Fort Leonard Wood Military Installation
Directorate of Public Works, Environmental Division

Installation-Wide Spill Contingency Plan

Revision 0

March 2015

US Army Corps of Engineers®

Prepared by Kansas City District
Building Strong

TABLE OF CONTENTS

LIST OF TABLES

SECTION 1

INTRODUCTION

The intent of this plan is to provide a plan for emergency response in the event of a spill or release of oil or hazardous materials at Fort Leonard Wood. Spill prevention methods are first discussed in Section 4 to identify those measures which should minimize or preclude the possibility of a spill occurring. Emergency spill response measures are then discussed in Section 5 to describe the procedures to be followed should a spill occur. The response measures include notification, reporting, safe and effective control, containment, clean up, disposal, and restoration of the environment.

In accordance with Army Regulation AR 200-1, 40 CFR 264 Subpart D, and 32 CFR 650, this integrated Spill Contingency Plan (SCP) establishes responsibilities, duties, procedures, and resources to be employed to prevent or clean up accidental spills or releases of oil, hazardous wastes, or hazardous substances. This plan combines the requirements of the Installation Spill Contingency Plan and RCRA Contingency Plan.

Facility contacts are located in Table 5-1. The Directorate of Public Works, Environmental Division is accountable for discharge prevention. The Hazardous Waste Program Manager, Shannon Cain in the Environmental Division office in Building 2222, is responsible for maintaining this Plan. A copy of this Plan is maintained at the Environmental Division Office in Building 2222 at Fort Leonard Wood.

SECTION 2

FACILITY DESCRIPTION

2.1 GENERAL INFORMATION

The U.S. Army Maneuver Support Center (MSCoE) at Fort Leonard Wood (FLW) is located adjacent to Interstate 44, approximately 120 miles southwest of St. Louis, Missouri, and 85 miles northeast of Springfield, Missouri. The reservation occupies approximately 62,900 acres of the Ozark Plateau region, located primarily in Pulaski County; with small portions located in Texas and Laclede counties. The installation is defined by the Big Piney River on its eastern boundary and Roubidoux Creek on much of the western edge. Much of the surrounding area is part of the Mark Twain National Forest.

The towns of Waynesville and St. Robert are the closest municipalities to FLW. Waynesville is the Pulaski county seat and lies to the northwest of FLW. St. Robert straddles the Interstate 44 business spur leading south into the installation. Other towns in the immediate area include: Rolla, 28 miles to the northeast; Jefferson City, 68 miles to the north; and Big Piney, Roby, and Plato to the south.

2.1.1 Fort Leonard Wood Organization and Mission Summary

Ft. Leonard Wood is a standard Army installation. The organizational structure provides a command group and supporting staff offices, major mission activities, a garrison including directorate staff, and supporting and non-supporting tenants. Responsibility for performing the missions of the Commanding General, and MSCoE, is assigned to the appropriate staff office.

Ft. Leonard Wood serves as a military garrison and as a mission installation for the U.S. Army Training and Doctrine Command (TRADOC), one of eleven major commands organized in the Department of the Army. TRADOC develops, manages, and supervises the training of individuals of the Active Army and Reserve and National Guard Components, and formulates and documents concepts, doctrine, material requirements, organizations and appropriate training systems for the Army in all environments, tactical and nontactical. This ongoing process involves the review and evaluation of previous combat and strategic situations. Information gathered is used as the basis for formulating concepts and doctrine which are applied, tested, and analyzed through training systems.

The primary mission of MSCoE is to provide the nation with combat-ready, values-based men and women, leaders, and teams who are trained in basic combat skills and chemical, engineer, military police, and transportation disciplines and prepared for success in any operational environment. They develop and integrate concepts, combine, training, force structure, and materiel requirements to support the force and ensure the vitality of the chemical, engineer and

military police regiments. To accomplish this mission, MSCoE and Fort Leonard Wood is divided into several large elements including: the United States Army Engineer School (USAES), the United States Army Military Police School (USAMPS), the United States Army Chemical School (USACMLS) and the Garrison Command. Many of the organizations within these four elements use petroleum oil and lubricant (POL) products, hazardous materials and generate hazardous wastes.

The mission of the USACMLS is to train for war and contingency operations by developing competent, motivated, disciplined, physically fit leaders and soldiers, who are skilled in essential competencies, are capable of performing during war and other-than-war missions. They must be prepared to support joint and combined operations to build for the future by designing the future Chemical Corps to support our Force Projection Army. This is accomplished via using battle labs to integrate chemical war fighting concepts, designing agile and versatile chemical organizations, and modernizing chemical equipment to retain the battlefield edge. They must also be prepared to foster organizational excellence by creating a climate that promotes excellence.

Figure 2-1 shows a diagram of the facility.

2.1.2 Hydrologic Setting

2.1.2.1 Surface Water

Major surface water features at FLW include the Big Piney River located on the east side of the installation, Roubidoux Creek on the west and Dry Creek on the north. The Big Piney River and Roubidoux Creek originate to the south of the installation and flow north, to their confluence with the Gasconade River. Beyond the river bluffs, the landscape is dissected by ravines and small valleys which contain tributaries to the major rivers. There are numerous small springs and seeps on the installation, and most tributary streams have a spring that either originates or substantially supplements the stream flow. Some horizontal movement of groundwater to intermittent seeps and springs along the steeper slopes leading into the major valleys may occur.

The main tributaries of the Big Piney River which drain FLW are Dry Creek, McCourtney Hollow, and Falls Hollow. Dry Creek drains the northeast portion of the installation and collects discharges from the Cantonment area. During the summer months, Dry Creek is a losing stream and is usually dry. McCourtney Hollow and Falls Hollow drain the southeast portion of the installation and collect runoff from undeveloped maneuver and impact areas. Several significant unnamed tributaries to the Big Piney River also drain portions of FLW. Many of the Big Piney River's tributaries are known or suspected losing streams.

Roubidoux Creek flows north, meandering through 16 miles of FLW, eventually discharging into the Gasconade River. Ballard Hollow, Caby Hollow, Hurd Hollow, Musgrave Hollow, Smith Branch, McCann Hollow, Bailey Hollow, Pond Hollow, Wolf Hollow, and Turnbull Hollow all drain into Roubidoux Creek. Roubidoux Creek is classified as a losing stream. Many of Roubidoux Creek's tributaries are also known or suspected losing streams.

A total of 19 well-defined lakes, ponds and impoundments ranging in size from one-half to 50 acres are located at FLW. Together, these bodies of water cover approximately 100 acres. Many of these bodies of water are manmade reservoirs. The largest lake, Bloodland Lake, is located in the Wildlife Management and Recreation Area just south of the Cantonment area and west of Range Control. The lake has a surface area of approximately 50 acres. Penn's Pond has a surface area of approximately 8.8 acres.

Several of the primary sediment control ponds are located in training areas and at the heavy equipment training area. The sediment ponds are designed to collect and trap sediment from disturbed areas and to protect the downstream drainages. The sediment ponds located in Training Area 244 will discharge to Smith Branch and drain into Roubidoux Creek. Approximately 40 other impoundments, ranging in size from 0.1 to 0.5 acres, are scattered throughout the installation.

2.1.2.2 Hydrogeology/Groundwater

The hydrology of the groundwater system is influenced by the karst terrain of the installation. Sinkholes, springs, losing streams and caves provide a connection between surface waters and the groundwater system. Rainfall at FLW may either run off or infiltrate into the soil. Water infiltrating into the soil will percolate downward through the soil and clay residuum before entering the underlying sandstone and dolomite bedrock.

Groundwater moving through the rock formations will dissolve small quantities of the limestone. Over a period of many years, this results in a widening of the groundwater flow paths. As the flow paths widen, additional water is channeled through the formation, accelerating the formation of the solution-enlarged flow paths. Indications of enhanced groundwater flow along solution-enlarged flow paths at FLW are evidenced by the presence of a few sinkholes with open swallow holes and the presence of several stream and creek flows which disappear below ground. Most of the sinkholes on the base are concentrated into distinct areas within or near the cantonment area. Most of the sinkholes are plugged at least partially with clay residuum or organic material. A small percentage of the sinkholes have open access to the subsurface, and will allow water to freely move to the saturated zone.

There are numerous indications of horizontal solution-enhanced flow paths in the FLW area. Large springs are present within the valleys of the Roubidoux Creek and the Big Piney River. These springs discharge water that infiltrates or enters sinkholes located along the central ridge on which FLW is located. Groundwater generally flows northward, although the karst terrain may cause local variations in groundwater flow. Recharge to the aquifers occurs through losing streams, sinkholes, and infiltration to the soils.

2.1.2.3 Sanitary Sewers

Sanitary sewage is collected in mains that range from six to 27 inches in diameter. All sewers 18 inches in diameter and smaller are made of vitrified clay or polyvinyl chloride, while larger sewers are made of concrete. Sewers generally follow the drainage patterns of the cantonment area. The rolling terrain requires the use of 25 lift stations and a more circuitous routing with more manholes than would otherwise be necessary to serve the area. The estimated system capacity is 8 to 10 million gallons per day (mgd).

The Normandy Training Area (TA 244) is connected with the installation's wastewater collection and treatment systems. Other training areas outside the cantonment are dependent on septic systems.

