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	Engineering and Design USACE GUIDEBOOK TO MILITARY PROGRAMS ENVIRONMENT SUPPORT	
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US Army Corps
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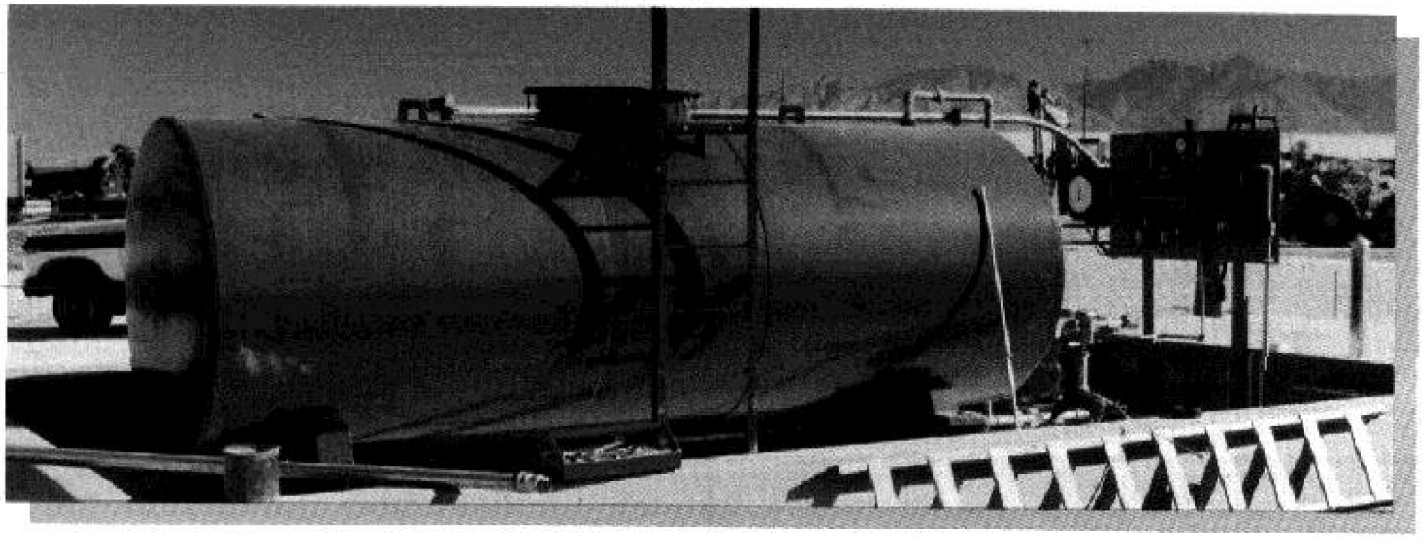
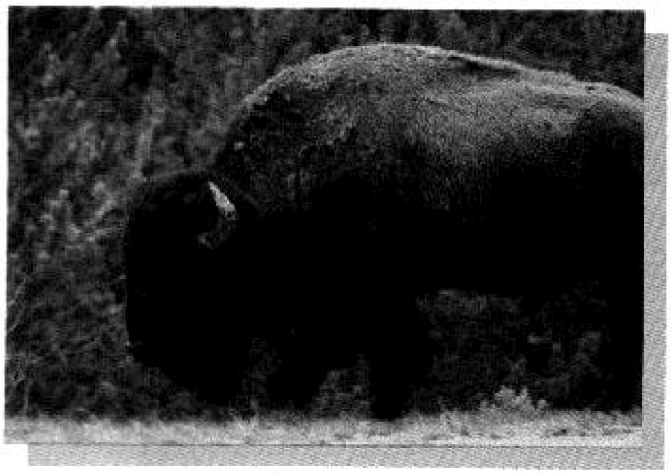
USACE GUIDEBOOK TO MILITARY PROGRAMS ENVIRONMENTAL SUPPORT

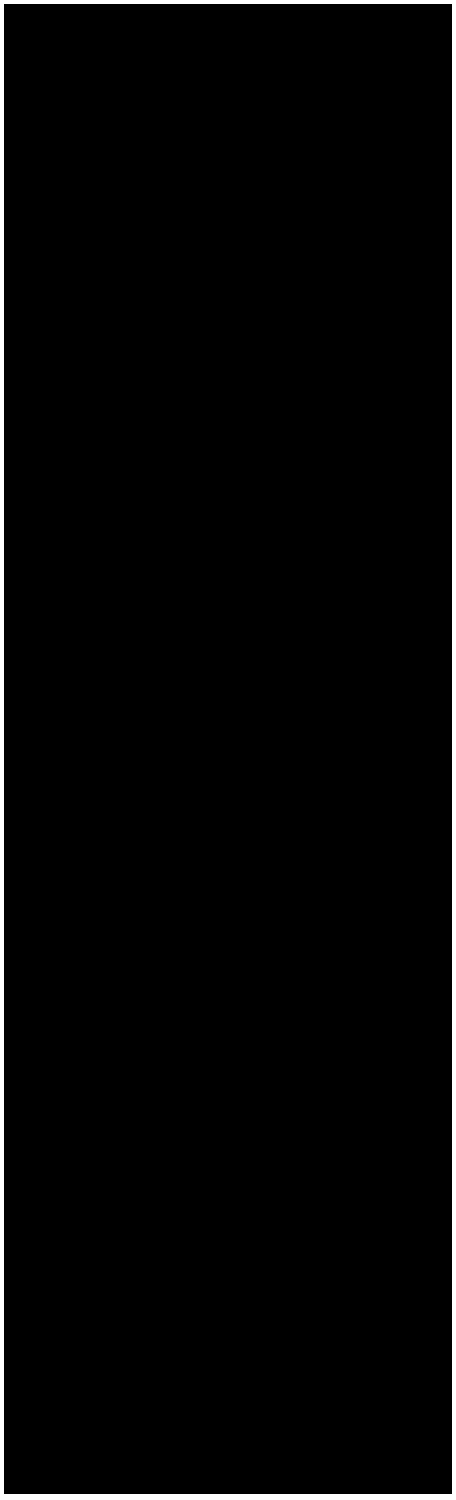
EP 1110-1-13 **MAY 1994**





USACE Guidebook to Military Programs Environmental Support

May 1994



DEPARTMENT OF THE ARMY EP-1110-1-13
U.S. Army Corps of Engineers
CEMP-RT **Washington, DC 20314-1000**

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No.1110-1-13 31 May 1994

Engineering and Design
USACE GUIDEBOOK
TO MILITARY PROGRAMS ENVIRONMENTAL SUPPORT

1. Purpose. The purpose of this guidebook is to provide an overview of the environmental programs executed by the Military Programs Directorate of the United States Army Corps of Engineers with the intent of increasing division and district commanders awareness and to encourage support of Hazardous, Toxic and Radioactive Waste (HTRW) programs.

2. Applicability. This pamphlet applies to all HQUSACE/OCE elements, major subordinate commands, districts, laboratories, and field activities having environmental responsibilities.

3. References. See Appendix A.

FOR THE COMMANDER:

WILLIAM D. BROWN
Colonel, Corps of Engineers
Chief of Staff

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How did the Corps Get Involved in HTRW?

On 3 February 1982, the Environmental Protection Agency (EPA) and Headquarters United States Army Corps of Engineers (HQUSACE) entered into an Interagency Agreement (lAG). The lAG tasked the Corps to assist EPA in the execution and enforcement of the Superfund program. Upon expiration of the first lAG, a second lAG was signed on 3 December 1984 which extended the EPA/ USACE partnership indefinitely.

USACE provides design, construction and technical assistance to EPA as well as numerous other customers. Over the past 12 years, our list of customers has grown to include all Department of Defense (DOD) components, the Farmers Home Administration (FmHA), the Department of Commerce (DOC), the Department of Energy (DOE), the Veterans Administration (VA), the General Services Administration (GSA), etc.

Today, the Corps is a full-service organization capable of providing one-stop service to customers for HTRW management and remediation activities.

What are the Elements of the USACE Organization?

Headquarters United States Army Corps of Engineers (HQUSACE)

HQUSACE, located in Washington, D.C., proposes, develops, and coordinates technical program management policies and guidance for the Corps. As a division/district commander you can turn to HQUSACE for:

- program and technical guidance;
- resource allocation;
- coordination with other major commands and Federal agencies;
- program management and technical oversight;
- program management support of EPA's Superfund Program;
- management of the Defense/State Memorandum of Agreement/-Cooperative Agreement (DSMOA/CA) Program;
- corporate leadership; and
- remedial action guidance in areas such as construction contract administration, construction management, construction policy matters, HTRW training requirements for construction personnel, etc.

Divisions

There are 12 divisions with HTRW missions. They are:

- North Pacific Division (NPD) in Portland, Oregon;
- South Pacific Division (SPD) in San Francisco, California;
- Missouri River Division (MRD) in Omaha, Nebraska;
- Southwestern Division (SWD) in Dallas, Texas;
- Ohio River Division (ORD) in Cincinnati, Ohio;
- North Atlantic Division (NAD) in New York, New York;
- South Atlantic Division (SAD) in Atlanta, Georgia;
- Pacific Ocean Division (POD) in Honolulu, Hawaii;
- New England Division (NED) in Boston, Massachussets;
- Huntsville Division (HND) in Huntsville, Alabama;
- North Central Division (NCD) in Chicago, Illinois; and
- Lower Mississippi Valley Division (LMVD) in Vicksburg, Mississippi.

As a division/district commander, you should know that division HTRW responsibilities include:

- overseeing environmental restoration activities of subordinate districts within their geographical boundaries,
- ensuring Corps policies are properly implemented,
- assigning HTRW project management, and
- approval authority for review comments received from districts and/or the MCXs.

Districts

Projects will be managed, planned and executed in accordance with the project management roles and responsibilities as addressed in ER 5-7-1 (FR). There are currently 17 districts that are designated as either HTRW design districts, environmental support districts, military construction districts or a combination. This includes divisions in Huntsville and New England, as indicated below.

Environmental support districts manage and execute the Environmental Compliance Assessment System (ECAS) program.

Military construction district responsibilities include:

- ensuring smooth transition of projects by maintaining interface and providing technical support to the executing agent during RI/FS and design for HTRW projects within their geographical area;
- conducting biddability, constructability and operability (BCO) reviews for the project design;
- Issuing the notice to proceed for the construction of remedial designs;
- managing remedial action contracts for projects within their geographical area; and
- providing technical assistance and oversight of remedial actions on behalf of the customer.

ENVIRONMENTAL DISTRICTS

District	HTRW Design District	Environmental Support Districts	Military District
St. Louis	X		
Kansas City	X		X
Omaha	X	X	X
Baltimore	X	X	X
Buffalo	X		
New England Div	X		
Huntsville Div	X		
Alaska	X		X
Seattle	X	X	X
Louisville		X	X
Nashville	X		
Honolulu	X	X	X
Mobile		X	X
Savannah	X	X	X
Sacramento	X	X	X
Ft. Worth		X	X
Tulsa X		X	

HTRW districts' responsibilities include:

- providing specialized HTRW expertise for the management and execution of all aspects of assigned environmental restoration projects;
- development of HTRW project plans and specifications;
- involvement in site investigatory work;
- providing for design of remedial action projects via in-house staff or contract; and
- maintaining expertise in health and safety, chemical and geotechnical data quality management, environmental laws and regulations, contracting and procurement, technical design, and construction oversight.

Typically, the HTRW design districts will award the remedial action contract and then transfer the project to the military construction district for execution. The HTRW design district continues to provide engineering and design support throughout the life of the construction contract.

Mandatory Centers of Expertises (MCXs)

Mandatory Centers of Expertise provide specialized technical capability and a broad range of support to divisions, districts, and technical centers. Environmental program related expertise includes the Hazardous, Toxic, and Radioactive Waste (HTRW) MCX in Omaha, Nebraska and the Ordnance and Explosive Waste (OEW) MCX in Huntsville, Alabama.

The Hazardous, Toxic, and Radioactive Waste Mandatory Center of Expertise

As a division/district commander, you should know that mandatory use of the HTRW MCX is required for:

- technical review of in-house executed investigation and design projects including scopes of work,
- review of contractor executed investigation and design projects,
- QA/QC of both division and private analytical laboratories used for HTRW analysis, and
- review of Inventory Project Reports.

You should also be aware that the HTRW MCX can support you by:

- providing state-of-the-art hazardous and toxic waste technical expertise,
- providing assistance in radioactive waste management activities,
- providing information on technological advances and research relative to HTRW,
- developing technical guidance documents,
- providing specific design assistance upon request,
- disseminating information on HTRW experiences through the Lessons Learned System, and
- developing training courses and workshops to suit your needs.

The Ordnance and Explosive Waste Mandatory Center of Expertise

As a division/district commander, you should know that mandatory use of the OEW MCX is required for:

- planning and coordinating OEW remediations,
- OEW safety support,
- QA through all phases of OEW support, and
- review of Inventory Project Reports involving OEW.

You should also be aware that the OEW MCX can support you by:

- providing state-of-the-art technical expertise in the ordnance and explosive waste arena,
- performing removal site inspections, and developing Engineering Evaluation and Cost Analysis (EE/CA) documentation for sites involving OEW,
- serving on behalf of HQUSACE as proponent for negotiating settlements for OEW projects at third party sites, and
- developing and implementing an OEW removal action plan to ensure all OEW removal actions.

Corps Laboratories

The United States Army Construction Engineering Research Laboratories (USACERL)

USACERL, located in Champaign, Illinois, is the lead laboratory in the Army for base support. USACERL's research is directed towards increasing the Army's ability to more efficiently construct, operate, and maintain its Army installations and ensure environmental quality and safety at a reduced life-cycle cost. As a division/ district commander, you may be interested to know that the types of environmental quality research USACERL is involved in include:

- training area rehabilitation and management;
- noise source control;
- protection of threatened and endangered species;
- collection, analysis, storage and retrieval of environmental resources;
- hazardous waste and pollution abatement and management systems;
- air pollution analysis;
- water supply, treatment, and distribution;
- wastewater collection and treatment;
- solid waste management; and industrial operation pollution control.

The United States Army Engineer Waterways Experiment Station (USAEWES)

The Corps largest research and development complex is the U.S. Army Engineer Waterways Experiment Station located in Vicksburg, Mississippi. Its mission is to conceive and execute engineering and scientific investigations in support of military and civil works programs of the Corps. USAEWES specializes in hydraulics, geology, structures, environmental, and coastal research.

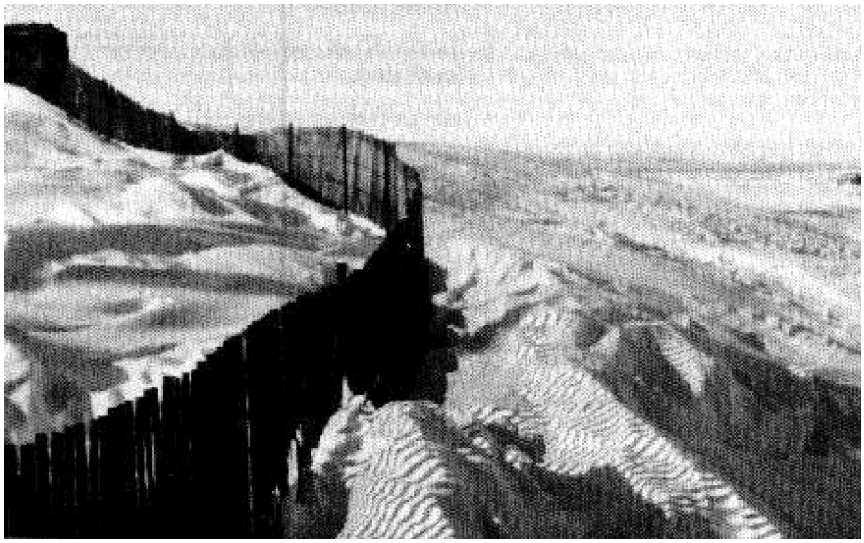
As a division/district commander, you may be interested to know that USAEWES conducts research in a variety of areas including:

- wetlands preservation,
- wildlife management,
- environmental effects of dredging,
- environmental effect of dredge material disposal,
- aquatic plant control,
- natural resource management, and
- hazardous and toxic waste management.

