

Regulation
No. 200-1-1

25 September 1997

Environmental Quality
SPILL PREVENTION AND RESPONSE PLAN

1. **Purpose.** To provide general operational procedures for the Little Rock District concerning the prevention, response and preparation for response to oil and hazardous substance spill incidents within or near District boundaries.
2. **Applicability.** This regulation is applicable to all organizational elements and properties with CESWL, including real property occupied by tenants, sub-tenants, or construction contractors.
3. **Amendment.** This regulation will be amended based on the following situations, whichever occurs first:
 - a. Whenever there is a change in facility design, construction, operation or maintenance which materially affects the potential for the discharge of oil and/or hazardous substances into or upon the navigable waters or adjoining shore lines. The amendment will be fully implemented as soon as possible, but no later than six months after the change.
 - b. Review and evaluation every three years. Necessary amendments must occur within six months of the review.

P.S. MORRIS
Colonel, Corps of Engineers
District Engineer

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This directive supersedes Little Rock District Oil and Hazardous Substances Pollution Contingency Plan and Spill Prevention, Containment and Countermeasure Plan dated August 1983, in its entirety.



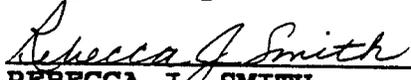
SPILL PREVENTION AND RESPONSE PLAN

including:
SPILL PREVENTION, CONTROL AND COUNTERMEASURE PLAN
SPILL CONTINGENCY PLAN
EMERGENCY ACTION PLAN
EMERGENCY RESPONSE PLAN

for:
U.S. Army Corps of Engineers, Little Rock District
Little Rock, Arkansas

September 1997

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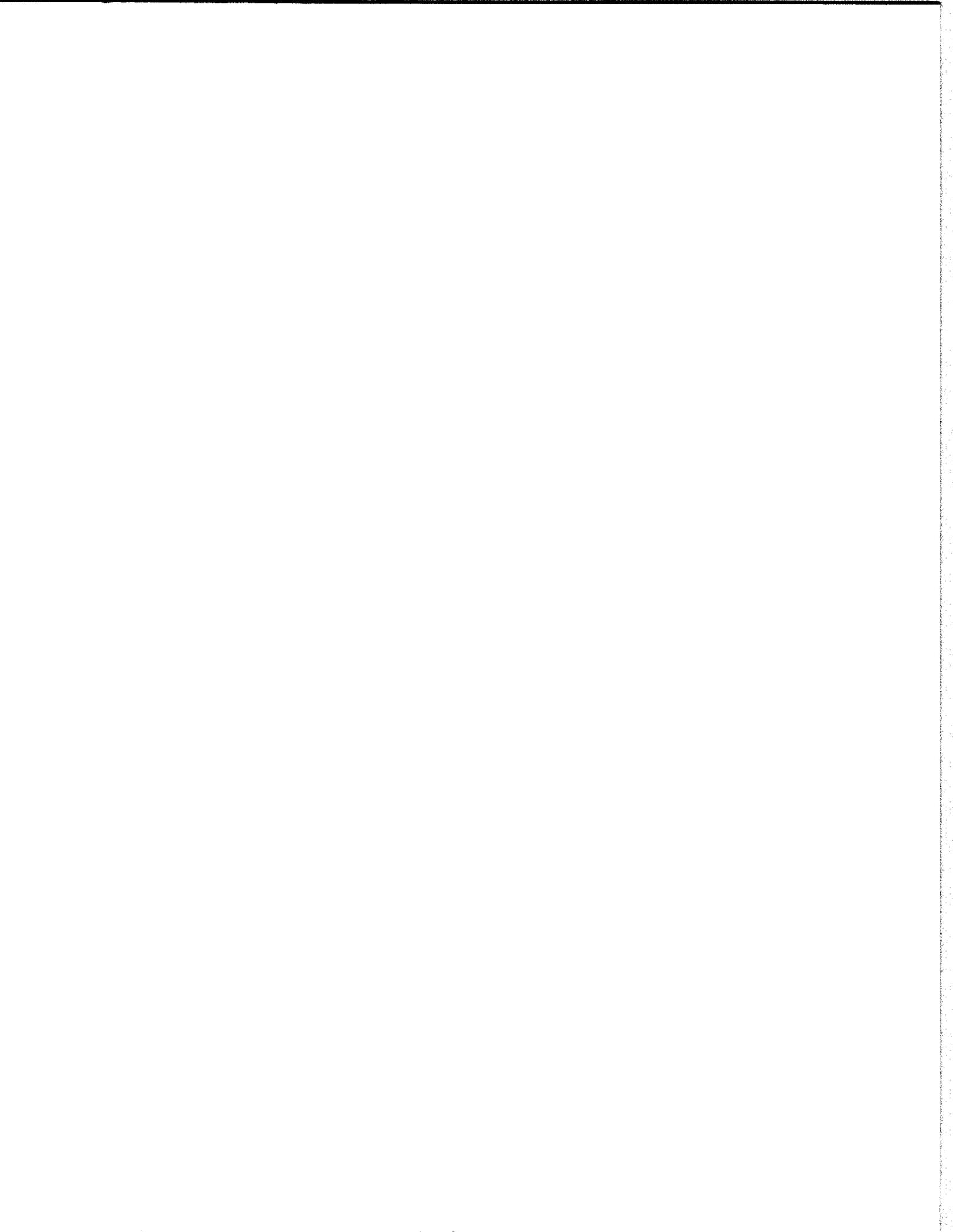


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SPILL PREVENTION AND RESPONSE PLAN

1. **Purpose.** To provide guidance and procedures for the prevention of, and response to, oil and hazardous substance discharges within or near boundaries of the Little Rock District.
2. **Applicability.** This regulation and plan is applicable to all organizational elements and civil funded real property of the Little Rock District, including real property occupied by tenants, sub-tenants and construction contractors.
3. **References:**
 - a. 29 CFR Part 1910.120, Hazardous Waste Operations and Emergency Response.
 - b. 33 CFR Part 153, Control of Pollution by Oil and Hazardous Substances, Discharge Removal.
 - c. 40 CFR Part 110, Discharge of Oil.
 - d. 40 CFR Part 112, Oil Pollution Prevention.
 - e. 40 CFR Part 300, National Oil and Hazardous Substance Pollution Contingency Plan.
 - f. 40 CFR Part 302, Designation, Reportable Quantities and Notification.
 - g. 40 CFR Part 355, Emergency Planning and Notification.
 - h. Engineer Regulation 1130-2-434.
4. **Explanation of acronyms and definitions.** Acronyms and definitions used in this plan are explained in Appendix S.
5. **Mission.**
 - a. The Little Rock District's primary mission under this plan is the prevention, reporting, response to, and containment of oil and hazardous substance spills occurring within or near the boundaries of the District.

b. The Department of Defense (DOD), has the responsibility to take all action necessary with respect to releases where either the release is on, or the sole source of the release is from, any facility or vessel under the jurisdiction, custody, or control of DOD. The District may be called upon by the Environmental Protection Agency (EPA) or the United States Coast Guard (USCG) to provide assistance to other federal agencies. Of special interest, is the Corps' expertise in: specialized equipment and personnel for maintaining navigation channels; removing navigation obstruction; accomplishing structural repairs; and performing maintenance to hydropower electric generating equipment; and providing design services, performing construction, providing contract writing and contract administrative services to other federal agencies. In addition, the Corps may be requested, under a discharge removal action, to remove sunken vessels or similar obstructions of navigation.

6. General Policy.

a. It is the policy of the Little Rock District to prevent discharges of oil and hazardous substances (including extremely hazardous substances) on or near District property or on navigable waters by District facilities, vessels, and activities.

b. The Emergency Management Branch, in coordination with the Chief, Construction-Operations Division, is responsible for:

(1) Coordinating the response to spill incidents as required by 40 CFR 300.135(i). Will also serve as a liaison between the District and field offices to acquire contractor and in-house support and assistance.

(2) Providing spill notification to state and federal regulatory authorities.

(3) Coordinating with Local Emergency Planning Committees (LEPCs) in Arkansas and Missouri. See Appendices M and N.

c. The Public Affairs Office (PAO) will direct and manage all public requests for information concerning spill incidents. In addition, all public releases on the state and status of the spill incident will be made or approved by PAO.

d. Construction-Operations Division designates Operations Project Managers as On-Scene Coordinators (OSCs) for Southwest Division, Little Rock (SWL). Operations Project Managers may delegate this function upon written approval by the Chief, Construction-Operations Division and notification to the Emergency Management Branch. OSCs are responsible for directing response actions when a release is on, or the sole source of the release is from, any SWL facility or vessel, including vessels bareboat-chartered and operated, under the jurisdiction,

custody, or control of the SWL. OSCs will coordinate closely with Emergency Management Branch, SWL management and EPA, USCG, ADPC&E and other state and local agencies as necessary. OSCs will be responsible for managing the spill response through to completion, including the monitoring and inspection of contract spill responders. All spill response activities will be funded by the responsible project office.

Emergency Management Branch will also provide guidance and assistance in minor releases, such as: notification to federal and state regulatory authorities; proper cleanup; management and disposal of petroleum contaminated soils; and preventative measures.

Note: Federal Regulations use the term "On-Scene Commander" to describe responsibilities identified herein; however, for the purposes of this regulation On-Scene Coordinators are synonymous.

e. Operations Project Managers will designate primary and alternate Emergency Spill Coordinators for each site (resident office, project office, lock, dam, etc.). See Appendix Q for listing of District Emergency Spill Coordinators and area of responsibility.

f. Capability will be established and maintained to provide for a prompt, coordinated and effective response to contain and clean up discharges of oil and hazardous substances. Spill response supplies are required to be maintained in sufficient quantities. See Appendix L for type and quantity per location.

g. Although, SWL will provide a response to all District spills on or off federal property, in-house District spill response shall be limited to releases of oil. In-house personnel will respond up to the First Responder Operations Level to contain the oil release and keep it from spreading. District personnel will be trained up through the On-Scene Coordinator (OSC) position in order to properly monitor spill response and clean-up activities performed by contract. Containment and clean-up of hazardous substance releases will be accomplished by contract. Definitions of the levels of spill response can be found in Appendix S, First Responder Awareness Level through On-Scene Coordinator.

h. District employees will be provided training based on the duties and functions to be performed in response to spill incidents. Employees designated to participate in spill response to discharges or potential discharges of oil will be provided all mandatory and refresher training relative to their spill responsibilities. See Appendix K for minimum training requirements.

i. The District Safety and Occupational Health Office will be contacted prior to any spill response efforts. The Safety Office

will provide immediate assistance in determining whether the release can be safely handled in-house or by contract based on the specific circumstances. The Safety Office will identify, evaluate, and control safety and health hazards during emergency response and cleanup actions. The Little Rock District is directly responsible for the health and safety of its employees.

j. Operations Project Managers will ensure evacuation plans are accomplished for each facility (i.e., project office, lake office, marine terminal, lock, dam, etc.). Evacuation plans will describe: lines of authority; how alarms will be sounded; procedures for personnel accountability; special consideration for explosion hazards; safe distances and places of refuge, determination of wind direction; direction of evacuation; and sources for emergency medical treatment. Evacuation plans will be maintained at Appendix V.

j. Willful discharges of oil, hazardous substances (including extremely hazardous substances) are strictly prohibited.

k. District facilities which store, utilize, and dispense oil and/or hazardous substances will implement this regulation, and maintain their corresponding Petroleum and Hazardous Substance Source Matrix Section in Appendices C through J, by submitting changes/updates to the Emergency Management Branch for document revision.

l. All materials (including oil, fuels and hazardous substances) will be handled, used, stored and disposed of in a manner to prevent pollution of land, air and water, to include groundwater, in accordance with state and federal laws.

m. Storage facilities for oil and hazardous substances will be designed and/or modified to provide for proper containment to prevent contamination of land or waters.

n. Contracting procedures and provisions will be established in order to provide immediate response in spill containment and cleanup.

o. Little Rock District will respond to Non-District oil and hazardous substance discharges as described below:

(1) Spills occurring off District property. Response will be limited to reporting and monitoring unless otherwise directed by District Commander. Discharges will be monitored, to the extent necessary, to allow for a Corps response to an immediate threat of District operated facilities or personnel, and/or where response is beyond the capability of available emergency spill responders. District personnel will respond only if adequately trained and equipped.

(2) Spills occurring on District property. The party causing the release is responsible for all costs incurred in cleanup and disposal efforts. As the property owner, the District has a vested interest in ensuring an adequate cleanup, including proper disposal, is performed; therefore close monitoring of remedial actions is required. In some cases, however, the District may be required to respond to such spills, whether on or off District property. Response actions will be as directed by the District Commander. District personnel will be utilized only if properly trained and equipped.

(3) Spills caused by contractors while in performance of work for the District. The District must ensure contractors causing a release are held responsible for all costs associated in providing a response; cleanup of the site (including sampling and analyses); and disposal. In some cases, however, the District may be required to respond to such spills whether on or off District property. Response actions will be as directed by the District Commander. District personnel will be utilized only if adequately trained and equipped.

p. Logistics Management Office will provide: equipment, materials, and supplies during response efforts; and guidance and assistance in the proper management and disposal of hazardous wastes.

7. Technical Guidance.

a. Hazardous Substance Storage Areas.

(1) Hazardous substance storage areas must be designed and/or modified to prevent contamination of land, air, and water in case of spillage or equipment failure (i.e. container overflow, rupture, or leakage). Containers with capacities less than 55 gallons must have absorbent materials (including absorbent sheets, socks, pigs, etc.) readily available to contain hazardous spills. Absorbent materials must be kept in the immediate vicinity of the container at all times, except when containers are empty. Hazardous substances include petroleum products such as oil, diesel fuel, gasoline, hydraulic fluid, transmission fluid, etc.