The wastewater treatment plant (located north of the Cantonment area) is designed for an average daily flow of 6.0 mgd, with a peak design flow of 8.4 mgd. Excess flow is bypassed to the storm water holding facilities. Following treatment, wastewater is discharged into Dry Creek which flows into the Big Piney River. During the summer months, streamflow occurs mainly as a result of the effluent discharge.

2.1.2.4 Storm Water

Enclosed storm drainage systems exist in the family housing and community center areas, Specker Barracks, the Engineer School site, and the training brigade area bounded by Fourth Street, Iowa, Alabama, and South Dakota Avenues. Stormwater and surface drainage is carried in short collecting lines and systems which discharge the water at various points. The water then flows from these discharge points, and from the remainder of the installation, by open ditches and culverts. These ditches and culverts allow the water to eventually meander into natural ravines, intermittent streams in hollows, and flow into either the Big Piney River or Roubidoux Creek.

2.2 NAVIGABLE WATERS

The USEPA defines “navigable waters” in 40 CFR 112.2. The term includes wetlands, lakes, bays, rivers, and streams of the United States. Potential spills from this facility would likely occur from a tank rupture or a spill during loading/unloading operations. If large enough and not stopped by booms, spills from the facility would flow eastward via tributaries to the Big Piney River or westward via tributaries to the Roubidoux Creek.

SECTION 3

APPLICABILITY DETERMINATION

3.1 SPCC APPLICABILITY

Individual functional areas at Fort Leonard Wood that meet the definition of "facility" as outlined in 40 CFR 112.2 and which require an SPCC Plan under 40 CFR Part 112.1 are addressed under individual SPCC Plans for each functional area. These individual plans prescribe specific spill prevention procedures and spill response actions required specific to each functional area.

3.2 SPILL CONTINGENCY PLAN

This Spill Contingency Plan has been prepared to comply with 40 CFR 264, Subpart D, as well as 32 CFR 650 (Installation Spill Contingency Plan). The Spill Contingency Plan describes actions to be taken to minimize hazards to human health or the environment from an unplanned release of oil, hazardous waste, or hazardous waste constituents to the air, soil, or surface water.

3.2.1 Emergency Response Agreements [40 CFR Section 264.52 (c) and 32 CFR 650.214(g), (j)]

The Directorate of Emergency Services (DES) Fire and Emergency Services Division along with the DPW Environmental office are tasked as the Primary Response Team. Police activities on the base are provided by the Military Police. The Department of Army maintains a hospital on base. A contractor is in place to act as the Spill Cleanup Team. All of these resources are under the immediate and direct control of the On Scene Commander in the event of a release of hazardous waste or hazardous waste constituents. The Installation Commander has additional resources available through mutual aid agreements with nearby police and fire departments.

3.2.2 Emergency Coordinators [40 CFR Section 264.52 (d) and 32 CFR 650.214(a), (c), (d)

The On Scene Commander will act as the Emergency Coordinator i n the event of a release of POL, hazardous waste, or hazardous waste constituents. The On Scene Commander will initially be the senior Fire Department office at the scene. Notification should be made through the Fire Department by dialing 911. Once the scene is stabilized, the role of the On scene Commander will be turned over to the Enviornmental Coordinator.

Occupation	Work Phone	Cell Phone	Address
Fire Chief	(573) 596-0886	Use Work Phone	Building 580, North Dakota Avenue, Fort Leonard Wood, MO 65473
Assistant Fire Chief*	(573) 596-0883/7175	Use Work Phone	Building 580, North Dakota Avenue, Fort Leonard Wood, MO 65473
The Fire and Emergency Services Division is located at Building 580, North Dakota, Avenue. An Assistant Fire Chief is on duty 24-hours per day on alternate days. Once the Fire Department has turned the site over to the Environmental Division, the progression of On Scene Commanders (with the Env. Div. Chief as Primary) for cleanup operations is as follows:			
DPW Environmental Division	(573) 596-0882	Use Work Phone	Building 2222, 16037 Minnesota Avenue, Fort Leonard Wood, MO 65473
DPW Environmental Division Chief	(573) 596-8125	Use Work Phone	Building 2222, 16037 Minnesota Avenue, Fort Leonard Wood, MO 65473
DPW Environmental Branch Chief	(573) 596-8620	Use Work Phone	Building 2222, 16037 Minnesota Avenue, Fort Leonard Wood, MO 65473
DPW Hazardous Waste Program Manager/ Spills	(573) 596-1158	Use Work Phone	Building 2222, 16037 Minnesota Avenue, Fort Leonard Wood, MO 65473
DPW Alternate Spill Manager	(573) 596-0005	Use Work Phone	Building 2222, 16037 Minnesota Avenue, Fort Leonard Wood, MO 65473

3.2.3 Emergency Equipment [40 CFR Section 264.52 (e) and 32 CFR Section 650.214(f)]

Emergency equipment to be used in the event of a release of hazardous materials or hazardous material constituents is listed in Appendix A.

3.2.4 Evacuation Plan [40 CFR Section 264.52 (f)]

Each individual facility will have a posted evacuation plan. The evacuation of adjacent facilities will be accomplished by the Military Police under the direction of the On Scene Commander.

3.2.5 Training Requirements [32 CFR Section 650.214(c)] Training requirements for emergency response personnel are outlined in Section 4.3 of this Plan.

3.2.6 Spill Detection [32 CFR Section 650.214(e)]

Tank inspection requirements are outlined in the installation's Tank Management Plan and SPCC Plans for facilities which are regulated under 40 CFR 112.

3.2.7 Spill Response Procedures [32 CFR Section 650.214(h)]

Specific spill response procedures are outlined in Sections 5.1-5.4 of this Plan.

3.2.8 Spill Reporting Procedures [32 CFR Section 650-214 (i)]

Specific spill reporting procedures are outlined in Section 5-5 of this Plan.

SECTION 4

GENERAL PLAN REQUIREMENTS

4.1 PLAN REVIEW AND SUBMITTAL

The Spill Contingency Plan must be reviewed, and immediately amended, if necessary, whenever: (a) The facility permit is revised; (b) The plan fails in an emergency; (c) The facility changes—in its design, construction, operation, maintenance, or other circumstances—in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency; (d) The list of emergency coordinators changes; or (e) The list of emergency equipment changes.

4.2 CONFORMANCE WITH FEDERAL AND STATE REGULATIONS

This Plan is in conformance with applicable Federal, State, and local requirements regarding the control and abatement of water pollution. The main purpose of this Plan is to comply with the requirements of 40 CFR 264 and 32 CFR 650.

4.3 PERSONNEL TRAINING

Site specific on-the-job training is given for each individual responsible for managing hazardous waste and hazardous substances. Briefings on both spill prevention and spill response are given to operating personnel. These briefings highlight spill events or failures, malfunctioning components, and precautionary measures.

All personnel involved with the management, handling, and storage of hazardous substances must take part in annual training programs which are equivalent to OSHA's Awareness Level training defined in 29 CFR 1910.120 (q) 6 i. The formal training will be conducted by an individual familiar with the SCP and Hazardous Waste Management Plans. Others may assist with the training if they are familiar with a particular area of training.

The following will be provided to managers of oil, hazardous waste, and/or hazardous substance storage facilities:

- Definition of hazardous materials and the risks associated with them.
- Understanding the potential outcomes associated with an emergency when hazardous materials are present.
- Identification of hazardous materials in an emergency.

- Knowledge of the RCRA Contingency Plan and the role of the persons discovering a release.
- Knowledge of spill reporting procedures.
- Ability to realize the need for additional resources.
- Applicable first-aid procedures to be used following exposure.
- Requirements and procedures for using the protective equipment.
- Evacuation procedures.
- Combustibility of materials, potential for flash back along vapor trails, and special hazards associated with combustible materials.
- Applicable fire fighting procedures for combustible materials.
- Reactivity of spilled material with common materials including water.
- Use and maintenance of alarms and monitoring equipment.
- Location of Site-Specific SPCC Plans, if applicable.
- Immediate spill response actions including notifying the Fire Department at Extension 911, the use of fire extinguishers, absorbents, neutralizing agents, etc.
- Aspects of visual inspection of the area.
- Purpose and requirements for good housekeeping.

The following items apply specifically to those managing hazardous waste:

- Hazardous waste packaging procedures.
- Installation disposal procedures.
- Inspections.
- Records and record keeping.
- Decontamination and cleanup procedures.

Personnel who are assigned to the Spill Cleanup Team and the responders from the Fire Department will have current Hazardous Waste Operations (HAZWOPER) training at a minimum of the Operations Level in accordance with 29 CFR 1910.120.

4.4 SECURITY

Fort Leonard Wood is an access-controlled installation, where the general public can enter and exit at any time after getting a pass at the main gate. Specific facilities are fenced and locked when not manned. Valves on tanks or pumps are set in the off-position when not in use. These valves should be locked to prevent a spill as a result of vandalism.

4.5 RECORD KEEPING

Individual functional areas maintain inspection and test records for the containers within their control. The functional areas will maintain inspection and testing records for certified inspections for the life of the container. Inspection and testing procedures for each container are described in more detail in Section 5 of this Plan.

4.6 SPILL RESPONSE RESPONSIBILITIES

Any individual observing a release or discharge of any amount of oil, hazardous waste and/or hazardous substance, will immediately telephone the Fort Leonard Wood Fire Department at Extension 911.