The United States Army Cold Region, Research, and Engineering Laboratory (USACRREL)

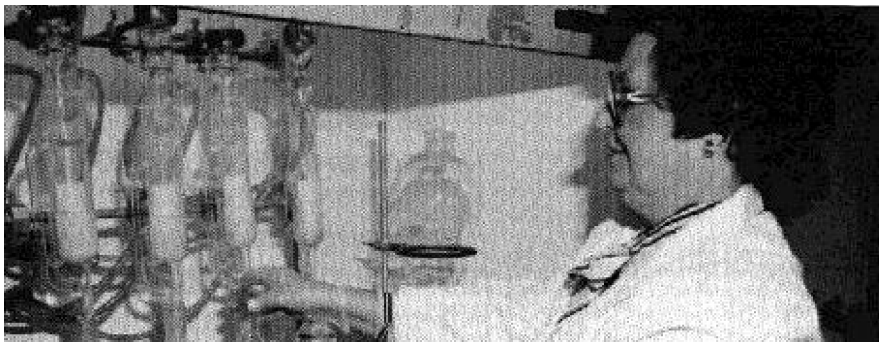
The Cold Region, Research and Engineering Lab located in Hanover, New Hampshire, is the Army's lead laboratory for research in the physical sciences and engineering for cold regions and winter conditions impacting military and civil works operations, systems and facilities. In the environmental quality area, USACRREL provides the lead Corps research and development laboratories, USAEWES and USACERL, with expertise on the unique influence of cold regions on a variety of environmental quality research issues including:

- characterization of contaminated sites,
- low temperature bioremediation/biological processes,
- fate and transport processes in frozen ground, and development of analytical methods.



The United States Army Topographic Engineering Center (USATEC)

USATEC, located at Fort Belvoir, Virginia, supports the Corps districts and divisions in several environmental initiatives. USATEC is investigating more efficient, accurate and the complete transfer of hydrographic survey data for the production of U.S. nautical charts. One of USATEC's major thrusts is the development of an extremely accurate positioning system incorporating the NAVSTAR Global Positioning System for use by Corps hydrographic surveyors and the U.S. dredging industry. USATEC can provide computer systems for digitizing recent and historic imagery to detect fill violation of wetlands.



Division Laboratories

Division laboratories are located in:

- Vicksburg, Mississippi;
- Omaha, Nebraska;
- Hubbardston, Massachusetts;
- Troutdale, Oregon;
- Cincinnati, Ohio;
- Sausalito, California;
- Marietta, Georgia; and
- Dallas, Texas.

These division labs provide chemical, physical, and biological analysis of samples from superfund sites, installation restoration program sites, underground storage tank projects, and "work for others" projects.

Types of materials tested include:

- drinking water and wastewater,
- hazardous waste,
- soils,
- solvents,
- oils and fuels,
- construction materials,
- asphalts, and
- paints.

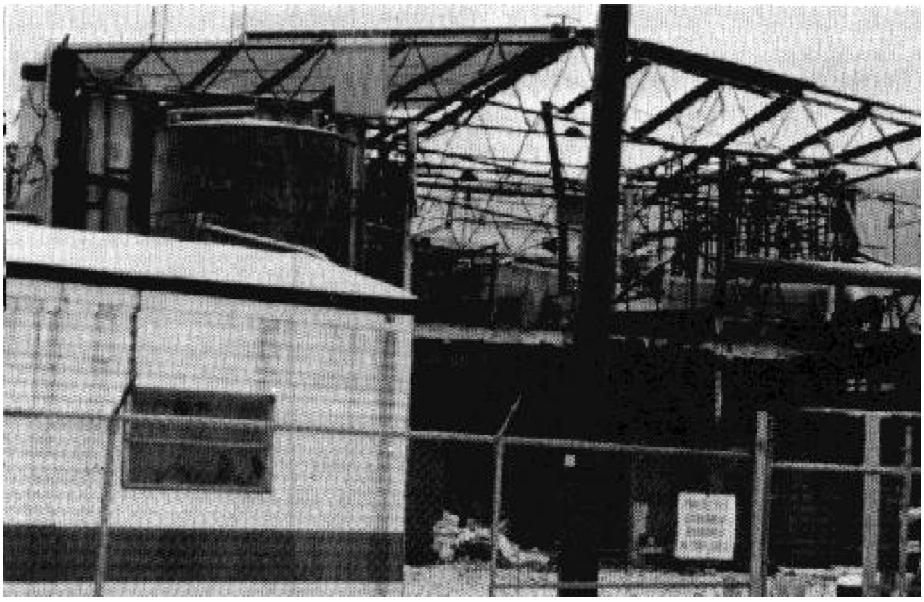
As an added HTRW MCX responsibility, the Missouri River Division Laboratory in Omaha manages the Corps HTRW Laboratory Validation Program. This program evaluates the competency of not only all Corps laboratories, but also commercial laboratories. This is accomplished through distributing samples of known composition and evaluating the data obtained.

What are the Corps' Environmental Mission Assignments?

Superfund

In 1982 the Corps of Engineers entered into an Interagency Agreement with the U. S. Environmental Protection Agency (EPA) to provide assistance in executing P. L. 96-510, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, also known as Superfund. Under this agreement, the Corps of Engineers serves as program manager for execution activities assigned by EPA. These assignments include:

- providing technical assistance during EPA's execution of Remedial lnvestigations/Feasibility Studies,
- acting as the Contracting Officer for "Federal lead" remedial design and remedial action activities,
- management of remedial action contracts,
- providing technical assistance during EPA enforcement activities,
- providing technical assistance and oversight of EPA's Alternative Remedial Contracting Strategy (ARCS) contractors, and
- assisting in real estate and other Operation and Maintenance (O&M) support activities.



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The Defense Environmental Restoration Program (DERP)

The Defense Environmental Restoration Program was established in 1984 to evaluate and remediate contamination at both active and formerly used Department of Defense (FUDs) properties. At the Department of Defense level, the DERP program is considered to be comprised of three elements:

- the Installation Restoration (IR) Program which addresses potential contamination at both active and formerly used defense sites;
- the Other Hazardous Waste (OHW) Operations Program through which research, development, and demonstration projects aimed at improving remediation technology and reducing waste generation are developed and which includes ordnance and explosive waste remediation; and
- Building Demolition and Debris Removal (BD/DR) activities that address removal of unsafe buildings and structures.

At the Corps level, DERP subelements are considered to be comprised of:

- the Installation Restoration Program (IRP) in which active DOD installations are investigated and remediated,
- the Formerly Used Defense Site program in which former DOD sites are remediated, and
- the Defense State Memorandum of Agreement/Cooperative Agreement Program which involved both IRP and FUDS activities.

The DSMOA/CA program was developed to facilitate state involvement in cleanup activities conducted under the Defense Environmental Restoration Program. DSMOAs/CAs provide the mechanism to involve states in DERP and BRAC activities by establishing the terms and conditions by which they are reimbursed for the cost of providing technical support.

As a division/district commander, you should known that under the DSMOA/CA Program, states are eligible for reimbursement for costs of:

- reviewing technical documents,
- identifying/reviewing applicable or relevant and appropriate state laws and regulations,
- conducting site visits and collecting split samples,
- participating in community relations activities,
- participating in technical review committee activities,
- preparing cooperative agreements,
- other costs negotiated on a State by State basis, and
- activities at both National Priorities List (NPL) and non-NPL sites.

Potentially Responsible Parties (PRP) Program

Under CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA), Potentially Responsible Parties (PRPs) are those groups or individuals identified as potentially liable for the costs of cleaning up contaminated sites. In executing the DERP program at FUD sites and as the operator of civil works facilities, USACE is frequently involved in PRP liability issues.

Typically, the Department of Defense (DOD) becomes a PRP under one of three circumstances:

- EPA or a state regulator names DOD as a PRP,
- a private party files suit or brings a claim against DOD, or
- another Federal agency presents a claim or brings DOD in as a PRP on a FUD site.

In the case of DERP-FUDS, the designated HTRW design district negotiates on behalf of USACE. For civil works facilities, geographical divisions negotiate on behalf of USACE. The actions typically involve:

- allocating responsibility for HTRW contamination of a site among identified PRPs
- developing a legal position relative to the action being taken; and
- directing pre-litigation negotiations focused on resolving CERCLA liability, including the negotiation of agreements with PRP, Federal, and state regulatory agencies arising from CERCLA liability including Interagency Agreements under Section 120 of SARA.

In addition to the normal documents developed during other environmental restoration activities such as the RI/FS, the following documents are developed as part of the PRP process:

- the Inventory Project Report (INPR) which documents whether DOD ever actually owned or operated the site;
- a Project Execution Plan which outlines the scope, schedule, and budget for the project;
- a Site Ownership and Operation History (SOOH) and Cost Allocation (CA) Report which serves as the basis the negotiating position and settlement offer; and
- a Settlement Agreement.

What are the Corps' Other Assignments?

Work for Others Program

The Corps, upon request, provides technical and management support to other Federal Agencies pursuant to the requirements of the Economy Act (P.L. 97-258). This work is defined in an Inter-agency Agreement and is commonly referred to as the Work for Other (WFO) Program. The other Federal Agency (customer) retains control and responsibility for program direction while utilizing the technical capabilities of the Corps to execute the projects.

Examples of WFO projects include:

- assisting Department of Energy with environmental restoration and waste management activities,
- assisting the Department of Commerce with environmental restoration of contaminated properties acquired through defaults on government guaranteed loans,
- assisting the Farmers Home Administration in conducting preliminary assessments of properties acquired through foreclosure or bankruptcy,
- assisting the Federal Aviation Administration with their underground storage tank remediation program, and
- assisting the General Services Administration on an as needed basis for underground storage tank removal and environmental assessments.

In addition to restoration support, upon request from a local Federal facility, the Corps of Engineers can also provide environmental compliance related support.

Examples of types of compliance related support include:

- preparing RCRA Part B Permit applications;
- preparing Closure Plans;
- preparing Waste Analysis Plans;
- preparing Spill Prevention, Control, and Countermeasures Plans;
- preparing Underground Storage Tank Site Assessment Plans;
- preparing Contingency Plans;
- preparing National Pollutant Discharge Elimination System (NPDES) permit applications;
- preparing air quality permit applications; and
- reviewing projects for technical adequacy.

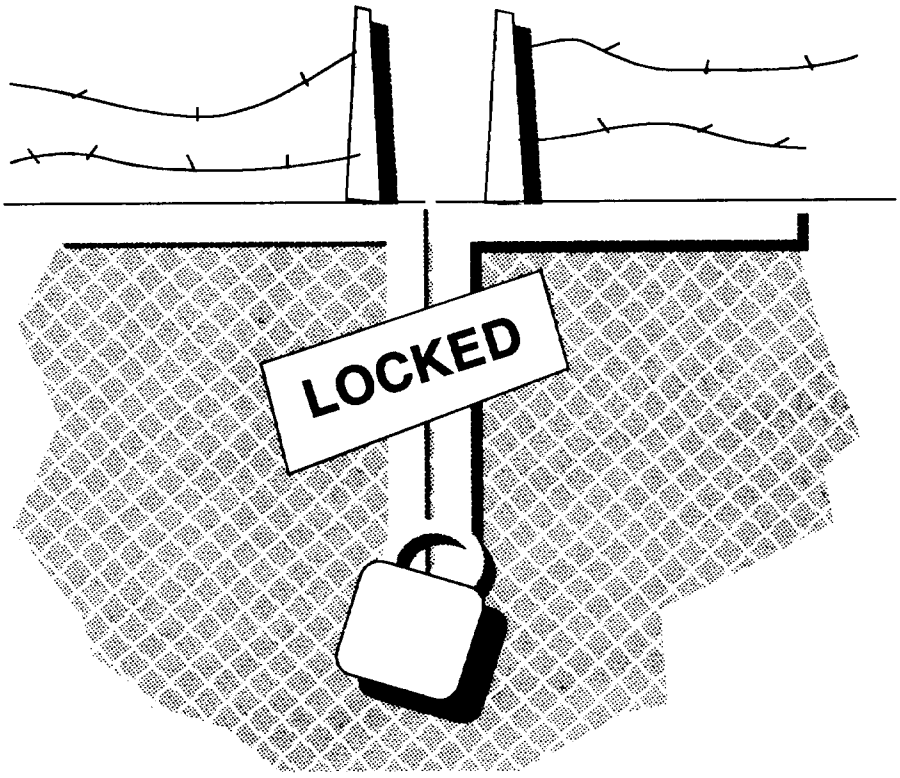
Under the authority of 33 U.S.C. 2323, the USACE R&D laboratories may provide research and development assistance to the private sector on a reimbursable basis. This legal authority includes R&D assistance in any environmental area consistent with the mission of the USACE and in the public interest.

Base Realignment and Closure

Environmental Restoration Program

The Base Realignment and Closure Program requires closure and subsequent disposal of designated DOD installations. The Army Corps of Engineers is involved in:

- preparing National Environmental Policy Act (NEPA) documentation,
- preparing National Historic Preservation Act (NHPA) compliance documentation,
- ensuring environmental restoration, and
- disposing of excess real property.



Environmental Compliance and Assessment System (ECAS) Program

The Environmental Compliance and Assessment System program is a four year program designed to provide comprehensive multimedia environmental compliance assessments of all active Army, Reserve, and National Guard facilities. Environmental Support Districts execute this program.

The goals of the ECAS program are to:

- identify environmental compliance deficiencies,
- identify resource/budgetary requirements for corrective action, and
- increase awareness and involvement of installation commanders.

What are the Corps' HTRW Technical Assistance Capabilities?

The Corps is involved in all aspects of HTRW management. The HTRW design districts provide expertise in:

- environmental technical design,
- contracting and procurement,
- technical liaison and program management,
- project management,
- chemistry,
- geotechnical engineering and geology,
- health and safety,
- cost engineering,
- value engineering,
- environmental law,
- risk assessment,
- industrial hygiene, and
- provide technical assistance to the geographical district, when requested.

In addition to the types of experts mentioned above, the HTRW MCX staff also includes experts in:

- environmental regulations,
- chemical data quality management,
- chemical/process engineering,
- innovative technologies, and
- environmental engineering.

The HTRW Design Districts are capable of:

- conducting remediation investigations to determining the extent of contamination,
- assessing degree of risks posed by chemical contamination,
- determining applicable regulatory requirements,
- assessing health and safety needs,
- conducting feasibility studies, and developing remedial action designs.

The HTRW MCX is capable of:

- providing technical review of investigation and remedial design projects,
- conducting compliance inspections,
- developing/instructing classroom and field training relative to hazardous and toxic waste restoration/management, and
- providing technical assistance to the field in all HTRW related disciplines.

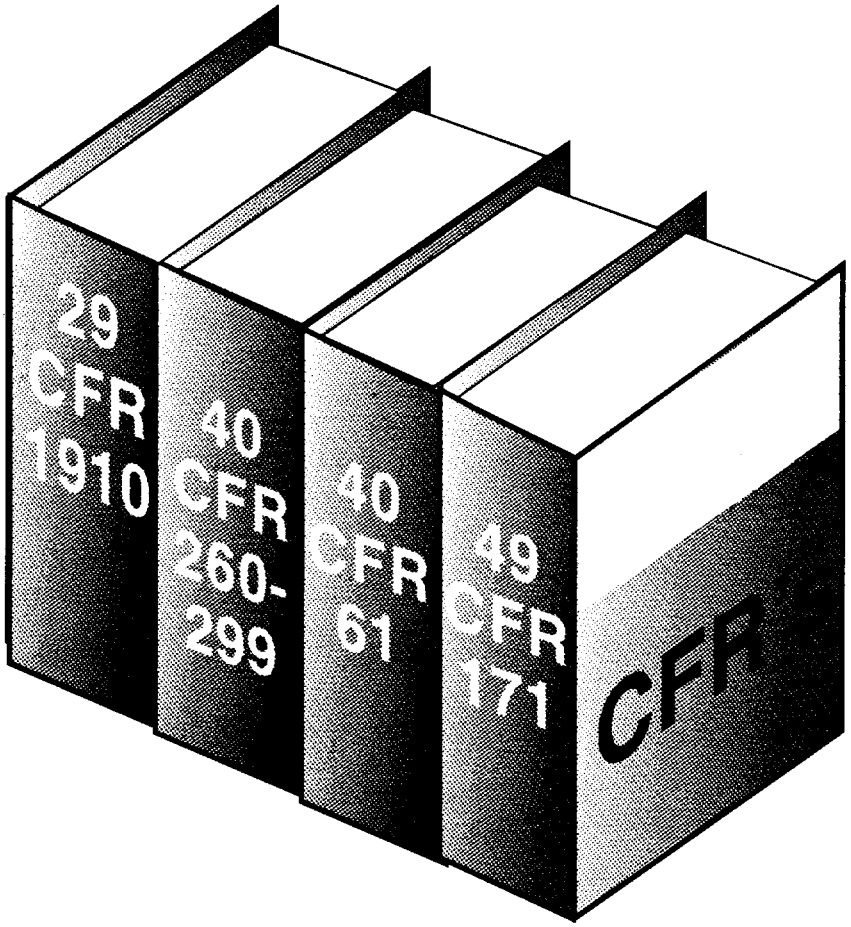
Military Construction Districts are capable of:

- responding to releases,
- providing technical support and conducting biddability, constructability and operability (BCO) reviews during the design phase of the projects, and
- executing construction of remedial action projects.

