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ENVIRONMENTAL COMPLIANCE ASSESSMENT SYSTEM (USA ECAS)

September 1991

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13. ABSTRACT (Maximum 200 words)

Because of the growing number of environmental laws and regulations worldwide, the U.S. Army has adopted an environmental compliance program that includes a mechanism to identify compliance problems before they become notices of violation by the U.S. Environmental Protection Agency (USEPA).

In 1985, Major Army Commands (MACOMs) were required to begin comprehensive environmental assessments at all installations on a 4-year cycle. In addition, the installations must perform an internal assessment mid-cycle. Since each MACOM was developing a separate assessment system, the Army decided to mandate, through Army Regulation 200-1, one unified assessment mechanism Army-wide. The concept was to combine Federal, Department of Defense, and Army environmental regulations, along with good management practices and risk management issues, into a series of checklists showing not only the legal requirements, but also what specific items or operations to review. In addition, each question or protocol would list a point of contact to help assessors review the protocols as easily as possible.

The Environmental Compliance Assessment System (ECAS) manual was developed using existing checklists from the USEPA and private industry. It was tested at several Army installations. The ECAS manual continues to be updated to meet new environmental compliance laws and regulations.

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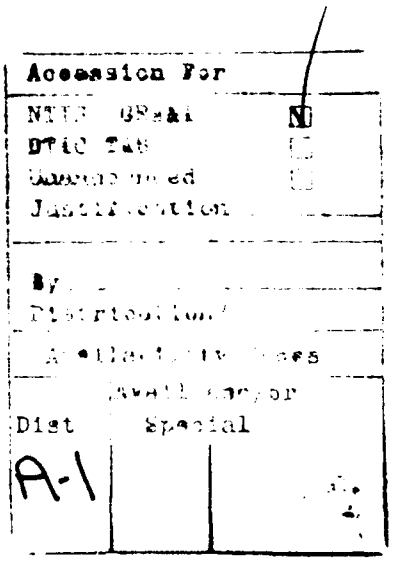
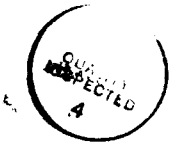
FOREWORD

This work was performed for United States Army, Toxic and Hazardous Materials Agency (USATHAMA), under military interdepartmental purchase request number 1651, dated January 1991. Curt Williams (USATHAMA) was the Technical Monitor.

The Work was performed by the Environmental Division (EN) of the U.S. Army Construction Engineering Research Laboratory (USACERL). Dr. Edward Novak is Chief, USACERL-EN, and Catherine Demeroukas and Dr. Diane K. Mann were the Principal Investigators. The technical editor was Gloria J. Wienke, USACERL Information Management Office.

Colonel Everett R. Thomas is Commander and Director of USACERL and Dr. L. R. Shaffer is Technical Director.





NOTICE

This manual is intended as general guidance for personnel at certain United States Army installations. It is not, nor is it intended to be a complete treatise on environmental laws and regulations. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information contained herein. For any specific questions or interpretations of the legal references herein, consult appropriate legal counsel.

ENVIRONMENTAL COMPLIANCE ASSESSMENT SYSTEM (ECAS) ASSESSMENT PROTOCOLS

INTRODUCTION

This manual provides the Environmental Compliance Assessment System (ECAS) protocols required by Army Regulation (AR) 200-1. These environmental assessment protocols are based on Federal environmental regulations and are to be supplemented locally using state and local environmental regulations that are applicable to U.S. Army installations and are more stringent than Federal regulations included in this manual. This manual, with local supplements, is intended to serve as the primary tool in conducting the environmental compliance evaluation phase of the ECAS process. Specifically, this manual:

1) Compiles applicable Federal, Department of Defense (DoD), and Army environmental regulations with Army operations and activities

2) Synthesizes environmental regulations, good management practices (GMPs), and risk management issues into consistent and easy to use checklists

3) Serves as an aid in the evaluation process and management action development phases of the ECAS.

This manual is divided into 17 sections (assessment areas). They are: Clean Air Act; Clean Water Act; Safe Drinking Water Act; Resource Conservation and Recovery Act, Subtitle C; Resource Conservation and Recovery Act, Subtitle D; Resource Conservation and Recovery Act, Subtitle I and POL Management; Comprehensive Environmental Response Compensation and Liability Act / Superfund Amendment and Reauthorization Act; Toxic Substances Control Act; Federal Insecticide, Fungicide, and Rodenticide Act; National Historic Preservation Act and Cultural Resources; Endangered Species Act and Natural Resources; National Environmental Policy Act; Asbestos Management Program; Noise Abatement; Radon Program; Environmental Program Management; Hazardous Materials Management.

The information in this manual applies to all Army installations and facilities in the United States and its territories.

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ENVIRONMENTAL COMPLIANCE EVALUATION PROCESS

The ECAS program management process can be divided into three distinct phases:

- Preevaluation activities.
- Site evaluation activities.
- Post evaluation activities.

This manual incorporates the first two phases of the program management process.

Preevaluation Activities - Five key activities should be completed before an evaluation team begins the evaluation activities.

1. Previsit Questionnaire. The purpose of the previsit questionnaire is to collect information that will familiarize the evaluation team with the installation and its operations so that they are able to review the applicable regulations and prepare a detailed evaluation schedule. The previsit questionnaire is an essential part of preevaluation activities for an external evaluation. It is also an excellent tool for ensuring internal evaluation team members are starting from the same base of information. Table 1 contains a sample previsit questionnaire.

2. Define Evaluation Scope and Team Responsibilities. The installation or major command may wish to place special emphasis on certain protocols or to review additional areas not covered in the manual. These goals must be stated clearly so the evaluation can be planned properly. Additionally, the duration of the evaluation, appointment of team members by the Environmental Quality Control Commission (EQCC), and handling of tenants and off-post sites must be addressed. Finally, responsibilities for each of the protocols must be assigned to team members as appropriate.

3. Review Relevant Regulations. Once the evaluation scope and responsibilities are known, the evaluators should undertake a thorough review of relevant federal, state, and local regulations affecting the installation. The applicable environmental regulations must be determined before evaluation begins. If not already available, checklist items for state and local requirements must be added to the checklists in the ECAS manual.

4. Develop Evaluation Schedule. The team should develop a detailed evaluation schedule that includes the activities planned for each day.

5. Review Evaluation Protocols. Each evaluator should know the regulatory requirements, schedule, and be familiar with the evaluation checklists that will be used.

TABLE 1

ENVIRONMENTAL COMPLIANCE ASSESSMENT SYSTEMS (ECAS)

PREVISIT ENVIRONMENTAL MANAGEMENT QUESTIONNAIRE

This questionnaire will provide background information necessary to plan and conduct an environmental compliance assessment.

MACOM:_____ _____
Name of Installation:_____
Environmental POC:_____
Telephone Number:_____

	YES	NO	N/A
Does the installation want the assessment team to provide the "optional package" of preparing the applicable 1383 exhibits, 4283 work orders, and first page of appropriate 1391's relative to the corrective action plan (Chapter 5 of the Environmental Compliance Assessment System Report of findings)?	—	—	—

1. Clean Air Act (CAA)

1. Does the installation have any air permits to maintain with state regulatory authority (i.e., boilers, pathological incinerators, paint spray booths, petroleum, oil, and lubricant (POL) tank vents, etc.)? Inclusively, list the types and number of each.	—	—	—

Type of Permit Quantity

_____ _____

_____ _____

2. Does the installation operate a central heating plant?	—	—	—
a. Steam?	—	—	—
b. Hot water?	—	—	—
c. Coal-fired?	—	—	—
d. Oil-fired?	—	—	—

	YES	NO	N/A
c. Wood chips? _____, _____, _____			
f. Other fuel?_____	—	—	—
g. Approximate size of plant(s)?_____,_____,_____			
3. Does the installation operate any incinerators? (i.e., for classified documents, solid waste, etc.) Please list type and number.	—	—	—

Type	Quantity
_____	_____
_____	_____
_____	_____

4. Does the installation engage in burning of Explosive Ordinance Disposal (EOD) materials?	—	—	—
5. Does the installation operate fuel dispensing facilities?	—	—	—
6. Are field fuel dispensing operations and rapid refueling operations performed?	—	—	—

7. Please list number of fuel storage areas and the fuel type.

Fuel type	Quantity	Fuel type	Quantity
_____	_____	_____	_____
_____	_____	_____	_____

8. Does installation operate maintenance shops?	—	—	—

9. Please list any additional shop activities that generate any form of air pollution: (i.e., vehicle emission systems, ventilation systems for various operations)

_____
_____
_____

10. Are any hazardous or toxic air pollutants present in the installation's air emissions (e.g., Beryllium, mercury, and vinyl chloride)?	—	—	—
11. Does the installation have a dry cleaning facility?	—	—	—
12. Does the installation use CFCs or Halons?	—	—	—

	YES	NO	N/A
2. Clean Water Act (CWA)			
1. Does the installation have any National Pollutant Discharge Elimination (NPDES) and/or State Pollutant Discharge Elimination (SPDES) permits?	—	—	—
2. Does the installation have any of the following discharges:			
a. Storm water runoff from operational/storage area?	—	—	—
b. Storm water runoff from undeveloped area?	—	—	—
c. Dredge and fill solids drainage water?	—	—	—
d. Wastewater treatment plant effluent?	—	—	—
e. Process wastewater?	—	—	—
f. Heat/Power production cooling water?	—	—	—
g. Storm water runoff from fuel dispensing areas, airfields, and parking lots/aprons?	—	—	—
h. Vehicle wash facilities? How many? _____	—	—	—
i. Plating shop?			
j. Does the installation maintain sedimentation holding ponds or seepage pits from vehicle/aircraft washing, maintenance shop drainage (shop operations and motor parks), and other activities?	—	—	—
k. Operate cooling towers?	—	—	—
l. Septic systems?			
m. Other?_____	—	—	—
3. Does the installation discharge into a Publicly Owned Treatment Works (POTW) any of the following:			
a. Process wastewater?	—	—	—
b. Domestic (sanitary) wastewater?	—	—	—

	YES	NO	N/A
c. Industrial wastewater treatment plant effluent?	—	—	—
d. Other?_____	—	—	—
4. Does the installation make use of an on-site wastewater treatment system prior to effluent discharge?	—	—	—
5. Does the installation conduct live fire training activities?	—	—	—

3. Safe Drinking Water Act (SDWA)

1. Does the installation operate a public water system?	—	—	—
2. Does the installation maintain wellheads?	—	—	—
3. Does the installation supply water to aircraft?	—	—	—
4. Does the installation operate ice machines?	—	—	—
5. Does the installation operate an underground injection well?	—	—	—
6. Are there groundwater aquifers on the installation?	—	—	—
7. Is the installation located on a sole source aquifer?	—	—	—

4. Resource Conservation and Recovery Act, Subtitle C (RCRA-C)

1. Is the installation a small quantity generator of hazardous wastes? (less than 1,000 kg/month)	—	—	—

If so, please specify waste type and treatment method (Attach separate page(s) if necessary).

