection for structures on properties adjacent to liquid storage areas. Fire protection for these structures shall be acceptable when the property is located either within jurisdiction of any public fire department or adjacent to plants having private fire brigades capable of responding to those adjacent properties. When the total quantity stored does not exceed 50 percent of the maximum per pile, the “distance to property line” and “distance to street/alley” shall be permitted to be reduced by half, but never to less than three (3) feet.

APPENDIX N

SEPARATION OF GAS CYLINDERS BY HAZARD

Gas Hazard Category	Nonflammable	Oxidizing	Flammable	Pyrophoric	Toxic
Toxic	C	20 ft*	20 ft*	20 ft*	—
Pyrophoric	C	20 ft*	20 ft*	—	20 ft*
Flammable	C	20 ft*	—	20 ft*	20 ft*
Oxidizing	C	—	20 ft*	20 ft*	20 ft*
Nonflammable	—	C	C	C	C

C: Compatible. Cylinders of these hazard ratings may be stored adjacent to each other.

* This distance shall be permitted to be reduced without limit when separated by a barrier of noncombustible materials at least 5 feet high having a fire resistance rating of at least 1/2 hour.

APPENDIX O

INVENTORY CONTROL LOG

Generator

Name: _____

Address: _____

Date	Specific Waste Added	Quantity (lbs)	Initials