Regulatory Assistance Capabilities

In the complex world of environmental laws and regulations, it is important to establish early on the appropriate regulatory criteria which apply when conducting compliance evaluations or response actions. Not only is there a number of Federal laws such as CERCLA, RCRA, TSCA, SDWA, CWA, CAA, HMTA, etc. which may govern activities, but there may also be more stringent state and local requirements. The Corps Regulatory Specialists/Environmental Engineers in coordination with Corps Counsel:

- track regulatory changes as they occur;
- provide technical assistance to districts, divisions, and other customers upon request;
- review upon request environmental documentation, work plans, reports, permit applications, etc. for technical adequacy;
- conduct classes/seminars on regulatory requirements;
- develop guidance documents/fact sheets on regulatory issues;
- act as technical proponent for courses relative to environmental regulations; and
- assist in compliance evaluations.



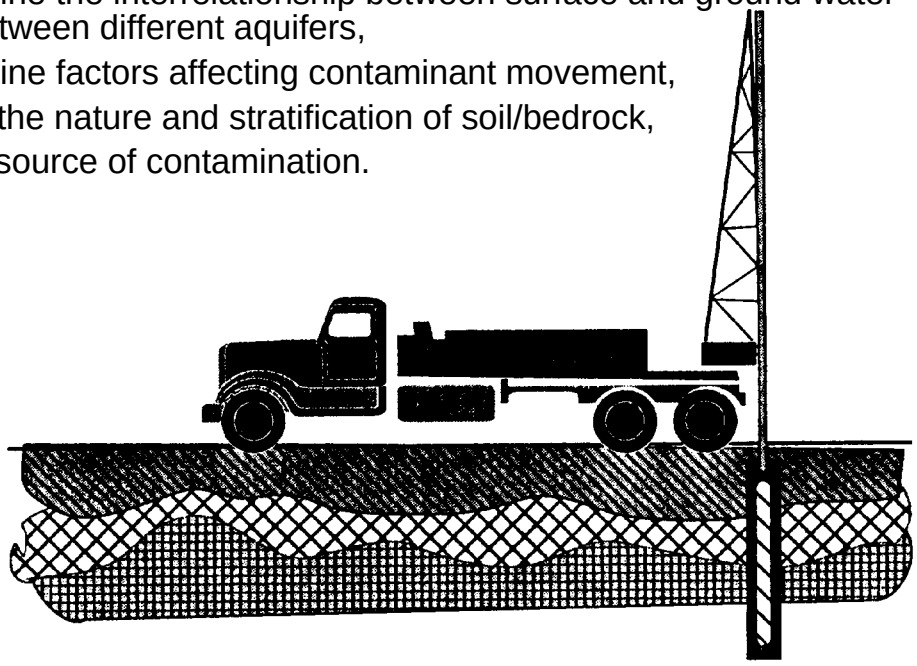
Geotechnical Capabilities

Geotechnical staff include both geologists and geotechnical engineers experienced in:

- ground water modeling,
- soil vapor extraction,
- geophysics,
- landfill covers and liners,
- slurry walls,
- solidificationlstabilization,
- slope stability,
- soil/rock strengthening,
- tunneling,
- geotechnical testing,
- monitoring well installation,
- dredging,
- forensic geology,
- underground storage tanks,
- ground water extraction, and
- geosynthetics.

Geotechnical capabilities are utilized to:

- define lateral and vertical extent of contamination,
- determine depth to ground water,
- define aquifers present at the site,
- define rate and direction of ground water movement,
- predict plume movement,
- determine the interrelationship between surface and ground water and between different aquifers,
- determine factors affecting contaminant movement,
- define the nature and stratification of soil/bedrock,
- locate source of contamination.



Risk Assessment Capabilities

Fundamental in establishing priorities and degree of response action required in the environmental restoration process, is protection of human health and the environment. As a division/district commander, you have a responsibility for ensuring that projects executed include adequate risk evaluation and mitigation. Corps technical staff can support you in this effort.

The process of evaluating human health risks is initiated at project conception and is carried through the entire process. There are four interactive elements:

- data collection and evaluation,
- exposure assessment,
- toxicity assessment, and
- risk characterization.

The primary objectives of the risk assessment are to:

- determine whether health risks exist at a site which warrant time-critical removal actions;
- determine quantitatively, in absence of remediation, the degree of risk to area populations from potential exposure to contamination under current and future site conditions;
- provide a basis for determining levels of chemicals that can remain on site and still be adequately protective of public health and the environment;
- provide a basis for comparing potential health impacts of various remedial alternatives; and
- provide a basis for evaluation of health impacts associated with design and remediation.

The risk assessment is also used to:

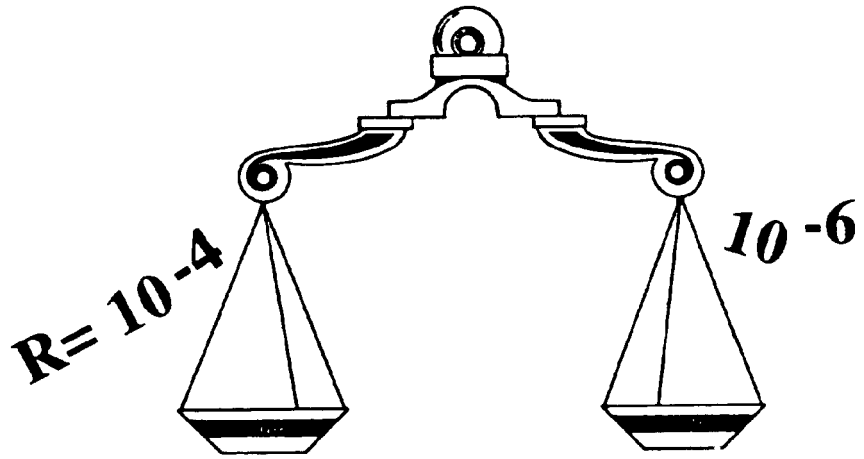
- aid in project prioritization;
- establish criteria to support a "no further action required" determination;
- to provide the basis for planning follow-on remedial investigation if required; and
- to assist in risk communication to the public.

The conclusions of the risk assessment process are used as the basis for establishing the extent residuals may be left in place and still provide adequate protection to human health and the environment.

The HTRW MCX provides technical support to HTRW districts for risk assessment review and guidance of all USACE HTRW projects. The MCX can provide support in evaluating risk assessments, as well as updating districts with applicable publications and regulatory criteria.

The Army Environmental Hygiene Agency under AR 200-1 is the Surgeon General's representative for evaluating risk assessments and for providing recommendations for approval of Army IRP and FUDS projects. Commanders should ensure that in addition to district technical staff review, AEHA is provided the opportunity to review Army IRP and FUDS risk assessments in accordance with AR 200-1 and DA PAM 40-578. AEHA provides support services for Federal Facility Agreement negotiations and for performing risk assessments for Army IRP and FUDS projects.

The OEW MCX provides technical support for OEW risk assessments. If OEW is discovered, the responsible district must contact the OEW MCX as soon as practicable and assign a Risk Assessment Code (RAC) to the site. RACs are based on factors such as type, location, and quantity of ordnance involved and are assigned on a scale from 1 to 5. Sites posing imminent hazards and requiring emergency action are assigned RAC 1. Sites requiring mitigation and warranting feasibility studies are assigned RAC 2. Sites requiring confirmation studies to be performed to determine potential threats are assigned RACs 3 and 4 (3 being of higher priority than 4). RAC 5 is assigned to sites which require no action.

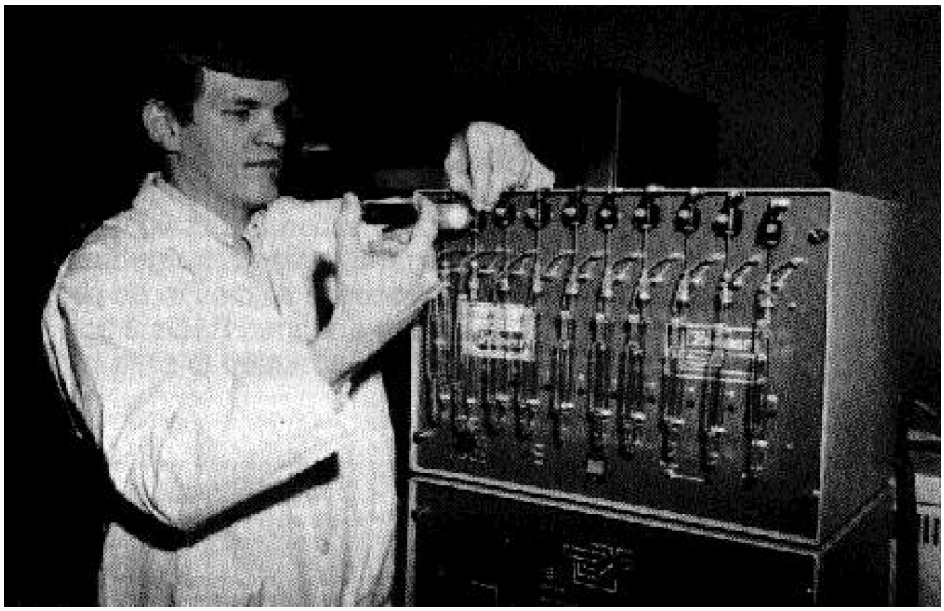


Chemical Data Quality Management (CDQM) Program

The Chemical Data Quality Management Program illustrates another important technical capability of USACE. This program ensures that the type, quantity, and quality of analytical data collected meet all data quality objectives (DQOs) for the project. The DQO approach is used to organize key planning issues in a thoughtful sequence to ensure that the work effort will produce the type and amount of data required to determine the next course of action. The Chemical Data Acquisition Plan (CDAP), prepared by the contractor, is the primary planning document used to determine DQOs.

As part of the CDQM program, prior to performing project specific analysis, all contract laboratories are required to demonstrate analytical competency. This is accomplished through a detailed evaluation of the laboratories technical capabilities also referred to as the "lab validation process". To become validated, contractor laboratories must:

- Submit a Laboratory Quality Management Manual (LQMM) or an equivalent quality assurance plan consistent with USACE and USEPA policies and requirements;
- Successfully analyze performance audit samples; and
- Undergo an onsite laboratory inspection of instrumentation, personnel, SOP implementation, and overall performance.



As an additional performance measure, Quality Control (QC) and Quality Assurance (QA) samples are analyzed during project execution. QC samples which may include duplicates (split samples), rinsates, trip blanks, and/or background (upgradient) sample are collected and analyzed at the contractor's laboratory. This allows field originated checks on sampling, decontamination, and shipping procedures. As a QA measure, field samples are collected in replicate and shipped to the designated USACE QA laboratory for analysis. Comparisons can then be made between the data obtained by the contract laboratory and the government lab. Concurrent analysis by an external lab also assists in indicating if contaminants have been introduced into the sample at the laboratory.

A detailed evaluation of the contractor's data quality is presented in the Chemical Quality Assurance Report (CQAR) prepared by the USACE QA laboratory for the district project manager. This report evaluates the contractor's data and defines any problems noted. Issues discussed include agreement between duplicates; acceptability of internal quality control procedures (differences in % recoveries); shipping, preservation, or custody errors; holding times. A tabular presentation of the QA laboratory and contractors data is appended to the CQAR to show specific data discrepancies.

Validation procedures will differ depending upon the eventual use of the data. For example, data to be used as a screening tool will not undergo the rigorous validation procedures and scrutiny given to data intended to be used for contaminant confirmation.

USACE CDQM Roles/Responsibilities:

HQUSACE is responsible for CDQM by formulating policy, program management, mandating technical guidance development and dissemination, and evaluation of the USACE division and district conduct of CDQM and adherence to ER 1110-1-263.

The HTRW-MCX, under the direction of HQUSACE, performs general oversight of USACE HTRW design districts, division laboratories CDQM execution. This includes validation of all contract and USACE division laboratories, development of technical guidance, standard operating procedures (SOPs), and training courses, review of project documents, and general technical assistance to USACE divisions/districts.

USACE Division Laboratories perform and coordinate various CDQM activities for HTRW projects. These include document review, technical support, analysis of QA samples, and generation of the Chemical Quality Assurance Report (CQAR). USACE assigns a QA (division) laboratory for each project.

USACE Design Districts are assigned the responsibilities for coordinating, reviewing, and completing plans, and execution or oversight of site activities for HTRW projects.

More detailed information on the CDQM Program organization and implementation is available in ER 1110-1-263, Chemical Data Quality Management for Hazardous Waste Remedial Activities, (1 Oct 90)

Health and Safety

One of the most important considerations throughout all aspects of HTRW activities is protection of site workers and the surrounding community during site investigation and remediation. Accordingly, health and safety expertise is maintained throughout USACE to ensure adequate thought is put into health and safety prior to the start of site activities.

- Headquarters USACE has ultimate responsibility for the overall program.
- HTRW Design Districts who execute HTRW investigation, predesign and design related activities are responsible for developing all appropriate engineering related health and safety documents required by USACE and OSHA regulations.
- The HTRW MCX is responsible for conducting mandatory reviews of design related Health and Safety documents prepared by in-house HTRW Design Districts.
- The Huntsville Division, CEHND, serves as health and safety technical experts for ordnance and explosive waste related projects.

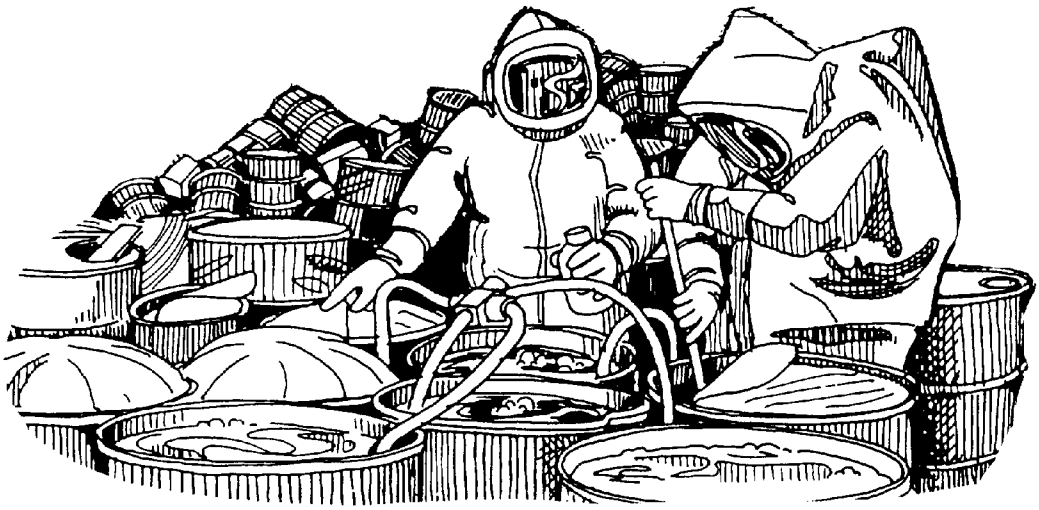
Certain health and safety policies have been instituted for all HTRW activities. At a minimum activities shall comply with:

- OSHA standard 29 CFR 1910.120, Hazardous Waste Site Operations and Emergency Response;
- OSHA standard 29 CFR 1926, Construction Industry Standards;
- OSHA standard 29 CFR 1960, Federal Employees Safety and Health Programs;

- FAR 52.236-13, Accident Prevention;
- Army Regulation 385 series;
- Engineer Regulation 385 series; and
- Engineer Manual 385-1-1, USACE, Safety and Health Requirements Manual.