_____

_____

2. Is the installation a large quantity generator of hazardous wastes? (greater than 1,000 kg/month)	—	—	—

If so, please specify waste type and treatment method (Attach separate page(s) if necessary).

_____

_____

3. Does the installation accept wastes from other installations for treatment, storage, or disposal?	—	—	—

	YES	NO	N/A
4. Does the installation operate accumulation points or satellite accumulation points? How many?_____	—	—	—
5. Does the installation operate a medical/pathological waste incinerator?	—	—	—
6. Does the installation treat hazardous waste on site? How and where____? _____	—	—	—
7. Does the installation store hazardous waste on site? Where? _____	—	—	—
8. Does the installation dispose of hazardous waste on site? How and where? _____	—	—	—

5. Resource Conservation and Recovery Act, Subtitle D (RCRA-D)

1. Does the installation have a solid waste management facility on site?	—	—	—
2. Does the installation have a:			
a. Resource Recovery facility (DRMO) on the installation?	—	—	—
b. Resource Recovery facility (DRMO) off the installation	—	—	—
c. Landfill?	—	—	—
d. Solid waste recycling program?	—	—	—

List commodities recycled (i.e., paper, aluminum, glass, etc.).

_____

_____

e. Construction debris landfill? Is it permitted? _____	—	—	—
3. Is waste transported off-installation for disposal:			
a. In landfills?	—	—	—
b. In incinerators?	—	—	—
c. Other (specify):_____	—	—	—

	YES	NO	N/A
4. Does the installation dispose of ash residues or sludge:			
a. On post?	—	—	—
b. Off post?	—	—	—
5. Does the installation receive refuse from outside the United States?	—	—	—
6. Does the installation generate pathological wastes?	—	—	—

If yes, please explain (Is it permitted? Does it pass inspection by state officials?).

_____

_____

7. Does the installation operate battery shops, to include charging areas within vehicle maintenance facilities?	—	—	—
8. Does the installation have any Solid Waste Management Units (SMUs)?	—	—	—

If yes, how many?_____

6. Resource Conservation and Recovery Act, Subtitle I (RCRA-I)

1. Does the installation have aircraft fuel storage facilities?	—	—	—

If yes, how many USTs are in the aircraft fuel storage facilities and what size are they?

_____

_____

2. Does the installation have ground vehicle fuel storage facilities?	—	—	—

If yes, how many USTs are in the ground vehicle fuel storage facilities and what size are they?

_____

_____

	YES	NO	N/A
3. Does the installation operate field Logistic Control Centers (LCC) (i.e., fuel bladders, maintenance operations, potable water generating units, field showers, bakeries, ammunition storage, etc.)? List those that are operated.	—	—	—

_____

_____

4. Does the installation have an AAFES-operated or other type of gas station?	—	—	—

If yes, how many USTs are located at the gas station and what size are they?

_____

_____

5. Does the installation have any other USTs used to store petroleum products?	—	—	—

If yes, list: (Attach a separate sheet if necessary.)

Location	Quantity	Size
_____	_____	_____
_____	_____	_____
_____	_____	_____

6. Does the installation have any USTs used to store hazardous substances?	—	—	—

If yes, where are they located, how many are there, what size are they, and what hazardous product do they contain?

_____

_____

7. Does the installation have any underground tanks out of service or abandoned?	—	—	—

	YES	NO	N/A
8. Does the installation have a Used Solvent Elimination (USE) program?	—	—	—
Explain: Either recycle service contract, Army-owned recycling equipment, or other type of program?			
_____			
_____			
9. Do all maintenance facilities have solvent cleaning machines? If no, briefly explain how solvent cleaning is being performed.	—	—	—
_____			
_____			

7. Comprehensive Environmental Response, Compensation, and Liability Act/Superficial Amendments and Reauthorization Acts (CERCLA/SARA)

1. Does the installation have an on-going Installation Restoration Program (IRP)?	—	—	—
2. Has the installation been a source of any off-site contamination?	—	—	—
3. Does the installation have any "unofficial" landfill sites that are no longer in use?	—	—	—

8. Toxic Substance Control Act (TSCA)

PCBs

1. Has the installation conducted a survey for PCBs?	—	—	—
2. Are PCB (polychlorinated biphenyl) or PCB contaminated oils in use or stored in the installation:			
a. Transformers?	—	—	—
b. Capacitors?	—	—	—
c. Electromagnets?	—	—	—
d. Heat Transfer or Hydraulic systems?	—	—	—

	YES	NO	N/A
e. Ciruit Breakers?	—	—	—
f. Other? _____	—	—	—
3. Are there any PCB items in storage for disposal?	—	—	—

List the number of items by concentration.

Concentration Columns	
50-499 ppm	**>500 ppm**
_____	_____
_____	_____
_____	_____
_____	_____

4. Does the installation dispose of PCBs or PCB items at the installation?	—	—	—
5. Does the facility transport PCBs?	—	—	—

9. Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

1. Does the installation use pesticides in regulated quantities?	—	—	—
2. Are pesticide wastes disposed of at the installation?	—	—	—
3. Are pesticides stored on the installation?	—	—	—

Please list locations:

_____

_____

_____

4. Are medical records kept for individuals involved in the management of pesticides?	—	—	—

5. Where are pesticides used at the installation?
(Attach a separate list if necessary.)

_____

_____

	YES	NO	N/A
6. Are pesticides used at off-post satellite facilities?	—	—	—
7. Does the installation maintain a pesticide/entomology shop? If yes, is it permitted by the state? Are personnel certified/current?	—	—	—

_____

_____

10. Historic Preservation and Cultural Resources

1. Does the installation have an area(s) designated as:			
a. Cultural resource?	—	—	—
b. Archeological resource?	—	—	—
c. Historic structure? (National Register)	—	—	—
2. Does the installation Master Plan contain sites of significance?	—	—	—

11. Endangered Species Act and Natural Resources

1. Does the installation have any outdoor recreation areas?	—	—	—
2. Does the installation have a plan for managing its natural resources?	—	—	—
3. Are there any areas on the installation that have:			
a. Wetlands? If so, are they permitted/regulated? _____	—	—	—
b. Flood Plains?	—	—	—
4. Does the installation know of any endangered species on its property?	—	—	—
5. Is the information on endangered species incorporated into the installation Master Plan?	—	—	—

	YES	NO	N/A
12. National Environmental Policy Act (NEPA)			
1. Has the installation recently prepared, or is it in the process of preparing, an environmental assessment (EA) or environmental impact statement (EIS)?	—	—	—
a. For current mission?	—	—	—
b. For future Master Plan?	—	—	—
2. Is the Enviornmental Officer actively involved in project/work order reviews?	—	—	—
13. Asbestos Management Program			
1. Has the installation conducted a complete installation-wide asbestos facility survey?	—	—	—
2. Does an Asbestos Management Plan exist?	—	—	—
3. Is maintenance done on items insulated with asbestos?	—	—	—
4. Has the installation undergone any asbestos removal projects in the past?	—	—	—
5. Is there any asbestos on the installation that has been removed and is awaiting disposal?	—	—	—
6. Will the installation have any demolition, remodeling, or renovation projects underway at the time of the ECAS assessment?	—	—	—

Please identify those projects and buildings:

_____

_____

_____

7. Does the installation have primary or secondary schools? Do they have asbestos?_____	—	—	—

	YES	NO	N/A
14. Noise Abatement			
1. Does the installation have an active runway?	—	—	—
2. Does the installation have any operations or maneuvers that produce environmental noise or noise that goes outside the installation (i.e., ranges, skeet range, helicopter pad, generators, highway transportation)?	—	—	—
3. Does a current ICUZ Management Plan exist?	—	—	—
4. Do any cooperative agreements exist regarding land-use development with bordering communities?	—	—	—
5. Are there any Zone II or Zone III's off the installation?	—	—	—
6. Are noise contour zones reviewed for mission/training changes prior to implementation?	—	—	—
15. Radon Program			
1. Does the installation monitor for radon gas?	—	—	—
2. Does a Radon Reduction Management Plan exist?	—	—	—
16. Environmental Program Management			
1. Is the installation engaged in any construction, renovation or demolition?	—	—	—
2. Is the installation engaged in any real property transaction?	—	—	—
3. Is there currently an under-staffing problem?	—	—	—

_____ Total Authorized

_____ Total Recognized

_____ Total Vacancies

_____ Required number of positions needed over and above the TDA authorization.

	YES	NO	N/A
4. What is the total number of programs currently required to manage the entire environmental program (i.e., Air, Hazardous Waste/Material, Ground Water, Surface Water, Solid Waste, Noise, Training, POL, Archeology, Asbestos, etc.)?_____			
5. Is the Environmental Program Manager an active participant in the budgetary processes of the installation?	—	—	—
6. Does the Environmental Management Program receive Command Support?	—	—	—
7. Does the Environmental Management Office receive adequate support or cooperation from:			
a. Preventive Medicine Activity?	—	—	—
b. Safety Office?	—	—	—
c. Inspector General?	—	—	—
d. Manpower Survey Activity of Resource Management Directorate?	—	—	—
e. Civilian Personnel Office (i.e., Recruitment/Placement and Position Management/Classification)?	—	—	—
f. Staff Judge Advocate?	—	—	—
g. Directorate of Plans, Training, Mobilization, and Security (Range Control, Aviation, Maintenance)?	—	—	—
h. Directorate of Logistics (Maintenance, Supply, and Services)?	—	—	—
i. Directorate of Contracting or Procurement?	—	—	—
j. Directorate of Engineering and Housing (i.e., DEH, DDEH, O&M Divisions, Engineering Plans and Services etc.)?	—	—	—
k. MATES, UTES, ECS, AMSAs, etc.?	—	—	—
l. Major garrison military units?	—	—	—
m. Transient troop units (i.e., USAR/ARNG, and active Army components special training exercises)?	—	—	—

	YES	NO	N/A
n. DPCA (Auto Craft, Arts and Craft, Photo Labs, Outdoor Recreation)?	—	—	—
o. Other Tenant Activities (i.e., AAFES, ANG, USAF, other)?	—	—	—
8. Is required support being provided to environmental training? List separately:			
a. Environmental Staff-Professional Development/Staying Current?	—	—	—
b. Civilian Staff Personnel (to include within DEH)?	—	—	—
c. Military Units/Military Personnel/Unit Commanders?	—	—	—
d. Does the Command Staff support environmental training needs?	—	—	—

17. Hazardous Materials Management

1. Does the installation have flammable/combustible storage rooms located inside or adjacent to buildings (i.e., oils, antifreeze, paint, solvent, fuels)?	—	—	—

BUILDINGS/NUMBERS

_____
_____
_____
_____

2. Does the installation have outside flammable/combustible storage buildings?	—	—	—

Near which buildings?_____

3. Does the installation have hazardous materials dispensing areas?	—	—	—

In or near which buildings?_____

4. Does the installation store/use compressed gases (i.e., oxygen, acetylene, nitrogen, etc.)?	—	—	—
5. Does the installation have any bulk acid storage?	—	—	—
6. Does the installation store batteries and/or have a battery reclamation point?	—	—	—

	YES	NO	N/A
7. Does the installation transport hazardous materials on public roads?	—	—	—
8. Has the installation had a release of hazardous materials?	—	—	—

Site Evaluation Activities - On site, the evaluators will conduct record searches, interviews, and site surveys to determine the compliance status of the installation. Operations are compared with environmental standards and any deficiencies are written up as findings. The data collected should be sufficient, reliable, and relevant to provide a sound basis for evaluation findings and recommendations. An ECAS Finding Summary is available to assist evaluators in compiling needed information during an ECAS evaluation. A Finding Summary should be completed for each finding during the evaluation. These forms comprise the basis of the ECAS report. The format and content for ECAS evaluation reports will be in a separate supplement. Figure 1 shows a blank Finding Summary form. Figure 2 shows a sample completed Finding summary.