4.6.1 Responsibilities of Individuals

On Scene Commander (OSC): Spill response is the responsibility of the DES. In all cases, the OSC will initially be the most senior person from the Fire and Emergency Services Division (the Fire Department). This position carries out all responsibilities of the on-scene coordinator for emergency response. The Fire Chief will be the OSC upon arrival to the site. The OSC will coordinate and direct the control and cleanup at the scene. The OSC will determine the magnitude and nature of the incident and determine if response by the Installation Assistance Team (IAT) is required. Should the Fire Department determine that the spill is a major incident or will affect working operations of the installation, notification of the EOC will be required. The EOC will notify the Command Group to include the Garrison Commander.

If the OSC determines that the spill is under control and is of a non-hazardous nature, he will immediately turn the role of OSC over to the **Environmental Coordinator (Primary Emergency Coordinator)** for cleanup. This position assumes role of OSC for cleanup activities. The DPW Environmental Coordinator will ensure appropriate remediation, restoration, and reporting procedures are accomplished.

Installation Commander: The Installation Commander will be notified of the status of reportable emergency response activities, will be consulted and will advise in life-threatening situations, and will activate the Disaster Preparedness Plan, if necessary.

Environmental Coordinator (EC): The EC will make any necessary notifications, prepare and submit written reports to the USEPA and the MDNR, and will direct the restoration of the site to its previous condition. The EC will be the responsibility of the Directorate of Public Works Environmental Division (DPW-EE). Table 4-1 provides the spill quantities that are reportable to USEPA and MDNR.

Table 4-1 Reportable Spill Quantities		
MATERIAL	**REPORTABLE QUANTITY**	
	MASS (PER 40 CFR PART 302 EXCEPT WHERE NOTED)	**VOLUME (ASSUMED DENSITY LB/GAL)**
Aboveground Storage Tanks: Diesel JP-8 Unleaded MOGAS Used Oil Asphalt (cut-back)	100 lbs	 14.1 gal (7.10 lb/gal) 14.8 gal (6.75 lb/gal) 16.4 gal (6.09 lb/gal) 13.6 gal (7.34 lb/gal) 50 gal (MDNR Reportable for all petroleum products)
Underground Storage Tanks *	Any amount	N/A
Hydrochloric Acid	5,000 lbs	510.2 gal (9.80 lb/gal)
Phosphoric Acid	5,000 lbs	352.1 gal (14.20 lb/gal)
Sulfuric Acid	1,000 lbs	65.4 gal (15.30 lb/gal)
DS-2 (Decontaminating Solution-2)	100 lbs	12.0 gal (8.35 lb/gal)
Waste Paint Thinners/Sludge Waste Paint	100 lbs	9.7 gal (10.27 lb/gal)
Solvent	100 lbs	14.9 gal (6.72 lb/gal)
Potassium Dichromate	10 lbs	1.2 gal in solution (8.35 lb/gal)
1,1,1-Trichloroethane	1,000 lbs	82.0 gal (12.20 lb/gal)
Mercury	1 lb	2.3 tablespoons (112.90 lb/gal)
Polychlorinated Biphenyls (PCBs)	1 lb	N/A
Pesticides *	Varies	N/A
Epinephrine Injection *	1,000 lbs	N/A
Formaldehyde	100 lbs	11.1 gal (9.0 lb/gal)
Potassium Permanganate	100 lbs	12.0 gal in solution (8.35 lb/gal)
Super Tropical Bleach (STB)	10 lbs	1.2 gal in solution (8.35 lb/gal)
Miscellaneous Medical Wastes *	Any amount	N/A
Perchloroethylene (Tetrachloroethylene)	100 lbs	7.4 gal (13.6 lb/gal)
Sodium Arsenite	1 lb	N/A
Calcium Hypochlorite	10 lbs	1.2 gal in solution (8.35 lb/gal)
Xylenes	100 lbs	13.3 gal (7.5 lb/gal)
Photographic Fixer	10 lbs	1.1 gal (9.43 lb/gal)

Person In Charge of the Facility: The person in charge of the facility or activity responsible for the handling or storage of oil, hazardous wastes, or hazardous substances, or his authorized representative, will ensure that personnel handling these materials have received proper training. In the event of a spill, the person will take immediate steps to protect the health of persons in the vicinity of the spill and protect the environment. He will be responsible for ensuring that absorbent and cleanup materials are kept on hand and that a proper spill report has been made. (Appendix H of the SPRP).

In accordance with AR 200-1, the facility occupant under the direction of the OSC will be required to clean up spills, if manpower and equipment are available. The person in charge of the facility will be responsible for preparing a complete hazardous materials inventory of the facility, in accordance with the installation Hazard Communication Policy, and will appoint a Facility Hazard Communication Officer.

Facility Hazard Communication Officer: The Facility Hazard Communication Officer will be responsible for providing the inventory list and Material Safety Data Sheets (MSDSs) to the first responder in the event of a spill. The person will complete the Spill Report Form attached as Appendix H to this SPRP and submit it to DPW within three days of the spill event.

4.6.2 Responsibilities of Teams

First Responders: The DES Fire and Emergency Services Division are the first responders to spill incidents. All members will be trained in oil and hazardous material spill response and will participate in annual training and exercises to maintain proficiency. The training and exercises should be developed in accordance with the *National Preparedness Response Exercise Program (PREP) Guidelines*. In the event of a spill outside Army property, any of the Government personnel assigned to these teams may be made available to State and other Federal agencies.

Installation Assistance Team (IAT): The IAT consists of Preventive Medicine, DPW-EE, DES Fire Department, MSCoE Safety Office, Public Affairs Office, Military Police, and the Emergency Operations Center. This team will assist the OSC in their respective fields of expertise.

Spill Cleanup Team (SCT): The DPW Facilities Maintenance and Support Services Contractor is designated as the SCT, except for those spills of minor magnitude that can be taken care of by the individual organization. Response time from the SCT, in an emergency situation, will be no more than 15 minutes. The SCT will, upon direction from the OSC, respond to spill incidents and provide personnel (as determined by the contractor), supplies, and equipment to contain and clean up pollutants. This list of supplies and equipment maintained at FLW is listed in Appendix A.

Work that can be accomplished in 32 man-hours of labor or less and costs less than $2,000 for parts and materials will be completed by issuance of a Service Order. Work that goes beyond this scope will be completed by the SCT upon direction of the Contracting Officer. Certification of available funds must be achieved through the DPW Business Management Branch. The SCT will be trained, as outlined in 29 CFR Section 1910.120, in spill containment, cleanup, and

disposal techniques. The OSC will direct the cleanup operation and take the necessary actions to dispose of cleanup materials and any contaminated media in an environmentally sound manner.

Installation Operations Center (IOC): Upon activation, the IOC will assist the OSC by notifying other members of the IAT, communicating with other responsible personnel, and arranging for organizations other than the SCT to provide personnel, supplies, or equipment. The IOC will relay information from the OSC to the Command Group and other activities as required.

4.6.3 Responsibilities of Offices

Public Affairs Office (PAO): PAO will be notified in the event of a major spill where the contamination would be such that it would require evacuation of facilities, and/or the contamination could reach major lakes, streams, and rivers or in any situation where contamination would impact the public on or off the installation. The PAO would then be responsible for notifying the public in accordance with the Crisis Communications Plan.

Staff Judge Advocate: The Staff Judge Advocate will provide legal assistance for compliance with Federal and/or State laws and regulations and handle any claims resulting from spills or discharges. At the request of the OSC, personnel from this office will respond to any oil, hazardous waste, or hazardous substance spill to ensure that information, records, and samples adequate for legal purposes are obtained and safeguarded for future use. This office will also advise the OSC on the legal aspects of spill response when parties other than the Army are responsible for the spill.

Directorate of Public Works - Environmental Division (DPW-EE): The DPW-EE will assume management and possession of hazardous wastes, contract for removal of PCBs and hazardous wastes, and provide other support as outlined in this SPRP.

DPTM's Photograph Branch: The DPTM's Photograph Branch will ensure that a photographer is available to document the extent of the spill, containment countermeasures, and restoration procedures utilized as directed by the OSC.

Military Police: The Military Police will carry out evacuation of facilities and control access to the site of a release as directed by the OSC.

SECTION 5

SPILL RESPONSE PROCEEDURES

The spill response plan (RCRA Contingency Plan) for FLW designates the procedures to be followed in the event of releases, accidents, and spills involving oil, hazardous waste, or hazardous substances. The organizations and personnel responsible for carrying out the response functions were discussed in Section 4.6. In this section, titles are printed in bold type to highlight an individual, team, or office responsibility.

Due to the diversity of materials stored on the Installation and the variable severity of the hazards presented in the event of a spill, response actions will vary. The main purpose of this plan is to identify the appropriate agencies to respond to spills, and provide an outline of general spill response procedures. Appendix D contains compound-specific spill response information. Response to accidents or incidents at the Chemical Defense Training Facility is described in the Chemical Accident or Incident Response and Assistance Plan, included as Appendix E. The execution of this plan is divided into four phases:

Phase I:	Spill Discovery and Notification;
Phase Il:	Spill Evaluation and Containment;
Phase III:	Spill Clean-up and Disposal; and
Phase IV:	Site Restoration.

5.1 PHASE I: DISCOVERY AND NOTIFICATION

Upon discovery of a spill the following notifications must be made.

1. In the event of any spill, release, or emergency incident pertaining to oil, hazardous wastes or hazardous substances, the **Fire Department** will be notified immediately by **telephoning 911** from a land-based phone (call 596-0883 from a cell phone). Any other person who receives first notification of an incident will insure that the information is relayed to the Fire Department.