The following documents are required to be developed for HTRW on-site activities:

- Safety and Health Program (SHP), a written document required by OSHA standard 29 CFR 1910.120;
- Site Safety and Health Plans (SSHPs);
- Health and Safety Design Analysis; and
- Safety, Health, and Emergency Response specifications.

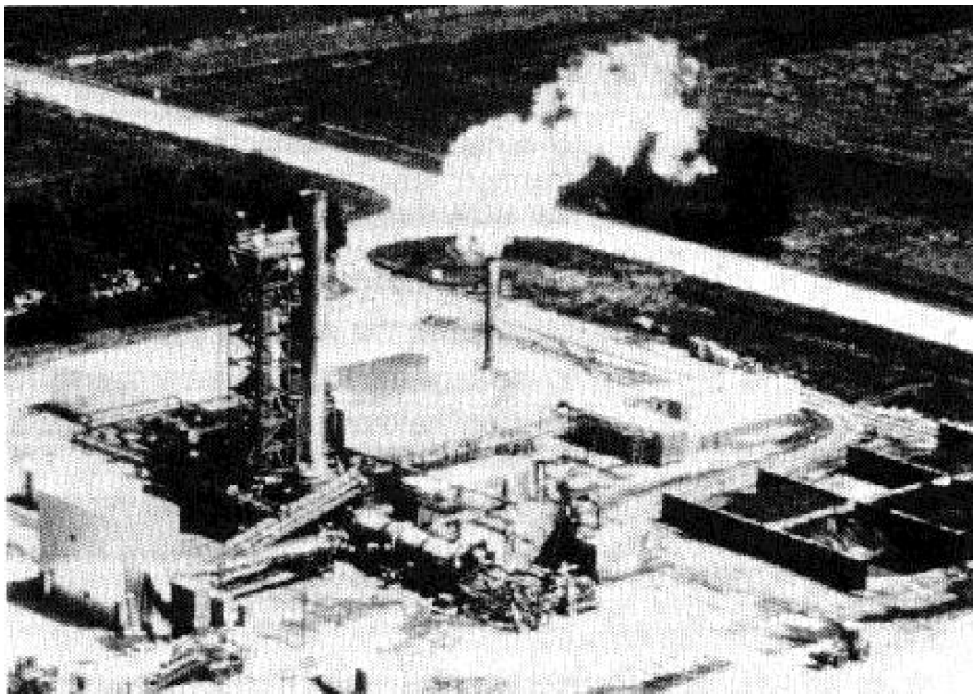


Chemical and Process Engineering

The HTRW MCX Engineering staff includes chemical and processengineers experienced in:

- incineration,
- low-temperature thermal desorption,
- stabilization,
- solidification,
- soil vapor extraction,
- vitrification,
- bioremediation,
- air stripping,
- carbon adsorption, and
- chemical fixation.

This experience is used to evaluate data needs, to determine suitable treatment technologies, and to complete technical reviews of proposed remedial actions.



Cost Engineering

Cost Engineering is a method of tracking costs of environmental remediation projects to ensure that quality work is performed at reasonable costs and to identify methods of reducing costs when possible. HQUSACE Construction Division is responsible for tracking costs of remedial actions (supervision and administration).

Technical Liaison Capabilities

Each HTRW design district is assigned a technical liaison manager at the HTRW MCX. The technical liaison manager is the single point of contact for the district on MCX mailers. The technical liaison manager advocates district concerns and needs for resolution by the MCX staff. The technical liaison manager makes frequent visits to the district to become familiar with the district staff, capabilities, project requirements, and HTRW execution concerns.

Specifically, the technical liaison manager will:

- manage the MCX's review of district projects,
- coordinate and disseminate advice and assistance on HTRW technical policies,
- coordinate resolution of technical differences of opinion, and
- support the use of innovative technologies and research and development programs.

HTRW Studies and Analysis Capabilities

The HTRW Studies and Analysis Branch at the HTRW MCX undertakes special studies and analysis on behalf of USACE that enhance abilities to execute, increase capability, and resolve significant HTRW issues. The Branch assists HQUSACE in development of national customers for the Corps division/district execution.

The HTRW Studies and Analysis Branch responsibilities include:

- reviewing Superfund lAGs to ensure USACE requirements are adequately addressed and
- managing execution of the USACE Potentially Responsible Parties program for the FUDs to assure consistency in PRP agreements negotiated with private corporations.

HTRW Support to Civil Works Projects

The Corps' Civil Works Program constructs, operates, and maintains locks, dams, levees, etc. During the course of operation, environmental issues must be considered including:

- generation of hazardous wastes regulated under the Resource Conservation and Recovery Act (RCRA);
- transportation of hazardous materials regulated under the Hazardous Material Transportation Act (HMTA);
- owning and operating electrical equipment which may be regulated under the Toxic Substances Control Act (TSCA);
- discharges of air pollutants from equipment regulated under the Clean Air Act (CAA);
- discharges of pollutants to navigable waters regulated under the Clean Water Act (CWA); and
- response to spills regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Division and District Commanders must be aware of HTRW issues related to:

- discovery of HTRW,
- permitting requirements,
- recordkeeping requirements,
- land disposal restrictions,
- transportation requirements,
- release reporting requirements,
- remediation requirements,
- training requirements,
- inspections requirements,
- notifications requirements, and
- prohibitions.

Environmental support is provided to civil works projects through the Environmental Review Guide for Operations (ERGO) program. Through this program, geographic districts conduct multi-media environmental audits of Civil Works facilities. Deficiencies are identified and funds for corrective measures are requested. If the local geographic district and the HTRW design are not the same, the local geographic districts will then contact the HTRW district for technical assistance.

For new and ongoing Civil Works projects there is potential to encounter uncontrolled hazardous waste sites. The process for early discovery and efficient resolution of the associated issues will be built into the Civil Works projects in accordance with ER 1165-2-132 Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works Projects. This ER gives detailed guidance on how the HTRW district and the HTRW MCX provide support to the Civil Works project in such instances.

Lessons Learned

What is the HTRW Lessons Learned System?

The USACE HTRW Lessons Learned System is a computer based system which has been designed to facilitate the exchange of information among multidisciplinary USACE elements with execution responsibilities in the HTRW arena. The system relies primarily on the electronic transfer of data to identify problem areas and collect corresponding ideas and solutions to distribute to system users.

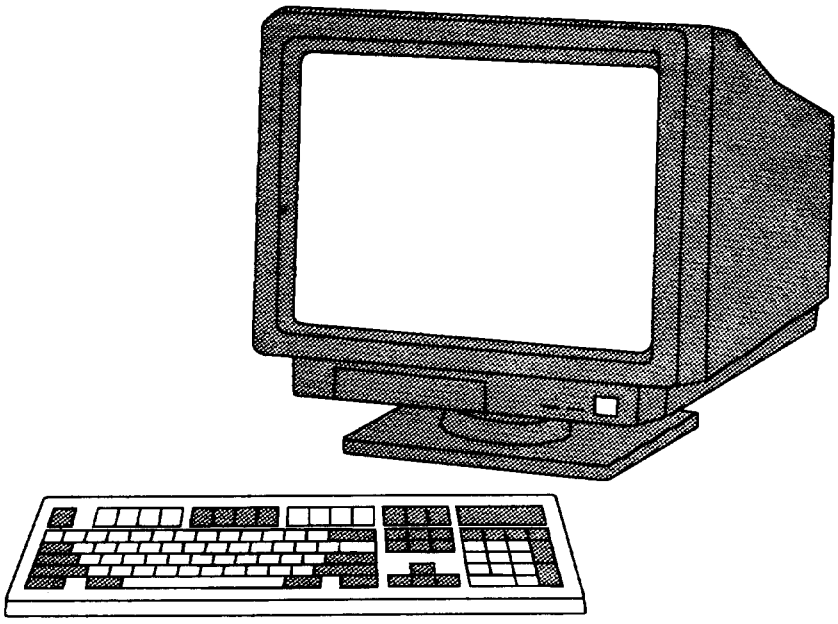
The system was originally developed by the North Central Division/ St. Paul District for execution of the EPA Construction Grants Program. Modifications were made relative to HTRW aspects. National implementation of the HTRW Lessons Learned System was assigned by HQUSACE to the HTRW MCX.

Why Implement a HTRW Lessons Learned System?

Simply stated, a "lessons learned" is knowledge gained through experience which, if shared, would benefit the work of others. USACE experience in the HTRW arena is significant. Utilization of the HTRW Lessons Learned System provides USACE personnel involved in the HTRW program with a means of documenting valuable experience gained during execution of HTRW related activities. Sharing such experience with other HTRW personnel promotes more efficient execution of the USACE HTRW mission.

Implementation Guidance

A 28 May 1991 memorandum from HQUSACE (CEMP-RT) to the Missouri River Division assigned as part of the HTRW MCX mission, implementation of the USACE HTRW Lessons Learned System initially developed by the North Central Division. Subsequently, Management Plan and Standard Operating Procedures documents were developed and the HTRW Lessons Learned System was implemented on a nationwide basis within USACE.



The USACE Program

Implementation efforts regarding the HTRW Lessons Learned System primarily focused on the designated USACE HTRW design and construction districts. However, other USACE elements, including division offices and research and development laboratories, were invited to participate in the system implementation.

Initially, each district collects lessons learned observations in accordance with standard operating procedures developed by the district. Observations are uploaded to the HTRW MCX at the Missouri River Division by each district-designated point of contact. At this point, observations are briefly reviewed by MCX technical Staff. Finally, approved observations are placed in the system data base and made available for districts to download and are utilized during execution of HTRW program responsibilities.

Commanders should support the use of the system as a means of passing on lessons learned and preventing similar mistakes from occurring at other locations. All divisions and districts involved in HTRW work are encouraged to provide input into the system as well as reviewing the input of others.

Points of Contact

HTRW Lessons Learned System Manager . . . . . (402) 221-7475
HQUSACE (CEMP-RT) . . . . . (202) 504-4707

Innovative Technologies

Innovative technologies are newly developed technologies that lack sufficient full scale application data to ensure routine consideration for HTRW site remediation. Innovative technologies may be new technologies or new applications of existing technologies. As such, innovative technologies are not generally considered under standard engineering practice and are not typically part of the competitive market process where available alternatives are routinely evaluated.

In functional terms, all treatment technologies except for incineration and solidification/stabilization for source control and pumping with conventional treatment for ground water are considered to be “innovative”. Examples of innovative treatment technologies include bioremediation, solvent extraction, soil washing, thermal desorption, chemical treatment and vacuum extraction.

Why Consider Innovative Technology Applications?

The National Contingency Plan requires consideration of innovative technologies. Innovative technologies should be routinely considered during evaluation of treatment options and should not be eliminated from consideration solely because of uncertainties regarding performance and cost. Potential benefits often associated with innovative technologies include decreased costs, superior performance, greater community acceptance, and accelerated cleanups. Innovative technologies may be deemed cost effective, even if relative costs initially appear higher than for conventional options, after consideration of such benefits. Though not an immediate consideration, future projects will also benefit by information gained from previous innovative technology applications.

To justify the selection and implementation of innovative technologies, short and long term benefits such as more effective remedies and less costly solutions, must outweigh inherent risks such as false starts and potential process failures.

Implementation Guidance

The SARA directed the EPA to establish an "Alternative or Innovative Technology Research and Demonstration Program" to facilitate remediation of Superfund sites. This legislation also encourages the military services to utilize new technologies in the Defense Environmental Restoration Program. It follows that prudent consideration and application of innovative technologies to USACE execution activities is a USACE goal.

The USACE Program

Various USACE elements have responsibility for innovative technology development and application programs. Specifically mentioned here are USACE labs, HTRW design districts, and the HTRW Mandatory Center of Expertise. In addition, Innovative Technology Advocate positions have been established at Headquarters and within the HTRW MCX.

All of the USACE research and development laboratories, (the Waterways Experiment Station, Construction Engineering Research Laboratory, the Cold Regions Research and Engineering Laboratory, and the Topographic Engineering Center) have extensive technical and personnel resources relative to evaluation of emerging and developing innovative technologies. Of particular note is the Hazardous Waste Research and Development Center at USAWES. The center is designated an EPA center for the Best Demonstrated Available Technology (BDAT) program for treatment technology under RCRA. All phases of environmental restoration research have been supported by USAEWES efforts.

District offices with HTRW execution responsibilities, in particular designated design districts, are at the forefront relative to evaluation and actual implementation of innovative technologies. Required efforts include conducting treatability studies to ensure technologies under consideration are viable for individual site specific designs. In many cases, innovative contracting methods are utilized to facilitate implementation of innovative technologies in the field. Historically, the Kansas City and Omaha Districts have been assigned the bulk of HTRW design requirements within USACE. Correspondingly, most of the USACE HTRW innovative treatment technology projects will be initiated on a more widespread basis as HTRW design responsibilities are decentralized.

The HTRW MCX has been tasked with nationwide responsibilities regarding USACE HTRW programs. Innovative technology issues, including review and approval aspects as well as guidance development, fall under the umbrella of MCX responsibilities. In addition, the HTRW MCX has been charged with the overall responsibility of increasing the application of innovative treatment technologies within USACE on a national basis.

Innovative Technology Advocate (ITA) positions have been established at HQUSACE and within the HTRW MCX to advocate the consideration and evaluation of new or innovative technologies in HTRW application. ITA responsibilities include the following:

- acting as USACE focal points for technology transfer and dissemination of information to key personnel at divisions and districts;

- coordinating and interfacing with public and private elements including the research and development community, especially USACE laboratories;
- ensuring that individual projects reflect consideration and evaluation of innovative technologies; and
- promoting technology transfer through participation in conferences, workshops, and site demonstrations.

Pursuant to the Stevenson-Wydler Technology Innovation Act of 1980, as amended, Offices of Research and Technology Applications (ORTAs) have been established at all USACE R&D laboratories (see 15 U.S. C. 3710, et seq). The statutorily mandated functions of those offices are:

- to prepare applications assessments for selected R&D projects in which the lab is engaged that may have potential commercial applications;
- to provide and disseminate information on Federally owned or originated products, processes, and services having potential application to state and local governments and to private industry;
- to cooperate with and assist organizations which line the R&D resources of the lab and the Federal government as a whole to potential users in state and local governments and private industry;
- to provide technical assistance to state and local government officials; and
- to participate in regional, state and local programs designated to facilitate transfer of technology for the benefit of the region, state, or local jurisdiction in which the Federal laboratory is located.

Points of Contact

USAEWES, Environmental Engineering Division . . . (601) 634-3703

USACERL, Environmental Engineering Division . (800) USA-CERL

USACRREL, Experimental Engineering Division . . . (603) 646-4405

HTRW MCX, Environmental HTRW Division . . . . . (402) 221-3380

Innovative Technology Advocates

HQUSACE . . . . . (202) 504-4335

HTRW MCX . . . . . (402) 221-7381

Emergency Management

Emergency Management is the organizational element established to develop and manage the disaster preparedness and response mission throughout the Corps of Engineers. Emergency Management is responsible for preparedness planning and response activities for a variety of disasters. This responsibility includes those functions as they pertain to spills or releases of hazardous materials at Civil Works projects. Through a combination of planning, training, and coordination, an effective, expedient response is guaranteed should incidents occur.

What are the Current Emergency Response Regulations?