All items of the ECAS Finding Summary must be filled in up to *Sampling Results* for negative findings and up to *Criteria* for positive findings. The *CONDITION* is a factual statement describing the status of the process, permit, or situation under investigation, and the *CRITERIA* is the environmental standard (Federal, state, local, DoD, Army, Good Management Practice) the installation is being measured against. A condition may be positive if the installation is going above and beyond the requirements. *SUGGESTED SOLUTIONS* is an optional entry, and may include easily identifiable solutions to the deficiency. *COMMENTS* may include any corrective actions already taken or scheduled, or any other appropriate information pertaining to the finding.

For example, a team member assigned to evaluate the installation's hazardous waste management program visited the accumulation point at building 5000. The evaluator noticed some drums were damaged and took a count of the total number of drums and the number of damaged drums to get an accurate description for the finding. Five of the 25 drums were rusted and bulging. Item 4-43 in the ECAS manual states that 40 CFR 262.34, Subpart C requires containers to be tightly sealed and not leaking, bulging, rusting, or badly dented. The damaged drums were behind the others, so the accumulation point manager may have overlooked them during his regular inspections. The accumulation point manager immediately put overpack drums on order. The evaluator is now ready to fill out a Finding Summary.

Figure 1

FINDING SUMMARY

Manual Edition Date:_____

ECAS INDIVIDUAL FINDING SHEET

(To provide detailed information for use by assessment team only)

MANDATORY ENTRIES

Section (CAA, RCRA-C, Noise, etc):_____ Question Number:_____

Type of Finding (Positive or Negative):_____ Building number or location:_____

FINDING CATEGORY (Circle one): Significant Major Minor Management Practice

Basis of finding (Citation or Regulation):
(Reference applicable Federal, state, and local regulations)

CONDITION (What did you find?)

CRITERIA (What is the actual requirement?):

SAMPLING RESULTS (mandatory only if sampling was used):

Universe:____ Sample Size:____

Number of Discrepancies:____ Percentage of Discrepancies:____

Is this a repeat finding (ECAS, NOV, etc)? _____

PREPARED BY: **DATE:**

SUGGESTED SOLUTION(S):

OPTIONAL ENTRIES

COMMENTS:

Figure 2

Manual Edition Date: June 1991

ECAS INDIVIDUAL FINDING SHEET

(To provide detailed information for use by assessment team only)

MANDATORY ENTRIES

Section (CAA, RCRA-C, Noise, etc): RCRA D

Question Number: 4.43

Type of Finding (Positive or Negative): Neg

Building number or location: Building 5000

RATING (Circle one): Significant (Major) Minor Management Practice

Basis of finding (Citation or Regulation):
(Reference applicable Federal, state, and local regulations): 40 CFR 262.34 Subpart C

CONDITION (What did you find?)
5 of 25 drums of hazardous waste were rusted and bulging.

CRITERIA (What is the actual requirement?):
Hazardous waste containers must be tightly sealed and not leaking, rusting, bulging, or badly dented.

SAMPLING RESULTS (mandatory only if sampling was used):
Universe: 25 Sample Size: 25
Number of Discrepancies: 5 Percentage of Discrepancies: 20%

Is this a repeat finding (BCAS, NOV, etc)? No

PREPARED BY: John Boyle **DATE:** 5-31-91

SUGGESTED SOLUTION(S):
Overpack drums that are in bad condition.

OPTIONAL ENTRIES

COMMENTS: The accumulation point manager put overpack drums on order immediately.

Explanation of Ratings

Deficiencies noted on the Finding Summary are rated as follows:

Significant: A problem categorized as significant requires immediate attention. It poses, or has a high likelihood to pose, a direct and immediate threat to human health, safety, the environment, or the installation mission. A leaking PCB transformer that is located next to a dining facility, for example, would likely be a significant deficiency.

Major: A major deficiency requires action, but not necessarily immediate action. Major deficiencies may pose a threat to human health, safety, or the environment. Any immediate threat, however, must be categorized as significant.

Minor: Minor deficiencies are usually administrative in nature, even though those findings might possibly result in a notice of violation. This category may also include temporary or occasional instances of noncompliance.

Management Practice: Management practice items are those for which there is no specific regulatory requirement.

Using the ECAS Manual

THE PROTOCOLS

Army installations engage in many operations and activities that can cause environmental impacts on public health and the environment if not controlled or properly managed. Many of these activities and operations are regulated by Federal, state, and local regulations, and by DoD and Army directives.

After a review of these activities at Army installations, it is apparent that there are major categories of environmental compliance into which most environmental regulations and Army activities could be grouped. This manual is divided into 17 sections that correspond to environmental acts as well as major compliance categories.

1 Clean Air Act
2 Clean Water Act
3 Safe Drinking Water Act
4 Resource Conservation and Recovery Act, Subtitle C
5 Resource Conservation and Recovery Act, Subtitle D
6 Resource Conservation and Recovery Act, Subtitle I and POL Management
7 Comprehensive Environmental Response Compensation and Liability Act / Superfund Amendment and Reauthorization Act
8 Toxic Substances Control Act
9 Federal Insecticide, Fungicide, and Rodenticide Act
10 National Historic Preservation Act and Cultural Resources
11 Endangered Species Act and Natural Resources
12 Natural Environmental Policy Act
13 Asbestos Management Program
14 Noise Abatement
15 Radon Program
16 Environmental Program Management
17 Hazardous Materials Management.

Each section is organized in the following format:

A. Applicability

This section provides guidance on the major activities and operations included in the protocol and a brief description of the major application.

B. Federal Legislation

This section of each protocol identifies, in summary form, the key regulatory issues associated with the compliance area in the Federal law.

C. State/Local Requirements

This section of each protocol identifies the "typical" compliance areas normally addressed in state and local regulations. This section does not present individual state/local requirements. An assessment of state and local requirements must be conducted and supplemental questions prepared to cover these requirements. The manual is prepared in loose leaf form to allow state and local requirements to be easily inserted.

D. DoD Regulations

This section of the protocol identifies the relevant directives or requirements associated with the compliance area that are promulgated by DoD.

E. U.S. Army Regulations

This section identifies those Army regulations that address requirements associated with the specific compliance category.

F. Key Compliance Requirements

This section of each protocol summarizes the significant compliance requirements associated with the regulations previously identified. It is a brief abstract summarizing the overall thrust of the regulations for that particular compliance category.

G. Responsibility for Compliance

This section identifies and summarizes the individual organizations at an Army installation with responsibility for maintenance, operation, or environmental monitoring of activities associated with the compliance category.

H. Key Compliance Definitions

This section of each protocol presents definitions for those key terms associated with each compliance category.

I. Compliance Assessment Mechanism

The final section of each protocol and its tables and figures contain evaluation procedures (checklists) composed of requirements or guidelines that serve as indicators to point out possible compliance problems, as well as practices, conditions, and situations that could indicate potential problems. They are intended to focus attention on the key compliance questions and issues that should be investigated. Instructions are provided to direct the evaluator to the appropriate action, references, or activity that corresponds to the specific requirement or guideline.

MANUAL FORMAT

The protocol portion of ECAS is divided into two columns. The first of these is a statement of a requirement. This may be a strict regulatory requirement, in which case the citation is given, or it may be a requirement that is considered to be a good management practice to maintain compliance, but which is not specifically mandated by regulation.

The second column gives instructions to help conduct the compliance evaluation. These instructions are intended to be specific action items that should be accomplished by the investigator. Some of the instructions may be a simple documentation check taking a few minutes; others may require physical inspection of a facility. Contact/location information in parentheses is intended to give guidance on the to a legend at the bottom of the worksheet.

At the end of each section is an assessment worksheet. This worksheet should be reproduced and used during the assessment to take notes. It is designed to be inserted between each page of the protocols, allowing the main text to be kept usable for the next assessment. The worksheet is divided into two columns. The first column is a quick check for those items that are in compliance (C), not applicable (N/A) to the facility being reviewed, or require management action (RMA).

The second column on the worksheet allows for more detailed notations or comments. These notations will provide a record for use in preparing the final report. These notations should include both situations of substandard operation needing attention and those operations that are above requirements or provide examples of good programs. For future reference and clarity it is essential that the building number (or other reference to location) be made during the review.

The evaluation procedures are designed as an aid and should not be considered exhaustive. Use of the guide requires the evaluator's judgement to play a role in determining the focus and extent of further investigation. A review of appropriate state regulations should be conducted so additional review questions that reflect the substantive requirements of state/local regulations pertinent to individual installations can be included on the worksheets.

SUPPLEMENTAL INFORMATION

A "logic table" (Table 2) is located at the end of this section. It indicates the major environmental operations and activities at typical Army installations and the protocols within which they are addressed. As shown, many activities and operations cause environmental impacts in more than one area, and are therefore addressed in more than one protocol.

Any findings discovered through the use of this guidance manual by the internal assessment must be validated by the environmental coordinator and Judge Advocate. The findings and corrective actions must be recorded in the Environmental Quality Control Committee minutes.

Any change or suggestion for improving this guidance manual should be forwarded to USATHAMA, (CETHA-EC-A) Aberdeen Proving Ground, MD. 21010-5401.