2. **The DES Fire Department** will notify the **DPW Environmental Division** and both will immediately respond to the incident.

3. The **OSC** will initially be the senior most member of the **Fire Department**. However, the Fire Chief will be the **OSC** upon arrival to the site. If the **OSC** determines that the spill is under control and is of a non-hazardous nature, he can turn the role of **OSC** over to others. The normal progression will be:

1 Fire Chief,
2. The Assistant Fire Chief on duty,
3. Chief DPW Environmental and Natural Resource Division,
4. Chief DPW Environmental Branch,
5. DPW Environmental Specialist,
6. Military Police.

Names and telephone numbers of the above are presented in Table 5-1. Although these names may change, the progression will remain the same.

4. If the release is reported by persons other than members from the facility or activity responsible for the oil, hazardous wastes, or hazardous substances, the **OSC** will notify the person in charge of the facility.

5. The **Fire Protection Division** will dispatch fire fighting equipment and life support systems if required. Upon arriving at the scene, they will take necessary action to prevent fire, explosion or toxic vapor from becoming a danger to persons and/or property.

6. When an imminent or actual emergency situation exists, the **OSC** shall immediately notify all facility personnel within the danger zone by activating alarms or by the use of all available communication systems.

7. When there is a release, fire, or explosion, the **OSC** shall immediately identify the character, exact sources, amount, and extent of any released materials. This may be done through observation, review of facility records or manifests, by chemical analysis and/or as described in Section 5.2, Phase II: Spill Evaluation.

8. Concurrently with identification of the material(s) released, the **OSC** shall assess possible hazards to human health or the environment that may result from the release, fire or explosion (e.g. the effects of any toxic, irritating, or asphyxiating gasses that are generated or the effects of any hazardous surface water runoffs from water or chemical agents used to control fire and heat-induced explosions).

Table 5-1 Telephone Number of Key Installation and Agency Personnel	
NAME/TITLE	**OFFICE**
INSTALLATION PERSONNEL	
Fire Chief	596-0883 or 596-2152
Assistant Fire Chief	596-0883 or 596-0086
Chief DPW Environmental and Natural Resource Division	596-0882
Chief DPW Environmental Branch	596-8620
DPW Environmental Specialist	596-0882
Industrial Hygienist	596-0039 or 69255
Preventative Medicine Division	596-4913
Military Police	596-6141
Emergency Operation Center (EOC)	563-4045
Chief of Work Management Branch	596-0926
MSCoE Safety Office	596-1275 or 2961
Staff Judge Advocate	596-0624
Public Affairs Office	563-4013
GOVERNMENT AGENCIES	
MDNR Emergency Response Coordinator	(573) 634-2436
USEPA Region VII Oil and Chemical Spill Reports	(913) 281-0991
National Response Center	(800) 424-8802

9. If the **OSC** determines that the facility has had a release, fire or explosion which could threaten human health, or the environment outside the facility, he must immediately notify appropriate local authorities. The **OSC** must be available to help appropriate officials decide whether local areas should be evacuated.

10. The **DPW Environmental Branch**, in the event the incident is of such magnitude, will notify, on behalf of the **OSC**, the appropriate Army, Federal and State agencies as required. The telephone numbers of applicable government agencies are listed in Table 5-1. The Staff Judge Advocate will also be notified to insure that information, records, reports and samples are obtained as necessary. The initial notification must include:

    Name and telephone number of reporter;
    Name and address of facility;
    Time and type of incident (e.g. release, fire, etc.);
    Name and quantity of materials involved, if known;
    Extent of injuries, if any; and
    Possible hazards to human health or the environment outside the facility.

11. The **Military Police, SCT, other Military units**, and other tenant activities identified within this SPRP shall respond to an emergency in a manner as set forth in this plan or as

otherwise may be prescribed by Army regulation or doctrine. All local police and fire departments, hospitals, contractors and state and local emergency response teams not under the direct control of FLW shall respond to an emergency an a manner as set forth in a mutual agreement, if one exists.

5.2 PHASE II: SPILL EVALUATION AND CONTAINMENT

All spills will be evaluated by the **OSC** to determine response activities needed. The evaluations needed to fully assess and initially contain a spill are described below. A list of spill response materials and equipment is presented in Appendix A.

5.2.1 Safety

The **DES Fire Department** shall insure that all necessary precaution and procedures are taken during the spill evaluation process to protect the health, welfare, and safety of all persons affected by the emergency.

During the emergency, the **OSC** shall take all reasonable measures, including and in addition to those contained in this SPRP, necessary to ensure that fires, explosions, and releases do not occur, recur or spread to other sources of oil, hazardous wastes, or hazardous substances at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing released materials, and removing or isolating containers. If the facility, or portion of the facility, stops operations in response to a fire, explosion or release, the **OSC** must monitor for leaks, pressure buildup, gas generation or ruptures in valves, pipes or other equipment as appropriate.

Spills or releases of oil, hazardous wastes or hazardous substances may result in the accumulation of flammable, combustible, explosive or toxic liquids or vapors in normally inhabited structures such as basements; normally uninhabited structures such as utility vaults, pipes and conduits; surface waters such as lakes, ponds or streams; in structures designed to retain the material spilled, such as dikes, bermed or curbed areas; on or in structures not designed to receive the material spilled, such as service roads, parking lots and the sewage treatment plant. The following steps, as well as others as determined by the **OSC**, should be taken to protect life and property from explosion, fire and toxic materials. These safety measures are described below and shall be maintained throughout the entire containment, countermeasure, cleanup and disposal operation, or as otherwise determined by the **OSC.**

<u>Evacuation</u>

A spill of oil, hazardous waste, or hazardous substance should be considered a potential fire or explosion hazard. The spilled product itself, along with products of its combustion may result in or produce toxic or noxious vapors. As fire, explosion, and toxic vapors pose a serious threat to the health, safety, and general well-being of all persons located adjacent to or nearby a spill or release, evacuation of all persons located within the danger zone shall be undertaken.

The evacuation of an occupied building, at least in areas exposed, should be ordered immediately upon determination that a hazard exists. Construction and layout, as well as occupancy, are factors to be considered in ordering evacuation. Immediate evacuation of the building may be

ordered by any person trained and familiar with this RCP or as recommended or directed by the **person in charge of the facility, the Fire and Emergency Services Division, or the OSC**.

Evacuation of all areas near or adjacent to the scene of a spill and within the danger zone will be at the direction of the **OSC**. This determination by the **OSC** will be based upon the findings or recommendations of the Fire and Emergency Services Division or other personnel trained in the determination of the presence of a potentially flammable, explosive or toxic liquid or vapor. In areas where the vapor concentration of a material exceeds 50% of the lower flammable limit of that material, an immediate danger exists.

Should evacuation of a building or area be ordered, all persons, except for emergency personnel responding to the incident, should move to areas designated by the **OSC**. Should the emergency warrant, the **OSC** may request that the **Military Police** provide traffic control and directions to persons being evacuated to insure the swift and safe evacuation of all areas affected, along with allowing for the timely arrival of all emergency equipment and personnel.

Eliminating Sources of Ignition

A spill of oil, hazardous wastes, or hazardous substances should be considered a potential fire or explosion hazard. Smoking, open flames, gasoline, or diesel engine driven equipment and electrical equipment (even including hand-held flashlights) should not be permitted in the suspected areas until the degree of hazard is determined. All operating equipment, including automatic equipment not in operation, such as sewage lift pumps, should be removed from the immediate site or made inoperable by such means as opening the main disconnect switch. Only disconnects located well away from the contaminated area shall be used, and if this is not possible, **Work Management Branch (WMB)** shall be contacted for making a remote cut-off. Should the presence of flammable or explosive vapors be verified, all other possible fuel sources, in addition to the spilled material, should be shut off at the safest and nearest point to the hazardous location. These fuel sources may include, but are not limited to, natural gas, LPG, gasoline (MOGAS), boiler fuel, and diesel fuel.

The **OSC** shall notify **WMB** under all circumstances when a threat exists to public or private utility systems (e.g. water supply, sanitary sewer, electrical utility, or boiler fuel and gas supply). The **WMB** shall take appropriate action to assist in corrective actions, including measures necessary to protect the utility, and prevent the utility from being a source of ignition.

Entering the Area

When liquids or vapors within or above a flammable range are found in an enclosed structure, the structure should not be entered until vapors have been removed. The use of a combustible gas indicator is the only practical positive method to determine the presence and concentration of a flammable vapor. A trained operator should use the combustible gas indicator which must be properly maintained and calibrated. The combustible gas indicator should be used continuously to determine the range of vapor concentrations in the affected area. If areas of vapor concentration exceed 10% of the lower flammable limits, the area should then only be entered by trained emergency response personnel if directed by the **OSC**.

Ventilating the Area

When a spill of oil, hazardous waste, or hazardous substance enters an enclosed area such as a basement or a partially closed area such as a storm sewer, a hazard for a fire or explosion is great. Therefore, ventilate the area to remove or reduce the flammable vapors and thus reduce the fire or explosive hazard. Natural ventilation by opening doors and windows may be adequate. Mechanical exhaust ventilating equipment may be required to remove vapors from all areas, particularly from low confined spaces. Use fans driven by properly grounded explosion proof motors approved for Class I Group D locations, hand driven fans, or air inductors to remove vapors. Use pumps equipped with explosion proof motors to remove liquids. Floor drain openings into buildings in the area of the spill and for some distance downstream should be checked for escape of vapors. Water should be placed in any dry traps to seal them. Manholes and vaults should be ventilated by force draft when necessary to prevent concentration of these vapors within the explosive range.