Emergency Management Division/Branch exercises its authority under the provisions of various regulations. Its existence is authorized/defined under Public Law 84-99, as amended (Flood Control and Coastal Storm Emergencies). Under this law, the Corps of Engineers has the responsibility for:

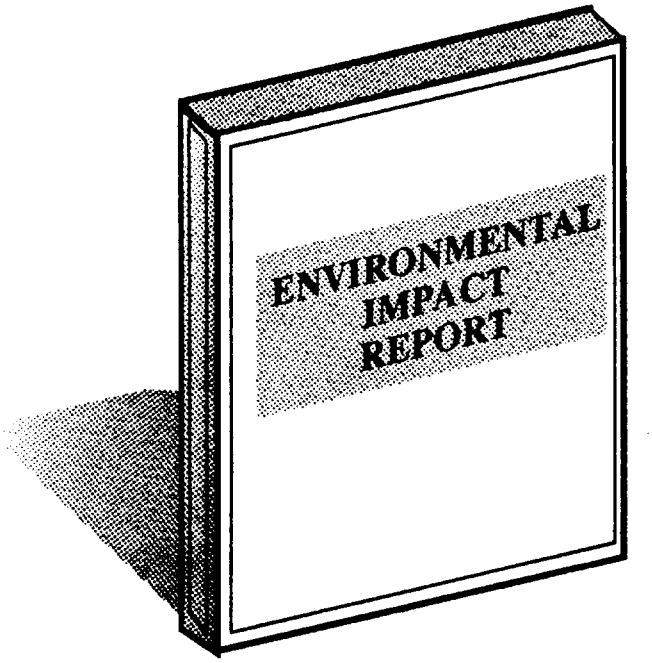
- preparedness planning,
- emergency operations activities,
- rehabilitation of levees,
- emergency water assistance, and
- hazard mitigation.

Disaster assistance, may be performed/provided directly by the Army under AR 500-60 (The Disaster Relief Act.) This authority allows commanders to institute emergency response activities in order to save human life, prevent suffering, and minimize property damage and destruction. These activities may be under taken during extremely exigent situations and without receiving instructions from higher headquarters. The Corps of Engineers, Emergency Management Division, also has responsibilities delegated by ER 1130-2-434 (Response to Oil and Hazardous Substances Incidents), AR 200-1 (Environmental Protection and Enhancement), and the National Oil and Hazardous Substances Pollution Contingency Plan. Requirements under these regulations include preparedness planning, notification responsibilities, and response remediation activities if spills or releases occur.

What is the Corps' Emergency Management Program?

The Corps plays a significant part in planning for, notification of, and responding to spills/releases of HTRW substances. All Corps facilities are required to develop spill contingency plans. Procedures for notification and activation of resources have been developed. Using these preestablished emergency management procedures, responses (to include both personnel and equipment) can be rapidly deployed to the incident location.

In addition, the Corps provides representation on the Regional Response Teams (RRT) for all Federal regions (I through X). The RRTs are comprised of representatives from various Federal agencies responsible for spill contingency planning and coordination of response actions. Members of the RRT are able to provide advice regarding containment and cleanup methods. They may also, if requested to do so, coordinate and direct response activities as the on-scene coordinator. The RRT may be activated by any of the RRT members or by request of the on-scene-coordinator. Additionally, the team may be activated if an incident crosses state boundaries, exceeds the capabilities of the on-scene-coordinator or poses a significant threat to public health or the environment.



National Environmental Policy Act (NEPA) Document Preparation

The NEPA process is a formal procedure designed to ensure Federal agencies identify and assess alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the human environment. The Corps prepares NEPA documentation in accordance with the policies and procedures specified in AR 200-2.

As a Federal agency, NEPA requires the Corps to:

- integrate NEPA early in the planning process,
- use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of theses action upon the human environment,
- encourage and facilitate public involvement in decisions which affect the quality of the human environment.

Design and Construction Management of HTRW Projects

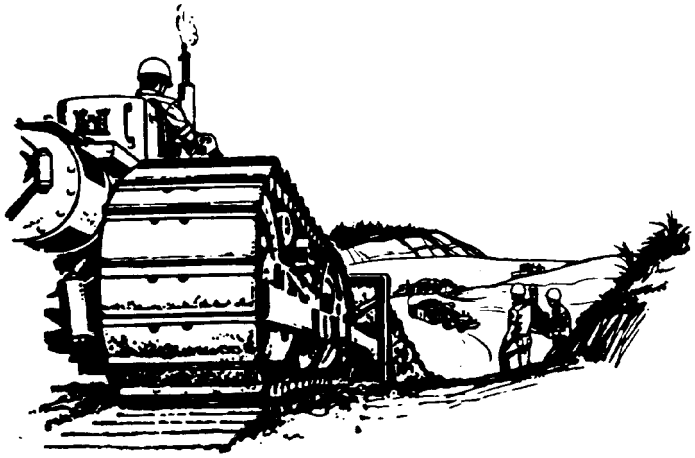
The Corps technical assistance capabilities also includes design and construction of HTRW projects.

As a division/district commander you should know that the Corps:

- prepares detailed scopes of work of HTRW remedial action projects,
- designs HTRW projects using in-house staff as well as outside contractors,
- provides technical review of HTRW project designs, and
- provides management, technical oversight, and technical assistance for remedial actions.

Corps staff must be knowledgeable in environmental regulations impacting project design and construction activities such as:

- Clean Air Act regulations which may impact the types and quantities of air emissions from the remedial action projects;
- Clean Air Act regulations which may require the project design to include specific types of pollution control devices to reduce air emissions;
- Resource Conservation and Recovery Act regulations which may require the project design to meet specific design requirements for RCRA regulated units such as lining and leachate collection systems for landfills, destruction and removal efficiency rates for incinerators, etc.;
- Resource Conservation and Recovery Act regulations regarding accumulation and disposal of hazardous wastes generated during construction activities such as manifesting requirements, marking requirements, etc.;
- Underground Storage Tank regulations which may require tank and piping designs to meet specific requirements for secondary containment and/or leak detection
- Clean Water Act regulations which may require project design to include pollution control equipment to meet discharge limitations; and
- Comprehensive Environmental Response Compensation and Liabilities Act requirements which may exempt activities from permitting requirements.



What Statutes Frequently Impact Corps Projects?

In environmental laws and regulations, the terms hazardous waste, hazardous material, and hazardous substance are frequently used and are often misunderstood. Therefore, before discussing the environmental statutes that you as a commander should be aware of, a brief discussion of terminology is in order.

What is a Hazardous Waste?

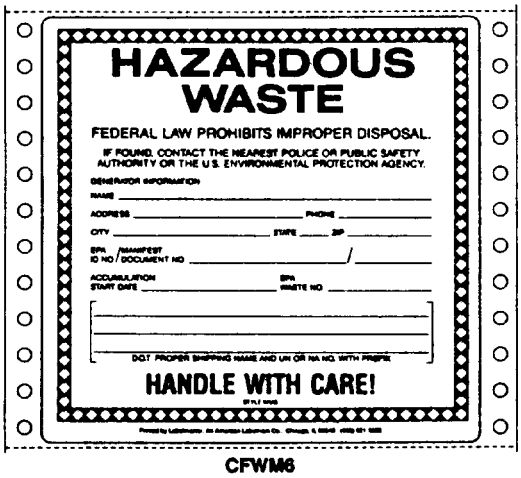
Hazardous waste is an EPA term used to describe wastes regulated under the Resource Conservation and Recovery Act. Hazardous wastes are categorized as either "characteristic" or “listed” waste and are defined in 40 CFR 261.

RCRA regulations contain specific definitions for waste exhibiting the characteristic of:

- ignitability,
- corrosivity,
- reactivity, or
- toxicity.

Additionally, RCRA regulations contain lists of waste which EPA has predetermined as hazardous wastes. These fall into four categories:

- wastes from specific sources (F listed waste);
- wastes from non-specific sources (K listed waste);
- toxic wastes from discarded commercial chemical products, off-specification species, container residues, and spill residues thereof (U listed waste); and
- acutely toxic wastes from discarded commercial chemical products, off-specification species, container residues, and spill residues thereof (P listed waste).



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What is a Hazardous Substance?

Hazardous substance is an EPA term used to describe substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act. The list of hazardous substances is found in 40 CFR 302. The definition of hazardous substance specifically excludes petroleum products, but includes all RCRA hazardous wastes.

What is a Hazardous Material?

Hazardous material is a Department of Transportation term used to describe materials regulated under the Hazardous Materials Transportation Act (HMTA). Materials designated as hazardous for the purpose of transportation are listed in 49 CFR 172. This list of hazardous materials includes hazardous substances, hazardous wastes, and petroleum products.

The Resource Conservation and Recovery Act / Hazardous and Solid Waste Amendments (RCRA/HSWA)

RCRA was enacted in 1976 and amended in 1984 by HSWA. Though it also addresses the management of non-hazardous waste, its primary impact on the Corps is in the management of hazardous waste and underground storage tanks. RCRA impacts the management of wastes from Corps laboratories; wastes generated by maintenance activities; and wastes generated during field investigations; design remediations; corrective action requirements; and treatment requirements.

As a division/district commander, you should be aware that hazardous waste regulations specify:

- the way in which hazardous wastes are characterized;
- the requirements for obtaining EPA identification numbers;
- packaging, labeling, and marking requirements;
- storage restrictions;
- inspection requirements;
- training requirements;
- manifesting requirements;
- Recordkeeping and reporting requirements;
- permitting requirements;
- treatability study restrictions;
- waste analysis requirements;
- contingency planning requirements;
- closure requirements;
- standards for hazardous waste burned for energy recovery;
- transportation requirements;
- land disposal restrictions and treatment standards;
- RCRA waste management unit design criteria.

You should also know that RCRA Underground Storage Tank (UST) regulations apply to storage of "regulated substances" defined as:

- petroleum and petroleum-based substances and
- hazardous substances as defined by CERCLA but excluding hazardous wastes.

These UST regulations specify:

- performance criteria for new underground storage tanks,
- general operating requirements,
- leak detection requirements,
- reporting and recordkeeping requirements,
- investigation requirements, and
- closure requirements.

Toxic Substances Control Act (TSCA)

Whereas RCRA controls the disposal of hazardous wastes after they have been generated, TSCA was enacted in 1976 to evaluate toxic substances before they are used and to control the manner in which they are used. TSCAs primary impact on the Corps is in the management of polychlorinated biphenyl (PCB) wastes. EPA has developed specific regulations for the manufacturing, distribution, processing, storage, and disposal of PCBs because they are considered toxic, persistent, and bioaccumulative. The Corps not only is involved in remediating sites contaminated by PCB, but also owns facilities with active PCB electrical equipment.

As a division/district commander you should be aware that TSCA regulations specify:

- marking requirements for PCB equipment,
- inspection requirements to identify PCB leaks,
- special handling requirements for storage and disposal of PCBs,
- decontamination requirements for PCB spills,
- manifesting requirements,
- prohibitions on PCBs in fuel oil used for energy recovery,
- prohibitions on use or storage of PCB transformers in areas that may contaminate food or feed,
- requirements for registering PCB transformers with commercial building owners in or near PCB transformers,
- prohibitions on use of certain types of PCB transformers in or near commercial buildings,
- requirements for registering PCB transformers with fire response personnel with primary jurisdiction, and
- prohibitions on installation of PCB transformers except in emergency situations.

Comprehensive Environmental Response Compensation and Liabilities Act (CERCLA)I Superfund Amendments and Reauthorization Act (SARA)

CERCLA was enacted in 1980 and amended by the SARA in 1986. It impacts the Corps in a number of ways. It is the foundation of the Superfund program in which the Corps is tasked to support EPA in executing, it is the basis for reporting releases of hazardous substances and oil spills from Corps facilities, and it is the basis of the Defense Environmental Restoration Program at active DOD facilities and formerly used defense sites.

As a division/district commander, you should be aware that CERCLA requires:

- the National Response Center to be notified immediately when a reportable quantity of a hazardous substance is released into the environment and there are criminal and civil penalties for failure to report;
- Federal facilities with reported releases to be placed on the Federal Facilities Docket;
- preliminary assessments to be initiated at sites listed on the Federal Facilities Docket;
- ranking of contaminated sites by EPA and establishment of a National Priorities List (NPL);
- a systematic approach to investigating and remediating sites in accordance with the National Contingency Plan;
- the Department of Defense to act as "lead agency" at non-NPL DOD sites;
- the Environmental Protection Agency to act as "lead agency" at NPL sites;
- potentially responsible parties (PRPs) to be liable for costs of remediating contaminated sites;
- facilities to comply with substantive requirements of state and Federal regulations but permit requirements are waived for activities conducted entirely on-site;
- whenever possible and practical, the establishment of a technical review committee to review planned actions which includes members of the Federal, state, and local government as well as the public;
- community involvement in the CERCLA process by conducting interviews with the local officials and the public, preparing formal community relations plans, and establishing information repositories; and
- the selected remedial action to attain all applicable or relevant and appropriate requirements identified by lead and support agencies unless specifically waived.

The process for responding to releases of hazardous substances under CERCLA is specified in the National Contingency Plan contained in 40 CFR 300. Phases of the process are described below.

The Preliminary Assessment (PA) is the first step of the CERCLA process. The PA relies on historical records, and personnel interviews, and visual inspection of the site to:

- eliminate from further consideration those sites which pose no threat to human health or the environment,
- determine if there is a potential need for removal action, and
- set priorities for site inspections.

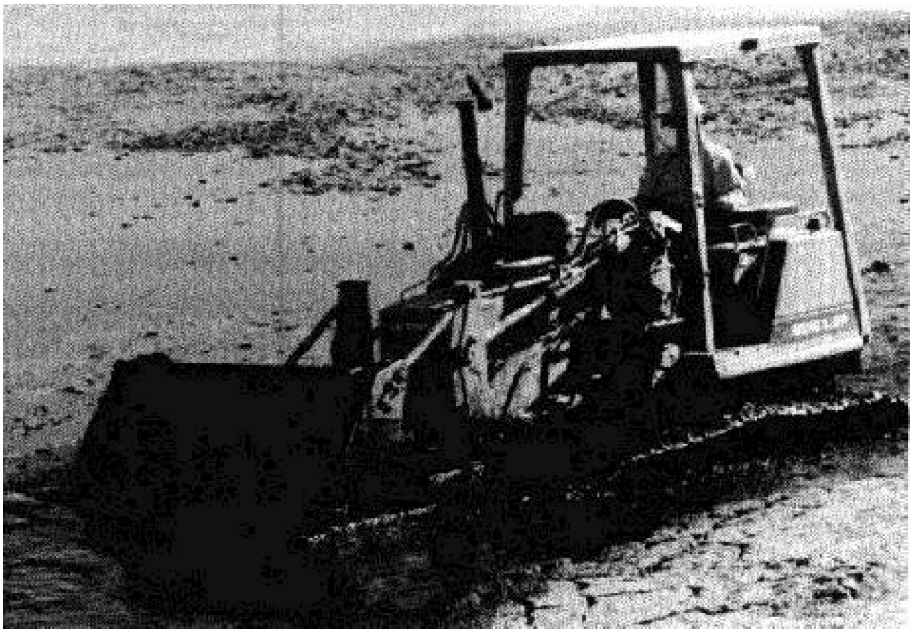
The PA is followed by the Site Inspection (SI). The SI builds upon the information collected in the PA and involves field sampling to confirm the presence or absence of contamination to:

- eliminate from further consideration those releases that pose no significant threat to public health or the environment,
- determine the potential need for removal action, and
- collect or develop data for the hazard ranking system which is used to prioritize sites.

The SI report must include:

- a description of the waste handling history of the site,
- a description of known contaminants,
- a description of pathways of migration of contaminants,
- a description of exposure targets, and
- A recommendation on whether further action is required.

If the SI recommends further action, the next step in the CERCLA process is the Remedial Investigation I Feasibility Study (RI/FS). Whereas the SI confirmed the presence of contamination, the RI more fully characterizes the nature and extent of contamination.



This phase:

- conducts additional field sampling;
- assesses risks posed by contaminants;
- documents Applicable or Relevant and Appropriate Requirements (ARARs) identified by lead and support agencies;
- evaluates alternative remedies, including the "no action" alternative; and
- forms the basis for selection of the final remedy.

The selected remedy is documented in a "Record of Decision (ROD) and the Remedial Design/Remedial Action (RD/RA) phase begins. During this phase, the remedial action is designed and constructed.

In addition to the steps described above, the NCP allows Removal Actions (RAs) to be conducted at any point in the process to prevent, minimize, stabilize, mitigate, or eliminate the threat to public health or welfare or the environment. The removal actions can be interim remedial measures or may constitute final remedies, but are generally limited to actions which can be accomplished in under 12 months and for less that $2,000,000.

Clean Water Act (CWA)

The Clean Water Act was enacted as a means to restore and maintain the chemical, physical, and biological integrity of the nations' waters. This is primarily accomplished through the National Pollutant Discharge Elimination System (NPDES) Program and the Section 404 Permit Program.