Table 2
Major Activities/Operations at Army Installations and Related Protocols

Major Activities/ Operations	PROTOCOLS			
	Clean Air Act (CAA) 1	Clean Water Act (CWA) 2	Safe Drinking Water Act (SDWA) 3	RCRA Subtitle C (RCRA-C) 4
1. Incinerators	●			●
2. Heat/Power Production	●	●		●
3. Medical Treatment Facility				●
4. Aircraft Operations	●	●	●	
5. Aircraft Maintenance		●	●	●
6. Fuel Storage		●		●
7. Sludge Disposal	●	●	●	
8. Sanitary/Industrial Wastewater		●	●	
9. Storm Water Runoff		●		
10. POL Dispensing	●	●	●	
11. Wastewater Treatment		●		
12. Vehicle Maintenance		●		●
13. Shop Activities		●	●	●
14. Solid Waste Generation				●
15. Water Supply		●	●	
16. Toxic/Hazardous Materials Use	●	●	●	
17. PCB Electrical Equipment			●	
18. Pesticide/Herbicide Use		●		
19. Emergency Planning		●		
20. Asbestos Removal				
21. Underground Storage Tanks				
22. Renovation/Demolition Activities				
23. New Construction Activities				
24. Indoor Firing Range				
25. Marine Operations	●	●		
26. On-going IRP Program				
27. Training Ranges/Impact Areas		●	●	●
28. Deicing/Salt Activities		●	●	
29. Open Burning/Detonation	●	●	●	●

Table 2 (continued)
Major Activities/Operations at Army Installations and Related Protocols

Major Activities/ Operations	PROTOCOLS			
	RCRA Subtitle D (RCRA-D) 5	RCRA Subtitle I (RCRA-I) 6	Superfund and Amendments (CERCLA/SARA) 7	Toxic Substance Control Act (TSCA) 8
1. Incinerators	•			
2. Heat/Power Production				
3. Medical Treatment Facility	•			
4. Aircraft Operations		•	•	
5. Aircraft Maintenance				
6. Fuel Storage	•	•		
7. Sludge Disposal	•		•	
8. Sanitary/Industrial Wastewater				
9. Storm Water Runoff				
10. POL Dispensing		•	•	
11. Wastewater Treatment	•			
12. Vehicle Maintenance			•	•
13. Shop Activities		•	•	•
14. Solid Waste Generation	•			
15. Water Supply				
16. Toxic/Hazardous Materials Use			•	
17. PCB Electrical Equipment				•
18. Pesticide/Herbicide Use			•	
19. Emergency Planning		•	•	
20. Asbestos Removal				
21. Underground Storage Tanks	•	•		
22. Renovation/Demolition Activities			•	•
23. New Construction Activities			•	
24. Indoor Firing Range			•	
25. Marine Operations			•	
26. On-going IRP Program			•	
27. Training Ranges/Impact Areas	•	•		•
28. Deicing/Salt Activities				
29. Open Burning/Detonation			•	

Table 2 (continued)
Major Activities/Operations at Army Installations and Related Protocols

	PROTOCOLS			
Major Activities/ Operations	Insecticide/ Fungicide and Rodenticide (FIFRA) 9	National Historic Preservation (NHPA) 10	Endangered Species Act(ESA) 11	National Environmental Policy (NEPA) 12
1. Incinerators				•
2. Heat/Power Production				
3. Medical Treatment Facility				
4. Aircraft Operations			•	•
5. Aircraft Maintenance				
6. Fuel Storage				
7. Sludge Disposal				
8. Sanitary/Industrial Wastewater	•			
9. Storm Water Runoff	•			
10. POL Dispensing				
11. Wastewater Treatment				
12. Vehicle Maintenance				
13. [illegible] Activities				
14. Solid Waste Generation				
15. Water Supply	•			
16. Toxic/Hazardous Materials Use	•			
17. PCB Electrical Equipment				
18. Pesticide/Herbicide Use	•		•	•
19. Emergency Planning	•			•
20. Asbestos Removal				
21. Underground Storage Tanks				
22. Renovation/Demolition Activities	•	•		•
23. New Construction Activities	•	•	•	•
24. Indoor Firing Range				
25. Marine Operations				•
26. On-going IRP Program				
27. Training Ranges/Impact Areas	•	•	•	•
28. Deicing/Salt Activities				
29. Open Burning/Detonation				

Table 2 (continued)
Major Activities/Operations at Army Installations and Related Protocols

Major Activities/ Operations	PROTOCOLS				
	Asbestos Management Program 13	Noise Abatement 14	Radon Program 15	Environmental Program Management 16	Hazardous Materials Management 17
1. Incinerators					
2. Heat/Power Production		•			
3. Medical Treatment Facility					
4. Aircraft Operations		•			
5. Aircraft Maintenance					
6. Fuel Storage					
7. Sludge Disposal					
8. Sanitary/Industrial Wastewater					
9. Storm Water Runoff					
10. POL Dispensing					
11. Wastewater Treatment					
12. Vehicle Maintenance	•				
13. Shop Activities					
14. Solid Waste Generation					
15. Water Supply					
16. Toxic/Hazardous Materials Use					
17. PCB Electrical Equipment					
18. Pesticide/Herbicide Use					
19. Emergency Planning					
20. Asbestos Removal	•				
21. Underground Storage Tanks					
22. Renovation/Demolition Activities	•	•			
23. New Construction Activities	•	•			
24. Indoor Firing Range					
25. Marine Operations					
26. On-going IRP Program					
27. Training Ranges/Impact Areas		•			
28. Deicing/Salt Activities					
29. Open Burning/Detonation					

USA ECAS

CONTACT/LOCATION CODES

(1) Directorate of Engineering and Housing (DEH)
(2) Environmental Coordinator (EC)
(3) Preventive Medicine Officer
(4) Safety and Health Officer
(5) Fire Department
(6) Director of Logistics (DOL)
(7) Fuels Management Officer (DOL/DEH)
(8) Transportation/Maintenance Officer (DOL)
(9) Chief of Operations and Maintenance (O&M)
(10) Range Control (DPTMSEC)
(11) Aviation Commander (DPTMSEC)
(12) Director of Plans, Training, Mobilization, and Security (DPTMSEC)
(13) Engineering, Plans, & Services (EP&S)
(14) Wastewater Treatment Plant Supervisor (O&M)
(15) Land Management Officer (DEH)
(16) Building and Grounds Division (DEH)
(17) Entomolgy Shop (DEH)
(18) TSDF Operators (DEH, DOL, DRMO)
(19) Shop Activity Supervisor
(20) Director of Contracting (DOC)
(21) Public Affairs Office (PAO)
(22) Staff Judge Advocate
(23) Defense and Reutilization Marketing Office (DRMO)
(24) Utilities Division (Interior Electric Shop)
(25) Utilities Division (Exterior Electric Shop)
(26) Master Planner (DEH)
(27) Inspector General (IG)
(28) School Principal
(29) Installation Commander
(30) Army and Air Force Exchange Service (AAFES)
(31) Directorate of Personnel and Community Activities (DPCA)
(32) Directorate of Resource Management (DRM), Internal Control
(33) Golf Course Pesticide Shop

Section 1

CLEAN AIR ACT (CAA)

SECTION 1

CLEAN AIR ACT (CAA)

A. Applicability of this Protocol

This protocol includes regulations, responsibilities, and compliance requirements associated with air pollution emissions at Army installations. The major air pollution emissions and sources at Army installations are:

- Particulates, sulfur dioxide (SO_2), and nitrogen oxide (NO_x), and carbon monoxide (CO) from fuel burning at steam and hot water generation plants and boilers.
- Particulate emissions from the operation of classified material and medical, pathological, and/or infectious waste incinerators.
- Particulate and carbon monoxide emissions from open burning and open detonation operations.
- Carbon monoxide emissions from mobile (vehicular) sources.
- The emission of volatile organic compound (VOC) vapors from the storage and transfer of certain petroleum fuels and chemicals (solvents), and the operation of incinerators, solvent use, degreasing/metal cleaning, sterilizing, and other processes (paint stripping and metal finishing) that use solvents.
- Fugitive particulate emissions from training activities and construction/ demolition operations.

Most Army installations have air emissions sources in each of these six categories. Therefore this protocol is applicable to some extent at all Army installations.

B. Federal Legislation

The Clean Air Act (CAA), [42 USC 7401-7642 Public Law 88-206 as amended], is the basic Federal enabling legislation governing air pollution. The implementing United States Environmental Protection Agency (USEPA) regulations are contained in 40 CFR 50 through 87. Those sections applicable to Army installations, or directly affecting state regulations, which in turn affect Army installations, are contained in:

- 40 CFR 50, *Primary and Secondary National Ambient Air Quality Standards.*

- 40 CFR 60, *New Source Performance Standards.*

- 40 CFR 61, *National Emission Standards for Hazardous Air Pollutants.*

- 40 CFR 80, *Regulation of Fuel and Fuel Additives.*

The Federal regulations provide a framework within which states design specific regulatory strategies to deal with air pollution problems within their boundaries. Much of what the USEPA defines as Reasonably Available Control Technology (RACT) may be found in state programs, but the requirement of a specific RACT will depend on the existence of an air pollutant problem in the state. In addition, RACT often includes two or more levels of control, depending on the seriousness of the nonattainment.

The Clean Air Act requires USEPA to establish three types of national standards: National Ambient Air Quality Standards, New Source Performance Standards, and National Emission Standards for Hazardous Air Pollutants.

National Ambient Air Quality Standards (NAAQS) establish the allowable ambient concentrations for six priority pollutants:

- Total Suspended Particulates
- Sulfur Dioxide
- Nitrogen Dioxide
- Carbon Monoxide
- Ozone
- Lead.

NAAQS apply to pollutant concentrations in ambient air, and are not applicable to individual emission sources. For this reason, compliance with these standards is not an issue directly addressed during an environmental review. The Clean Air Act, however, mandates that states develop State Implementation Plans (SIPs), which set forth regulations on emissions from stationary and mobile sources necessary to achieve and maintain the NAAQS.

Statutory provisions exist concerning the construction and modification of stationary sources in areas where air quality is cleaner than that required by NAAQS. These provisions are intended to prevent significant air quality degradation in these areas. The "prevention of significant deterioration" (PSD) regulations establish strict preconstruction guidelines and monitoring requirements. For construction/ modification of sources in nonattainment areas (NAA), where

one or more NAAQS are not met, there are similar strict regulations for preconstruction review, emission control systems, and monitoring.

New Source Performance Standards (NSPS) were developed for specific industrial categories to provide a ceiling for emissions from new sources (See Appendix 1-4). They are based on application of the best technology to reduce emissions. These standards include requirements for notification, recordkeeping, performance tests, maintenance, and monitoring.

National Emission Standards for Hazardous Air Pollutants (NESHAPS) were established for air pollutants for which no ambient air quality standards are applicable and which may result in an increase in mortality or serious irreversible illness. These standards define emission limits, monitoring requirements, restrictions on material use, worker practice standards, and reporting requirements for hazardous pollutants. Facilities emitting the following pollutants must comply:

- Asbestos
- Beryllium
- Mercury
- Vinyl Chloride
- Coke oven emissions
- Benzene
- Radionuclides
- Inorganic arsenic.

NOTE: Requirements pertaining to asbestos can be found in Section 13, *Asbestos Abatement*.

Section 118 of the CAA [42 USC 7418] governs *Control of Pollution from Federal Facilities*, and contains as broad a waiver of sovereign immunity, both substantively and procedurally, as found in any of the environmental statutes. Specifically, "[Federal facilities] shall be subject to, and comply with, all Federal, state, interstate, and local requirements ... respecting ... air pollution in the same manner, and to the same extent as any nongovernmental entity."

Section 118(b) provides for two exemptions for Federal facilities: The president may:
(1) exempt a Federal facility from compliance, and
(2) issue regulations exempting Armed Forces weaponry, equipment, etc., "uniquely military in nature."