Under no condition should an area be entered without a self-contained breathing apparatus unless it contains at least 19.5% oxygen and is free of all toxic vapors. Response personnel must be trained in the use of a self-contained breathing apparatus.

Locating Seepage into the Structure

When the area has been made safe for entry, it shall be examined to locate the point of entry of the flammable liquid or vapors. If the place or places of entry of the liquid or vapors can be determined, appropriate steps should be taken immediately to seal off such places. Untrapped drains, dry traps, pipes, or other openings through floors or foundations should be checked for liquid or vapor entry.

When leakage is detected in a sewer, location of the point of entry of the leak should be determined by backtracking with combustible gas indicators. If points of entry to the sewer system are limited in number, interception of the leak can be achieved by use of trenches, well holes, or well points.

Water Wells

When flammable or combustible liquids are found in well water, stop pumping and avoid sources of ignition around well houses and water storage tanks until vapor concentrations are checked. Turn power off outside any well house or similar trap that may collect vapors from the well or stored water. If vapor concentrations are below 10% of the lower explosive limit, pumping may be resumed if desirable for purging. Should contaminants get into the water supply, rationing of water may be necessary. The primary need would be to provide water for domestic use. There are, however, priorities for critical water usage: Hospital, Boiler Plants, and Mess Halls would be among the highest priorities.

Surface Water

If flammable or combustible liquids are found on surface water or water emerging from hillsides or cuts, concentrations may develop in ditches or collection points which may create an explosion or fire hazard. If the entire surface of the water is covered or there are large pools on the order of 20 feet or more across, a fire hazard does exist. If large amounts of vapor are being generated, check the wind and remove all sources of ignition within the danger zone, especially

downwind of the source. Construct dikes or dams to prevent further spreading of the liquid or contaminated water. Floating booms can be used on flowing water to hold floating contaminated liquids such as boiler fuel.

Health Hazards and Safe Handling Procedures

The **EOC** shall notify the Preventive Medicine Branch in the event of a spill or release of any oil, hazardous waste, or hazardous substance. The **OSC** may also notify the Preventive Medicine Branch in the event of a fire or explosion at any facility or activity which stores or handles oil, hazardous waste, or hazardous substance, any one of which could constitute a health or safety hazard or require special handling.

The **person in charge of each facility,** which stores or handles oil, hazardous wastes, or hazardous substances, shall provide an up-to-date listing of all materials stored at each location to the **Fire and Emergency Services Division** and the **Directorate of Emergency Services**. This listing shall include specific health, safety, and fire hazards of the material and should be thoroughly reviewed and understood prior to responding to a spill or release of that material. MSDS can be used to fulfill this requirement.

Waste Generated During Spill Response

No waste that may be incompatible with the released material can be treated, stored, or disposed of in the spill area until cleanup procedures are completed. Whenever oil, hazardous wastes, or hazardous substances are being handled, all personnel involved must have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another employee. Should just one person be at a facility while operations are proceeding, he must have immediate access to a telephone or a hand-held two-way radio capable of summoning emergency assistance externally from the site of the facility.

Safety and Response Equipment

All emergency materials and equipment listed in Appendix A of this SCP are replaced (restocked) and/or cleaned and these items are fully fit and made ready for their original intended use prior to resuming operations in the affected areas. Prior to resuming operations in the affected areas, the **Environmental Coordinator** must notify the Regional Administrator of Region VII USEPA and the Director of the MDNR that the equipment has been replaced.

5.2.2 Spill Containment

Once all necessary precautions have been taken to protect life and property, the following actions will be taken to contain the spill at the source and/or to prevent the further spread of the spilled materials. The **person in charge of the facility** from which the release of material emanated will take immediate responsibility for cleaning up the spill at the source using the equipment and materials which are on hand at that facility (assuming he has the capability to do so in a safe manner). Should the **OSC** determine that the spill is of sufficient magnitude, he will notify the **SCT** who will take immediate action to provide personnel, equipment and absorbent materials as necessary to contain the pollutant as near to the source of the spill as possible. Should the **OSC** determine that resources beyond the capability of the SCT are required at the emergency; the

EOC shall notify the appropriate unit(s) for assistance. This may include the obtaining of assistance through local fire departments which have mutual aid agreements with FLW or use of other governmental agencies or installations.

In the event that oil, hazardous wastes, or hazardous substances should reach a sewer or drainage ditch, an earth fill will be placed across the ditch section or in a downstream manhole to contain the pollutant. The pollutant shall be contained as near to the source as possible. A pipe can be embedded in the fill with the upstream side near the base of the channel and the downstream side slightly lower than the top of the fill to allow water to flow through the fill while allowing floating product to be captured. If the construction of an earth fill is not feasible due to the volume of water flow or in the event that the pollutant reaches a river or stream, a fence or boom shall be constructed across the drainage section using wire fencing or snow fencing. Straw or other absorbent materials will be placed along the upstream side of the fence to absorb the pollutant. The fence will be continually checked and absorbent materials will be changed as necessary until the crisis is over.

The **person in charge of the facility** or activity from which the spill or release of material originated shall take appropriate measures to stop the cause of the hazard if possible or make temporary repair until the trouble can be corrected. These measures shall include, but not be limited to, closing valves, shutting off dispensers or transfer pumps, draining or pumping out leaking tanks and containers, or draining/purging leaking piping. The person in charge of the facility shall take additional corrective actions as directed by the **OSC** in order to protect life and property.

The **OSC** shall notify **WMB** for arrangement of necessary action at the Sewage Disposal Plant to contain the pollutant in the event it gets into the sanitary sewer system. To cause the least amount of damage or hazard, it may be necessary to plug sewer lines at manholes, set up a straw or absorbent barrier to retain the spilled material, or divert the flow of incoming water around or into certain treatment units and additional steps as necessary to protect the health of persons working at the plant should the possibility of toxic or harmful vapors be present or expected. The Wastewater Treatment Plant lead operator will coordinate his work through **WMB** working under the supervision of the **OSC**.

In the event that oil, hazardous wastes, or hazardous substances should reach a lake, pond, or other surface impoundment, the spill will be contained by use of floating booms, weirs, or other devices under the direction of the **OSC**.

Extreme caution should be exercised under all circumstances when responding to an incident involving the spill or release of oil, hazardous wastes, or hazardous substances as toxic or explosive vapors may be present, especially when in enclosed areas.

The **OSC** shall be cognizant that containment operations downstream or downhill from the actual site of the spill or release may need to take place simultaneously with safety measures being taken at the site of the spill in order to protect life, property, and the environment from the spreading spill.

5.2.3 Locating the Spill Source

Once all necessary precautions have been taken to protect life and property, every effort will be made to contain the spill at the source. An inventory loss or water in tanks does not directly imply a spill has occurred. Check the immediate vicinity for any signs of escaping liquid. When inventory losses cannot be reconciled after a thorough review of inventory records and the specific source of the spill remains unknown, tests of tanks, equipment, and piping should be performed and measures as outlined below shall be undertaken.

1. Check the Area.

    a. If a check of potential sources immediately adjacent to or within a few hundred feet of the discovery of the spill does not reveal an obvious or possible source, organize a general search of the area.

    b. Primary search efforts should be initiated upgradient, uphill, or upstream of the area where the pollutant was discovered. Some liquids, such as lubricating oil, will travel slower underground than others, such as solvents. Both elements may not move at all until the water table rises. As a result, there can be a considerable time lapse between the occurrences of a leak or spill and the report of finding liquid or vapor. Record all history or evidence of potential sources regardless of how long ago they occurred; do not eliminate any potential sources on the basis of time until data is available and the analysis of that data justifies elimination.

    c. Look for signs of dumping waste liquids on the ground.

    d. Check loading or unloading operations for possible spillage.

    e. Check nearby streams and bodies of water for signs of spillage along the banks or from incoming storm sewers or drains.

    f. Check any recent excavation, construction, or maintenance work in nearby areas.

    g. Check vegetation in the area for any indication of damage by spillage or dumping of contaminated material.

    h. Using a combustible gas indicator, check sewers and other underground cavities such as telephone and utility conduits or manholes for presence of vapor and make visual inspection for signs of foreign liquid on water surfaces.

    i. Check nearby excavations and deep cuts on natural slopes below the potential source for signs of liquid coming through the soil.

2. Check Equipment.

    a. Check the area around fill pipes where liquid is transferred from trucks to tanks for signs of frequent spills. Saturated and darkened soil, dead vegetation, stained concrete, or disintegrated asphalt indicates repeated spills that may accumulate underground.

b. Check any area around aboveground tanks for similar signs that may indicate a leak or overfilling.

c. Check any exposed piping for signs of leaks.

d. Check pumping equipment for leaks. It is advisable to use a combustible gas indicator when checking pumps and dispensers of the type used in service stations. Open the cover of the unit just far enough to insert the indicator probe into the bottom area. Opening the cover wide may provide sufficient ventilation to give a low reading, indicating no leak. Also check the hose and nozzle.

e. If a remote pumping unit is used, check its housing or pit with a gas indicator before opening and then open for visual check for signs of leaks.

f. Check automotive equipment repair areas for signs of waste liquids being dumped into floor drains and sumps or other locations not authorized, such as outside unpaved parking areas.

g. When leaks in equipment are discovered, stop use of the equipment until the leak is repaired. Pump out liquid in storage if it is still escaping through the leak.