As a district/division commander you should be aware that:

- NPDES permits are required for point source discharges to surface waters from industrial operations and sewage treatment operations. These permits establish concentration limits on pollutants being discharged and specify monitoring, reporting, and

non-compliance notification requirements. Remediation projects in which treated ground water is discharged to a stream would be an example of a Corps project that would be impacted by the CWA. This activity would be required to meet substantive requirements of the Clean Water Act such as restrictions on concentration of pollutants discharge, and unless exempted under SARA, would also need an NPDES permit.

- **!** NPDES permits are required for storm water discharges associated with industrial activity; construction operations disturbing five acres or more; hazardous waste treatment, storage, and disposal activities; transportation facilities; recycling activities; and sewage treatment activities. Storm water permits can be in the form of an individual permit, group permit, or general permit.
- **!** Facilities required to obtain NPDES storm water discharge permits are required to develop and implement Pollution Prevention Plans.
- **!** Section 404 permits are required for any discharge of dredged or fill material into waters or wetlands.

Clean Air Act (CAA)

The Clean Air Act was enacted to protect and enhance the quality of the nation's air resources in order to protect and maintain the public health and welfare. Through the Clean Air Act National Ambient Air Quality Standards (NAAQS) were established for six criteria pollutants carbon monoxide, sulfur dioxide, nitrogen dioxide, ozone, particulates and lead. Monitoring data for these pollutants are used to measure the air quality around the country. In areas that meet the NAAQSs, "Prevention of Significant Deterioration" programs are required to maintain air quality standards. In non-attainment areas, programs are required to reduce air pollutants to meet NAAQSs. To control air emissions, notification and permitting programs have been instituted which evaluate and monitor air pollution activities.

In addition to establishing NAAQSs, the CAA also regulates toxic air pollutants. There are specific regulations on a limited number of toxics such as asbestos, mercury, and vinyl chloride. However, under the new CAA of 1990, regulations for an extensive list of toxic chemicals are to be developed.

Another important provision of the new CAA which may significantly impact the Corps is stratospheric ozone protection. This requires the phasing out of the manufacturing and use of chlorofluorocarbons (CFCs). The Corps uses CFCs in a number of areas including air conditioning equipment, refrigeration equipment, and laboratories.

As a division/district commander you should be aware that:

- **!** Equipment which either increases or decreased air emissions may require permits from the local air pollution authority, but requirements vary depending upon location. Typical examples of types of equipment that may require permits include air stripping operations, vapor recovery systems, abrasive blasting operations and baghouses, and tank purging operations.

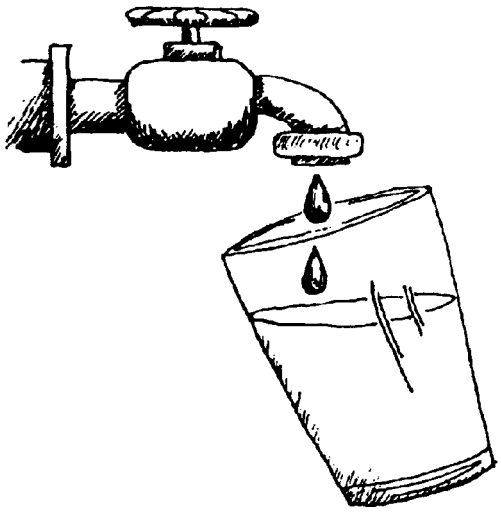
- Air pollution control authorities may regulate action specific activities involving air emissions as well as equipment related activities. For example, activities such as excavations of contaminated soil which result in releases of volatile organic compounds may be required to be monitored and vapor control measures may be required to be taken if emissions exceed a particular level.
- Asbestos removal activities may require notifications to the local air pollution control authority.
- Maintenance of air conditioning units must be conducted by certified technicians training in recovering CFCs.

The Safe Drinking Water Act (SDWA)

The Safe Drinking Water Act was enacted to ensure the quality of the nations drinking water. Water quality standards have been established to achieve this goal. Primary drinking water standards, are either maximum contaminant levels (MCLs) that must be attained or specific treatment technologies that must be applied. Secondary drinking water standards are aesthetic standards such as color and odor which are a measure of water quality, but are not enforceable standards. Whereas water exceeding primary drinking water standards can not be distributed for consumption, water exceeding secondary drinking water standards can be distributed. In addition to establishing primary and secondary standards, EPA also promulgates maximum contaminant level goals (MCLGs). These are risk-based goals toward which water quality is aimed, but attainment is not mandatory.

As a division/district commander you should know that:

- Water purveyors are required to have programs in place to monitor water quality to ensure compliance with MCLs.
- MCLs are frequently identified as applicable or relevant and appropriate requirements (ARARs) for ground water remediation projects.
- MCLGs are frequently identified as relevant and appropriate for ground water remediation projects.



National Environmental Policy Act (NEPA)

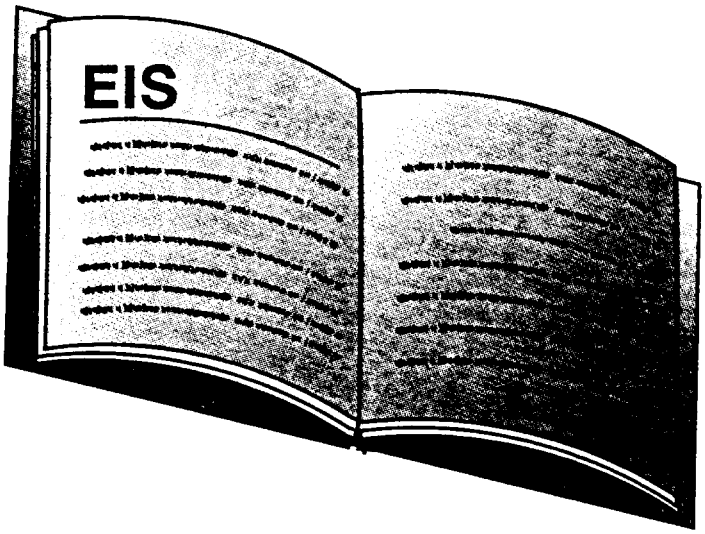
The National Environmental Policy Act was established to ensure Federal activities safeguard against environmental degradation. Federal agencies are required to include NEPA in their planning process.

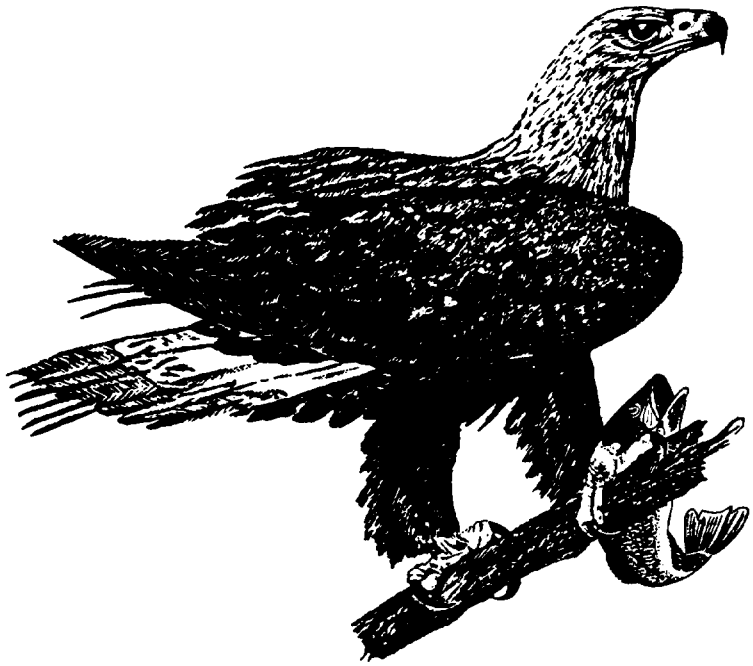
As a division/district commander, you should know that:

- Army procedures for implementing NEPA are contained in AR-200-2.
- The AR lists categorical exclusions for actions which are considered to have no significant environmental impact.
- If an action is not covered by a categorical exclusion, an environmental assessment is completed which either concludes with a "finding of no significant impact (FONSI)" or requires preparation of an Environmental Impact Statement (EIS).

Documents are to address:

- the environmental impacts of the proposed action, including any unavoidable adverse impacts,
- any irreversible or irretrievable commitments of environmental resources which would occur as a result of the proposed action,
- conflicts and trade-offs between short-term environmental uses and long-term environmental productivity, and
- reasonable alternatives to the proposed action.





Endangered Species Act (ESA)

The Endangered Species Act serves to protect species threatened with extinction.

As a district/division commander, you should know that the Endangered Species Act requires any discretionary action authorized, funded, or carried out by the Corps of Engineers to:

- **!** determine whether actions will impact listed species,
- **!** ensure actions undertaken will not likely jeopardize the continued existence of any endangers species or threatened species or result in the destruction or adverse modification of designated critical habitat,
- **!** consult with the Fish and Wildlife Service regarding effects on terrestrial species and with National Marine Fisheries Service for effects on marine species when a proposed actions has a potential to impact any listed or proposed species or critical habitat, and
- **!** conduct a biological assessment if a listed species is present to determine whether or not any listed species or critical habitat is likely to be adversely affected by the proposed action.

Federal Facilities Compliance Act (FFCA)

The Federal Facilities Compliance Act of 1992, P.L. 102-386, amended the Solid Waste Disposal Act to clarify provisions concerning the application of certain requirements and sanctions to Federal facilities.

As a division/district commander, you should know that as a result of the FFCA:

- **!** The United States has waived any immunity otherwise applicable with respect to any substantive or procedural requirement of the Solid Waste Disposal Act.

- Federal facilities are now subject to administrative orders, civil and administrative penalties and fines.
- No Federal employee, or officer of the U.S. shall be personally liable for any civil penalty under any Federal, state, interstate, or local solid or hazardous waste law with respect to any act or omission within the scope of the official duties of the agent, employee, or officer.
- The Act does not provide Federal employee protection for criminal penalties or fines.
- Federal facilities are subject to reasonable service charges for fees assessed in connection with the processing and issuance of permits, renewal of permits, amendments to permits, review of plans, studies, and other documents, and inspection and monitoring of facilities, as well as any other nondiscriminatory charges that are assessed in connection with a Federal, state, interstate, or local solid waste or hazardous waste regulatory program.

What are the Liabilities in the HTRW Program?

This section outlines in a summary fashion, environmental liability concerns both to the Federal Government as an entity and to individual Federal employees. Necessarily, such outline is general in nature and not meant to be all-inclusive. Legal advice should always be sought concerning specific questions.

Potentially Responsible Party (PRP) Liability
CERCLA section 107, U.S.C. 9607, defines one type of liability known as Potentially Responsible Party (PRP) liability. The Act allows EPA to force PRPs to perform remediation at hazardous substance sites or recover cleanup costs from the PRPs. Section 107 defines those persons responsible for the costs of a cleanup of hazardous substance as:

- the owner and operator of a vessel or a facility;
- any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of;
- any person who by contract, agreement, or otherwise arranged for disposal or treatment or arranged with a transporter for transport for disposal or treatment, of hazardous substances owned or possessed by such person, by any other party or entity, at any facility or incineration vessel owned or operated by another party or entity and containing such hazardous substances; and
- any person who accepts or accepted any hazardous substances for transport to disposal or treatment facilities, incineration vessels or sites selected by such person, for which there is a release, or threatened release which causes the incurrence or response costs, of a hazardous substance.

Persons within the above-mentioned categories are liable for:

- all costs of removal or remedial action incurred by the United States Government or a state or an indian tribe not inconsistent with the National Contingency Plan;
- any other necessary costs of response incurred by any other person consistent with the National Contingency Plan;
- damages for injury to , destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction, or loss resulting from such a release; and
- the costs of any health assessment or health effects carried out under 9604(I) of this title.

However, there shall be no liability for a person who can establish by a preponderance of the evidence that the release or threat of release of a hazardous substance and the damages resulting therefrom were caused solely by:

- an act of God;
- an act of war;
- an act or omission of a third party other than an employee or agent of the defendant, or than one whose act or omission occurs in connection with a contractual relationship, existing directly or indirectly, with the defendant (except where the sole contractual arrangement arises from a published tariff and acceptance for carriage by a common carrier by rail), if the defendant establishes by a preponderance of the evidence that (a) he or she exercised due care with respect to the hazardous substance concerned, taking into consideration the characteristics of such hazardous substance, in light of all relevant facts and circumstances, and (b) he or she took precautions against foreseeable acts or omission of any such third party and the consequences that could foreseeably result from such acts or omissions; or
- any combination of the foregoing paragraphs.

Typically, the Federal government as an entity is named as a PRP rather than any individual Federal employee acting within the scope of their employment. PRPs are strictly, jointly and severally liable. The concept of strict liability means liability without fault. Thus, even if the PRP is not negligent, it may be liable. The concept of joint and several liability means that even if the PRP is only the source of a portion of contamination at a site, the PRP may be held liable to EPA for all costs expended in the cleanup effort. This PRP may then sue other PRPs at that site, if any, to recover all or part of their payment to EPA in excess of their pro rata share. This is called a suit for contribution.

Tort Liability

The Federal Employees Liability Reform and Tort Compensation Act, 28 U.S. C. 2679, protects employees acting within the scope of their official duties from personal liability for common law torts, namely acts of negligence resulting in personal injury or property damage. However, violations of Federal environmental laws which could result in civil penalties or criminal sanctions are not common law torts , and accordingly, no protection from personal liability from such environmental violations exist by reason of the Federal Employees Liability Reform and Tort Compensation Act.

Civil Liability

Civil liability provisions for violation of Federal environmental laws appear in CERCLA, RCRA, TSCA, CAA, CWA, and SDWA. Civil penalties are assessed on a "strict liability" basis. Liability attaches automatically upon the omission or commission of the act giving rise to the violation; there is no requirement to show that the offender had "knowledge" of the legal implications of his or her act, or that he or she "intended" to violate the law. The decision to administratively pursue civil penalties by EPA is based on various factors, including the degree of willfulness or negligence of the violator, history of non-compliance, ability to pay, degree of cooperation or noncooperation, and other unique factors specific to the violators' case. Alternatively, EPA may refer its case to the Department of Justice for enforcement.

Although there are many civil liability provisions, as indicated above, four such provisions are especially noteworthy:

- CERCLA 109 provides that any person who violated CERCLA's notice requirements (including the notification to the National Response center of hazardous substance spills exceeding reportable quantities); administrative orders; consent decrees; settlement agreements; and requirements for maintaining records; may be assessed a civil penalty of $25,000 per day for each day that the violation continues.
- RCRA 3008 provides that any person who violates any requirement of Subtitle C (the Subtitle of RCRA governing the handling and management of hazardous waste) may be assessed a civil penalty in an amount not to exceed $25,000 for each such violation.
- CAA 113 (b) authorized EPA to initiate a civil action against any person who is an owner or operator or a major stationary source, or any other person, for injunctive relief or to recover a civil penalty for non-compliance with various CAA requirements in an amount not to exceed $25,000 per day for each day that a violation continues.

Some environmental statues contain a grant of immunity to Federal employees from personal liability for civil penalties. Section 118(a) of the Clean Air Act, 42 U.S.C. 7418(a) provides in pertinent part:

"No officer, agent, or employee of the United States shall be personally liable for any civil penalty for which he is not otherwise liable."

Section 313(a) of the CWA, 33 U.S.C. 1323(a) provides, in pertinent part:

"No officer, agent, or employee of the United States shall be personally liable for any civil penalty arising from the performance of his official duties, for which he is not otherwise liable."

However, RCRA, 42 U.S.C. 6901 et. seq., which governs the manifesting requirements and CERCLA 42 U.S.C. 9601 et. seq., do not contain any such immunity provision for government employees.

However, the recently passed Federal Facilities Compliance Act exempts from civil penalties, Federal employees acting within the scope of their employment.

The U. S. Supreme Court has recently held that Congress has not waived the Federal government's sovereign immunity or civil fines imposed by a state for past violations of the Clean Water Act or RCRA *(U.S. Department of Energy V. Ohio,* 112 S. Ct. 1627,118 L. Ed. 2d 255, 60 U.S. L. W. 4325 (1992)). However, it should also be noted that a Federal agency's sovereign immunity does not protect Federal employees from civil liability for their environmental - violations.