Both exemptions are subject to the President's determination that such action is "in the paramount interest of the United States to do so." The first exemption is for 1 year, renewable annually; the second exemption is subject to

Presidential reconsideration at 3-year intervals.

Three other sections of the CAA are applicable to Federal facilities:

(1) Section 176(c) prohibits Federal agencies from engaging in, supporting, providing financial assistance for, licensing, permitting, or approving any activity that does not conform to a State Implementation Plan (SIP)
(2) Section 304(a) allows for citizen suits against Federal facilities (and others) and
(3) Section 306 prohibits Federal agencies from contracting with anyone convicted of violating the CAA in certain situations.

The Clean Air Act Amendments of 1990 are the basis of future regulations concerning air quality that will implement additional requirements which will apply to Federal facilities. Some of these changes include a redefining of hazardous air pollutants, the development of the concept of Maximum Achievable Control Technology (MACT), the redesign of air quality control regions, and the regulation of mobile sources.

C. State/Local Requirements

The primary mechanisms regulating air pollutant emissions are the state or air quality control region (AQCR) regulations. These regulations will normally follow the Federal guideline for state programs and will have many similar features. However, depending on the type and degree of air pollutant problems within the state/ region, the individual regulations will vary. As an example, photochemical oxidant (ozone) problems are widespread in California and, therefore, the individual AQCRs in that state have stringent VOC emission requirements. North Dakota has no such problem and, therefore, has fewer and less stringent VOC regulations.

New source performance standards (NSPS) are established for particular pollutants in industrial categories based on adequately demonstrated control technology. Many states have been delegated the authority to enforce NSPS. When a state has not been delegated the authority, the USEPA enforces NSPS in that state. Waivers from NSPS for up to 7 years may be obtained, the purpose of which is to encourage use of innovative technological systems.

The states usually exercise their authority via a permit system. A permit is normally required for new, expanded, or modified sources of air pollutants. Some state regulations apply directly to some facilities and operations without requiring a permit. At a minimum, state regulations should be reviewed for the following activities:

- fugitive dust emissions
- control of particulate emissions from woodworking shops and the transportation of refuse or materials in open vehicles
- certification requirements for boiler operators
- emissions and emission control requirements for the operation of existing fossil fuel-fired steam generators
- open burning and detonation activities
- vehicle exhaust emissions testing
- spray painting of vehicles, buildings, and/or furniture
- certification of vehicles transporting VOC liquids
- paving of roads and parking lots
- toxic air pollutants
- operation of cold cleaners, degreasers, and open top vapor degreasers
- vapor control requirements for gasoline pumps.

D. DoD Regulations

- DoD Instruction 4120.14, *Environmental Pollution Prevention, Control, and Abatement*, implements within DoD policies provided by Executive Order (EO) 12088, *Federal Compliance with Pollution Standards*, and Office of Management and Budget (OMB) Circular A-106 and establishes policies for developing and submitting plans for installing improvements needed to abate air emissions from DoD facilities.

E. U.S. Army Regulations

- Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*, Chapter 4, *Air Pollution Abatement Program*, sets forth policy and procedures for controlling pollutant emissions into the air. This regulation mandates compliance with all Federal, state, and local regulations, including State Implementation Programs.

F. Key Compliance Requirements

- New Source Performance Standards (NSPS) - Federally established emission standards (contained in a permit) are applicable to new, stationary sources modified or built after the NSPS went into effect. There are almost 50 specific

industrial facilities/ operations for which NSPS have been developed, but only 11 might apply to Army installations. They are:

- fossil fuel-fired steam generators (greater than 100/million British thermal units per hour (MBtu/hr) but less than 250 MBtu/hr)
- fossil fuel-fired steam generators (greater than 250 MBtu/hr)
- electric utility steam generating units (greater than 73 megawatts[MW])
- incinerators (greater than 50 tons/day)
- petroleum liquids storage tanks (greater than 40,000 gallons capacity)
- sewage sludge incinerators (greater than 2,205 pounds per day)
- stationary gas turbines (greater than 1 MBtu/hr)
- bulk gasoline terminals
- municipal waste combustors
- sulfuric and nitric acid plants
- rotogravure printers.

Appendix 1-1 presents some of the key performance standards applicable to sources typically found at Army installations.

- Hazardous Air Pollutants - National Emissions Standards for Hazardous Air Pollutants (NESHAP) are based on health effects with strong reliance on technological capabilities. They apply to both existing and new stationary sources. The NESHAP program can be delegated to any qualifying state. The four substances on the NESHAP list for which there are effective NESHAP regulations currently include: beryllium, asbestos, mercury, and vinyl chloride. Only Army installations involved in demolition or renovation of buildings containing asbestos are likely to be affected by NESHAP regulations. See Section 13, *Asbestos Abatement.*

- Vehicular Emission Inspections - Many states require owners of fleet vehicles to have annual inspections of exhaust gases to determine emissions of CO and hydrocarbons. Army installations typically have many of vehicles and may be required to comply with these regulations.

- VOC Emissions Compliance - Most states regulate the emission of VOCs into the atmosphere. Typical facilities at Army installations that emit VOCs are JP-4 and MOGAS in storage tanks, solvent cleaners and degreasers, plating operations, gasoline dispensing facilities, and drycleaning facilities. Emissions limitations will vary from state to state and are usually expressed in pounds of VOC/ unit volume of substance used.

- Particulate Emission Compliance - Particulates emitted from fuel burning equipment and incinerators on Army installations are typically regulated on the state

level through individual permits. Limitations are normally expressed as pounds of particulate/ million Btu of heat input.

Many states vary particulate emission limitations depending on the regional air quality conditions with the state. In addition, visible emissions are regulated to opacity levels in percent, e.g., 20 percent opacity. Higher levels of visible emissions (opacity) are normally permitted during certain start-up and maintenance operations for short periods of time (5 minutes/hour).

- Permits to Operate Air Contaminant Sources - Army installations must obtain permits from the appropriate state agency to operate any source of air contaminants. Typically, exemptions from the permit requirement are made for fuel burners with less than 1 million Btu/ hour input capacity and for tanks of less than 500 gallons. Permits to operate will vary among facilities and may require the installation of monitoring devices. Also, the operator is required to maintain certain records, reports, and information as stipulated in the individual permits.

- Sulfur Dioxide Emission Compliance - Sources burning fuel containing sulfur are typically limited to an allowable emission rate in pounds of sulfur dioxide/ hour (SO_x /MBtu). Individual permits will specify these limitations. Testing, monitoring, and sampling data must be retained and available for inspection. In addition, many states regulate the sulfur content of fuel oil used by Army installations. Typically, sulfur content is limited to 1 to 2 percent.

G. Responsibility for Compliance

- The Installation Commander is the person responsible for compliance and signs all permits.

- The Directorate of Engineering and Housing (DEH) is responsible for the maintenance of incinerators, fuel handling, and storage equipment, as well as the operation and maintenance of all fuel burners. The heating/boiler plant fuel burners are the responsibility of the Operations and Maintenance Division.

- The Environmental Coordinator (EC) is responsible for the preparation of all air pollution emission source permit applications.

- The Hospital or Installation Clinic is responsible for the operation of any medical/pathological incinerators located in their facility.

- The Fuels Management Branch of the Directorate of Logistics (DOL) is responsible for the operation of all fuel handling, transportation (tanks and/or pipelines), and storage facilities on the installation. The branch is also responsible

for ensuring that all fuels satisfy specifications, including state mandated sulfur content. The branch is also responsible for the operation of the military service station that dispenses leaded or unleaded fuel.

- The Vehicle Maintenance Branch of the Director of Logistics (DOL) is responsible for the emission testing and vehicle maintenance required by state and Army regulations.

- The various maintenance facilities at the installation are responsible for the operation of degreasers and other industrial processes that are regulated or may require operating permits.

- The Army/Air Force Exchange System (AAFES) operates a service station that dispenses leaded fuels and is subject to the Federal requirements. The service station is normally operated by a contractor, but the labeling and nozzle size regulations still apply. The Government is responsible for compliance, but the contractor may also be responsible, depending on the contract wording.

- The DEH, Environmental Management Division, is responsible for monitoring the ambient air quality and preparing the installation air emission inventory.

H. Key Compliance Definitions

These definitions were obtained from the various Federal, DoD, and U.S. Army regulations listed previously.

- *Benzene Service* - a piece of equipment that either contains or contacts a fluid (liquid or gas) that is at least 10 percent benzene by weight.

- *Bulk Gasoline Terminal* - any gasoline facility that receives gasoline by pipeline, ship, or barge, and has throughout a greater than 75,000 gallons per day.

- *Bulk Gasoline Plant* - any gasoline distribution facility that has a throughput less than or equal to 75,000 gallons per day.

- *Calculated Level* - means the level of production, exports, or imports of controlled substances determined by each group of controlled substances by: (1) multiplying the amount in kilograms of production, exports, or imports of a substance by that substance's ozone depletion weight listed in 40 CFR 82 Appendix A; and (2) adding together the resulting products for the controlled substances within each group.

- *Cartridge Filter* - a discrete filter unit containing both filter paper and activated carbon that traps and removes contaminants from petroleum solvent, together with the piping and ductwork used in installing this device.

- *Class I Areas* - areas of special national concern (including certain national parks and wilderness areas), where the need to prevent significant deterioration in air quality is the greatest.

- *Class II Areas* - all areas not specifically designated by the Clean Air Act to be Class I areas (these allow for a moderate degree of emissions growth).

- *Class III Areas* - areas originally designated as Class II areas, that have been redesignated by states where higher levels of industrial development and emissions growth are desired.

- *Closed-vent System* - a system that is not open to the atmosphere and is composed of piping, connections, and, if necessary, flow inducing devices that transport gas or vapor from a piece or pieces of equipment to a control device.

- *Coal Refuse* - any waste products of coal mining, cleaning, and coal preparation operations (e.g., culm, gob, etc.) containing coal, matrix material, clay, and other organic and inorganic material.

- *Cofired Combustor* - a unit burning municipal-type solid waste or refuse derived fuel with a nonmunicipal solid waste fuel and is subject to a Federally enforceable permit limiting the unit to combusting a fuel feed stream, 30 percent or less of the weight of which is comprised, in aggregate, of municipal-type solid waste or refuse derived-fuel as measured on a 24-hour basis.

- *Commercial/Retail Waste* - material discarded by stores, offices, restaurants, warehouses, nonmanufacturing activities at industrial facilities, and other similar establishments or facilities.

- *Consumption Allowances* - means the privileges granted in 40 CFR 82 to produce and import calculated levels of controlled substances, however, consumption allowances (40 CFR 82.7, 82.8, 82.10, and 82.12) must still be observed.

- *Distillate Oils* - those liquid fractions of petroleum (light oil, e.g., No. 1 fuel oil, No. 2 fuel oil , diesel, kerosene) that are normally derived by vaporization and condensation of petroleum remaining after gasoline and fractions more volatile than gasoline have been removed.

- *Dryer* - a machine used to remove petroleum solvent from articles of clothing or other textile or leather goods, after washing and removing excess petroleum solvent, together with the piping and ductwork used in the installation of this device.