3. Possible Leak Found.

a. If an obvious source or one or more likely sources has been found and further escape of liquids eliminated, further search may be temporarily suspended to determine if the located source is the cause of the problem.

b. While removal and protective measures are taken, monitor and record the flow of liquid, the amount of liquid and the vapor concentration at those locations where the problem exists. If there is a distinct and continuous decrease, it may be assumed that the source has been found and further contamination has been eliminated.

c. If after a reasonable length of time, the supply of liquid to the threatened area does not stop or show definite decrease, further investigation should be conducted.

5.2.4 Testing the Spill Source

Further checking must be performed before a facility is implicated on book stock losses alone. Check meters and gauges for calibration. Check relative temperature of delivered and stored product during the period in question. Check for possible theft of the material, delivery of watered down product, inaccuracies, or errors in the record keeping. If it is determined that the source of the spill originated from underground piping or tanks, or it is suspected that a significant amount of pollutant exists below ground, then underground liquid handling equipment, piping, and tanks will be tested for tightness under the following circumstances as directed by the **OSC**.

- The search procedures outlined in Section 5.2.3, Locating the spill source, indicates a probable or likely leakage source, but the actual cause is not determined from surface observation.

- There is a suspicion of a leak because of reported stock losses.

- There is a report of the accumulation of water in the tank.

Additional measures that should be taken to test the spill source include:

1. *Check Underground Piping.* Should the source of a spill be traced to a potentially leaking pipe or pipes, the area of the suspected source should be checked as follows.

    a) Recent digging, driveway repair, or other work in the area which may have damaged underground pipes.

    b) Any recent repairs which may have been made indicating that a previous leak existed or perhaps creating a leak due to faulty work or unknown damage to an adjacent pipe.

    c) Any evidence of shifting ground, such as frost heave, which may have damaged pipes.

    d) Soft spots in asphalt paving indicating solvent action of liquids or vapor.

2. *Check Underground or Aboveground Tanks.* Should the source of a spill be traced to a potentially leaking tank or tanks, the area of the suspected source should be checked as follows:

    a) Inspect the method of filling tanks. Damaged fill pipes, poorly maintained pipefitting connections or hose couplings and driver carelessness or overemphasis of full deliveries may cause some of the product to be spilled around the pipe when the delivery is made. Particularly, check fill pipes installed under manhole covers.

    b) Inspect the area surrounding an aboveground tank for signs of leakage. An aboveground tank which is supported directly upon the ground may be leaking through its underside. The presence of the material therein stored upon the surrounding ground may be an indication of such leakage.

    c) Any evidence of ground settlement around tanks and any sign of work that may have damaged the tank or its fittings.

    d) History of past or recent work on the tank or attached piping.

    e) The presence of excessive amounts of water in the tank and any history of past water removal. If possible, determine if the water increases during periods of heavy rainfall and remains constant or diminishes during dry spells.

    f) The age of the tank in particular as it relates to the history of corrosion in the vicinity.

g) Location and flow of liquid found underground by gas sensors or visual inspection.

h) When water is reported to be entering a tank, check the fill pipe to insure that water is not entering through a loose fill cap. Check the surface around vent lines for evidence that water may be entering by this route. Standing water over vent lines may be the source. If no explanation except a possible leak is found for water in the tank, carefully record the depth of water by use of water finding paste and tightly close and lock the fill cap. After 8 to 12 hours, remove the cap and again check for water. If after 12 hours there is a measurable change in the water or product level, close and lock the cap and check for another 8 to 12 hours. If the change in the water or product level in the second period closely matches that of the first, a leak is probable. If no change in the water or product level occurs, the tank is still suspect. Additional testing or daily observation may be necessary or be directed by the **OSC**. Other sources of water to be checked (which would not necessarily indicate a leaking tank) are condensation and improper (or illegal) delivery of water with product into the tank.

3. *Tank and Pipe Tests.* Should inspection of the area above or near the underground piping or tanks not reveal evidence of the leak and the piping or tanks are still suspected of leaking the following measures shall be taken at the direction of the **OSC**:

a) Test holes, sumps, or wells should be installed near the location of the suspected leakage to develop more detailed information such as the specific source of the leak or the extent of contamination. All pressurized piping should be subjected to a line tightness test. Test pressure should be 50 pounds per square inch (psi). Test pressure should be maintained for one hour. A volume loss of greater than 0.2 gallons per hour indicates the probability of a leak in the line. Should any leakage occur, all valves, fittings, and equipment should be inspected for possible signs of leakage. After all visible leaks, if any, are fixed, the line tightness test shall be run once again. If after testing, leakage still occurs piping and equipment appurtenant thereto shall be taken out of service until either the leak has been found and repaired or the piping and equipment has been replaced or as otherwise directed by the **OSC**.

b) All piping not designed for or capable of being pressure tested, such as suction piping or vent pipes, should either be uncovered and fully inspected for possible leakage, or if appurtenant to an underground storage tank, be subject to the inspection and testing required for the tank. All leaks found shall be repaired, or the pipe section replaced.

c) All underground tanks, including appurtenant piping, should be subjected to a hydrostatic test. If the tank and piping are highly suspected of leaking, all product should be removed and the test be performed using water. (Under no circumstances should a pressure test of any tank be made with the use of compressed air or other gas due to the danger of causing a tank to rupture.) The use of water for testing purposes is difficult in cold weather; it will not detect leaks of less viscous liquids and contamination of the storage and dispensing system can be a major problem. The use of the product stored in the tank for testing purposes is therefore better than water; however, should a leak exist or rupture occur, the spill will be more serious than if

water is used. The **OSC** will decide what material is to be used in testing underground tanks and piping, in keeping with proper protocols and codes.

d) Measuring very small volumetric changes in an UST requires the filling of the tank and all piping to a point above grade where volumetric measuring equipment can be used. This may require extensions to fill pipes and plugging of vents, etc. This will allow a precision test to be performed. A precision test means any test that takes into consideration the temperature, coefficient of expansion of the product being tested as related to any temperature change during the test, along with the effects the increased pressure will have on possible deflection occurring in the tank shell itself, and is capable of detecting a loss of 0.05 gallons per hour. The test procedure should detect a leak anywhere in the complete underground storage and handling equipment. If the net change exceeds 0.10 gallons per hour (the standard set by USEPA), the tank is declared to be leaking and appropriate correction action is necessary. Tanks which are found to be leaking should immediately be pumped free of their contents and taken out of service.

e) All ASTs, excluding appurtenant piping, which shall be tested in accordance with provisions of previous paragraphs, should be subjected to more in-depth inspection and testing.

f) Small tanks which are elevated aboveground should be visibly inspected for signs of leakage at joints and fittings and for signs of overflows due to overfilling or thermal expansion. If after the tank has been completely filled and no signs of leakage can be seen, consideration shall be given to further observation or to the conducting of a precision test (pressure). Prior to running a test on the tank, complete inspection and testing of all connected piping should be conducted as the piping and connected equipment is more possibly the source of any leakage or spills.

g) Small tanks which do not have a manway opening and are supported directly on the ground or foundation should be inspected and tested in accordance with the preceding paragraph. A tank supported directly on the ground or foundation in which the floor cannot be inspected has the potential of leaking through the floor of the tank undetected. After all possible inspections and tests have been conducted on the tank and connected piping, consideration may be given to lifting smaller tanks up off the ground for inspection of the tank floor or the cutting of a manway into the top or side of larger tanks so direct inspection of the floor may be made. Methods of inspection and testing are covered in the following paragraph. All cutting and entering the tank shall be carried out in a manner that will protect the safety, health and welfare of all persons concerned, and as otherwise directed by the **OSC**.

h) Large tanks which are supported directly on the ground or foundation and which have manway openings should be first tested in accordance with the preceding paragraphs. After all possible inspections and tests have been conducted on the tank and connected piping, consideration should be given to entering the tank for inspection and testing of the floor. The tank shall first be completely pumped free of all product. Some additional flushing with water may be necessary to remove small amounts of

product remaining in low spots or sumps. All manways shall be opened with forced ventilation applied in order to remove toxic and explosive fumes.

Once the **OSC** has certified the tank safe for entry, the tank may be entered by trained personnel wearing appropriate personal protective clothing and respirators which are approved for that service. Self-contained breathing apparatus (positive pressure) may be used in lieu of chemical cartridge respirators, especially in tanks that may have contained more than one product. Once the tank has been safely entered, cleaning operations will need to continue. Cleaning may be accomplished by use of steam, hot water, and/or high pressure water jetting by the use of chemicals or detergents suited for the material being removed, or a combination of these. Once all residues of the cleaning operation have been removed from the tanks and disposed of in accordance with the direction of the **OSC**, actual inspection and testing of the tank floor may proceed.

The tank floor should be closely inspected at all weld seams, sumps, or connections and then over the entire floor for signs of holes, pitting, corrosion, or other deformations of the metal. If no obvious signs of leakage can be found, all joints shall be tested by the use of air pressure or vacuum and soapy water. Any signs of bubbling indicate the presence of a potential leak. Finding one point of leakage should not stop the search as even more points may be found. In addition to conducting the bubble test, especially if no leaks can be found, a thickness test in at least one location in each plate should be conducted. A thickness test using ultrasonic or other specially designed equipment should be capable of measuring plate thickness to an accuracy of at least 1/100 of an inch. If corrosion is detected in excess of 25% of the original plate thickness, the floor or individual plates are suspect of leaking. If corrosion is detected an excess of 50% of the original plate thickness, the floor or individual plates are unsatisfactory and should be replaced prior to use of the tank again.