(2) Containers used to store petroleum products must be in good condition (no severe rusting, apparent structural defects, or deterioration) and not leaking (no visible leaks).

(3) Containers must be kept closed at all times, except while adding or removing contents.

(4) Used substances must not be mixed together. Segregating substances such as oil, solvent, brake fluid, paint and thinner saves in analytical and disposal cost. Mixing of used substances (i.e., used oil and waste solvent) results in the entire mixture

being classified as a hazardous waste and therefore, must be disposed in accordance with federal regulations.

(5) Contents of the container must be identified on the outside of the container. Containers containing used oil must be identified as "Used Oil". The term "Waste Oil" should not be used.

(6) Separate funnels should be used to transfer petroleum products, solvents, paint thinner, etc., from one container to another to prevent cross contamination. Funnels should be identified with the name of the product for which they are used.

b. *Aboveground Storage Tanks (ASTs).*

(1) Aboveground storage tanks (ASTs) are defined as containers with capacities greater than 55 gallons. ASTs will be constructed or modified to provide a secondary means of containment to allow for 110 percent of the tanks maximum capacity. Transformers, oil circuit breakers (OCBs) and other equipment which have oil storage capacity are included in this requirement. Where multiple storage tanks are located within the same secondary containment, containment requirements will be based on the single largest tank. Earthen berms and dikes are unacceptable secondary containment as they provide inadequate protection from soil and groundwater contamination.

(2) Registration of ASTs in Arkansas. ASTs with a gallon capacity of 1,320 gallons up to and including 30,000 gallons, which contain petroleum products, must be registered with the Arkansas Department of Pollution Control and Ecology (ADPC&E). Maintaining current registration and ensuring payment of annual fees are the responsibility of the Operations Project Managers.

(3) Registration of ASTs in Missouri. Under current legislation, ASTs do not require registration with the Missouri Department of Natural Resources unless they involve the sale of fuel.

(4) Rainwater released from secondary containment areas of aboveground storage tanks will be inspected prior to discharge to: ensure compliance with water quality standards; prevent a harmful discharge; and to prevent soil contamination. This will be accomplished by performing a visual inspection to determine whether a sheen is present. If a sheen exists, the sheen must be removed prior to release (absorbents may be used to remove the sheen.) Should it be impossible or impractical to remove the sheen, the rainwater will be collected, sampled and disposed of properly. Rainwater, which has no sheen, may be released by:

(a) Opening Secondary Containment Valves. Valves are required to be locked in the closed position at all times, except for the discharge of rainwater. The valve will be relocked after

discharging rainwater to prevent unauthorized openings.

(b) Manually activating pumps or ejectors.

(5) The State of Arkansas requires a "General Permit ARG340000 for Wastewater Discharges from Petroleum Storage and Transfer (PST) Facilities" be obtained for the release of rainwater from an AST's secondary containment into a watercourse or to a drainage where rain could transport to a watercourse. The permit *only* allows for the release of rainwater *without* a sheen. The Operations Project Manager is responsible for complying with the permit and payment of fees.

The Missouri Department of Natural Resources also requires a General Permit be obtained for the discharge of rainwater from AST's secondary containment into a watercourse or to a drainage where rain could transport to a watercourse. Again, the permit allows *only* for the release of rainwater *without* a sheen. The Operations Project Manager is responsible for permit compliance and payment of fees.

(6) Records must be maintained documenting: the condition of rainwater released; quantity; date; and authorized person. SWL 436-R, "Inspection and Release Record of rainwater from Aboveground Storage Tanks - Secondary Containment" will be completed each time a release occurs. The SWL 436-R is at Appendix T. SWL 436-R will be maintained on file and utilized to complete the Discharge Monitoring Reports (DMRs) which summarizes the quarter's release history per tank/outfall as required by the General Permit. The Operations Project Manager is responsible for ensuring timely submittal of DMRs to the Arkansas Department of Pollution Control and Ecology (ADPC&E) or Missouri Department of Natural Resources (MDNR).

(7) Secondary containment areas, of aboveground storage tanks, may be covered to: prevent the collection of rainwater; provide relief from inspection and record keeping requirements; and preclude permit and monitoring requirements.

(8) Portable ASTs. Portable ASTs are defined as: storage containers with capacities greater than 55 gallons; easily moved and relocated; and serve a temporary need. Portable ASTs must comply with the following:

Portable ASTs will be provided secondary containment sufficient to hold the entire capacity of the tank. When portable ASTs are utilized near or over a water source (i.e., lake, stream, or river) absorbents must also be readily available for immediate use.

(9) Inspection and testing of aboveground storage tanks and containers. Containers and aboveground tanks used to store used oil must be in good condition (no severe rusting, apparent

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structural defects, or deterioration) and not leaking (no visible leaks).

(a) Routine in-service inspections. Aboveground storage tanks, including exterior metallic surface of tank, valves, piping, tank supports and foundations will be visually inspected for signs of corrosion/deterioration, leaks which might cause a spill, or accumulation of oil inside diked areas, shell distortions, signs of settlement, paint coatings and appurtenances. Routine in-service inspections will be conducted monthly by operator personnel. Personnel performing this inspection should be knowledgeable of the storage facility operations, the tank, and the characteristics of the product stored.

Visible oil leaks which result in a loss of oil from tank seams, gaskets, rivets and bolts sufficiently large to cause the accumulation of oil in containment areas will be promptly reported to the tank inspector, documented, corrected, and the oil leakage removed. Oil removed from the containment area will be recycled if not suitable for use. Contaminated sorbent materials will be placed in an overpack container and disposed as described in paragraph 15.b. below.

(b) Formal in-service inspections. All tanks shall be given a formal visual external inspection by a qualified inspector (see definition in Appendix S) once each five years or at the quarter corrosion-rate life of the shell, whichever is less. Tanks may be in operation during inspection.

(c) Non-destructive testing. Upon recommendation of tank inspector, the tank will be further tested to ensure integrity. Other methods of inspection include hydrostatic testing, non-destructive shell thickness testing, etc., refer to American Petroleum Institute (API) Standard 653, dated January 1991.

(d) Reports. Routine and formal in-service inspections, as well as non-destructive testing, will be documented and maintained on file for the life of the tank. Documentation will include, but is not limited to: type of inspection, date of inspection, tank identification number, areas inspected and their condition, description of deficiencies, corrective actions taken, date of correction, work order number, and name of inspector.

(10) ASTs used to store used oil must be labeled or marked clearly with the words "Used Oil". The term "Waste Oil" should not be used.

c. *Underground Storage Tanks (USTs)*. USTs (including all associated equipment and piping) will be installed, repaired, managed and closed in accordance with federal and state UST Regulations (40 CFR Part 280, ADPC&E Regulation No. 12 or MDNR UST Closure Guidance Document, dated March 1996).

(1) The Emergency Management Branch will be notified immediately of any of the following conditions:

(a) The discovery of released product at the UST site or surrounding area (such as the presence of free product or vapors in soils, basements, sewer and utility lines, and nearby surface water).

(b) Unusual operating conditions (such as alarms of leak monitoring devices, erratic behavior of product dispensing equipment, the sudden loss of product from the UST system, or an unexplained presence of water in the tank). Emergency Management Branch will make notification to the appropriate agency and assist the Project Office, as necessary, in acquiring certified contractors, monitor cleanup procedures, etc.

(c) Spills or over spills of petroleum that result in a release to the environment.

(2) Initial Response for a UST Release. Once a release has been confirmed from a UST system the following initial response actions must be performed within 24 hours:

(a) Notification to Emergency Management Branch (as stated above.)

(b) Take immediate action to prevent any further release of the regulated substance into the environment; and

(c) Identify and mitigate fire, explosion, and vapor hazards.

(3) Initial Abatement Measures and Site Check. A qualified contractor will be acquired to perform the following abatement measures subsequent to the initial response actions above, unless directed otherwise by the EPA/state agency:

(a) Remove as much of the regulated substance from the UST system as is necessary to prevent further release to the environment;

(b) Visually inspect any aboveground releases or exposed belowground releases and prevent further migration of the released substance into surrounding soils and ground water;

(c) Continue to monitor and mitigate any additional fire and safety hazards posed by vapors or free product that have migrated from the UST excavation zone and entered into sub-surface structures (such as sewers or basements); and

(d) Remedy hazards posed by contaminated soils that are excavated or exposed as a result of release confirmation, site

investigation, abatement, or corrective action activities. If these remedies include treatment or disposal of soils, SWL must comply with state and local requirements.

SWL will comply with detailed procedures for site investigation, planning and cleanup of UST sites as stated in 40 CFR 280.

(4) USTs must be registered with the appropriate state agency (i.e., ADPC&E or MDNR). Registration and payment of fees are the responsibility of the Operations Project Manager.

(5) Installation, repair, upgrade or closure of USTs and/or UST systems in Arkansas will be accomplished only by ADPC&E licensed individuals, who are licensed to install, repair, upgrade or close USTs. The state of Missouri (MDNR) currently does not certify or license individuals for installation, repair, upgrade or closure of USTs.

The Arkansas provision requires licensing of the individual who exercises supervisory control over the installation, repair, upgrade or closure work. The licensed individual must be physically present on site at the critical junctures (see ADPC&E Regulation No. 12, Chapter 5, Section 4) in the installation, repair, upgrade or closure. Repairs will be documented and maintained on file for at least three years.

(6) The testing of USTs will be accomplished only by individuals licensed by ADPC&E. This provision requires licensing of the individual who exercises supervisory control over the testing procedures. No company may test USTs unless it has been licensed by ADPC&E and only so long as it is, or has in its employ, licensed individual who will control and supervise a given test and will be physically present on site during all preparations for the test and during the actual test itself. The state of Missouri (MDNR) currently does not certify or license individuals for testing of USTs.

(7) Record Keeping. The following information must be maintained and made readily available to EPA and/or state inspectors:

(aa) A corrosion expert's analysis of site corrosion potential if corrosion protection equipment is not used. Note: Fiberglass-reinforced plastic tanks and piping are considered corrosion protection equipment.

(ab) Documentation of UST system repairs.

(ac) Results of the site investigation conducted at permanent closure.

(ad) Release Detection. Records must include all written

performance claims pertaining to any release detection system used, and the manner in which these claims have been justified or tested by the equipment manufacturer or installer. They must be maintained for 5 years.

Results of any sampling, testing, or monitoring must be maintained for at least 1 year, except that the results of tank tightness testing must be retained until the next test is conducted.

Written documentation of all calibration, maintenance and repair of release detection equipment permanently located on-site must be maintained for at least one year after the servicing work is completed.

Any schedules of required calibration and maintenance provided by the release detection equipment manufacturer must be retained for 5 years from the date of installation.

(8) Fill pipes used to transfer used oil into underground storage tanks must be clearly marked with the words "Used Oil".

d. *Equipment.* Adequate drip pans will be placed under equipment to prevent the leakage of oil, transmission fluid, etc. from contaminating soil and groundwater. Repairs will be made to equipment with excessive leakage. Contaminated soils will be sampled, analyzed and remediated/disposed of in accordance with federal, state and local regulations. Sorbent materials will be utilized to absorb spills and/or leakage. Contaminated soil and used sorbents (including oil contaminated floor sweep) will be analyzed and disposed of as described in paragraph 15.b.

e. *Personnel Training and Spill Prevention Training.*

(1) Operations Project Managers are responsible for properly instructing their personnel in the operation and maintenance of equipment to prevent the discharge of oil and hazardous substances. They will designate individuals (primary and alternate) as Emergency Spill Responders with the responsibility for spill prevention and response at each field office (i.e., lock, dam, marine terminal, powerhouse, etc.) The Emergency Spill Responder will report to the OSC in the event of a major release. See Appendix K for minimum training requirements at Project Offices.

(2) Operations Project Managers will ensure spill prevention discussions will be scheduled and conducted for operating personnel monthly, along with routine safety briefings, to ensure adequate understanding of the Spill Prevention and Response Plan as it relates to their facility. Discussions will highlight and describe known spill events or failures, malfunctioning equipment or components, and recently developed precautionary measures. Discussions will be documented, including information, such as:

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date of the discussion, topic, attendees. Documentation will be maintained on file, ready for review.

f. *Security.* Areas with bulk oil and gasoline storage areas will be fully fenced and entrance gates locked when the facility is unattended. Facility lighting will be provided and will be proportionate to the type and location of the facility. Visibility will be sufficient during hours of darkness for operating personnel and non-operating personnel (the general public, local police, etc.) to discover spills and to prevent spills occurring through vandalism.

g. *Vessels.* The discharge of ballast or bilge water from District vessels will be strictly controlled either by collection and proper disposal or the use of onland oil-water separators capable of processing the accumulated contaminated water. Slight sheens from the discharge of oil from a properly functioning vessel engine are exempt from reporting and corrective action. See Appendix L for required supplies to be maintained aboard vessels which carry supplemental fuel (i.e., portable storage tanks).

h. *Identification of Substances.* In most all cases, the identification of a released hazardous substance will be known. Contact the Emergency Management Branch should a release occur and the identification is not known. There are companies, such as Chemical Transportation Emergency Center (CHEMTREC) which can assist Emergency Spill Coordinators in identifying the released substance and give immediate advice. They provide hazard information, warnings and guidance when given the identification number or name of the product and the nature of the problem. Only information is provided - no physical response. If the product is unknown, provide CHEMTREC as much information about the incident as possible. CHEMTREC is a service of the Chemical Manufacturers Association and operates around the clock, they may be reached at 1-800-424-9300. Emergency collect calls are accepted by the center at 0-202-483-7616. CHEMTREC can also telefax chemical-specific information during emergencies.

i. *Safety and Health Program.* A Safety and Health Program, consistent with 29 Code of Federal Regulations (CFR) 1910.120 will be developed and implemented for the protection of District employees. Development and implementation is a responsibility of the District Safety and Occupational Health Office. A copy of the Safety and Health Program will be made available at the response site.