- *Electric Utility Steam Generating Unit* - any steam electric generating unit that is constructed for the purpose of supplying more than 1/3 of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale.

- *Export* - is the transport of controlled substances manufactured from raw materials or feedstock chemicals from within the United States or its territories to persons or countries outside the United States or its territories, excluding United States Military installations and ships for on-board use.

- *Federally Enforceable* - all limitations and conditions enforceable by the Administrator, including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within any applicable state implementation plan, and any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51, Subpart I, including operating permits issued under a USEPA-approved program that is incorporated into the state implementation plan and that expressly requires adherence to any permit issued under such program.

- *Fossil Fuel* - natural gas, petroleum, coal, and any form of solid, liquid, or gaseous fuel derived from such materials for the purpose of creating useful heat.

- *Fossil Fuel-Fired Steam Generating Unit* - a furnace or boiler used in the process of burning fossil fuel for the purpose of producing steam by heat transfer.

- *Fossil Fuel and Wood Residue Steam Generating Unit* - a furnace or boiler used in the process of burning fossil fuel and wood residue for the purpose of producing steam by heat transfer.

- *Fuel Burning Equipment* - equipment whose primary purpose is the production of energy or power from the combustion of any fuel. The equipment is generally used for, but not limited to, heating water, generating or circulating steam, heating air (as in a warm air furnace), and furnishing process heat by transferring energy by fluids or through process vessel walls.

- *Fugitive Emissions* - air pollutants entering into the atmosphere from other than a stack. Example: vapors, dust, fumes. *Gasoline Carrier* - any distributor who transports or stores, or causes the transportation or storage of gasoline without taking title to or otherwise having any ownership of the gasoline, and without altering either the quality or quantity of the gasoline.

- *Gasoline Distributor* - any person who transports or stores, or causes the transportation or storage of gasoline at any point between any gasoline refinery or importer's facility and any retail outlet or wholesale purchaser consumer facility.

- *Good Management Practice (GMP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *Household Waste* - includes material discarded by single and multiple residential dwellings, hotels, motels, and other similar permanent or temporary housing.

- *Import* - is the transport of virgin, used, and recycled controlled substances from outside the United States and its territories to persons within the United States or its territories.

- *Incinerator* - any furnace used in the process of burning solid waste for the purpose of reducing the volume of the waste by removing combustible matter.

- *Institutional Waste* - includes materials discarded by hospitals, schools, nonmanufacturing activities at prisons, and government facilities.

- *Lignite* - coal that is classified as lignite A or B according to the American Society for Testing and Materials (ASTM) Standards.

- *Major Stationary Source* - any stationary source of air pollution that emits or has the potential to emit 100 tons per year of any regulated pollutant.

- *Maximum Heat Input Capacity of a Steam Generating Unit* - is determined by operating the facility at maximum capacity for 24 hours and using the heat loss method described in Sections 5 and 7.3 of the American Society of Mechanical Engineers (ASME) *Power Test Codes* 4.1 (see 40 CFR 60.17(h)) no later than 180 days after initial startup of the facility and within 60 days after reaching maximum production rate at which the facility will be operated.

- *Medical Waste* - when defined as applicable to municipal waste combustors, it is any solid waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in production or testing of biologicals. Medical waste does not include any hazardous waste identified under RCRA-C or any household waste as defined in RCRA-C.

- *Municipal Solid Waste* - household, commercial/retail, and/or institutional waste. Household, commercial/retail, and institutional wastes do not include sewage, wood pallets, construction and demolition wastes, or industrial process or manufacturing wastes. Municipal solid waste does include motor vehicle maintenance materials, limited to vehicle batteries, used motor oil, and tires.

Municipal solid waste does not include wastes that are solely segregated medical wastes, but any mixture of segregated medical wastes and other wastes that contains more than 30 percent medical waste considered municipal solid waste.

- *Municipal Waste Combustor* - any device that combusts solid, liquid, or gasified municipal solid waste including, but not limited to, field-erected incinerators, modular incinerators, boilers, furnaces, and gasification/combustion units. This does not include combustion units, engines, or other devices that combust landfill gases collected by landfill gas collection systems.

- *Nitric Acid Production Unit* - any facility producing nitric acid which is 30 to 70 percent in strength by either the pressure or atmospheric pressure process.

- *Nitrogen Content* - shall be determined using ASTM Method D3431-80, Test Method for Trace Nitrogen in Liquid Petroleum Hydrocarbons (IBR - see 40 CFR 60.17) or fuel suppliers. If residual oil blends are used, fuel nitrogen specifications may be prorated based on the ratio of residual oils of different nitrogen content in the fuel blend.

- *Opacity* - that property of a substance tending to obscure vision; is measured in terms of percent opacity.

- *Particulate Matter* - any material except uncombined water that exists in a finely divided form as a liquid or solid at standard conditions.

- *Petroleum Drycleaner* - a drycleaning facility that uses petroleum solvent in a combination of washers, dryers, filters, stills, and settling tanks.

- *Publication Rotogravure Printing* - any number of rotogravure printing units capable of printing simultaneously on the same continuous web or substrate and includes any associated device for continuous cutting and folding the printed web, where the following sellable paper products are printed: catalogues; direct mail advertisements; display advertisements; magazines; miscellaneous advertisements including brochures, pamphlets, catalogue sheets, circular folders, and announcements; newspapers; periodicals; and telephone and other directories.

- *Reasonably Available Control Technology (RACT)* - devices, systems, process modifications, or other technologies that will permit a reduction in air pollution emissions.

- *Refuse Derived Fuel* - combustible or organic portion of municipal waste that has been separated out and processed for use as fuel.

- *Reid Vapor Pressure* - the absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids except liquefied petroleum gases as determined by the ASTM, Part 17, 1973, D-323-72 (reapproved 1977).

- *Residual Oils* - liquid or semi-liquid fractions of petroleum (heavy oil, e.g., No, 4, 5, or 6 fuel oil or Bunker C) remaining after distillate oils and fractions more volatile than distillate oils have been removed.

- *Solid Waste* - garbage, refuse, sludge, and other solid, liquid, semisolid or contained gaseous material that is discarded, has served its intended purpose, or is a mining or manufacturing byproduct. For the purposes of this protocol, the definition includes all waste materials not defined by regulation to be either hazardous or toxic, and which are normally disposed of by landfilling, incineration, or are recycled or recovered. Demolition wastes are not included in the Federal definition of a solid waste.

- *Solvent* - organic materials that are liquid at standard conditions and are used as dissolvers, viscosity reducers, or cleaning agents.

- *Stationary Gas Turbines* - any simple cycle gas turbine, regenerative cycle gas turbine, or any gas turbine portion of a combined cycle steam/electric generating system that is not self-propelled. It may be mounted on a vehicle for portability.

- *Steam Generating Unit* - any furnace, boiler, or other device used for combusting fuel for the purpose of producing steam (including fossil fuel-fired steam generators associated with combined cycle gas turbines; nuclear steam generators are not included).

- *Sulfur Oxides* - sulfur dioxide, sulfur trioxide, their acids, and the salts of their acids.

- *Sulfuric Acid Production Unit* - any facility producing sulfuric acids by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, organic sulfides and mercaptans, or acid sludge, but does not include facilities where conversion to sulfuric acid is used primarily as a means of preventing emissions to the atmosphere of sulfur dioxide or other sulfur compounds.

- *Suspended Particulate* - any material, except water in uncombined form, that is or has been airborne.

- *True Vapor Pressure* - the equilibrium partial pressure exerted by a petroleum liquid as determined in accordance with methods described in American Petroleum Institute Bulletin 2517, "Evaporation Loss From Floating Roof Tanks," 1962.

- *Very Low Sulfur Oil* - an oil that contains no more than 0.5 weight percent sulfur or that, when combusted without sulfur dioxide emission control, has a sulfur dioxide emission rate equal to or less than 0.5 lb/M Btu heat input.

- *VHAP Service* - a piece of equipment that either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight a volatile hazardous air pollutant (VHAP).

- *VOC Service* - in relationship to fugitive emissions, this is when a piece of equipment contains or contacts a process fluid that is at least 10 percent VOC by weight.

- *Volatile Hazardous Air Pollutant (VHAP)* - a substance regulated under 40 CFR 61; Subpart V for which a standard for equipment leaks of the substance has been proposed and promulgated. Benzene and vinyl chloride are VHAPs.

- *Volatile Organic Compound (VOC)* - in general it is any organic compound that particulates in atmospheric photochemical reactions. Under NSPS it is defined as having a vapor pressure of 0.75 pounds per square inch absolute (77.6 mm Hg) or greater (some states use 0.50 pounds per square inch) under actual storage conditions, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. Most commonly found in solvents.

  (Note: Within PSD and nonattainment regulations, VOCs also exclude: methane, ethane, methylene chloride, 1,1,1-trichloroethane, trichlorotrifluoroerthane (CFC-113), trichlorotrifluoromethane (CFC-11), dichlorodifluoromethane (CFC-12), chlorodifluoromethane (CFC-22), trifluoromethane (FC-23), dichlorotetrafluoroethane (CFC-114), chloropentafluoroethane (CFC-115), dichlorotrifluoroethane (HCFC-123), tetrafluoroethane (HFC-134a), dichlorofluoroethane (HCFC-141b), chlorodifluoroethane (HCFC-142b).)

- *Volatile Organic Liquids (VOL)* - any organic liquid that can emit volatile organic compounds into the atmosphere except those VOLs that emit only compounds that the Administrator has determined do not contribute appreciably to the formation of ozone.