Criminal Liability

General Criminal Statutes

In addition to penalties for violation of environmental statutes, the applicable provisions of 18 U.S.C. may be invoked for misconduct. For example, sections of 18 U.S.C. dealing with criminal conspiracy and making materially false statements to the government may be appropriate for misconduct in the environmental arena.

Environmental Statutes

Each of the major environmental statutes imposes criminal penalties for specific misconduct. Most statutes also provide for doubling the maximum permissible fine and the confinement if previously convicted for the same offense.

The CWA, 33 U.S.C. 1319, provides penalties as follows:

- Negligent violations such as violation of permit conditions, including those for effluent discharges; for violation of pretreatment program requirements; or violations of 404 permits; and for introduction of pollutants or hazardous substances in a publicly owned treatment works which that person "knew or reasonably should have known could cause personal injury or property damage or. . . cause such treatment works to violate any effluent limitation or condition in any permit issued to the treatment works..." carry penalty provisions ranging from $2,500 to $25,000 per day and/or 1 year confinement.
- Knowing violations carry penalty provisions ranging from $5,000 to $50,000 per day and/or 3 years confinement.
- Knowing endangerment violations carry penalty provisions of $250,000 and/or up to 15 years confinement where a violator "knows at the time that he thereby places another person in imminent danger of death or serious bodily injury."

The CAA, 42 U.S.C. 7413, provides penalties as follows:

- Knowing violations of Federal implementation plan (FIP) or state implementation plan (SIP) requirements, or of orders to comply with SIPs under section 113(a); or of provisions relating to new source performance, inspections, solid waste combustion, preconstruction requirements for prevention of significant deterioration (PSD), emergency orders, permits, etc. carry penalties under Title 18 U.S.C. and/or 5 years confinement.
- Recordkeeping and reporting penalties include fines under 18 U.S.C. and/or 2 years confinement for:
  - "knowingly" making false "material" statements or omissions or other improper adjustments to documents required to be filed or maintained by the Act;

falsification or tampering with pollution control monitoring devices or methods; or

failure to report or notify as required under the Act. Negligent violations such as a release of a "hazardous air pollutant" listed under CAA section 112 or an "extremely hazardous substance" listed under section 302 of the Emergency Planning and Community Right to Know Act (EPCRA) and who at the time negligently places another person in imminent danger of death or serious bodily injury shall be fined under Title 18 and/or imprisoned up to 1 year.

- Knowing endangerment violations involving releases of hazardous air pollutants listed under CAA section 112 or any extremely hazardous substance listed under section 302 of EPCRA where the person knows at the time that he thereby places another person in imminent danger of death or serious bodily injury shall be fined under Title 18 and/or by imprisonment of up to 15 years.

RCRA 3008 (d) (1) (&(2) and 42 U.S.C. 6928(d) (1) & (2) provide generic liability provisions of $50,000 per day and/or 5 years confinement for the following:

- any person who knowingly transports or causes to be transported any identified or listed hazardous waste to a facility without a permit;
- who knowingly treats, stores or disposes of an identified or listed hazardous waste without a permit;
- who knowingly violates a material condition of that permit or any applicable regulation or standard;
- any person who knowingly omits material information or makes a false material statement in any specified document used for the purpose of compliance with regulations promulgated by the EPA;
- knowingly generates, stores, treats, transports, disposes of, exports, or otherwise handles hazardous waste and knowingly destroys, alters, conceals or fails to file any compliance document;
- knowingly transports or causes to be transported without a manifest any hazardous waste required to be accompanied by a manifest;
- knowingly exports an identified or listed hazardous waste without the consent of a receiving country or in a manner that doesn't conform to an existing international agreement; or
- knowingly stores, treats, transports, disposes of, or otherwise handles any used oil not identified or listed as a hazardous waste under RCRA in knowing violation of a permit, applicable standards or condition.

RCRA also contains fines of up to $250,000 and/or 15 years confinement for knowing endangerment in which liability accrues to a person handling hazardous waste "who knows at the time that he thereby places another person in imminent danger of death or serious bodily injury." Actual knowledge is required.

The Endangered Species Act, 16 U.S.C. 1540 provides penalties as follows:

- knowing violations include harming a listed endangered species or plant or their critical habitat, violating the provisions of a permit issued under the act, or violating listed implementing regulations carry penalties of up to $50,000 and/or 1 year confinement.
- violation of implementing regulations other than those enumerated in the act shall result in a fine of not more than $25,000 and/or 6 months confinement.

Federal Sentencing Guidelines

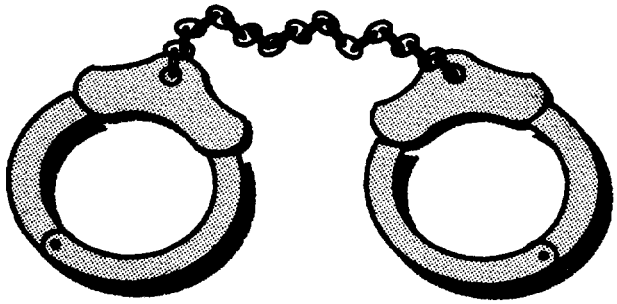
The Federal sentencing guidelines created pursuant to the 1984 Comprehensive Crime Control Act have been applied to criminal violations of environmental statutes. When imposing a sentence, courts are to consider the following as aggravating factors:

- whether the offense was an ongoing, continuous, or repetitive discharge of a hazardous substance to the environment;
- whether it resulted in a substantial likelihood of death or serious bodily injuries;
- whether it resulted in disruption of public utilities or evacuation of a community;
- whether it involved transport, treatment, storage, or disposal without a permit, or in violation of a permit; and
- whether it reflected an effort to conceal a substantive environmental offense.

Probation is strictly limited under the guidelines.

Federal Employee Prosecutions

1. In *U.S. V. Dee,* 19 ER 2353, (D.Md., 1989), three Department of Defense civilian employees at Aberdeen Proving Ground were prosecuted by the Maryland U.S. Attorney's Office for violations of RCRA. The three defendants held position titles as Director of the Munitions Directorate of the Chemical Research and Development Center, Chief of the Producibility, Engineering, and Technology Division of the Munitions, and Plant Manager of the research building. All three had degrees in chemical engineering. The defendants were found guilty of RCRA violations relating to the improper storage of dimethyl polysulfide and other hazardous chemicals at and around two buildings at Aberdeen Proving Ground. They were each sentenced to 3 years probation.



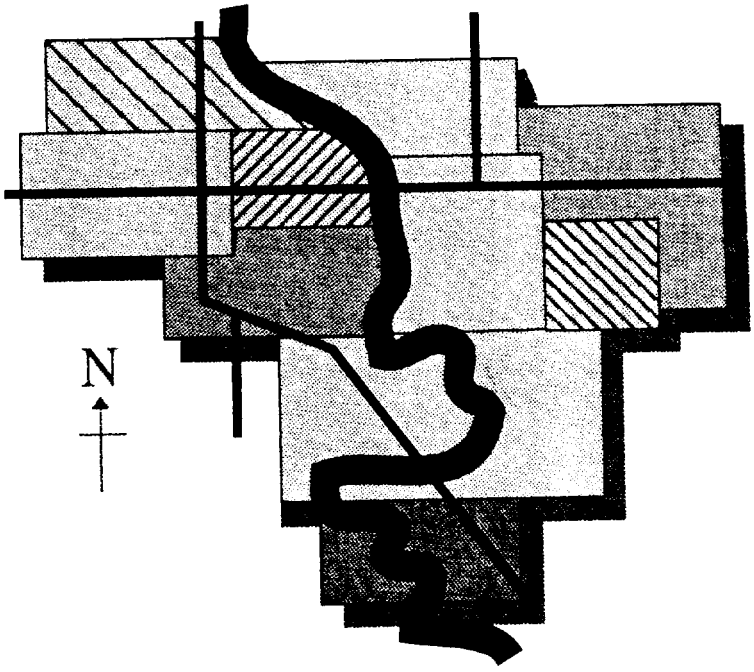
On appeal, the 4th Circuit, *U.S. v. Dee,* 912 F.2d 741, (4th Cir., 1990); *cert. denied,* 111 5. Ct. 1307 113 L. Ed. 2d 242(1991), held that the government did not have to show that the defendants knew that violation of RCRA was a crime or that they knew regulations existed listed specific chemical wastes as hazardous. The court commented that "ignorance of the law is no defense." The government would only have to show that the defendants knew the wastes were hazardous.

2. In *U.S. v. Carr;* 880 F.2d 1550 (2d cir. 1989), the defendant was a DOD civilian employee and *maintenance foreman* on the Fort Drum, N.Y., firing range. In 1986 he directed several subordinates to dispose of old cans of waste paint in a small man-made pit filed with water on the range. After 50 or so cans had been thrown in the pit, workers noticed that some of the cans were leaking and decided to stack the rest of the cans against a shed. The workers *told him* of the leaking cans and that they thought the dumping was illegal. Two weeks later he ordered a subordinate to *cover up* the cans with piles of dirt.

The defendant was convicted for violations of CERCLA. On appeal, the court found that Carr was "in charge" of a facility within the meaning of CERCLA 103. The court explained that to be "in charge", *sole control of the facility was not necessary.* The defendant was sentenced to a suspended sentence of 1 year's confinement and to 1 year of probation. The defendant had to pay his own legal fees.

3. *U.S. V. Pond,* 21 ER 2035, (D.Md., S-900420, January 17,1991), The superintendent of the waste water treatment facilities at Fort Meade, Maryland was convicted for falsifying discharge monitoring reports and violating the Clean Water Act NPDES permit conditions. The defendant did not conduct required sampling and testing of wastewater effluent from September 1988 to March 1989 and submitted false reports on eight occasions from November 1988 to April 1989.

What about Real Estate?



As discussed previously, under CERCLA, persons responsible for costs of cleaning up contaminated properties includes the owner or operator of the facility and any person who at the time of disposal owned or operated the facility. For this reason, it is important that as a division/district commander, you be aware of:

- the potential liabilities associated past property ownership,
- the liabilities incurred when purchasing contaminated property, and
- regulatory requirements related to Federal real estate transactions.

Whenever Federal property is being sold or transferred, CERCLA requires disclosure of hazardous substance activity. If the hazardous substances are known to have been released or disposed of on the property, or if the property was used to store hazardous substances for one year or more, this information is required to be disclosed in the sales contract. The notice is required to include:

- the name of the hazardous substance;
- the Chemical Abstracts Services Registry Number where applicable;
- the regulatory synonym as listed in 40 CFR 302.4;
- where applicable, the RCRA hazardous waste number specified in 40 CFR 261.30;
- the quantity of the substance in kilograms and pounds; and
- the dates that storage, release and/or disposal occurred.

Additionally, the recently passed Community Environmental Response Facilitation Act of 1992 requires uncontaminated property to be identified as such when transferring Federal real estate. The basis of the determination must include at a minimum, the following information concerning the current and previous uses of the property:

- a detailed search of Federal Government records pertaining to the property;
- recorded chain of title documents regarding the real property;
- aerial photographs that may reflect prior uses of the property and that are reasonably obtainable through state or local governments agencies;
- a visual inspection of the real property and any buildings, structures, equipment, pipes, pipeline, or other improvements on the property and a visual inspection of properties immediately adjacent to the property;
- a physical inspection of property adjacent to the real property, to the extent permitted by owners or operators of such property;
- reasonably obtainable Federal, state, and local government records of each adjacent facility where there has been a release of any hazardous substance or any petroleum product on the property;
- interviews with current or former employees involved in operations on the real property; and
- sampling if appropriate.

The deed for uncontaminated property is required to contain:

- a covenant warranting that any response action or corrective action found to be necessary after the date of sale or transfer shall be conducted by the United States and
- a clause granting the U.S. access to the property in any case in which a response action or corrective action is found to be necessary.

Real estate records play a critical part in establishing liability for remediation costs. Section 107 of CERCLA defines persons responsible for the costs of cleaning up hazardous substances and includes past and present property owners and operators. For this reason, real estate records play a major role in all remediation projects.

- Under the Superfund program, EPA is authorized to force potentially responsible parties (PRPs) to clean up sites and to seek cost recovery from the PRPs.
- Under the Base Realignment and Closure Program, sites slated for closure are required to be remediated prior to disposition.
- Under the Formerly Used Defense Site Program, the Corps of Engineers is responsible for assessing whether contamination resulted from Federal activities and if so to ensure remediation.

What About Planning?

As a division/district commander, it is important for you to recognize that the National Environmental Policy Act requires environmental impacts to be considered during the planning of Federal activities. Examples of types of issues that should be considered during the planning process includes impact to:

- natural resources,
- cultural resources,
- archeological resources,
- recreational resources,
- historical resources,
- threatened and endangered species, and
- overall environmental compliance.

What About Contracting?

Over the past decade, the U.S. Army Corps of Engineers has been a major participant in remediating contaminated sites nationwide. The Corps has provided engineering and construction services to various agencies including, but not limited to, the Department of Army, U.S. Environmental Protection Agency, U.S. Air Force, Department of Commerce, Department of Transportation, Department of Energy, and General Services Administration. The Corps is solely responsible for the execution of the Department of Defense Formerly Used Defense Site remediation program nationwide.

Remediating Hazardous, Toxic, and Radioactive Waste sites is often quite complicated. While the goal is obvious - to protect human health and the environment; the methodology to accomplish that goal is not always evident. This document contains HQUSACE recommendations for a range of contracting capabilities for an HTRW Design District to successfully execute the HTRW program. The recommended array of contracts is summarized in the attached table entitled "Minimum Recommended HTRW Contracting Capability."

Due to the unknown nature of HTRW sites, fixed price contracts often tend to be difficult and cumbersome to administer properly. The recommendations made herein overwhelmingly support the use of cost reimbursable contracts for both the study/design phase as well as the remediation phases of an HTRW project. Further, while the issuance of a site specific contract remains an option; they are not always the most effective option. The Corps must acquire prepositioned contracts to expedite response actions. This is necessary for the protection of human health and environment, to satisfy regulatory and legal requirements, and to execute our customers' programs. It is recognized that this may not be the way the Corps traditionally has contracted for design or construction work, but the Corps must take a progressive approach utilizing all available contracting tools to ensure efficient execution of the program.

Minimum Recommended HTRW Contracting Capability

Type of Work		Contract Type	Min. # of Contracts	Dollar Value/ Duration
Small 1/ Design District	Containerized HTRW, Fence, Roads, etc.	RFP Firm-fixed-price Indefinite delivery	1-4	$5M/3 yrs
	Study, Investigations, Design, Installation Support	A-E Indefinite delivery Cost reimbursable Firm-fixed price	 1-2 1-2	$12M/5 yrs
	Environmental Service	RFP Firm-fixed price Indefinite delivery	 1-2	$3M/3 yrs
	Remediation	RFP Cost-reimbursable Firm-fixed price	 1-2 1-2	 $50M/5 yrs $50M/5 yrs
Large 2/ Design District	Containerized HTRW, Fence, Roads, etc.	RFP Firm-fixed-price Indefinite delivery	4	$5M/3 yrs
	Study, Investigations, Design, Installation Support	A-E Indefinite delivery Cost reimbursable Firm-fixed price	 1-2 1-2	 $20M/5 yrs $20M/5 yrs
	Environmental Service	RFP Firm-fixed price Indefinite delivery	 1-2	 $5M/3 yrs
	Remediation	RFP Cost-reimbursable Firm-fixed price	 2 2	 $50M/5 yrs $50M/5 yrs
	Study/Design/ Remediate Total Environmental Restoration Contract (TERC)	RFP Indefinite delivery Cost-reimbursable	 1	 $200M/10 yrs

1/ Annual HTRW investigation and design workload less than $15 million

2/ Annual HTRW investigation and design workload of a robust district approaching $60 million

The Rapid Response (RR)/Immediate Response (IR)/Preplaced Remedial Action (PPRA) Programs

When dealing with environmental contamination, action is often required immediately and can not wait for the normal acquisition process. As a division/district commander, you should know that the Corps utilizes RR/IR and PPRA contracts to assist Federal facilities in resolving time-critical environmental problems.