(1) Contractors, subcontractors, or their representatives obtained to provide spill response and/or clean-up services will be informed of the site emergency response procedures and any potential fire, explosion, health, safety or other hazards of the site that have been identified by the District. Contracts let for spill response and clean-up will contain assurances that the

contractor or subcontractor at the response site will also comply with the Safety and Health Program requirements.

(2) The Safety and Health Program will also be made available to OSHA personnel, and to personnel of other Federal, state, or local agencies with regulatory authority over the site.

j. Oil is Prohibited from use as Dust Suppressant. Oil or used oil will not be used as a dust suppressant on roads, parking lots, driveways, or similar surfaces. Oil or used oil unable to be used for its intended purpose or recycled will be disposed of in accordance with federal and state laws, and this regulation.

8. Reporting. Any District employee in charge of a vessel, vehicle, equipment or facility shall as soon as he or she has knowledge of any discharge of oil or a hazardous substance from their vessel or facility will immediately notify the District Emergency Management Branch. The Emergency Management Branch will immediately notify the National Response Center (NRC), U.S. Coast Guard at 1-800-424-8802 or (202) 267-2675, and the appropriate state agency. For the state of Arkansas, spill reports will be made to the State Office of Emergency Services at 1-800-322-4012. For the state of Missouri, spill reports will be made to the State Emergency Management Agency at (573) 634-2436. If direct reporting to the NRC is not practicable, reports will be made to the Coast Guard or Environmental Protection Agency (EPA) predesignated On-Site Coordinator (OSC) for the geographic area where the discharge occurs. If it is not possible to notify the NRC or the predesignated OSC immediately, reports may be made to the nearest Coast Guard unit, provided that the person in charge of the vessel or facility notifies the NRC as soon as possible. Detailed notification procedures are in Appendix A. Release Notification Form, SWL 442-R, is in Appendix B.

a. *Oil Spills.*

(1) Water. Any oil spill (other than the exemption below) that creates a sheen, thereby violating the state's water quality standards, will be reported immediately to the Emergency Management Branch (Appendix A) and the Release Notification Form completed (Appendix B). Emergency Management Branch will make further notifications as necessary. *Exemption:* EPA has exempted slight sheens generated by properly functioning vessel engines from reporting and corrective action.

(2) Land. All oil spills on land will be reported immediately to the Emergency Management Branch (Appendix A) and the Release Notification Form completed (Appendix B). The Emergency Management Branch will make further notifications as necessary.

b. *Used Oil Spills.* Responses will be identical to paragraph 8a above, until sampling and laboratory analyses determine whether

the used oil is a hazardous waste. Hazardous wastes will be removed and disposed in accordance with 40 CFR 260.

c. *Hazardous Substances.* Release of a hazardous substance into the environment will be immediately reported to the Emergency Management Branch (Appendix A) and the Release Notification Form completed (Appendix B). The Emergency Management Branch will make further notifications if released amount equals or exceeds reportable quantities in accordance with 33 CFR 153, subpart B and 40 CFR 302.

9. *Fines.* Any employee who fails to notify the appropriate agency of the United States Government immediately upon discharge is, upon conviction, subject to a fine of not more than \$10,000, or to imprisonment of not more than one year, or both. 49 CFR 153.205.

10. *Blanket Purchase Agreements/Contracts.* Procedures are in place to provide a quick response to spill situations within the District. Procedures allow for acquiring a contractor through the use of two options: Blanket Purchase Agreements (BPAs) or contracts. The selected option is dependant upon the estimated dollar value of the work to be accomplished (which is based on the type, size and complexity of spill recovery).

a. *BPA.* A BPA currently exists with Waste Services, Incorporated, up to \$25,000 and extends to the year 1999. Call numbers can be issued quickly to provide contractor response to a spill situation. Emergency Management Branch, 501-324-5695, will assist in setting up a call number and acquiring a contractor.

b. *Contracts.* Contracts can be issued within one to two days for spill responses estimated to exceed \$25,000. Emergency Management Branch will coordinate with Supplies and Services Branch, Contracting Division, (501) 324-5718 to acquire a contractor.

11. **Chain-of-Events After National Response Center (NRC) Notification.**

a. Notices of discharges, or releases received at the NRC are relayed immediately by telephone to the EPA and/or USCG On-Scene Coordinator (OSC). Jurisdictions have been established between the EPA and USCG OSC. The EPA is primarily responsible for monitoring cleanup of land and water contamination (i.e., lakes, streams, groundwater, etc.); whereas, the USCG is primarily responsible for monitoring cleanup efforts on navigatable waters (i.e., Arkansas River). It is possible that a spill resulting in contamination of soil, river banks and a river would result in interaction between both the EPA, USCG and the responsible party.

The EPA and/or USCG OSC would interface directly with the SWL OSC. The EPA and/or USCG would monitor/supervise SWL's response ensuring

proper removal actions are taken. Other federal, state and local spill response authorities would also monitor the spill situation and provide guidance to the SWL OSC. The EPA and/or USCG OSC would initiate a preliminary assessment and take actions to:

- (1) Evaluate the magnitude and severity of the discharge or threat to public health or welfare or the environment;
- (2) Assess the feasibility of removal;
- (3) Identify responsible parties; and
- (4) Ensure that authority exists for undertaking any additional response actions.

b. The discharger is liable for costs of federal removal in accordance with the Clean Water Act and other federal laws. The EPA and/or USCG OSC will take actions to have the discharger promptly perform removal actions. If the responsible party does not take proper removal actions, or if the responsible party is unknown, the EPA and/or USCG OSC would determine whether a federal response is authorized and take appropriate response actions.

12. **Containment, Removal and Disposal.**

a. Defensive actions will begin as soon as possible to prevent, minimize, or mitigate threat(s) to public health or welfare or the environment. Actions may include but are not limited to:

- (1) Analyzing water samples to determine the source and spread of the oil;
- (2) Controlling the source of discharge;
- (3) Measuring and sampling;
- (4) Spread control or salvage operations;
- (5) Placement of physical barriers to deter the spread of the oil and to protect natural resources;
- (6) Control of the water discharged from upstream impoundment; and the
- (7) Use of chemicals and other materials to restrain the spread of the oil and mitigate its effects. Authorized dispersants and other chemical or biological products are found in the National Contingency Plan (NCP) Product Schedule. A copy may be obtained by calling 1-202-260-2342.

b. As appropriate, actions shall be taken to recover the oil

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or mitigate its effects. Of the numerous chemical or physical methods that may be used, the chosen methods shall be the most consistent with protecting public health and welfare and the environment. Sinking agents will not be used.

c. Oil and contaminated materials recovered in cleanup operations will be disposed of in accordance with the Regional Contingency Plan (RCP) and OSC contingency plan and applicable laws, regulations, or requirements.

13. **Methods and Procedures for the Removal of Discharged Oil.**

a. As stated in paragraph 11a above, the EPA and/or USCG OSC would supervise the District's response efforts to ensure a proper response. The EPA and/or USCG OSC is authorized by the provisions of the NCP to require or deny the use of specific mechanical methods and sorbents. Sorbent selection considerations of the OSC include hydrographic and meteorological conditions, characteristics of the sorbent and availability of a mechanical method for containment and recovery.

b. The District shall do the following to ensure the removal of a discharge of oil:

(1) Use to the maximum extent possible mechanical methods and sorbents that: most effectively expedite removal of the discharged oil; and minimize secondary pollution from the removal operations.

(2) Control the source of discharge, prevent further discharges, and halt or slow the spread of the discharge by mechanical methods or sorbents or both to the maximum extent possible.

(3) Recover the discharged oil from the water or adjoining shorelines by mechanical or manual methods or both to the maximum extent possible.

(4) Use chemical agents only in accordance with the provisions identified in paragraph 12.a. above and with the prior approval of the OSC.

(5) Dispose of recovered oil and oil contaminated materials in accordance with applicable state and local government procedures.

14. **Sampling.** Environmental sampling will be performed only by personnel trained and current in environmental sampling techniques, Hazardous Communication Training, including any specialized training required by 29 CFR 1910 (i.e. asbestos, lead, etc).

15. Disposal of Oil, Used Oil, and Oil Contaminated Debris from Incidental Spills.

a. *Oil and Used Oil.*

(1) Oil recovered from a release shall, to the maximum extent possible, be recycled. Provisions for recycling will be made through the Logistics Management Office.

(2) Used oil shall also be recycled to the maximum extent possible. Used oil that exhibits hazardous waste characteristics will be disposed of as a hazardous waste. Contact the Logistics Management Office for the manifesting and disposal of hazardous waste.

(3) Oil, used oil contaminated soil and debris shall be identified as hazardous or nonhazardous. Each Project, Field, Park Maintenance Office, Powerhouse, and Lock and Dam has the ultimate responsibility for making this identification. User knowledge of the waste saves time and money since unknown wastes must be thoroughly analyzed, at increased costs. *Mixing of hazardous waste and nonhazardous waste is prohibited.* When this occurs, the entire mixture becomes a hazardous waste. The District is required to manage hazardous waste in accordance with Federal and State Hazardous Waste Laws and Regulations.

b. *Contaminated Soil Excavation.* Excavated soil will be handled and stored in a manner which limits loss of hydrocarbons to the air and limits loss or movement of the material due to wind, rain, etc., and also limits human contact with the waste. Measures to be taken include the use of bottom and top liners in containment cells and/or the use of liners to cover loads awaiting and during transport to the landfill.

c. *Oil Contaminated Soil and Debris Disposal in Arkansas.* After excavation, a representative sample of the contaminated soil or debris must be analyzed before acceptance by a Class 1 landfill. Only class 1 landfills, in the state of Arkansas, are permitted to accept petroleum contaminated soils.

(1) *Virgin Oil Contaminated Soil and Debris.* Disposal and/or remediation of oil contaminated soils will be based on the level of contamination. Analyticals will be performed to determine Total Petroleum Hydrocarbons (TPH) in parts per million (ppm). Disposal actions are based on levels of petroleum contamination.

(2) *Used Oil Contaminated Soil and Debris.* Disposal and/or remediation of used oil contaminated soils and debris will be based on whether the used oil exhibits any hazardous waste characteristics and the level of TPH. Once a determination is made that the soil is not a hazardous waste, disposal options are then governed by the level of TPH:

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(a) 100 ppm or less. Soils can be left in place with no further action. Note: Arkansas Department of Pollution Control and Ecology (ADPC&E) may provide a waiver of the 100 ppm limit when circumstances warrant (i.e. where excessive excavation would undermine a building's foundation, road, etc.).

(b) 101 ppm to 1000 ppm. Offices have the following options in dealing with petroleum contaminated soils:

(1) Dispose through a Class 1 landfill, within the state of Arkansas.

(2) Dispose as a waste through the Logistics Management Office.

(3) Perform soil remediation techniques until contaminants are 100 ppm TPH or less, in which case, the soils may then be left on site. The determining factor should be based on the amount of contaminated soil, available manpower and operating funds. Requirements concerning a soil remediation project, in Arkansas, are at Appendix R. Landfills in the state of Arkansas are operated by municipalities and a variety of contractors, with varying processing procedures. To determine the processing requirements contact the nearest Class 1 landfill (see Appendix O). It is recommended that procedures be identified beforehand, and points of contact established between the Corps and the landfill to expedite disposal. An example of the process is:

- Request and complete profile sheet from Class 1 landfill (see example at Appendix O) and perform required analyses. Required analyses for petroleum contaminated soils are usually Benzene, Toluene, Ethylbenzene, and Xylene (BTEX); Total Petroleum Hydrocarbons (TPH), Toxicity Characteristic Leaching Procedure (TCLP) Metals, TCLP Pesticides and Herbicides.

- Submit a letter to ADPC&E, Solid Waste Department, requesting permission to landfill the waste. Provide analyses and identify the amount of waste to be landfilled, contaminate and what process generated the waste. If no response is received within two weeks, submit a second letter to the same address. Explain that no response has been received from the initial correspondence and identify your intentions to proceed with landfilling the waste. The District will consider a "no response" from ADPC&E as concurrence to our request. Document telephone conversations and maintain good communication records (including written correspondence).

- Submit a completed profile sheet and analytical results to the landfill for approval. Regulatory limits for petroleum contaminated soils exist and must be met (BTEX 400 ppm or less, TPH 1000 ppm or less, TCLP Metals, TCLP herbicides and pesticides (unless generator provides a letter stating no pesticide or

herbicide exist in the soil - citing user knowledge). Soils with contaminants that exceed the regulatory limits will be handled as a hazardous waste under 40 CFR 260. Contact Emergency Management Branch for assistance.

- Approximate cost of landfilling petroleum contaminated soils is \$10.45 per cubic yard (CY), with a price break for 300 CY or more at \$7.45 per CY. These prices will likely increase in the future.

(c) 1000 ppm or more. Project Offices have the following options when dealing with petroleum contaminated soils:

(1) Disposal through a Class 1 landfill outside the state of Arkansas which do not have TPH limits (i.e. Mississippi, Louisiana, etc.)

(2) Disposal as a waste through the Logistics Management Office.

(3) Performance of soil remediation techniques until contaminants are: within the Arkansas landfill regulatory limit (less than 1000 ppm TPH); or are 100 ppm TPH or less, in which case, the soils may be left in place. The determining factor should be based on the amount of contaminated soil, available manpower and operating funds. Requirements concerning a soil remediation project, in Arkansas, are at Appendix R. Emergency Management Branch must be contacted prior to the planning of soil remediation projects.

d. Oil Contaminated Soil and Debris Disposal in Missouri.