CLEAN AIR ACT (CAA) PROTOCOL

GUIDANCE FOR WORKSHEET USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
All installations	1-1 through 1-4	(1)(2)(3)(4)(6)(9)
If the installation operates a fuel burner (central steam plant, or hot water or steam boilers)	1-5 through 1-12	(1)(2)(6)(9)
If the installation operates an incinerator	1-13 through 1-15	(1)(2)(9)
If the installation dispenses, stores, or transfers gasoline	1-16 through 1-20	(6)(9)(30)
If the installation operates a print shop	1-21	(1)(4)
If the installation receives, stores, handles, or distributes JP-4, MOGAS, or other VOCs	1-22 through 1-25	(6)
If the installation has fugitive emissions	1-26 through 1-32	(1)(2)
If the installation uses solvent degreasers	1-33	(6)(9)

(a)CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
(2) Environmental Coordinator (EC)
(3) Preventive Medicine
(4) Safety and Health Officer
(5) Fire Department
(6) Director of Logistics (DOL)
(9) Chief of Operations and Maintenance (O&M)
(30) Army and Air Force Exchange Service (AAFES)

CLEAN AIR ACT (CAA) PROTOCOL

GUIDANCE FOR WORKSHEET USERS
(Continued)

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
If the installation has a drycleaning facility that uses petroleum solvent	1-34	(1)(2)(9)
If the installation has acid producing units	1-35 and 1-36	(1)(2)
If the installation uses CFCs or Halons	1-37	(2)

(a)CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
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CLEAN AIR ACT (CAA)

Records to Review

- State and local air pollution control regulations
- Agency air pollution control regulations
- Emissions inventory (OMB Form 158-R75)
- All air pollution source permits
- Plans and procedures applicable to air pollution control
- Emission monitoring records and sampling data
- Opacity records
- Notifications of violations to regulatory authorities
- Instrument calibration and maintenance records
- Reports/complaints concerning air quality
- State and/or Federal regulatory inspections, inquiries, or other communications
- Regulatory inspection reports
- Documentation of preventive measure or action
- Results of air sampling at the conclusion of response action
- Emergency episode plan if required by the state
- Military Construction Army (MCA) development and construction plans for new facilities proposed and copies of air pollution abatement plans for these as well as existing sources requiring control. Mobile source data, number of vehicles, and traffic counts for major thorough fares if available

Physical Features to Inspect

- All air pollution sources (fuel burners, incinerators, VOC sources, etc.)
- Air pollution monitoring and control devices
- Air emission stacks
- Air intake vents

People to Interview

- Director of Engineering and Housing (DEH)
- Environmental Coordinator (EC)
- Preventive Medicine
- Safety and Health Officer
- Fire Department
- Director of Logistics (DOL)
- Chief of Operations and Maintenance (O&M)
- Army and Air Force Exchange Service (AAFES)
- Heating Plant Manager/Operator

COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
1-1. Determine actions or changes since previous review air emissions.	Examine copy of previous review report to determine if noncompliance issues have been resolved. (1)(2)
...	...
1-2. Copies of all relevant Federal regulations, DoD, and Army directives, and guidance documents on air emissions should be maintained at the installation.	Verify that copies of the following regulations are maintained and kept current at the installation: (1)(2)(3)(4) - 29 CFR 1910, *Occupational Safety and Health Standards.* - 40 CFR 50-87, *Implementation Plans.* - DoD 4120.14, *Environmental Pollution Prevention, Control, and Abatement.* - AR 40-5, *Preventive Medicine.* - AR 200-1, *Environmental Protection and Enhancement.* - AR 420-49, *Heating, Energy Selection, and Fuel Storage, Distribution, and Dispensing Systems.* - AR 750-1, *Army Material Maintenance Policies.* - TB MED 502, *Occupational and Environmental Health: Respiratory Protection Program.* - TB MED 513, *Occupational and Environmental Health Guidelines for the Evaluation and Control of Asbestos Exposure.* - TM 5-815, *Air Pollution Control Systems for Boilers.* - OMB Form 158-R75, *USEPA Air Pollutant Emissions Report.*
...	...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-3. Installations are required to abide by state and local air quality regulations (AR 200-1, para 1-39a(3)).	Verify that the installation is abiding by state and local air quality requirements. (1) Verify that the installation is operating according to permits issued by the state or local agencies. (1)(2) NOTE: Issues typically regulated by state and local agencies include: (1)(2) - air pollution episode standby plans - permits for construction and operation of sources of emissions - placement of control devices on fuel burning sources - incinerators with less than 50 tons per day heat input - incinerations of medical, pathological, and infectious waste - open burning and detonation - fire fighting training - motor vehicle emissions and inspections - use of vapor control systems at gas dispensing facilities - transfer of fuel in tank trucks - solvent metal cleaners such as degreasers and cold cleaners - perchloroethylene drycleaners - fugitive dust emissions - control of particulate emissions from woodworking shops - transportation of refuse or materials in open vehicles - emissions and emission control requirements for the operation of existing fossil fuel-fired steam generators - the spray painting of vehicles, buildings, and/or furniture - certification of vehicles transporting VOC liquids - certification for operators of boilers - paving of roads and parking lots - toxic air pollutants - indoor air pollution.
...	...
1-4. Preventive Medicine personnel at each installation are required to conduct and maintain an up-to-date emissions inventory listing all stationary sources of air pollution and inspect stationary air pollution sources periodically to assess compliance with applicable standards (AR 40-5, para 11-4b).	Determine whether an emission inventory has been completed recently or has been updated recently. (3) Examine emission inventory for completeness and compare inventory to any permits issued to ensure all recent changes/modifications have been included. (1)(3) Verify that periodic updates of the air emissions inventory are conducted. (3) Verify that Preventive Medicine personnel inspect stationary air sources periodically to assess compliance. (3)

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
NEW FUEL BURNING SOURCES	
1-5. Fuel burning facilities constructed or modified after August 17, 1971 with greater than 250 MBtu/hr heat input are required to meet specific emissions standards (40 CFR 60.42 through 60.44).	Verify that: (2)(9) - opacity emissions are less than 20 percent except one 6-minute period of no greater than 27 percent per hour - particulate emissions are not in excess of 0.10 lb/MBtu - sulfur dioxide emissions do not exceed levels outlined in Appendix 1-1 - nitrogen oxides emissions do not exceed levels outlines in Appendix 1-1. Verify that the individual conducting opacity monitoring is certified by the state. (1)(2)
...	...
1-6. Fuel burning facilities constructed or modified after August 17, 1971 with greater than 250 MBtu/hr heat input are required to have specific types of monitoring instruments installed (40 CFR 60.45).	Verify that the following monitors are in place: (9) - NO_2 continuous monitor - opacity monitor (except in gaseous fuel burners) - SO_2 monitor (except for fossil fuel-fired steam generators not using a fuel gas desulfurization device and gaseous fuel burners) - fuel sampling monitor when SO_2 monitor is not required - CO_2 or O_2 monitors (except when continuous monitoring systems are not required to be installed for sulfur oxides or nitrogen oxides). Review the schedules for calibration of the monitors and determine if the monitors are maintained (GMP). (1)(2) Examine the monitor recording charts for normal operational procedures. (1)(2)(9) Verify that fuel consumption and electrical steam output instruments are: (9) - correctly installed and operating - the instruments are calibrated every 24 hours - monitoring records are maintained for 2 years. Verify that records of fuel analysis are maintained and contain: (9) - sulfur content - ash content - heating value.
...	...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-7. Electric utility steam generating units capable of combusting more than 250 MBtu/hr heat input of fossil fuel which started construction or modification after September 18, 1978 and electric utility combined cycle gas turbines that can combust greater than 250 MBtu/hr heat input of fossil fuel are required to meet specific standards for particulate, sulfur dioxide, and nitrogen oxide emissions (40 CFR 60.40a through 60.44a, and 60.47a).	Determine if the installation has any of these facilities and what type of fuel they are burning. (1)(2) Verify that the emissions standards outlined in Appendix 1-5 are met. (1)(2) Verify that the following sources do not emit sulfur dioxide at more than 1.20 lb/MBtu heat input: (1)(2) - facilities that combust 100 percent anthracite - facilities classified as resource recovery facilities - facilities located in noncontinental areas combusting solid fuel or solid-derived fuel. Verify that sources located in noncontinental areas combusting liquid or gaseous fuels do not emit in excess of 0.80 lb/MBtu sulfur dioxide. (1)(2) Verify that a continuous monitor for measuring the oxygen or CO content in the flue is installed and operating in addition to the monitoring requirements listed in Appendix 1-5. (1)(2)
...	...
1-8. Stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour, based on the lower heat value of the fuel fired, which started construction, modification, or reconstruction after October 3, 1977 are required to meet specific operations standards (40 CFR 60.330 through 60.335).	Verify that gases that contain nitrogen oxides are not emitted in excess of the amount calculated using Formula A in Appendix 1-7 from electric utility stationary gas turbines with a heat input at peak load > 100 MBtu/hr heat input based on the lower heating value of the fuel fired. (1)(2) Verify that gases that contain nitrogen oxides are not emitted in excess of the amount calculated using Formula B in Appendix 1-7 from: (1)(2) - stationary gas turbines with a heat input at peak load equal to or greater than 10 MBtu/hr heat input but less than or equal to 100 M Btu/hour based on the lower heating value of the fuel fired except those with greater than 10 MBtu/hr heat input that are fired with natural gas and are being fired in an emergency - stationary gas turbines with a manufacturer's rated base load at ISO conditions of 30 MW or less. Verify that gases are not discharged containing sulfur dioxide in excess of 0.15 percent by volume at 15 percent oxygen and on a dry basis. (1)(2)

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-8. (continued)	NOTE: The following sources are exempt from meeting the nitrogen oxides emissions limitations: (1)(2) - stationary gas turbines with a heat input at peak based on the lower heating value of the fuel fired and and that started construction before October 3, 1982 - stationary gas turbines using water or steam injection for control of NO_x when ice fog is deemed a traffic hazard - emergency gas turbines, military gas turbines for use in other than a garrison facility, military gas turbines installed for use as military training facilities, and fire-fighting gas turbines - regenerative cycle gas turbines with a heat input less than or equal to 100 MBtu/hr - stationary gas turbines, except electric utility stationary gas turbines, with a heat input at peak load of > 107.2 gigajoules per hour that started construction, modification, or reconstruction between October 3, 1977 and January 27, 1982. Verify that fuel stationary gas turbines using water injection to control NO_x emissions have installed and are operating a continuous monitoring system to monitor and record fuel consumption and the ratio of water to fuel being fired in the turbine. (1)(2) Verify that the sulfur content and nitrogen content of the fuel being fired is being monitored. (1)(2)
...	...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

1-9. Steam generating units that started construction, modification, or reconstruction after June 19, 1984 with a heat input capacity of greater than 100 MBtu/hr shall meet specific emissions limitations for particulates and sulfur dioxide (40 CFR 60.40b through 60,43b, 60.45b through 60.49b).	Determine if the facility burns coal, oil, wood, or a combination of fuels. (1)(2)
	
	Determine what percentage of the fuel mix each fuel type represents. (1)(2)
	
	Verify that facilities combusting coal or oil are not discharging gases into the atmosphere if the gases contain sulfur dioxide in excess of 10 percent of the potential sulfur dioxide emission rate (90 percent reduction) and that contain sulfur dioxide in excess of the emission limit determined according to the formula in Appendix 1-2 unless: (1)(2)
	
	- the facility combusts coal refuse alone in a fluidized bed combustion steam generating unit whereby an 80 percent reduction is required
	- the facility combusts coal and oil, either alone or in combination with any other fuel and uses emerging technology for SO_2 emissions control whereby gases shall not be discharged that contain in excess of 50 percent of the potential sulfur dioxide emission rate and that contain sulfur dioxide in excess of the emission limit determined according to the formula in Appendix 1-2
	- they are in the following list whereby they cannot emit gases that contain sulfur dioxide in excess of 1.2 MBtu heat input if the facility combusts coal or 0.5 lb/MBtu heat input if the affected facility combusts oil:
	  - facilities that have an annual capacity factor for coal or oil of 30 percent or less and are subject to a Federally enforceable permit limiting the operation of the facility to an annual capacity factor of 30 percent or less
	  - facilities located in noncontinental areas
	  - affected facilities combusting coal or oil, alone or in combination with any other fuel, in a duct burner as a part of a combined cycle system where 30 percent or less of the heat input to the steam generating unit is from combustion of coal and oil in the duct burner and 70 percent or more of the heat input to the steam generating unit if from the exhaust gases entering the duct burner.
	