All tanks which are found to be leaking should be removed from service until the leaks are repaired (repair aboveground tanks only) or a new tank is provided, based upon economic considerations and as directed by the **OSC**.

Once all tests have been completed, as detailed in this section, the specific cause or reason for the leak or release should be identified. However, if the tests prove to be inconclusive, retesting of all tanks and pipelines may be required. Additionally, it is possible that the source of the spill or release was incorrectly identified and therefore consideration should be given by the **OSC** to reestablish the search procedures detailed previously in Section 5.2.3 - Locating the Spill Source.

5.3 PHASE III: CLEANUP AND DISPOSAL

After the completion of Phase II, the **Environmental Coordinator** will direct the removal and disposal of the recovered pollutants. This will include the use of absorbent materials, chemicals, pumping equipment, loaders, vacuum pumps, tank and dump trucks, portable lighting equipment and other materials and equipment as determined by the **OSC**. The **OSC** will contact the USEPA Region VII Emergency Planning and Response Branch, or other experts, to determine if

chemicals and dispersant may be used. At the direction of the **OSC**, cleanup may become the responsibility of the **person in charge of this facility**. The **OSC** shall insure that all necessary precautions and procedures are taken during Phase III operations to protect the health, welfare and safety of all persons affected by the emergency.

5.3.1 Methods of Removal

Prior to any removal operation, the **OSC** shall verify that all absorbent material, containers or equipment to be used in recovery or storage of the spilled material and all personal protective clothing and respirators are compatible with the material or materials to be recovered, cleaned up, or handled. Spilled oil, hazardous wastes or hazardous substances, and spill residues shall be removed using the following methods or procedures.

1. Every effort will be made to remove the spilled material before it reaches surface or groundwater.

2. Every effort will be made to maximize the recovery of spilled product/waste consistent with applicable regulations and requirements of the USEPA, MDNR, and Army. Should a spill of a hazardous material reach a body of water, such as a small pond, recover concentrated product in pools, puddles, or floating layers. Carefully consider before recovering diluted spills in surface water. Do not pump all the water out of the pond (unless the spilled material has the same specific gravity as water or is soluble in water).

3. If more than one type of material is involved in the spill, every effort shall be taken to separate the materials prior to recovery, especially if the materials are incompatible.

4. Recovered spilled liquids should be maintained separate, to the extent possible, from materials the liquid has contaminated, such as contaminated dirt, to allow for easier and less expensive recovery, treatment or disposal.

5. Small quantities (typically 10 gallons or less) of spilled liquids should be recovered to the extent possible by the use of absorbent material. Recovered materials and absorbent shall be placed into containers or drums approved for the material. If recovered materials and absorbent weigh less than 10 pounds, they may be placed in a trash bag and thrown into a garbage receptacle.

6. Small quantities of spilled liquids, not recoverable by use of absorbent material, such as that which has contaminated a small area of ground, dirt, or soil, shall be recovered by use of shovels and buckets and placed into containers or drums approved for the material.

7. Large quantities of spilled liquids may be removed by bailing or pumping the liquids into barrels, drums, tank trucks, or tanks.

8. Every effort should be made to remove pollutants before they reach surface waters. Prior to removal efforts on surface waters, the **OSC** shall determine the characteristics of the material spilled so that appropriate cleanup and removal techniques are employed. Generally the following techniques as appropriate should be employed.

a) *Pollutants lighter than water and insoluble in water.* Cleanup procedures for these materials will generally consist of concentrating the floating material by use of floating booms. Underflow dams may be constructed of earthen materials with a pipe embedded in the dam with the upstream side at the base of the flow channel and the downstream side just below the top of the fill. The spilled material may be removed from the water surface by use of suction pumps or absorbent blankets. Cleanup procedures from streams will generally be accomplished by use of absorbent barriers constructed across the stream. Care will be taken to replace absorbent materials as they become saturated with the product being recovered. Saturated absorbent materials, other collected debris, and spill residue resulting from the cleanup operation shall be immediately placed into containers or drums which are approved for the material to be placed therein. Should insufficient quantities of absorbent material be on hand, and the spill or emergency warrants, the **OSC** may direct the reuse of the absorbent material after the product contained in the absorbent material has been removed to the extent possible.

b) *Pollutants heavier than water and insoluble in water.* Cleanup procedures for these materials will generally consist of concentrating and containing the settleable materials in natural deep water pockets, excavated lagoons, or behind sand bag (or other man-made) barriers in order to trap the material at the bottom. The concentrated material may then be removed by use of suction hose, dredges, or lifts which will remove the immobilized masses of pollutants and precipitates. Cleanup procedures from streams may, in addition to the preceding, require the diversion of the stream around the pocket of collected pollutants.

c) *Pollutants soluble in water.* These materials may be lighter or heavier than water with initial removal operations proceeding in accordance with either of the two preceding paragraphs as applicable. Many acids may be neutralized by application of agricultural lime, crushed limestone, or sodium bicarbonate. Many caustics may be neutralized by application of a dilute acid or removable strong acid. Many soluble organic materials or materials only slightly soluble (such as Malathion) may be removed from a water spill by the application of activated carbon at 10 times the quantity of spilled material in regions of 10 parts per million or greater concentration. Activated carbon that has served its intended purpose shall be removed by use of suction hose, dredges, or lifts. Other materials may be amenable to in-situ chemical/biological treatment, such treatment instituted only upon the direction and/or approval of the USEPA and/or MDNR.

9. Every effort will be made to remove pollutants before they endanger subsurface soil and groundwater using the following methods and procedures, if appropriate.

a) If a spill is detected shortly after it has occurred, the quick installation of shallow recovery wells and/or interceptor trenches may prevent further endangerment of deep subsurface soil and groundwater. Recovery wells and/or interceptor trenches will allow large quantities of free liquid contamination to be removed by use of adsorbents, bailing, or pumping. Removed liquid materials and contaminated

adsorbents should then be placed into containers, drums, or tanks approved for storage of the material.

b) When a liquid is released into a porous soil or rock, gravity will push it downward through pores or cracks. As it moves, some will be left behind on the surface of each particle that it contacts and some will be suspended by surface tension between two surfaces that are nearly in contact. The liquid will continue to move downward, spreading out in a cone shape, until the supply is exhausted by the coating action, retention in the voids or until it reaches a barrier such as an impervious layer of soil or rock or the water table (if the spilled material is lighter than water). Depending upon the specific material spilled and its quantity, along with the underlying geology, further removal operations may require installation of deeper recovery wells and/or interceptor trenches which may require installation under the guidance or supervision of an engineer/geologist familiar with the area and techniques to be employed. Removal of contaminated soil may be accomplished by simple excavation if the extent of contamination is not excessive. Excessive soil contamination may require the flushing of the contaminated area with water or an approved solvent in order to capture a greater quantity of contaminant for disposal or treatment (possibly on site).

5.3.2 Decontamination

All containers, drums, containment devices, absorbents, clothing, and protective equipment such as, shovels, buckets, pavement, walls, etc., that have come into contact with the spilled material or spill residue will be considered contaminated with that material, and must be disposed of in accordance with the procedures described an Section 5.3.3 unless the items are decontaminated.

Decontamination consists of scrubbing and triple rinsing using a solvent capable of removing the oil, hazardous waste, or hazardous substance or it must be cleaned by another method that has been shown in scientific literature or tests to achieve equivalent removal.

5.3.3 Disposal

Disposal, recovery, or reuse of spilled oil, hazardous wastes, or hazardous substances shall be accomplished in accordance with the following guidelines, methods or procedures.

1. Every effort will be made to recover the spilled material, free from deleterious contamination, to be utilized for its original intended purpose.

2. Spilled hazardous wastes and hazardous substances, including spill residue which cannot be utilized for its original intended purpose, must be handled as hazardous waste in accordance with the requirements of 10 CSR [Code of State Regulations] 25.

3. POL-contaminated dirt, if determined uncontaminated with hazardous wastes and hazardous substances, may be transported to Building 2267, after checking in at Building 2212, to be spread into thin layers and allowed to dry as directed by the **Environmental Coordinator** and approved by the MDNR.

4. Used oil, if uncontaminated with hazardous wastes and hazardous substances must be managed as a used oil in accordance with 10 CSR 25-11.010 and if it is suitable for use as a fuel on-site, requires resource recovery certification under 10 CSR 25-9.010.

5. Small quantities of spilled material and spill residue, which are to be disposed of as hazardous waste, may be handled through normal channels (i.e., prepare DD Form 1348-1 [hazardous waste turn-in form] to initiate disposal of the hazardous waste). The material will be turned in to the 90-day Hazardous Waste Accumulation facility (Building 2229).

6. Large quantities of spilled material for which there is insufficient storage capacity in the 90 day accumulation building (Building 2229) must be handled for emergency disposal or treatment in accordance with all applicable Army, USEPA, and MDNR rules and regulations. The **Environmental Coordinator** is responsible for contacting and coordinating with these activities and agencies to insure a timely and proper disposal or treatment of these materials in a manner which will not cause a threat to human health or the environment.