After excavation, a representative sample of the contaminated soil or debris (including used sorbents) must be analyzed before acceptance by a Sanitary Landfill. Sanitary Landfills, permitted by Missouri Department of Natural Resources (MDNR), are authorized to receive petroleum and fuel contaminated soils and debris (including used sorbents). The landfills are responsible for operating within the limits of their permit, and are liable for future contamination caused by their operation. Soils that contain free liquids must be drained and the liquid collected for recycling or disposal. Soils must pass the paint filter test in order to be landfilled. While the MDNR requires that soils and debris not exhibit any hazardous waste characteristic and not contain any free liquids, individual landfills may require additional analyticals to safeguard against producing future contamination.

Landfill cost are approximately \$20 per cubic yard and range from \$23.04 to \$37.50 per ton. In some cases, the landfill may provide transportation for an additional charge.

A list of sanitary landfills and points of contact in Missouri are

at Appendix P. To determine landfill processing requirements, contact the nearest sanitary landfill. Landfill operators require the completion of one to two forms (see Appendix P). Required form(s) must be completed and a copy received with both signatures prior to delivering soil to the landfill. A copy of the form(s) must accompany the soil to the landfill. It is highly recommended that procedures be identified beforehand, and points of contact established between the Corps representative and the landfill to expedite disposal.

(1) Virgin gasoline or virgin fuel oil contaminated soil and debris may be landfilled. Analyticals may include: Test method 9095 (paint filter liquids test) specified in Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods, publication SW-846 of the United States Environmental Protection Agency, will be used to determine that the waste contains no free liquids; BTEX; TPH; etc.

The Corps representative (who is located at the site) will be required to complete and sign the certification section, on the form, which is also signed by the landfill representative stating the waste is soil contaminated *only* with virgin gasoline or virgin fuel oil and contains no free liquid.

(2) Used oil or used fuel contaminated soil and debris also may be landfilled in a Sanitary Landfill. The soil must not exhibit any hazardous waste characteristic (contact Emergency Management Branch for assistance and determination). Analyticals are typically decided on a case-by-case basis, and may include paint filter test, BTEX, TPH, TCLP metals, flash point, etc. The soil must not contain free liquid.

16. Funding.

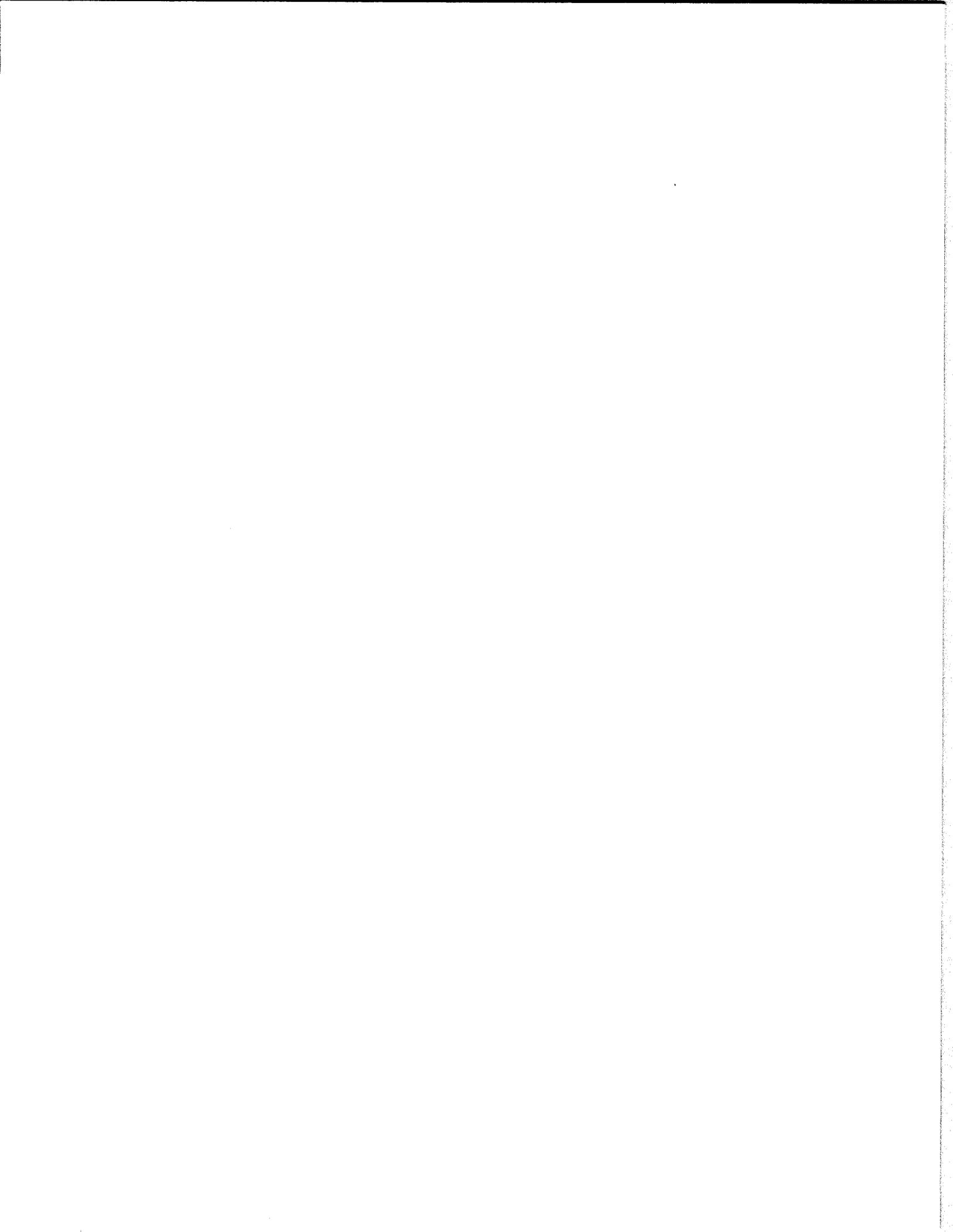
a. Federal agencies will make resources available, expend funds, or participate in response to oil discharges. Authority to expend resources will be in accordance with agencies' basic statutes and, if required, through interagency agreements. Where the OSC requests assistance from a federal agency, that agency may be reimbursed in accordance with the provisions of 33 CFR 153.407. Specific interagency reimbursement agreements may be signed when necessary to ensure that the federal resources will be available for a timely response to a discharge of oil.

b. The funding of a response to a discharge from a district operated or supervised facility or vessel is the responsibility of that facility or resident office.

c. The Corps of Engineers has funds that may be applicable to an oil discharge under the appropriate circumstances, such as the removal of a sunken vessel or similar obstruction of navigation

through the Civil Works Appropriations, Operations and Maintenance, General.

d. The OSC may determine that state action is required to minimize or mitigate a significant threat to the public health or welfare or the environment when federal action cannot minimize or mitigate. Removal or partial removal can be done by the state at a cost that is less than or not significantly greater than the cost that would be incurred by the federal agencies.



APPENDIX A

NOTIFICATION PROCEDURES

POINTS OF CONTACT

1. Notify the first available point of contact (POC) in the order shown below. The POC contacted will notify others on the list.

	<u>POCS</u>	<u>OFFICE</u>	<u>HOME</u>
(a)	Emergency Management Branch	501-324-5697	
	Chief, Edsel V. Chapman	501-324-5695	501-834-0531
	Rebecca J. Smith	501-324-5695	501-450-3954
	Phillip G. Blackwell	501-324-5695	501-868-7853
(b)	Con-Ops Division	501-324-5561	
	Chief, Keith Thonen	501-324-5679	501-834-3571
	Asst Chief, Thomas P. Risher	501-324-5556	501-851-0737
(c)	Safety and Occupational Health Office	501-324-5617	
	Chief (Vacant)	501-324-5617	
	Peggy Paulsen	501-324-5616	501-988-4819
(d)	Public Affairs Office		
	Chief, Bob Faletti	501-324-5551	501-758-9134
	P.J. Spaul	501-324-5551	501-778-0907
(e)	Deputy District Commander	501-324-5533	
	MAJ Kurt G. Hoffmann	501-324-5532	501-833-0233
(f)	District Commander	501-324-5531	
	COL P. S. Morris	501-324-5531	501-868-8938

2. The Chief, Emergency Operations Branch, or the first POC contacted above, will be responsible for informing the Deputy District Commander and District Commander and other appropriate staff members once initial notification of the incident has been made. The Emergency Management Branch will then immediately contact the:

- a. National Response Center (NRC) at 1-800-424-8802 or (202) 267-2675,
- b. Arkansas Department of Pollution Control and Ecology at (501) 682-0716,
- c. Arkansas, Office of Emergency Services at 1-800-322-4012 or
- d. Missouri, State Emergency Management Agency (573) 634-2436, and
- d. other federal and state regulatory authorities as required.

APPENDIX B

RELEASE NOTIFICATION FORM

1. NAME/JOB TITLE OF REPORTER: _____
TELEPHONE NUMBER: _____
NAME/JOB TITLE OF PERSON DISCOVERING THE SPILL: _____
TELEPHONE NUMBER: _____

2. NAME OF FACILITY: _____
ADDRESS OF FACILITY: _____
COUNTY/LATITUDE & LONGITUDE/NAVIGATION MILE: _____
ON-SITE POC AND TELEPHONE NUMBER: _____

3. DATE AND TIME OF INCIDENT: _____

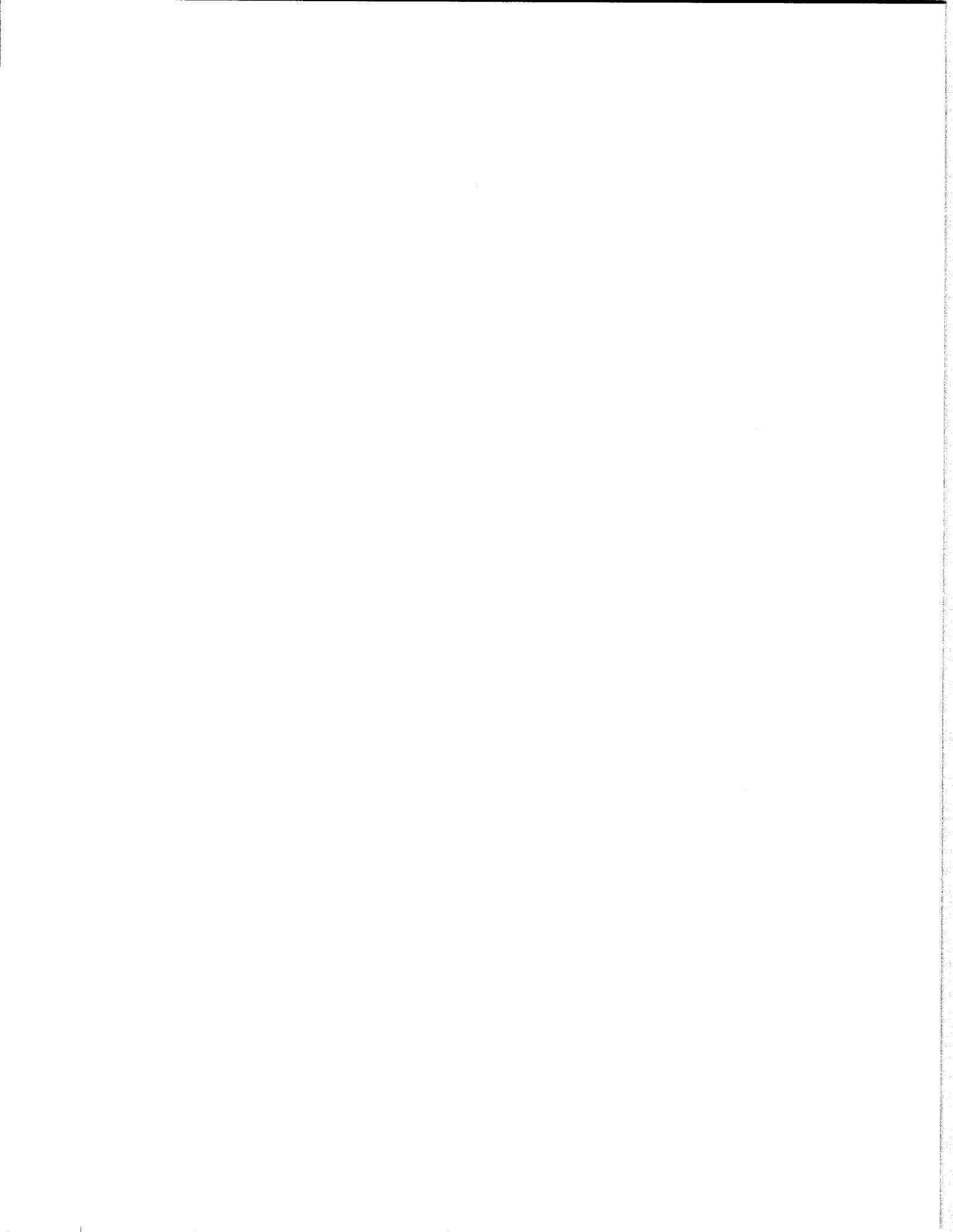
4. TYPE OF INCIDENT (e.g. release, fire, etc.): _____

5. INJURIES/DAMAGES: _____
TYPE OF INJURIES: _____

6. NAME OF MATERIAL(S) RELEASED: _____
QUANTITY OF MATERIAL RELEASED (APPROX): _____
HAS FLOW BEEN STOPPED? _____
IS SPILL CONTAINED? _____
CAUSE OF RELEASE: _____
TYPE(S) OF CONTAMINATION (land/river/stream/etc.): _____
EXTENT OF ENVIRONMENTAL CONTAMINATION: _____
CORRECTIVE ACTIONS TAKEN: _____
QUANTITY OF MATERIAL RECOVERED: _____
DISPOSAL ACTIONS (recycle/landfill/hazardous waste/etc.): _____