Expedited responses are justified when driven by:

- regulatory actions such as notices of violations, etc.;
- congressional mandates;
- imminent threats to human health or the environment;
- immediate need for actions to minimize, stabilize, contain, mitigate, or eliminate a release or threatened release;
- need for immediate removal of sources of contamination;
- need for immediate protection of drinking water sources or sensitive ecosystems; or
- need to immediately restrict access.

The primary difference between the Immediate Response and Rapid Response Programs is start-up time. The Immediate Response Program can respond in 72 hours. The Rapid Response Program typically takes 30-60 days. Both programs are intended for situations when substantial formal design is not required such as removal actions, sampling activities, transportation and disposal activities, source control/site control activities, etc.

This program is not intended for:

- projects requiring substantial formal design,
- projects which allow sufficient time for the normal acquisition process,
- studies such as remedial investigation, feasibility studies, etc.,
- emergency response actions (less than 24 hour response),
- non-time-critical actions, or
- long-term remedial actions.

Rapid Response capabilities could be utilized, for example, if drums had been discovered during the course of a RCRA inspection and a notice of non-compliance had been issued requiring drum removal within 60 days.

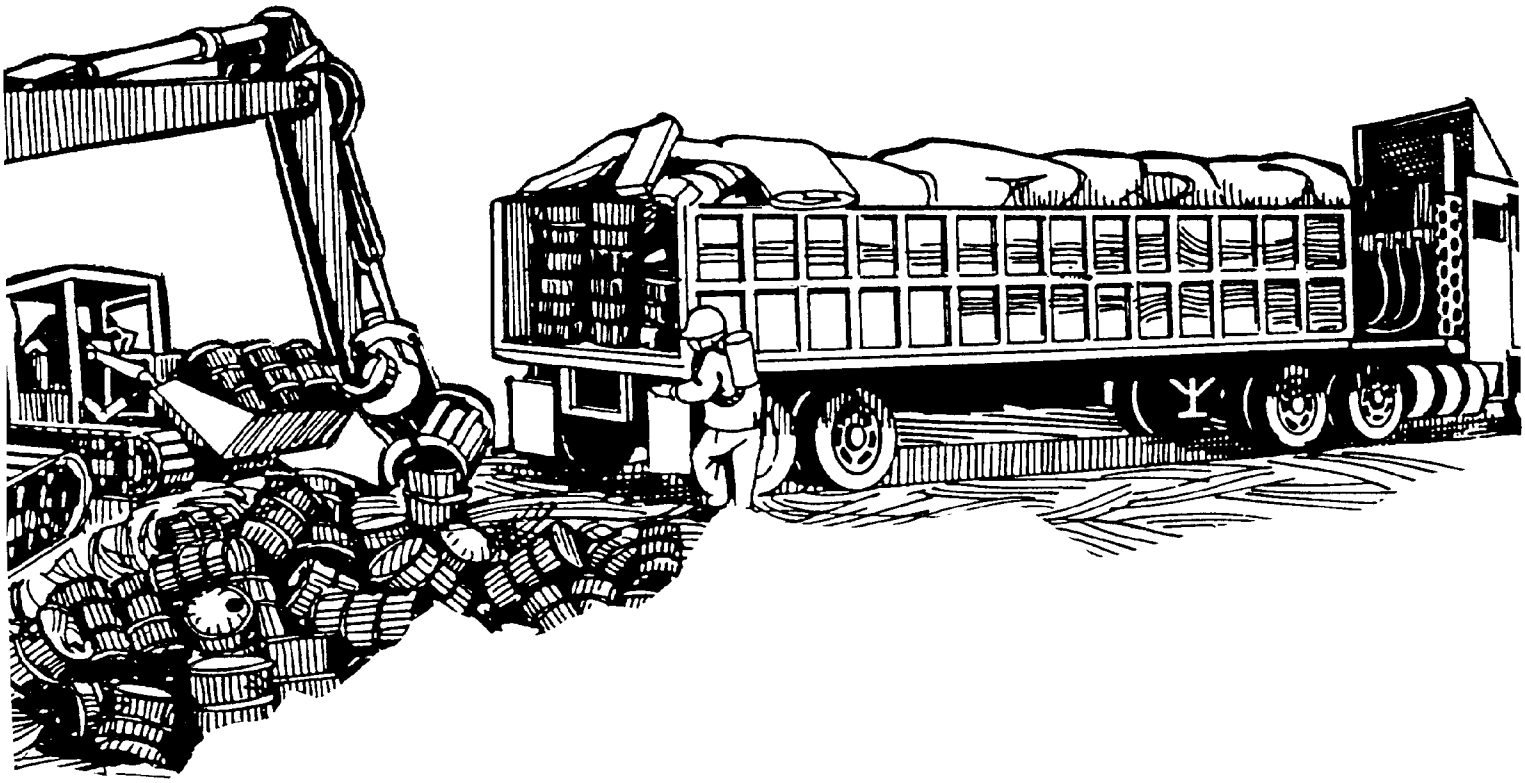
On the other hand, it would be more appropriate to utilize Immediate Response capabilities, for events which require faster response. For example, if a release from a tank failure had been contained by emergency response personnel but required additional action to eliminate the threat of further release. Immediate response capabilities could be used to dispose of the contained waste.

Unlike IR/RR, the PPRA program provides expedited full-scale remediation actions. Existing designs are awarded within 75-90 days and the contractor can be on-site within 45 days from being issued the Notice to Proceed.

Point of Contact for technical assistance and funding issues:

U.S. Army Corps of Engineers
Omaha District
Attn: CEMRO-ED-ER
215 North 17th Street
Omaha, NE 68102-4978
FAX (402) 221-7793

Immediate Response Phone: . . . . . (402) 221-7772
24 hour Emergency Phone: . . . . . (402) 221-7216/4148
Rapid Response Phone: . . . . . (402) 221-7773
Preplaced Remedial Action Phone: . . . . . (402) 221-7793



What About Remedial Action Construction Activities?

Typical construction activities include:

- insuring smooth transition of projects by maintaining interface and providing technical support to the executing agent during RI/ FS and design for HTRW projects within their geographical area;
- conducting biddability, constructability, and operability (BCO) reviews for the project design;
- managing remedial action contracts for projects within their geographical area; and
- providing technical assistance and oversight of rernedial actions on behalf of the customer.

Inherent in remedial action construction activities is the generation of regulated wastes. For example, excavation activities may generate contaminated soils or decontamination activities may generate contaminated wastewater.

As a division/district commander it is important that you know:

- personnel working on-site must have adequate OSHA training including recurrent annual training;
- personnel involved in direct on-site work must have initial and recurrent comprehensive health physicals;
- personnel signing hazardous waste manifests must be trained in waste classification, land disposal restrictions, manifesting procedures, recordkeeping requirements, etc.; and
- districts should have recordkeeping and reporting procedures in place to comply with EPA regulations.

What About Operations and Maintenance Activities?

Once the remedial action is constructed, often times long-term operation and maintenance is required before the site attains remediation goals. If the facility is an active DOD installation, the project is eligible for DERA funding for the first 10 years of operation. After that time, the installation is expected to have provided for the operation and maintenance through the normal budgeting process.

What About Training?

As a division/district commander, you should know that RCRA, DOT and OSHA regulations mandate specific training requirements for employees engaged in hazardous waste, hazardous material, and hazardous substance activities. To comply with these requirements, it is important to establish well thought out training programs.

RCRA regulations (40 CFR 262.34 and 265.16) apply to the Federal Government as well as to the private sector and require employers to:

- train employees engaged in hazardous waste management activities on procedures relevant to the job being performed;
- train employees engaged in hazardous waste management activities on emergency procedures, emergency equipment, and emergency systems;
- maintain employee training records;
- train employees within 6 months of employment; and retrain employees annually.

The Defense Traffic Management Regulation, AR 55-355, requires compliance with rules and regulations of the Department of Transportation. Department of Transportation regulations (49 CFR 172.700) require employers to:

- train employees engaged in hazardous materials transportation;
- provide general awareness training, function specific training, safety training, and drivers training if relevant to the job;
- to provide employee training within 90 days of employment; and
- to provide retraining every 2 years.

OSHA regulations (29 CFR 1910.120) also apply to the Federal Government and require employers to:

- train employees engaged in cleanup operations; RCRA treatment, storage, and disposal facility operations; and emergency response operations;
- provide a minimum of 40 hours training and 3 days of supervised field experience to general site workers;
- provide a minimum of 24 hours training and 1 day supervised field training to workers on site only occasionally for specific limited tasks;
- provide a minimum of 24 hours training and 1 day of supervised field training to workers regularly on site in areas fully characterized and where no health hazards exist; and
- provide managers and supervisors with a minimum of 40 hours training plus 3 days of supervised field experience.

Training is available from a number of sources. In addition to courses available through educational institutions and private firms, the Corps of Engineers has a training program designed to meet unique Corps training needs. This is known as the Proponent Sponsored Engineer Corps Training (PROSPECT) Program which is administered by Huntsville Division. Prospect courses are taught by Corps employees from HQUSACE, divisions, districts, and laboratories or are contracted to universities/private firms.

Existing environmental training courses include:

- Air Surveillance for Hazardous Materials
- Cultural Resources: Identification, Analysis and Evaluation
- Ecologic Resources: Identification, Analysis , and Evaluation
- Ecological Resources: Identification, Analysis, and Evaluation
- Environmental Engineering of Local Flood Protection Projects
- Environmental Impact Assessment of Projects
- Environmental Laws and Regulations
- Environmental Quality Planning
- Explosive Ordnance Recognition and Safety
- Geotechnical Aspects of HTW Sites
- Hazardous Waste Management and Manifesting
- Hazardous/Toxic and Radioactive Waste Overview
- Implementation of Hazardous and Toxic Waste Environmental Laws and Regulations on U.S. Army Corps of Engineers Projects

- Introduction to Groundwater Investigations
- Multimedia Environment Compliance
- Plan and Design of Section 14 Projects
- Planning, Organizing, Writing , and Editing EISs and EAs
- Radiation Safety at Superfund Sites
- Regulatory I-V (five separate courses)
- Risk Assessment Guidance for Superfund
- Safety and Health Decision Making for Managers
- Safety and Health for Hazardous Waste Sties
- Safety and Health for Hazardous Waste Sites - 8 Hour Refresher
- Sampling for Hazardous Materials
- Sedimentation Investigation of Rivers and Reservoirs
- Streambank Protection
- Technical Application of Environmental Requirements
- Treatment Technologies for Superfund
- USACE Hazardous/Toxic Waste Overview
- Water Supply and Water Conservation Planning Using IWRMAIN
- Wetlands Development and Restoration

Point of Contact is:

Division Engineer
US Army Engineer Division, Huntsville
ATTN: CEHND-TD-RG (Registrar)
P.O. Box 1600
Huntsville, AL 35807-4301

Appendix A—List of References

a. P.L. 84-99
b. P.L. 96-510
c. P.L. 97-258
d. P.L. 102-386
e. 15 U.S.C. 3710
f. 16 U.S.C. 1538
g. 18 U.S.C.
h. 28 U.S.C. 2679
i. 33 U.S.C. 1319
j. 33 U.S.C. 2323
k. 42 U.S.C. 6928
l. 42 U.S.C. 7413
m. 42 U.S.C. 9607
n. FAR 52.236-13
o. 29 CFR 1910.120
p. 29 CFR 1926
q. 29 CFR 1960
r. 40 CFR 261
s. 40 CFR 261.30
t. 40 CFR 300
u. 40 CFR 302
v. 40 CFR 302.4
w. 49 CFR 172
x. 49 CFR 172.700
y. AR 55-355
z. AR 200-1
aa. AR 200-2
bb. AR 385 series
cc. AR 500-60
dd. DA PAM 40-578
ee. ER 5-7-1 (FR)
ff. ER 385 series
gg. ER 1110-1-263
hh. ER 1130-2-434
ii. ER 1165-2-132
jj. EM 385-1-1
kk. U.S. v. Dee, 19 ER 2353 (D.Md., 1989)
II. U.S. v. Dee, 912F.2d 741, (4th Cir., 1990)
mm. U.S. v. Carr, 880 F.2d 1550 (2d cir. 1989)
nn. U.S. v. Pond, 21 ER 2035 (D.Md., S-900420, January 17, 1991)

Appendix B—List of Acronyms

A/E	Architect and Engineer
AEHA	Army Environmental Hygiene Agency
AR	Army Regulation
ARARS	Applicable or Relevant and Appropriate Require ments
BDAT	Best Demonstrated Available Technology
BD/DR	Building Demolition/Debris Removal
BRAC	Base Realignment and Closure
CA	Cost Allocation
CAA	Clean Air Act
CDAP	Chemical Data Acquisition Plan
CDQM	Chemical Data Quality Management
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFCS	Chlorofluorocarbons
CFR	Code of Federal Regulations
CQAR	Chemical Quality Assurance Report
CWA	Clean Water Act
DERP	Defense Environmental Restoration Program
DFARS	Defense Federal Acquisition Regulation Supplement
DLA	Defense Logistics Agency
DOC	Department of Commerce
DOD	Department of Defense
DOE	Department of Energy
DOT	Department of Transportation
DQO	Data Quality Objectives
DSMOA/CA	Defense State Memorandum of Agreement / Cooperative Agreement
EA	Environmental Assessment
ECAS	Environmental Compliance Assessment System
EE/CA	Engineering Evaluation/Cost Analysis
EFARS	Engineering Federal Acquisition Regulation Supplement
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right to Know Act
ER	Engineering Regulation
ESA	Endangered Species Act

FFCA	Federal Facilities Compliance Act
FIP	Federal Implementation Plan
FONSI	Finding of No Significant Impact
FmHA	Farmers Home Administration
FUDS	Formerly Used Defense Sites
GSA	General Services Administration
HM	Hazardous Material
HMTA	Hazardous Materials Transportation Act
HND	Corps of Engineers Huntsville Division
HQUSACE	Headquarters U.S. Army Corps of Engineers
HSWA	Hazardous and Solid Waste Amendments
HTRW	Hazardous, Toxic and Radioactive Waste
HW	Hazardous Waste
lAG	Interagency Agreement
IDT	Indefinite Delivery Type
INPR	Inventory Project Report
IR	Installation Restoration
IRP	Installation Restoration Program
ITA	Innovative Technology Advocate
LMVD	Lower Mississippi Valley Division
LQMM	Laboratory Quality Management Manual
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MCX	Mandatory Center of Expertise
MRD	Missouri River Division
NAAQS	National Ambient Air Quality Standards
NAD	North Atlantic Division
NCD	North Central Division
NED	New England Division
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPD	North Pacific Division
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
OEW	Ordnance and Explosive Waste
OHW	Other Hazardous Waste
O & M	Operation and Maintenance
ORD	Ohio River Division
ORTA	Offices of Research and Technology Applications
OSHA	Occupational Safety and Health Act
PA/SI	Preliminary Assessment/Site Inspection
PCB	Polychlorinated Biphenyls

POD	Pacific Ocean Division
POTW	Publicly Owned Treatment Works
PPRA	Preplaced Remedial Action
PRP	Potentially Responsible Party
PSD	Prevention of Significant Deterioration
QA	Quality Assurance
QC	Quality Control
RAC	Risk Assessment Code
RCRA	Resource Conservation and Recovery Act
R &D	Research and Development
RD/RA	Remedial Design/Remedial Action
RFP	Request for Proposal
RI/FS	Remedial lnvestigation/Feasibility Study
ROD	Record of Decision
RR/IR	Rapid Response/Immediate Response
RRT	Regional Response Team
SAD	South Atlantic Division
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SHP	Safety and Health Program
SIP	State Implementation Plan
SOOH	Site Ownership and Operation History
SOP	Standard Operation Procedure
SPD	South Pacific Division
SSHP	Site Safety and Health Plan
SWD	Southwestern Division
TCX	Technical Center of Expertise
TERC	Total Environmental Response Contract
TSCA	Toxic Substances Control Act
USACE	United States Army Corps of Engineers
USACERL	U. S. Army Construction Engineering Research Lab
USACRREL	United States Army Cold Regions Research and Engineering Laboratory
USAEWES	United States Army Engineer Waterways Experiment Station
USATEC	United States Army Topographic Engineering Center
USC	United States Code
UST	Underground Storage Tank
VA	Veterans Administration
WFO	Work for Others