5.4 PHASE IV: SITE RESTORATION

After the completion of the cleanup and disposal phase, soil and water quality tests will be performed, as applicable, to ensure that all contaminated material has been removed from the site. Necessary actions may then be taken to restore the site to its pre-spill or pre-hazard condition. Site restoration will be the responsibility of the **person in charge of the facility** at which the spill occurred and as otherwise directed by the **OSC**. If the site restoration required is beyond the capabilities of the responsible activity, the Person in Charge of the Facility at which the spill occurred will request that this work be performed by submitting DA Form 4283 through the proper channels. Restoration activities include:

1. Remove temporary earth berms, fencing, and other temporary containment, or diversionary structures and dispose of properly.

2. Replace or repair permanent earth berms or other permanent or diversionary structures as required. Inspect and test all valves, alarms, pumps, piping, oil separators, drainage structures, retention basins, etc., to insure their proper operating condition. Perform any required repairs.

3. Unpaved areas contaminated to the extent that they will not support plant life will be stripped to a depth of six inches and backfilled to the original ground surface elevation. Plant grass and/or sod to control erosion.

5.5 REPORTING

The **person in charge of the facility** at which the spill occurred will prepare the Spill Report Form, attached as Appendix H and submit it to the **DPW Environmental Division** within three days of the spill event. If outside agencies are notified of a release, the Environmental Division of DPW will notify the agencies when cleanup operations are complete and the facility is back in compliance.

5.5.1 Recovery of Damages and Enforcement

Recovery of damages to Federal, State and local government property by the USEPA or the MDNR is authorized. This includes the costs of cleanup and site restoration. Enforcement activities can also be initiated at FLW under appropriate statutes. Other enforcement authorities are the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 as amended, RCRA, and the Federal Water Pollution Control Act of 1977 as amended.

The collection of samples, necessary data and other information must be performed at the proper times during the case as determined by the **Staff Judge Advocate** and the **OSC** for recovery and enforcement purposes. Upon completion of Phases I, II, III, and IV, the **person in charge of the facility** at which the spill or release of oil, hazardous wastes, or hazardous substances occurred will prepare a complete report detailing the following within seven days after all information becomes available.

1. Manhours lost as a result of the spill or release, including names, rank and/or job title, or position.

2. Material lost as a result of the spill or release, including description, national stock number (NSN), and cost or value.

3. Manhours expended in cleaning up the spill, including names, rank and/or job title, or position.

4. Material or equipment expended, used or otherwise lost as a result of the spill (i.e., absorbent, gloves, drums, sump pumps, etc,) including complete description, NSN and cost or value.

5. Manhours expended in site restoration, including names, rank and/or job title, or position.

6. Material or equipment required, used or otherwise needed to perform site restoration, including complete description NSN and cost or value.

7. Other information as required or determined by the Staff Judge Advocate and the **OSC**.

APPENDIX A

SPILL REPORT FORM

SPILL REPORT FORM

Complete this report form for any spill or release of Oil, Hazardous Waste, or Hazardous Material into the environment. The information contained in this report must immediately be given to the DPW Fire Dept. at 911. The report itself must be submitted to the DPW Environmental Office within three (3) days of the incident.

1. Telephone report to _____ made by:

   Name:_____ Signature: _____

   Title:_____ Location: _____

   Unit:_____ Company: _____

   Date:_____ Time: _____

2. Material spilled: _____

3. Quantity/ Volume spilled: _____

4. Location of spill: _____

5. Date, time, and duration of spill: _____

6. Cause of spill: _____

   _____

7. Corrective actions taken to control and/or mitigate the effects of the spill: _____

   _____

   _____

8. Plan for preventing recurrence: _____

   _____

   _____

9. Others contacted (i.e. Fire Department)

   _____ Date/time: _____

   _____ Date/time: _____

NOTE: Use blank sheets to furnish additional information on any of the above items.

APPENDIX B

COMPOUND-SPECIFIC SPILL RESPONSE PROCEDURES-Above Ground and Underground Storage Tanks

Index

GUIDE NO. 1

Aboveground Storage Tank: Diesel
Aboveground Storage Tank: JP-8
Aboveground Storage Tank: Unleaded MOGAS
Aboveground Storage Tank: Waste Oil
Aboveground Storage Tank: Asphalt (cut-back)
Aboveground Storage Tank: Fog Oil
Drum or Packaged Petroleum, Oil and Lubricants

NOTIFICATION AND INITIAL SPILL RESPONSE

Upon discovery of a suspected spillage or accidental discharge, the following actions should be taken. The order of the actions will depend on the existing conditions.

1. Evacuate the area if necessary.

2. Notify the Fire Department at Extension 911 from a land-based phone (call 596-0883 from a cell phone). When notifying the Fire Department, the following information should be provided if it is known or can be quickly obtained.
    - Name and phone number of the individual reporting the spill.
    - Location of the spill.
    - Cause of the spill.
    - Number of injured personnel and the nature of the injuries.
    - Substance spilled.
    - Amount spilled (estimated).
    - Rate at which the substance is currently spilling (estimated).
    - Time the spill occurred (estimated).
    - Extent which spill has traveled.
    - Any other pertinent information (i.e., other potential hazards).

3. Notify the Directorate of Public Works at (573) 596-0882.

4. Notify the Engineering Branch Safety Office at (573) 563-5000.

5. Check the cause and stop the source of the spill when possible without undue risk of personal injury. In case of line breakage, close all valves upstream and downstream of the break.

6. Ensure that the dike drain valve is closed and locked if the spill occurs in diked area.

GUIDE NO. 1 (Cont.)

7. Make the spill scene "OFF LIMITS" to unauthorized personnel.

8. Restrict all sources of ignition.

SPECIAL PRECAUTIONARY MEASURES

- Tanks or packaged POL storage areas that are not in a bermed area require the immediate attention of properly trained response personnel.

- MSDSs should be referenced for particular hazards and precautionary measures for specified chemicals.

- Non-sparking equipment and tools need to be used to prevent an ignition source.

CONTAINMENT, CLEANUP, AND DISPOSAL

- The Fire Department will measure vapor concentrations and determine where explosion hazards exist.

- Material must be pumped into a compatible container.

- Cleanup operations should include the use of absorbent materials.

- The Directorate of Public Works will dispatch a compressor pump to collect contaminated fuels.

- The Directorate of Public Works will install temporary dikes and/or booms in drainage ditches to contain spilled fuels.

- All spilled material should be absorbed/collected for proper disposal. Ensure that the spill is contained within the berm area and dike drainage valves, if any, are closed.

- Spilled residues will be placed in polyethylene-lined drums (see 49 CFR 178.133) or other drums approved under 49 CFR 172.101 or 102 and turned in to the DPW Hazardous Waste Manager.

GUIDE NO. 2

Underground Storage Tanks

NOTIFICATION AND INITIAL SPILL RESPONSE

When a leaking underground storage tank or release of contents is discovered, the following actions should be taken. The order of the actions will depend on the existing conditions.

1. Notify the Fire Department at Extension 911 from a land-based phone (call 596-0883 from a cell phone). When notifying the Fire Department, the following information should be provided if it is known or can be quickly obtained.
    - Name and phone number of the individual reporting the spill.
    - Location of the spill.
    - Cause of the spill.
    - Number of injured personnel and the nature of the injuries.
    - Substance spilled.
    - Amount spilled (estimated).
    - Rate at which the substance is currently spilling (estimated).
    - Time the spill occurred (estimated).
    - Extent to which the spill has traveled.
    - Any other pertinent information (i.e., other potential hazards).
2. Notify the Directorate of Public Works at (573) 596-0882 of all existing USTs.
3. Check the cause and stop the source of the spill when possible without undue risk of personal injury.
4. Restrict all sources of ignition.
5. Make the spill scene ”OFF LIMITS” to unauthorized personnel.
6. Report to the acting On Scene Commander upon the arrival of the Primary Response Team and provide assistance until the team is fully operational.

GUIDE NO. 2 (Cont.)

SPECIAL PRECAUTIONARY MEASURES

- Potential hazards are associated with underground storage tanks (such as contamination of soil, groundwater and, if applicable, drinking water wells).
- MSDSs should be referenced for particular hazards and precautionary measures for specified chemicals.
- Contact with liquid fuels should be avoided.
- Flammable liquids should be extinguished with dry chemicals, foam, or carbon dioxide. Flashback along the vapor train can occur. Non-sparking equipment and tools must be used to prevent an ignition source.

CONTAINMENT, CLEANUP, AND DISPOSAL

- The Fire Department will measure vapor concentrations and determine where explosion hazards exist.
- Suspected underground spills should be assessed with regard to the maximum quantity that may have escaped. Remaining material should be removed from tanks immediately. Leaked material and contaminated soil must be removed. Ditches and surface areas in the vicinity of the underground tank should be closely monitored to detect any traces of the spilled material. Information pertaining to the spill should be evaluated to determine whether the incident warrants groundwater monitoring.
- The Directorate of Public Works will dispatch a compressor pump to collect contaminated fuels. All recovered fuel will be off-loaded in designated tanks.
- Cleanup operations should include the use of heavy equipment (i.e., backhoe, motor grade, or pan). All contaminated soil should be removed.
- Disposal of the damaged UST will be through the DPW Environmental Division.
- All contaminated soil will be sampled and properly disposed of in accordance with Missouri State regulations.
- Ditches and surface areas in the vicinity of the underground tank should be closely monitored to detect any evidence of spilled material.