7. REGULATORY AGENCIES NOTIFIED: _____
NAME/DATE/TELEPHONE NUMBER: _____

NATIONAL RESPONSE CENTER (1-800-424-8802) DATE/TIME: _____
NRC CASE NUMBER: _____



**PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
CLEARWATER**

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Clearwater Project Office Piedmont, MO	Diesel Aboveground Storage Tank	500 Gal	Project Office Compound	On	Secondary Containment
	Gasoline Underground Storage Tank	1,000 Gal	Project Office Compound	On	Double-walled w/electronic sensors
	Paint, Oil	12 Gal	Flammable Storage Building	On	Sorbents
	Paint, Latex	12 Gal	Flammable Storage Building	On	Sorbents
	Stain, Latex	1 Gal	Flammable Storage Building	On	Sorbents
	Wood Finish	1 Gal	Flammable Storage Building	On	Sorbents
	Waterproofing	5 Gal	Flammable Storage Building	On	Sorbents

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APPENDIX C

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**PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
CLEARWATER**

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Clearwater Project Office Piedmont, MO (Continued)	Roof Cement	1 Gal	Flammable Storage Building	On	Sorbents
	Sealer (Tree Wound)	2 Gal	Flammable Storage Building	On	Sorbents
	Solvent	12 Gal	Flammable Storage Building	On	Sorbents
	Epoxy	7 Gal	Flammable Storage Building	On	Sorbents
	Grease	58 Gal	Flammable Storage Building	On	Sorbents
	Oil	5 Gal	Flammable Storage Building	On	Sorbents

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**PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
CLEARWATER**

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Clearwater Project Office Piedmont, MO (Continued)	Brake Fluid	1 Gal	Flammable Storage Building	On	Sorbents
	Transmission Fluid	2 Gal	Flammable Storage Building	On	Sorbents
	Power Steering Fluid	1 Gal	Flammable Storage Building	On	Sorbents
	Oil, 10W30	8 Gal	Flammable Storage Building	On	Sorbents
	Hydraulic Fluid	35 Gal	Flammable Storage Building	On	Sorbents
	Oil, 2 Cycle	1 Gal	Flammable Storage Building	On	Sorbents
	Oil, Bar and Chain	2 Gal	Flammable Storage Building	on	Sorbents
	Gas Dryer	1 Gal	Flammable Storage Building	On	Sorbents

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PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
CLEARWATER

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Clearwater Project Office Piedmont, MO (Continued)	Antifreeze	6 Gal	Flammable Storage Building	On	Sorbents
	Windshield Cleaner	16 Gal	Flammable Storage Building	On	Sorbents
	Gas Dryer	.5 Gal	Flammable Storage Building	On	Sorbents
Clearwater Dam and Control Tower	Diesel Aboveground Storage Tank	300 Gal	Control Tower	On	Secondary Containment

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SITE DESCRIPTION AND MAP

Site No. 1

Site No. 1, 500 gallon above ground metal fuel tank located at the Project Office (See Site No. 1 on Locator Map).

This site stores 500 gallons of No. 2 Diesel Fuel and is equipped with a concrete catch basin. Area surrounding site is asphalt. Depth to ground water is approx. 260 feet. Distance to Clearwater Lake is approx. 400 feet. Absorbant Material is located in the gas shed adjacent to the tank as well as in the carpenter shop approx. 50 feet from tank.

Site No. 2

Site No. 2, 300 gallon above ground metal diesel fuel tank located in the control tower (See Site No. 2 on Locator Map).

This site stores 300 gallons of No. 2 Diesel Fuel and is equipped with a metal catch basin. Area surrounding the site is concrete. Depth to ground water is approx. 125 feet. The site is located directly above Clearwater Lake. Absorbant Material is located in the control tower.

Site No. 3

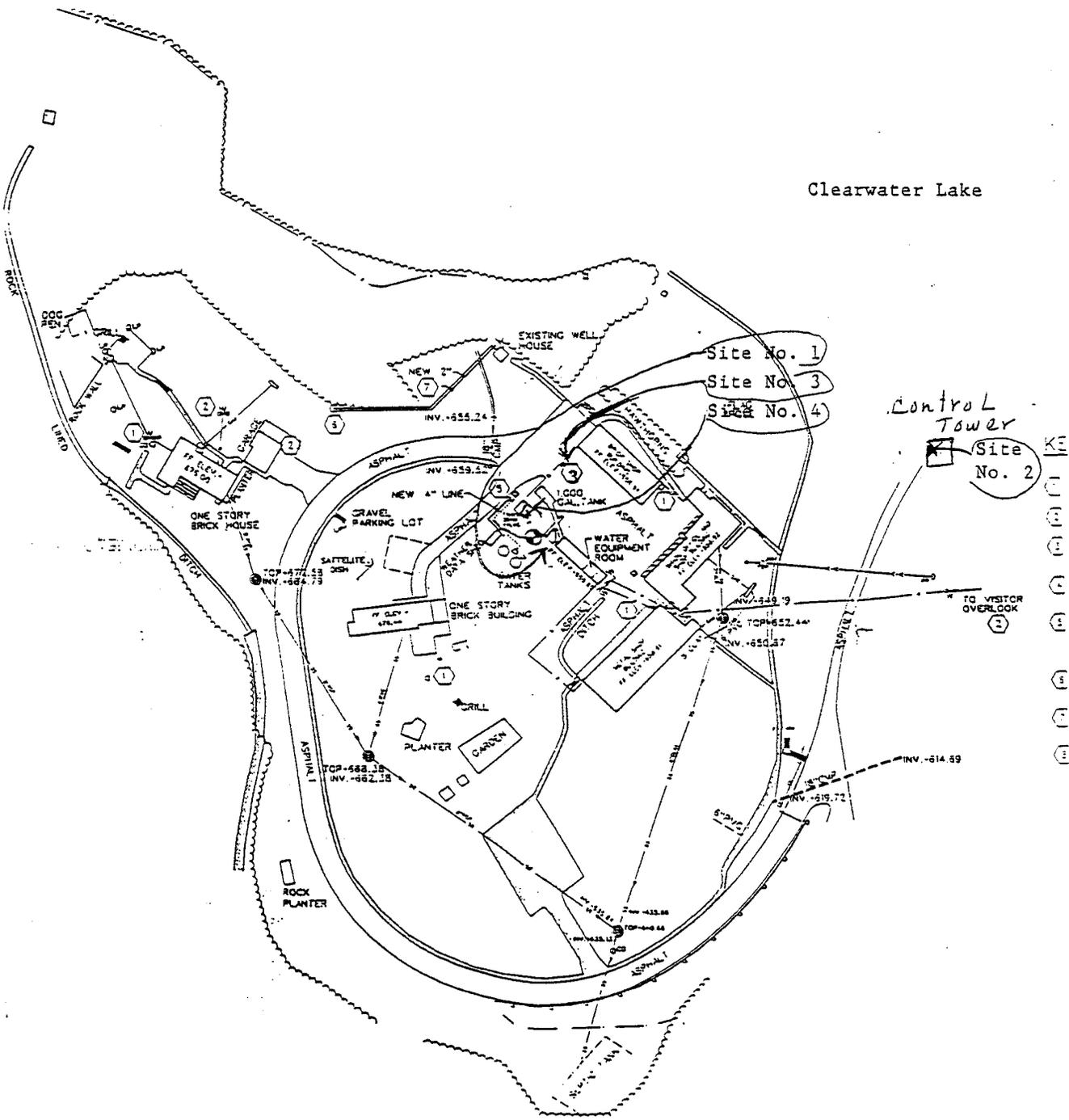
Site No. 3, 1000 gallon below ground double wall fiberglass fuel tank located at the Project Office (See Site No. 3 on Locator Map).

This site stores 1000 gallons of gasoline and is equipped with electronic sensors for detecting any leaks. Depth to groundwater is approx. 210 feet. Distance to Clearwater Lake is approx. 400 feet.

Site No. 4

Site No. 4, 30 gallon metal drum is located in the gas shed at the Project Office (See Site No. 4 on Locator Map).

This site stores up to 30 gallons of gear lube and has no containment other than the metal container and the brick building it is located in. The drum sets on concrete blocks. Leakage is detected through inspection of container and the surrounding area. Depth to groundwater is approx. 300 feet. Distance to Clearwater lake is approx. 400 feet.



Clearwater Lake

Site No. 1
Site No. 3
Site No. 4

Control Tower
Site No. 2

- KE
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

TO VISITOR OVERLOOK

SITE PLAN



PROJECT INFORMATION, CLIMATE AND SOIL DATA
CLEARWATER PROJECT OFFICE

Project Information: Clearwater Project Office is located off State Highway HH, approximately five miles southwest of Piedmont, Missouri. Its main purposes are to provide administrative and operational support to Clearwater Dam and Spillway, as well as parks and recreational facilities.

Climate: Clearwater Project Office is located in Wayne County, Missouri. Wayne County is characterized by hot summers with high humidity both day and night. Winters are generally mild, but arctic type outbreaks are common. Precipitation is fairly heavy in spring and fall. The average winter temperature is 40 degrees F. and outdoor work can be performed most of the winter. Snowfall averages 4.25 inches per year with most of the snow occurring in January. In summer, the average temperature is 87 degrees F. July and August are the hottest months with high temperatures of 100 degrees and over to be expected.

Rainfall: Rainfall averages for the general area are as follows:

Jan - 3.20 inches	Jul - 4.10 inches
Feb - 1.82 inches	Aug - 2.11 inches
Mar - 2.93 inches	Sep - 6.43 inches
Apr - 5.40 inches	Oct - 1.95 inches
May - 4.99 inches	Nov - 6.28 inches
Jun - 4.16 inches	Dec - 2.73 inches

The total annual precipitation is estimated to be between 48 inches and 55 inches. Spring and fall are the wettest times of the year.

Soils: Soil information for this county is not yet available from the Natural Resource Conservation Service.

Groundwater: Depth to groundwater is unknown.

Source: At this time the Natural Resource Conservation Service has not completed the Soil Survey for Wayne County, Missouri. Climate information was obtained from the Corps of Engineers, Little Rock District. This appendix will be revised when the Soil Survey is completed for Wayne County.

PROJECT INFORMATION, CLIMATE AND SOIL DATA
CLEARWATER DAM AND SPILLWAY

Project Information: Clearwater Dam and Spillway are located on the Black River at river mile 257.4, five miles southwest of Piedmont, Missouri. Its main purpose is to provide flood control.

Climate: Clearwater Dam and Spillway are located in Wayne and Reynolds Counties, Missouri. Wayne and Reynolds Counties are characterized by hot summers with high humidity both day and night. Winters are generally mild, but arctic type outbreaks are common. Precipitation is fairly heavy in spring and fall. The average winter temperature is 40 degrees F. and outdoor work can be performed most of the winter. Snowfall averages 4.25 inches per year with most of the snow occurring in January. In summer, the average temperature is 87 degrees F. July and August are the hottest months with high temperatures of 100 degrees and over to be expected.

Rainfall: Rainfall averages for the general area are as follows:

Jan - 3.20 inches	Jul - 4.10 inches
Feb - 1.82 inches	Aug - 2.11 inches
Mar - 2.93 inches	Sep - 6.43 inches
Apr - 5.40 inches	Oct - 1.95 inches
May - 4.99 inches	Nov - 6.28 inches
Jun - 4.16 inches	Dec - 2.73 inches

The total annual precipitation is estimated to be between 48 inches and 55 inches. Spring and fall are the wettest times of the year.

Soils: Soil information for these counties is not yet available from the Natural Resource Conservation Service.

Groundwater: Depth to groundwater is unknown.

Source: At this time the Natural Resource Conservation Service has not completed the Soil Surveys for Wayne and Reynolds Counties in Missouri. Climate information was obtained from the Corps of Engineers, Little Rock District. This appendix will be revised when the Soil Surveys are completed for these counties.

**SPILL HISTORY
CLEARWATER LAKE PROJECT OFFICE, DAM AND SPILLWAY**

CESWL-CO-CW

30 October 1995
BEARDEN/clc/7777
Spill

MEMORANDUM THRU *K 7*

Chief, ~~Construction~~-Operations Division

FOR Emergency Management Branch, Attn: Jane Smith

SUBJECT: Spill History - Clearwater Lake

1. Reference CESWL-CO-E memorandum, dated 16 October 1995, same subject.
2. The memorandum requested information of past hazardous spills at Clearwater. There is no record of any major or minor spill that has occurred at Clearwater.



MARK A. MILHOLLAND
Resident Manager

RECEIVED
NOV - 2 1995
CON-OPS DIVISION

25 Sep 97

INTERNAL NOTIFICATION AND EVACUATION PLAN

Clearwater Lake Project
Spill Prevention and Response Plan

Site No. 1 & No. 3

1. Upon notification of spill of hazardous materials, the receptionist will notify the Fire Dept. 314 223-4222, Project Manager, Facility Manager, Emergency Coordinator, or Senior employee on duty. Facility Manager or senior employee will deactivate the electric switch outside the transformer room.
2. Employees will apply shut of all discharge valves on tanks and begin applying absorbant materials to spilled materials. Additional available personnel will remove Corps vehicles from compound area.
4. Ensure that all endangered persons have been evacuated from the area
3. If fire breaks out, refer to firefighting plan, using chemical extinguishers if fire can be controlled by it.
4. In the event of a hazardous materials spill, notify the first available point of contact in the order shown on the contact list. This first point of contact will be responsible for informing the Chief, Emergency Operations Branch or first available point of contact listed in the Appendix A Notification Procedures, copy attached. The Emergency Management Branch will then notify the National Response Center, Federal and State regulatory authorities as required.

Clearwater Lake Project
Spill Prevention and Response Plan
Site No. 2

1. Upon discovery of spilled materials, employee will immediately notify the Project Office who will then notify the Project Manager, Park Manager, Facility Manager, and/or Emergency Coordinator.
2. Employee will shut off any discharge valves, if accessible, then apply absorbant material to spilled materials.
3. If fire breaks out, refer to firefighting plan, notify Project Office, who will notify Clearwater Fire Protection District. Use a chemical fire extinguisher if fire can be controlled by it.
4. In the event of a hazardous materials spill, notify the first available point of contact in the order shown on the contact list. The first point of contact will be responsible for informing the Chief, Emergency Operations Branch or first available point of contact listed in Appendix A Notification Procedures, copy attached. The Emergency Management Branch will then immediately notify the National Response Center, Federal and State regulatory authorities as required.

Clearwater Project Office
Spill Prevention and Response Plan
Site No. 4

1. Upon discovery of spilled materials, employee shall notify Facility Manager and/or Emergency Coordinator. Employee shall then apply absorbant materials to spilled materials.
2. If fire breaks out, refer to firefighting plan, notify Project Offcie, who will notify Clearwater Fire Protection District. Use a chemical fire extinguisher if fire can be controlled by it.
3. In the event of a hazardous materials spill, notify the first available point of contact in the order shown on the contact list. The first point of contact will be responsible for informing the Chief, Emergency Operations Branch or first available point of contact listed in Appendix A Notification Procedures, copy attached. The Emergency Management Branch will then immeadiately notify the National Response Center, Federal and State regulatory authorities as required.

HAZARDOUS MATERIAL SPILL NOTIFICATION LIST PROCEDURES

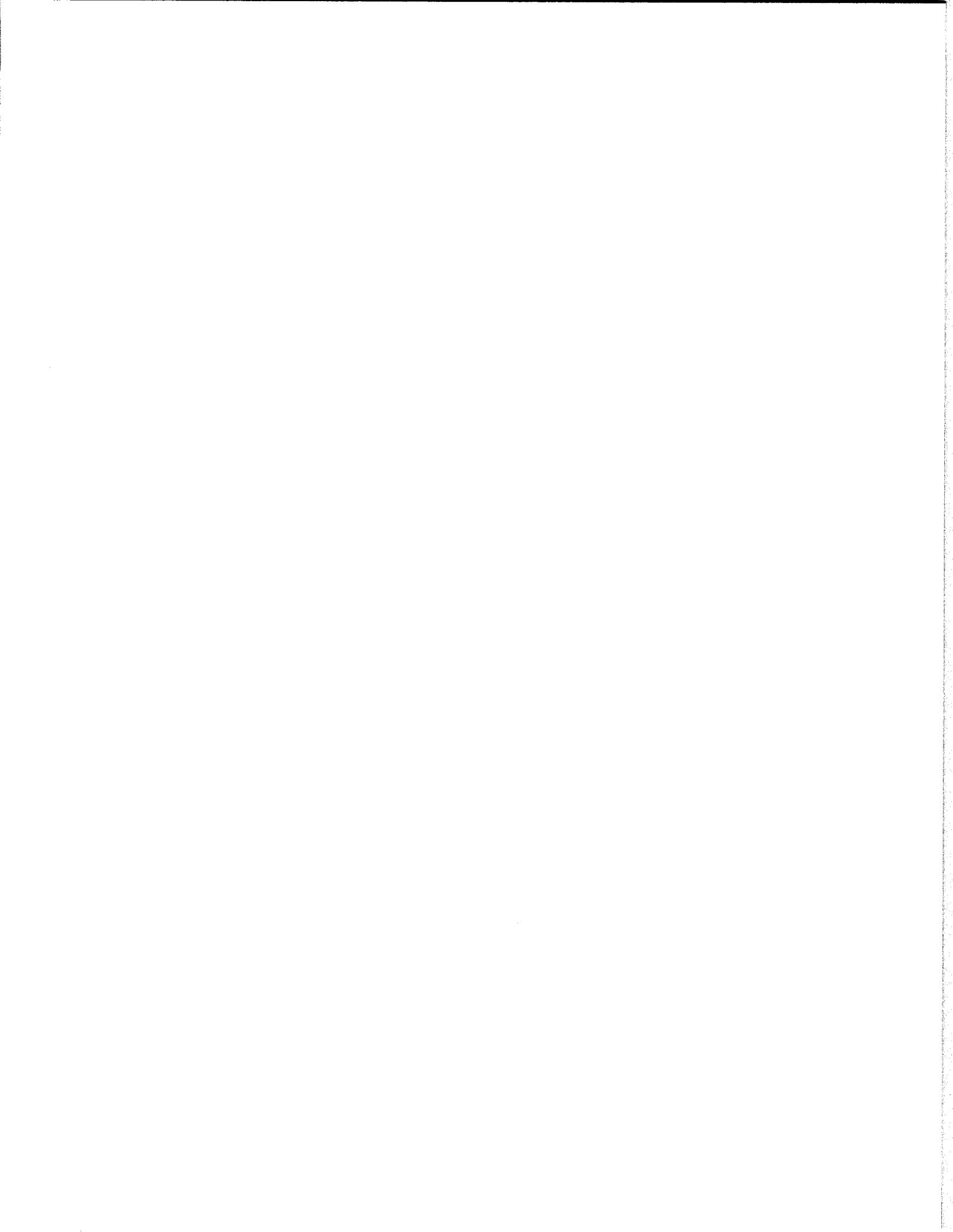
CLEARWATER PROJECT OFFICE

Point of Contact List

In the event of a hazardous materials spill, notify the first available point of contact in the order shown below. The point of contact first contacted will notify others on the list as required.

<u>Point of Contact</u>	<u>Office</u>	<u>Home</u>
Mark Milholland	314-223-7777	314-223-2987
Lynn Snider	314-223-7777	314-223-7510
O.E. Bearden	314-223-7777	314-223-7930
Renee Bouchard	314-223-7777	314-223-2373
Rob Iski	314-223-7777	314-223-7988
Randall Devenport	314-223-7777	314-223-2252
David Johnston	314-223-7777	314-223-4907
Garry Potter	314-223-7777	314-323-8432
Steve Cates	314-223-7777	314-223-4187
Carol Bell	314-223-7777	314-785-2769

The first point of contact will be responsible for informing the Chief, Emergency Operations Branch or the first available point of contact listed in the Appendix A Notification Procedures, copy attached. The Emergency Management Branch will then immediately notify the National Response Center, Federal and State regulatory authorities as required.



**PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
GREERS FERRY**

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Greers Ferry Project Office, Heber Springs, AR	Gasoline Underground Storage Tank	8000 Gal	Compound Area, See "A" on Site Map.	On	Double wall tank with leak detection.
	Diesel Underground Storage Tank	1000 Gal	Compound Area, See "A" on Site Map.	On	Double wall tank with leak detection.
	Oil & Lubricating Fluids	40 Gal	Metal Storage Building, See "B" on Site Map.	On	Sorbents
	Gasoline	20 Gal	Metal Storage Building, See "B" on Site Map.	On	Sorbents
	Gasoline for Small Engines	30 Gal	Metal Storage Building, See "C" on Site Map.	On	Sorbents
	Oil for Small Engines	3 Gal	Metal Storage Building, See "C" on Site Map.	On	Sorbents

D-1

APPENDIX D

**PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
GREERS FERRY**

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Greers Ferry Project Office, Heber Springs, AR (Continued)	Liquid Propane Gas Tank	1500 Gal	Compound Area, See "D" on Site Map.	On	None
	Oil 10W30	55 Gal	Shop Building, See "E" on Site Map.	On	Sorbents
	Transmission Oil	10 Gal	Shop Building, See "E" on Site Map.	On	Sorbents
	Solvent	30 Gal	Shop Building, See "H" on Site Map.	On	Sorbents
	Engine Oil	200 Gal	Compound Storage Area, See "H" on Site Map.	On	Sorbents
	Hydraulic Fluid	300 Gal	Equip Storage Building, See "H" on Site Map.	On	Sorbents
	Used Solvent/Thinners	10 Gal	Equip Storage Building, See "H" on Site Map.	On	Sorbents

D-2

SWIR 200-1-1
25 Sep 97

**PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
GREERS FERRY**

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Greers Ferry Project Office, Heber Springs, AR (Continued)	Used Antifreeze	20 Gal	Equip Storage Building, See "H" on Site Map.	On	Sorbents
	Used Oil	70 Gal	Equip Storage Building, See "H" on Site Map.	On	Sorbents
	Paint	70 Gal	Paint Storage Building, See "J" on Site Map.		Sorbents
	Thinner	16 Gal	Paint Storage Building, See "J" on Site Map.	On	Sorbents
	Disinfectant	110 Gal	Warehouse, See "J" on Site Map.	On	Sorbents
	Propylene Glycol	20 Gal	Warehouse, See "J" on Site Map.	On	Sorbents

D-3

**PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
GREERS FERRY**

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Greers Ferry Project Office, Heber Springs, AR (Continued)	Propane Aboveground Storage Tank	500 Gal	Compound Yard, See "K" on Site Map.	On	None

SITE DESCRIPTION AND MAPS

Spill Prevention Control and Countermeasure Plan

06-06-97

Greers Ferry Project Office

The following are site descriptions and information regarding each site. The site letters correspond to site letters marked on the attached map.

- A. 8,000 gallon underground tank
1,000 gallon underground tank

gasoline, 8,000 gallons
diesel, 1,000 gallons

floor drains\sumps n\a

largest container: 8,000 gallons

direction of flow: east

rate of flow: 10 gpm

distance to nearest water way: 150' to ditch
1250' to river

type of containment: underground tanks

depth to ground water: unknown

- B. 12' by 12' metal storage building, east building

40 gallons of misc. lubrication oils
gasoline cans, less than 20 gallons
No 55 gallon drums are stored here now.

no floor drains or sumps

largest container: 5 gallons

direction of flow: east

rate of flow: 5 gpm

distance to nearest waterway: 150' to ditch
1250' to river

type of containment: absorbants

depth to ground water: unknown, shallow soil\rock

25 Sep 97

- C. 12' x 12' metal storage building, west building
gasoline for small engines, 30 gallons
oil for small engines, 3 gallons
no floor drains or sump
largest container: 6 gallons
direction of flow: east
rate of flow: 5 gpm
distance to nearest waterway: 150'
type of containment: absorbants
depth to ground water: unknown, shallow soil\rock
- D. 1500 gallon, above ground tank
propane, 1500 gallons
no floor drains or sumps
largest container, 1500 gallons
direction of flow: n\a
rate of flow: n\a
distance to nearest waterway: 50' to drainage
1250' to river
type of containment: none
depth to groundwater: unknown shallow soil\rock
- E. upright, 55 barrel and 10 gal can
10w-30 engine oil
transmission oil
no floor drains or sumps
largest container: 55 gallons
direction of flow: east
rate of flow: 1 gpm

distance to nearest waterway: 50' to drainage
1250' to river

type of containment: absorbents

depth to groundwater: unknown, shallow soil\rock

F. area not being used (6-6-97)

G. All barrels of oil have been removed

H. steel barrels, 11 - 55 gallon barrels

engine oil, varsol, hydraulic fluid, used oil, used thinner
11 - 55 gallon barrels

no floor drains or sumps

largest container: 55 gallons

direction of flow: southeast

rate of flow: 10 gpm

distance to nearest waterway: 100' to ditch
1250' to river

type of containment: plastic containers and spill
supplies

depth to ground water: unknown, shallow soil\rock

I. 12' x 12' metal building

SPILL SUPPLIES STORAGE

J. 40' x 20' room, south end of new warehouse, former paint
room

paint, latex and oil - 70 - one gallon cans
cleaners, paints, insect repellants - 260 aerosol cans

no floor drains or sumps

largest container: 3 gallon

direction of flow: east

rate of flow: 5 gpm

25 Sep 97

distance to nearest waterway: 100' to outdoor drain to oil trap

type of containment: absorbants

depth to ground water: unknown, shallow soil\rock

K. 500 gallon, above ground steel tank

propane, 500 gallons

no floor drains or sumps

largest container: 500 gallon tank

direction of flow: n\a

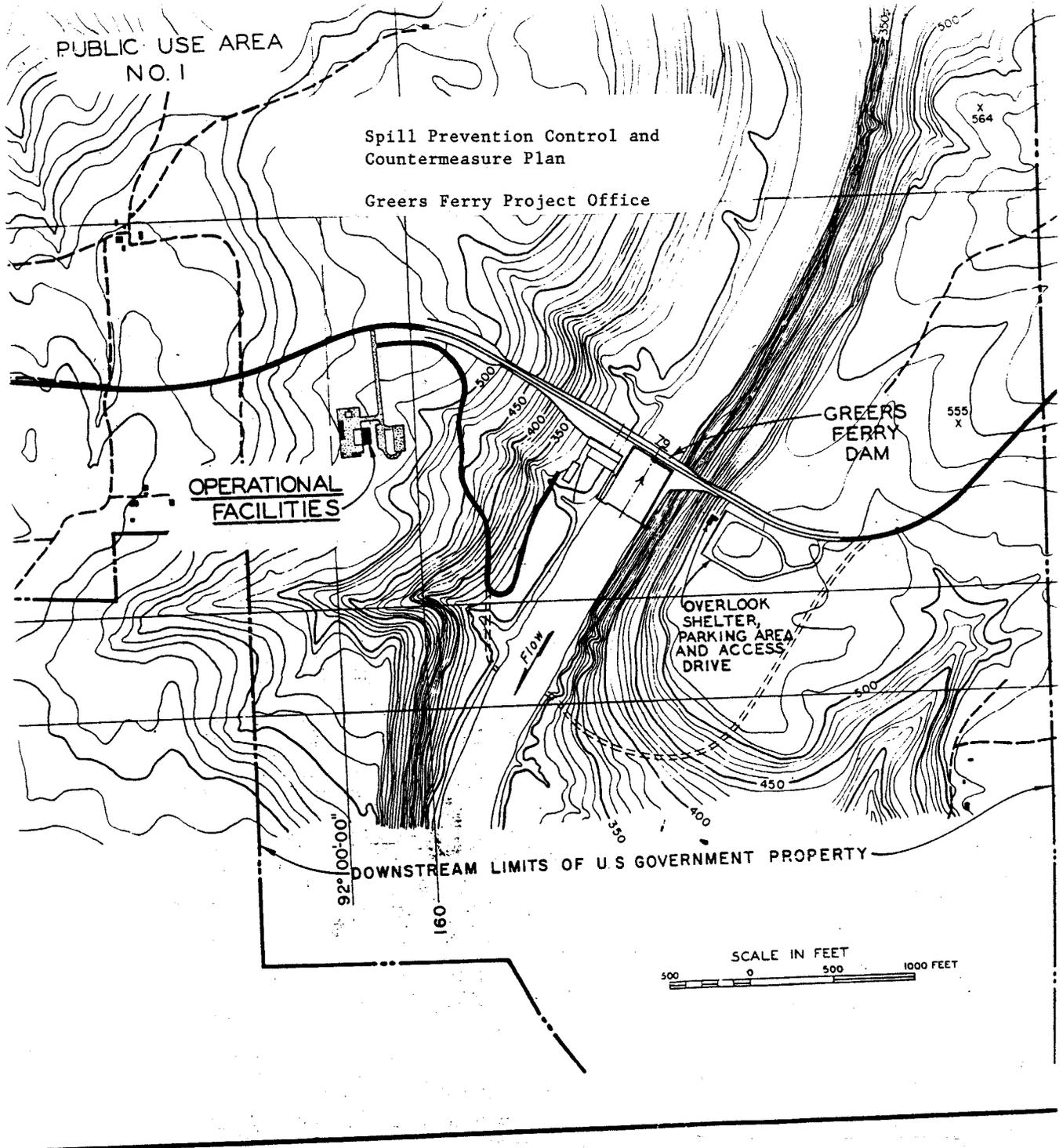
rate of flow: n\a

distance to nearest waterway: 200' to drain to oil trap

type of containment: n\a

depth to ground water: unknown, shallow soil\rock

06-06-97 LL



PROJECT INFORMATION, CLIMATE AND SOIL DATA
GREERS FERRY PROJECT OFFICE

Project Information: Greers Ferry Project Office is located off of State Highway 5 and 25 north, three miles northeast of Heber Springs, Arkansas, near the Greers Ferry Powerhouse and Dam. The facility's primary purpose is to provide administrative and operational/maintenance support to the powerhouse, dam, numerous parks and recreational facilities.

Climate: Greers Ferry Project Office is located in Cleburne County, Arkansas. The climate of Cleburne County is characterized by relatively cool winters and warm to hot summers that have adequate rainfall. In winter the average temperature is 38 degrees F and the average temperature during the summer is 78 degrees F. The average annual rainfall is about 51 inches. Of this, 27 inches, or about 53 percent, usually falls in April through September.

Rainfall: Rainfall averages for the general area are as follows:

Jan - 3.07 inches	Jul - 4.02 inches
Feb - 3.01 inches	Aug - 4.09 inches
Mar - 5.40 inches	Sep - 5.13 inches
Apr - 5.13 inches	Oct - 3.45 inches
May - 4.94 inches	Nov - 4.61 inches
Jun - 3.94 inches	Dec - 4.18 inches

The average amount of snowfall is 4 inches per season. On an average, 1 day has at least 1 inch of snow on the ground. The number of such days varies from year to year. The prevailing wind is from the southwest.

Soils: The soils in the area are a combination of Steprock-Linker complex, 3 to 8 percent slopes and Steprock-Nella-Mountainburg complex, 20 to 40 percent slopes. Descriptions of each are as follows:

Steprock-Linker complex, 3 to 8 percent slopes. This complex consists of well drained, moderately deep, gentle sloping soils. Steprock soil is moderately deep and generally is on the upper part of hillsides and ridgetops. Linker soil is moderately deep and generally is on the lower part of hillsides. The typical sequence, depth, color, and texture of the layers of Steprock soil are as follows: Surface layer - mineral surface to 4 inches, dark brown gravelly fine sandy loam; Subsoil layer - 4 to 8 inches, strong brown gravelly loam and 8 to 27 inches yellowish red very gravelly loam; Substratum - 27 to 46 inches yellowish red weathered sandstone (soft). The typical sequence, depth, color, and texture of the layers of Linker soil are as follows:

Surface layer - mineral surface to 5 inches dark brown gravelly fine sandy loam; Subsoil - 5 to 12 inches strong brown loam, 12 to 24 inches yellowish red loam, 24 to 32 inches yellowish red sandy clay loam; Bedrock - 32 to 35 inches hard level-bedded acid sandstone. Permeability is moderate.

Steprock-Nella-Mountainburg complex, 20 to 40 percent slopes. This complex consists of well drained, deep to shallow, steep, loamy and stony soils. Steprock soil is moderately deep and generally is on very steep sides of hills, mountains, and ridges. Mountainburg soil is shallow and generally is on narrow ledges. Rock outcrop is generally on very steep slopes of valley walls and near vertical bluffs. Typically, there are stones, cobbles, and gravel on the surface in all areas; stones are the most limiting factor. Typically, the Steprock soil is covered by a thin layer of decomposed and partly decomposed leaves, needles, and twigs. Below this layer, the typical sequence, depth, color, and texture of the layers of these soils are as follows: Surface layer - mineral surface to 2 inches, dark brown stony fine sandy loam; Subsoil layer - 2 to 8 inches, strong brown gravelly loam, 8 to 27 inches, yellowish red very gravelly loam; and Substratum - 27 to 46 inches, yellowish red weathered soft sandstone.

Nella soil is covered by a thin layer of partially decomposed and decomposed leaves, needles, and twigs. Under this layer, the typical sequence, depth, color and texture of the layers of this soil are as follows: Surface layer - mineral surface to 3 inches, dark grayish brown stony fine sandy loam; Subsurface layer - 3 to 10 inches yellowish brown gravelly fine sandy loam; Subsoil - 10 to 42 inches yellowish red gravelly sandy clay loam, 42 to 54 inches yellowish red very gravelly sandy clay loam, 54 to 72 inches red very gravelly sandy clay loam.

Typically, Mountainburg soil is covered by a thin layer of decomposed and partly decomposed leaves, needles, and twigs. Under this layer, the typical sequence, depth, color, and texture of the layers of this soil are as follows: Surface layer - Mineral surface to 2 inches, very dark grayish brown stony fine sandy loam; Subsurface layer - 2 to 7 inches, yellowish brown stony fine sandy loam; Subsoil - 7 to 17 inches, strong brown very gravelly sandy clay loam; and Bedrock - 17 to 20 inches, hard sandstone bedrock.

Permeability of Steprock soil is moderate and the permeability of Mountainburg soil is moderately rapid.

Groundwater: Depth to seasonal high water table is greater than 6 feet.

Source: Soil Survey of Cleburne County, Arkansas, U.S. Department of Agriculture Soil Conservation Service, Issued 1986.

SPILL HISTORY - GREERS FERRY PROJECT OFFICE

CESWL-CO-GF

28 August 1996

MEMORANDUM THRU: *for* Chief, Construction-Operations Division *P9/3*

FOR: Jane Smith, Emergency Management Branch

SUBJECT: Spill History

1. Reference memorandum, CESWL-CO-E, dated 16 October 1995, same subject.
2. The Greers Ferry Project Office had two sites of soil contamination.
 - a. The sites were west of the present shop building at GFPO and adjacent to the wash rack area at GFPO. Both sites were small in size and no materials moved off site or contaminated any water source.
 - b. Dates of spills are unknown.
 - c. Substances were petroleum products.
 - d. Quantities are unknown.
 - e. The causes of the soil contamination were a series of minor spills which occurred over many years.
 - f. Corrective actions taken include soil removal by Waste Services, Inc. of North Little Rock and better dispensing practices.
 - g. Contaminated soil was removed from the site and transported to an approved landfill in March 1996.
3. The Greers Ferry Power House has no spills or spill history to report.

RECEIVED

AUG 30 1996

CON-OPS DIVISION



Tommy S. Park
Acting Resident Engineer
Greers Ferry

**PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
GREERS FERRY**

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Greers Ferry Powerhouse Heber Springs, AR	Diesel Aboveground Storage Tank	200 Gal	Emergency Diesel Generator Room	Off	Contained in sealed room.
	Insulating Oil - 4 Aboveground Storage Tanks 2 at 6000 gals and 2 at 5000 gals	22000 Gal	Insulating Oil Storage Room, Elevation 258	Off	Drains to sump system where oil can be recovered. Note: 5000 gal tanks are normally empty.
	Lube Oil - 2 Aboveground Storage Tanks at 3500 gals	7000 Gal	Lube Oil Room, Elevation 276	Off	Drains to sump where oil can be recovered. Sorbents also available.
	Lube Oil - 2 each Aboveground Generator Systems at 1300 gals	2600 Gal	Generator and Turbine Areas, Elevation 310	Off	System Inspected
	Lube Oil - 2 each Aboveground Governor Systems at 600 gals	1200 Gal	Cable Spread Room, Elevation 292	Off	System Inspected
	Lube Oil in Turbine Bearing System	130 Gal	Turbine Pit, Elevation 292	Off	System Inspected

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**PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
GREERS FERRY**

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Greers Ferry Powerhouse, Heber Springs, AR (Continued)	Insulation Oil - 2 Transformers at 5200 gals	10400 Gal	Transformer Deck, Elevation 310	Off	Inspected. * No secondary containment.
	Insulation Oil - 9 Oil Circuit Breakers at 1610 gals	14490 Gal	Switchyard	On	Inspected. No secondary containment.
	Used Oil	100 Gal	Paint Room, Elevation 276	Off	Spill would be contained in Paint Room. Sorbents are also available.
	Solvent	50 Gal	Paint Room, Elevation 276	Off	Spill would be contained in Paint Room. Sorbents are also available.
	Paint	50 Gal	Paint Room, Elevation 276	Off	Spill would be contained in Paint Room. Sorbents are also available.
	Grease, EP1	10 Gal	Paint Room, Elevation 276	Off	Spill would be contained in Paint Room. Sorbents are also available.

D-15

* Efforts are being made to acquire funding for design.

PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
GREERS FERRY

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
Greer Ferry Powerhouse Heber Springs, AR (Continued)	Turbine Grease	150 Gal	Cable Spread Room, Elevation 292	Off	Inspected. Sorbents are available.
	Lube Oil in Sluice Gate System	600 Gal	Dam, 2nd Floor, Operating Gallery	Off	Inspected. Sorbents are available. **

** Secondary containment options are being researched.

SITE DESCRIPTION AND MAP

Data re: Potential Spill Sites and Site Maps - Greers Ferry Power Plant and Dam

A. Diesel fuel above ground tank 200 gallon

1. Location; fuel storage room, 5th floor in dam, room size 5'9"x5'5"
2. Floor drain; yes, size 3", not sealed, can be sealed
3. Drain flows to dam sump, then pumped to river
4. Rate of flow approx. 5 gpm
5. Containment; seal floor drain, and where fuel lines leave the room. Then raise threshold at door entry so leak would be contained in fuel storage room. Inspected daily.

B. Oil Storage tank 600 gal above ground (not on your list in appendix C)

1. Located in dam operating gallery on second floor in area 7'3"x16' that contains hydraulic pumps and tank.
2. Floor drain; None
3. Flow would be to operating gallery gutter then to dam sump then pumped into river.
4. Rate of flow approx. 10 gpm.
5. Containment would be very difficult. The only way would be to block off 16' opening from operating gallery to pump and tank recess. Inspected daily.

C. Insulating Oil (storage tank 2-5000, 2-6000 gal cap.)

1. Located in Power Plant, at elevation 258, room size 33'6"x32'
2. Floor drain; yes, size 6" not sealed, could be sealed.
3. Drain flow direct to station sump then pumped to river.
4. Rate of flow; approx. 10 gpm
5. Containment; See Attachment A

D. Lube Oil (Storage tanks 2-3500 gal cap.)

1. Located in Power Plant, at elevation 276, room size 25'x18'
2. Floor drain, yes, size 4", not sealed, could be sealed
3. Drain flows direct to station sump then pumped into river
4. Rate of flow Approx. 10 gpm
5. Containment; See Attachment A

25 Sep 97

E. Generator Oil (2-1300 gal cap.)

1. Located in each generator air housing above turbine pit. Access is at elevation 292.
2. If they developed an oil leak, it would fall into turbine pit area which has 2 floor drains, 2" in size, not sealed and can't be sealed.
3. Turbine pit drains flow into station sump, then it is pumped into river.
4. Rate of flow approx. 10 gpm
5. Containment; See Attachment A

F. Governor Oil (2-600 gal Cap.)

1. Located in cable spread room at elevation 292 in large room with other equipment.
2. Area drains to gutter which has 4-3" floor drains, not sealed, can't be sealed
3. Drains flow direct to station sump then pumped into river.
4. Rate of flow approx. 10 gpm
5. Containment; see attachment A

G. Turbine bearing oil (2-65 gal reservoirs)

1. Located in turbine pits and are built into head cover cavity
2. Floor drains in turbine pit are 2-2" ones not sealed and can't be sealed
3. Drains go direct to station sump then pumped into river
4. Rate of flow; 5 GPM
5. Containment; see Attachment A

H. Transformer Oil (2-5200 gal cap.)

1. Located outside on transformer deck between Power Plant and dam at elevation 310
2. Floor drain; yes, size 6", not sealed, can't seal because they carry rainfall from area.
3. Drains go direct to river
4. Rate of flow 10 GPM
5. At the present time there is nothing to stop the oil from going into river. Transformer oil containment system is in the 1997 Budget Request. Inspected daily.

I. OCB Oil (9-1610 gal cap. tanks)

1. Located in switch yard downstream of Power Plant on right river bank. Approx. 50 yds from river, 257 ft long x 100 ft wide.
2. The switchyard is built with 6" of gravel on compacted fill.
3. Flow is toward river.
4. Rate of flow; Approx. 10 gpm
5. Containment; None, Inspected daily

J. Oil Drums

1. Located in erection bay, elevation 258, room size 28'x20'6"
2. Floor drain; None
3. Flow would be to station sump then into river
4. Rate of flow; 1 GPM
5. Barrels will either be mounted over containment container or moved into oil storage room.

K and L. Solvents and Paints

1. Located in paint and grease storage room, 16'x18' at elevation 276.
2. Floor drain; yes, size 3", not sealed but could be
3. Drain goes to station sump, then to river
4. Rate of flow Approx. 1 GPM
5. Containment; See Attachment A

PROPOSITION FORM

Attachment A

For use of this form, see AR 340-15; the proponent agency is TAGO.

REFERENCE OR OFFICE SYMBOL	SUBJECT
SWLGF-H	Accidental Oil Spills, Policy No. 84-5 Greers Ferry Power Plant

THRU: Ch, Const-Ops Div FROM Res Engr, Greers Ferry DATE 21 June 1984 CMT 1
HAWKINS/ldw

TO: District Commander

1. Normal operation of powerhouse drainage sump:

The drainage sump is a 6 foot x 9 foot area from elevation 247.5 to elevation 254.0. At elevation 254.0 the sump spreads out to an area 6 foot wide and 160 foot long to elevation 255.0. At this point it begins to flow into the station unwatering sump.

Normal operation of the sump is: lead pump starts at elevation 252.0, lag pump starts at elevation 253.0 and both pumps stop at elevation 249.0. High level alarm is at elevation 253.5. Pump intake is at elevation 248.0.

2. Emergency operation:

In the event of an oil spill in an amount that will be detected by the oil detection system we propose to prevent the drainage pumps from operating at their normal operating elevation by means of a fail safe relay operation by the oil sensing system. The sump will be allowed to rise to elevation 254.9 at which time a float switch will start both pumps and pump the sump down to elevation 254.7 and stop both pumps.

The reason to operate in this manner is to prevent the oil on top of the sump from flowing into the unwatering sump, to decrease the turbulence in the sump so that the water that has to be pumped out will have time to separate from the oil and give time to pump the oil on top of the water into a dirty oil tank. Also, the increased capacity of the sump from elevation 253.0 to 254.9 is 6,867 gallon which exceeds the capacity of our largest oil storage tank of 6,000 gallon.

3. Proposed oil collection system:

- a. Two pumps and separator drum mounted on a mobile cart for convenience of storage.
- b. No. 1 pump intake mounted on float so the intake will be submerged approximately 1-inch. Discharge of this pump will be into separator drum.
- c. Pump discharge can be oil, water or a mixture thereof, into separator drum.
- d. As liquid is pumped into the drum the oil will rise. After drum is filled the operator can observe the levels of oil and water in the sight tube and operate valves accordingly to discharge oil to oil tank and water to sump.
- e. No. 2 pump will be used to pump oil from separator drum or direct from sump if oil spill is sufficient to warrant it and discharge into dirty oil storage tanks which have a capacity of 10,000 gallon.


WM. C. GARNER
Resident Engineer

PROJECT INFORMATION, CLIMATE AND SOIL DATA
GREERS FERRY POWERHOUSE & DAM

Project Information: Greers Ferry Powerhouse and Dam are located on the Little Red River at river mile 79.0, three miles northeast of Heber Springs, Arkansas. There are 1,146 square miles of drainage area above the dam. Primary purposes include the generation of hydroelectric power and flood control.

Climate: Greers Ferry Powerhouse and Dam are located in Cleburne County, Arkansas. The climate of Cleburne County is characterized by relatively cool winters and warm to hot summers that have adequate rainfall. In winter the average temperature is 38 degrees F and the average temperature during the summer is 78 degrees F. The average annual rainfall is about 51 inches. Of this, 27 inches, or about 53 percent, usually falls in April through September.

Rainfall: Rainfall averages for the general area are as follows:

Jan - 3.07 inches	Jul - 4.02 inches
Feb - 3.01 inches	Aug - 4.09 inches
Mar - 5.40 inches	Sep - 5.13 inches
Apr - 5.13 inches	Oct - 3.45 inches
May - 4.94 inches	Nov - 4.61 inches
Jun - 3.94 inches	Dec - 4.18 inches

The average amount of snowfall is 4 inches per season. On an average, 1 day has at least 1 inch of snow on the ground. The number of such days varies from year to year. The prevailing wind is from the southwest.

Soils: The soils in the area are a combination of Steprock-Mountainburg-Rock outcrop complex, 40 to 60 percent slopes, and Steprock-Nella-Mountainburg complex, 20 to 40 percent slopes. Descriptions of each are as follows:

Steprock-Mountain-Rock outcrop complex, 40 to 60 percent slopes. This complex consists of well drained, moderately deep and shallow, very steep, loamy and stony soils. Steprock soil is moderately deep and generally is on very steep sides of hills, mountains, and ridges. Mountainburg soil is shallow and generally is on narrow ledges. Rock outcrop is generally on very steep slopes of valley walls and near vertical bluffs. Typically, there are stones, cobbles, and gravel on the surface in all areas; stones are the most limiting factor. Typically, the Steprock soil is covered by a thin layer of decomposed and partly decomposed leaves, needles, and twigs. Below this layer, the typical sequence, depth, color, and texture of the layers of these soils are as follows: Surface layer - mineral surface to 2

inches, dark brown stony fine sandy loam; Subsoil layer - 2 to 8 inches, strong brown gravelly loam, 8 to 27 inches, yellowish red very gravelly loam; and Substratum - 27 to 46 inches, yellowish red weathered soft sandstone.

Typically, Mountainburg soil is covered by a thin layer of decomposed and partly decomposed leaves, needles, and twigs. Under this layer, the typical sequence, depth, color, and texture of the layers of this soil are as follows: Surface layer - Mineral surface to 2 inches, very dark grayish brown stony fine sandy loam; Subsurface layer - 2 to 7 inches, yellowish brown stony fine sandy loam; Subsoil - 7 to 17 inches, strong brown very gravelly sandy clay loam; and Bedrock - 17 to 20 inches, hard sandstone bedrock.

Permeability of Steprock soil is moderate and the permeability of Mountainburg soil is moderately rapid.

Steprock-Nella-Mountainburg complex, 20 to 40 percent slopes. This complex consists of well drained, deep to shallow, steep, loamy and stony soils. Steprock and Mountainburg soils are the same as described above. Composition of Steprock and Mountainburg soils are the same as above. Nella soil is covered by a thin layer of partially decomposed and decomposed leaves, needles, and twigs. Under this layer, the typical sequence, depth, color and texture of the layers of this soil are as follows: Surface layer - mineral surface to 3 inches, dark grayish brown stony fine sandy loam; Subsurface layer - 3 to 10 inches yellowish brown gravelly fine sandy loam; and Subsoil - 10 to 42 inches yellowish red gravelly sandy clay loam, 42 to 54 inches yellowish red very gravelly sandy clay loam, 54 to 72 inches red very gravelly sandy clay loam.

Groundwater: Depth to seasonal high water table is greater than 6 feet.

Source: Soil Survey of Cleburne County, Arkansas, U.S.
Department of Agriculture Soil Conservation Service, Issued 1986.

25 Sep 97

SPILL HISTORY - GREERS FERRY POWERHOUSE AND DAM

CESWL-CO-GF

28 August 1996

MEMORANDUM THRU: *for* Chief, Construction-Operations Division *R913*

FOR: Jane Smith, Emergency Management Branch

SUBJECT: Spill History

1. Reference memorandum, CESWL-CO-E, dated 16 October 1995, same subject.
2. The Greers Ferry Project Office had two sites of soil contamination.
 - a. The sites were west of the present shop building at GFPO and adjacent to the wash rack area at GFPO. Both sites were small in size and no materials moved off site or contaminated any water source.
 - b. Dates of spills are unknown.
 - c. Substances were petroleum products.
 - d. Quantities are unknown.
 - e. The causes of the soil contamination were a series of minor spills which occurred over many years.
 - f. Corrective actions taken include soil removal by Waste Services, Inc. of North Little Rock and better dispensing practices.
 - g. Contaminated soil was removed from the site and transported to an approved landfill in March 1996.
3. The Greers Ferry Power House has no spills or spill history to report.

RECEIVED

AUG 30 1996

CON-OPS DIVISION



Tommy S. Park
Acting Resident Engineer
Greers Ferry

**PETROLEUM AND HAZARDOUS SUBSTANCES SOURCE MATRIX
MILLWOOD-TRI LAKES**

Facility	Petroleum and Hazardous Substances	Approx. Quantity	Location	On/Off Shore	Spill Prevention Measures
DeQueen Lake Office, DeQueen, AR	Gasoline Aboveground Storage Tank	1000 Gal	Compound	On	Secondary Containment
	Oil	10 Gal	Oil Storage Building	On	Sorbents
DeQueen Control Tower	Hydraulic Oil	378 Gal	Control Tower System	Off	Sorbents
	Diesel Aboveground Storage Tank	150 Gal	Control Tower	On	Double wall tank with secondary containment.

E-1

APPENDIX E

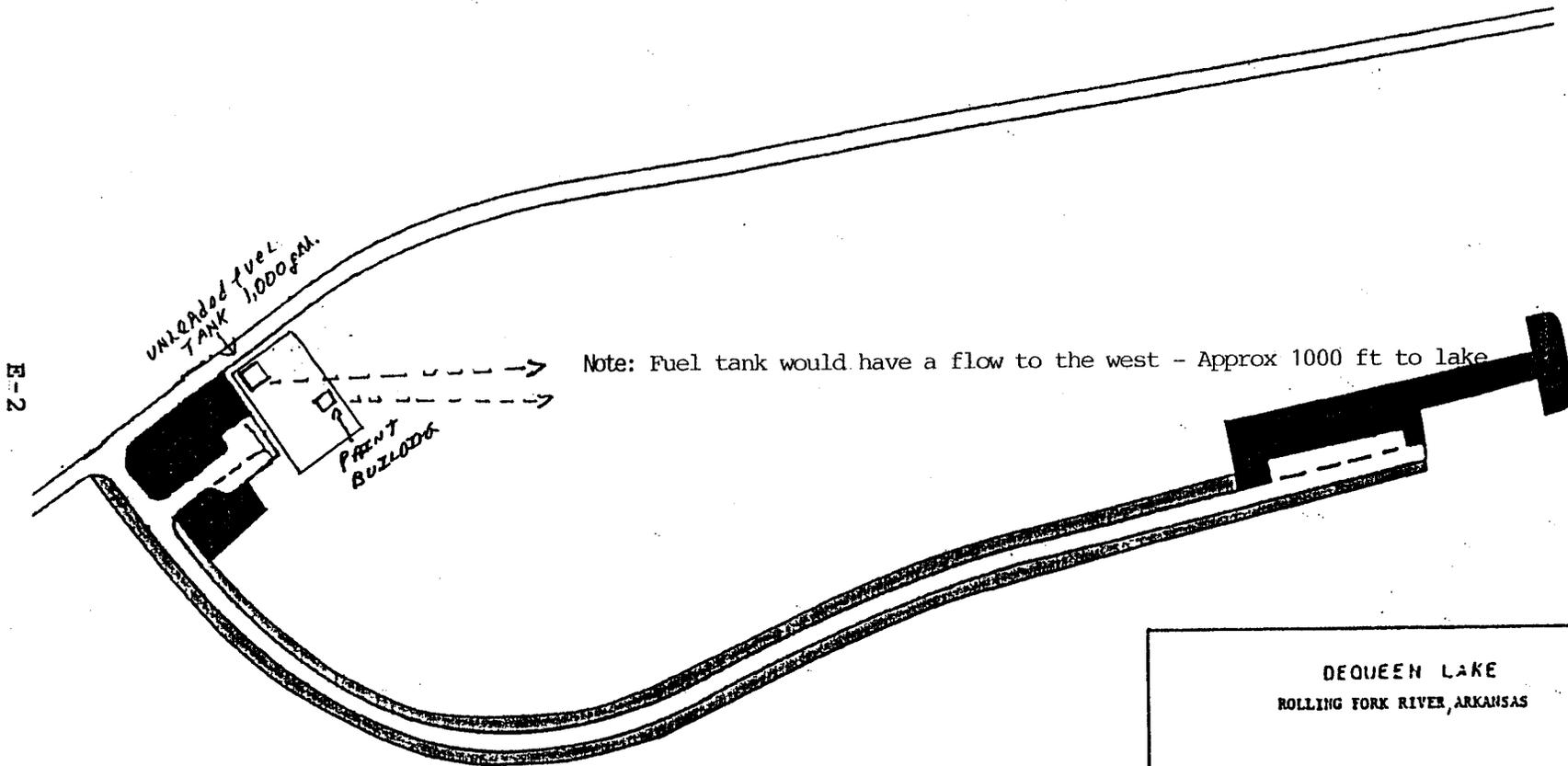
SWLR 200-1-1
25 Sep 97

11 Feb 1997

DE Queen Lake
Map of potential spill sites

SWLR 200-1-1
25 Sep 97

SITE DESCRIPTION AND MAPS



E-2

DEQUEEN LAKE
ROLLING FORK RIVER, ARKANSAS

OFFICE to OVERLOOK ROADSIDES

U.S. ARMY ENGINEER DISTRICT,
LITTLE ROCK, CORPS OF ENGINEERS

De Queen Structure

Note: Any spill from Hydraulic System would end up in sump.

Diesel Tank (100g) has a containment