	(NOTE: Typically, state regulations or state-issued permits set an emission limit for sulfur dioxide.)

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-9. (continued)	Verify that the particulate matter standards outlined in Appendix 1-3 are being met. (1)(2) NOTE: These particulate standards also apply to: (1)(2) - coal-fired facilities with a heat input capacity 100 and 250 MBtu that were constructed, modified, or reconstructed after June 19, 1984 but before June 19, 1986 - coal-fired facilities with a heat input capacity greater than 250 MBtu/hr that started construction, modification, or reconstruction between June 19, 1984 and June 19, 1986 - incinerators over 50 tons/day charging rate. Verify that records are being kept of the amounts of each fuel combusted during each day and the emissions. (1)(2)
...	...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-10. Steam generating units that started construction, modification, or reconstruction after June 19, 1984 with a heat input capacity of greater than 100 MBtu/hr shall meet specific emissions limitations for nitrogen oxides (40 CFR 60.40b through 60.44b).	Verify that facilities that combust only coal, oil, or natural gas meet the nitrogen oxides standards outlined in Appendix 1-4 unless the facility simultaneously combusts coal or oil in a mixture with natural gas, and wood, municipal solid waste, or any other fuel and has an annual capacity factor for coal or oil or a mixture of these fuels with natural gas of 10 percent or less, or the facility has a heat input capacity of 250 MBtu/hr heat input or less that: (1)(2)(9) - only fires natural gas, distillate oil, or residual oil with a maximum nitrogen content of 0.30 weight percent - has a combined annual capacity factor of 10 percent or less for natural gas, distillate oil, and residual oil with a nitrogen content of 0.30 weight percent or less, and - are subject to a Federally enforceable requirement limiting operation of the facility to the firing of natural gas, distillate oil, and/or residual oil with a nitrogen content of 0.30 weight percent and limiting the operations to a combined annual capacity of 10 percent or less for natural gas, distillate oil, and residual oil and a nitrogen content of 0.30 weight percent. Verify that facilities that simultaneously combust mixtures of coal, oil, or natural gas do not discharge nitrogen oxides in excess of the limit determined by using the formula found in Appendix 1-2 unless the facility combusts simultaneously coal or oil, or a mixture of theses fuels with natural gas, and wood, municipal solid waste, or any other fuel and has an annual capacity factor for coal or oil, or mixture of these fuels with natural gas of 10 percent or less. (1)(2)(9) Verify that nitrogen oxides are not discharged in excess of 0.30 lb/MBtu heat input if the facility simultaneously combusts natural gas with wood, municipal solid waste, or other solid fuel, except coal. Exempted are facilities that have an annual capacity factor for natural gas of 10 percent or less and are subject to a Federally enforceable requirements that limits operation of the affected facility to an annual capacity factor of 10 percent or less for natural gas. (1)(2)(9) Verify that facilities that simultaneously combust coal, oil, or natural gas with byproduct/waste do not discharge nitrogen oxides in excess of the limit determined by using the formula in Appendix 1-2 unless the facility has an annual capacity factor for coal, oil, and natural gas of 10 percent or less and is subject to a Federally enforceable requirement that limits the operation of the facility to an annual capacity factor of 10 percent or less. (1)(2)(9)
...	...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-11. As of August 12, 1991, municipal waste combustors with a capacity greater than 225 megagrams per day (250 tons per day) of municipal solid waste or refuse-derived fuel which started construction or modification after December 20, 1989 are requireds to meet specific operational standards (40 CFR 60.50a through 58a).	(NOTE: Exempted from these requirements are: (1)(2) - affected facilities that combust tires or fuel derived solely from tires and do not combust any other municipal solid waste or refuse derived fuel - cofired combustors - cofired combustors that are subject to a Federally enforceable permit limiting the operation of the combustor to no more than 225 megagrams per day (250 tons) of municipal solid waste or refuse derived fuel - municipal waste combustors only combusting medical waste.) Verify that gases are not discharged that contain the following constituents in excess of the least stringent amount listed: (1)(2) - dioxin/furan in excess of 30 nanograms per dry standard cubic meters (12 grains per billion dry standard cubic feet), corrected to 7 percent oxygen (dry basis) - sulfur dioxide in excess of 20 percent of the potential sulfur dioxide emission rate or 30 ppm by volume, corrected to 7 percent oxygen - hydrogen chloride in excess of 5 percent of the potential hydrogen chloride emission rate (95 percent reduction by weight or volume), or 25 ppm by volume, corrected to 7 percent oxygen (dry basis) - nitrogen oxides emissions in excess of 180 ppm by volume corrected to 7 percent oxygen (dry basis). Verify that facilities meet the operating standards for carbon monoxide emissions outlined in Appendix 1-6. (1)(2) Verify that the following operating practices are implemented: (1)(2) - facilities do not operate at a load level greater than 110 percent of the maximum demonstrated municipal waste combustor unit load - facilities do not operate at a temperature exceeding 17 degrees C above the maximum demonstrated particulate matter control device temperature. Verify that actions are being taken to ensure that by February 11, 1993 or within 24 months after the start-up of operation (whichever is later) each chief facility operator and shift supervisor is certified. (1)(2)
...	...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-12. As of August 12, 1991, municipal waste combustors with a capacity greater than 225 megagrams per day (250 tons per day) of municipal solid waste or refuse-derived fuel which started construction or modification after December 20, 1989 are requireds to meet specific notification and record keeping requirements (40 CFR 60.50a through 60.58a).	(NOTE: Exempted from these requirements are: (1)(2) - affected facilities that combust tires or fuel derived solely from tires and do not combust any other municipal solid waste or refuse derived fuel - cofired combustors - cofired combustors that are subject to a Federally enforceable permit limiting the operation of the combustor to no more than 225 megagrams per day (250 tons) of municipal solid waste or refuse derived fuel - municipal waste combustors only combusting medical waste.) Verify that an operating manual is at the facility which is updated yearly and indicates: (1)(2) - applicable standards - procedures for receiving, handling, and feeding municipal solid waste - start-up, shutdown, and malfunction procedures - operational provisions for meeting emission standards - response procedures for emergency situations - monitoring procedures - procedures for handling ash - reporting and record keeping requirements. Verify that if a new facility is starting to operate a notice to construct, planned start-up date, and fuels to be used at the facility was provided to the USEPA. This notification requirement also applies to cofired combustors and facilities which burn tires only. (1)(2) Verify that the following reports are submitted to the USEPA Administrator: (1)(2) - quarterly compliance reports - quarterly excess emissions reports - annual performance tests results - quarterly reports of the daily weights of municipal solid waste and each other fuel fired when records of this information is required to be kept.

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-12. (continued)	Verify that the following records are maintained for two years: (1)(2) - emissions rates - dates when excess emissions were identified and reason for excess emissions - operating days when the minimum numbers of hours of sulfur dioxides or nitrogen oxides emissions or operational data have not been obtained and the reasons - identification of the times when sulfur dioxide or nitrogen oxides emissions or operational data have been excluded from the calculation of average emission rates or parameters and the reason for exclusion - results of daily sulfur dioxide, nitrogen oxides, and carbon monoxide continuous emission monitoring systems drift tests and accuracy assessments - results of all annual performance tests - continuous emissions monitoring data for opacity, sulfur dioxide, nitrogen oxides, and carbon monoxide, load level data, and particulate matter control device temperature data - names of the persons who have completed the review of the operating manual - weights of municipal solid waste and other fuel combusted when being used in a cofired combustor with a municipal waste capacity greater than 225 megagrams per day (250 tons) - the amount of nonmedical and medical waste combusted on a daily basis for combustors firing both medical waste and other municipal solid waste unless it is assumed that the total heat input to the combustor is from municipal solid waste with a design heating value of 10,500 kilojoules per kilogram (4,500 Btu/lb).
...	...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
INCINERATORS	
1-13. Incinerators over 50 tons/day charging rate that started construction or modification after August 17, 1971 are required to meet specific emission limitations (40 CFR 60.50 through 60.54).	Verify that the limitations outlined in Appendix 1-1 are met. (1)(2) Observe incinerator emissions and determine if further evaluation of the opacity may be required (GMP). (9)
...	...
1-14. Incinerators that started construction or modification after June 11, 1973 that combust waste containing more than 10 percent sewage sludge (dry basis) produced by municipal sewage treatment plants, or those that started construction or modification after June 11, 1973 which charge more than 1000 kg (2205 lb) per day municipal sewage sludge (dry basis) are required to meet specific emission standards (40 CFR 60.150 through 60.156).	Verify that particulate matter is not discharged in excess of 0.65 g/kg dry sludge input (1.30 lb/ton dry sludge input). (1)(2)(9) Verify that the opacity of emissions does not exceed 20 percent. (1)(2)(9) Verify that, except on multiple hearth, fluidized bed, or electric sludge incinerators with a particulate emission rate less than or equal to 0.38 g/kg of dry sludge input (0.75 lb/ton), a continuously operating flow measuring device to determine either the mass or volume of sludge charged to the incinerator is in place, maintained, and properly calibrated. (1)(2)(9) Verify that a weighing device is available to determine the mass of any municipal solid waste charged to the incinerator when sewage sludge and municipal solid waste are incinerated together. (1)(2)(9) Verify that incinerators equipped with a wet scrubbing device have a continuously operating monitoring device that is calibrated annually to measure and record the pressure drop of the gas flow through the wet scrubbing device. (1)(2)(9) Verify that a monitoring device, which is calibrated at least once every 24 hours, is in place and continuously measures and records the oxygen content of the incinerator exhaust gas. (1)(2)(9) Verify that at least one continuously operating temperature measuring device is installed on every hearth in the cooling and drying zones of multiple hearth furnaces and two thermocouples are installed in each hearth in the combustion zone. (1)(2)(9) Verify that at least one continuously operating temperature measuring device is installed in the drying zone and one on the cooling zone, and a minimum of two in the combustion zones of electric furnaces. (1)(2)(9)

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-14. (continued)	Verify that a continuously operating fuel flow measuring device is operating on incinerators. (1)(2)(9) Verify that, except for multiple hearth, fluidized bed, or electric sludge incinerators that emit particulates less than 0.38 g/kg of dry sludge input (0.75 lb/ton), a grab sample of the sludge is collected and analyzed every day for the dry sludge content and the volatile solids content. (1)(2)(9) Verify that for multiple hearth, fluidized bed, or electric sludge incinerators, except for those that emit particulates less than 0.38 g/kg of dry sludge input (0.75 lb/ton), records are kept for 2 years of the following: (1)(2) - the measured oxygen content of the exhaust gas - the rate of sludge charged, the temperatures, fuel flow, and total solids and volatile solids - the measured pressure drop of the gas flow through the wet scrubbing device. Verify that the operator of any multiple hearth, fluidized bed, or electric sludge incinerator submits a report semiannually detailing the operations of the facility. (1)(2)
...	...
1-15. Incinerators that process beryllium-containing waste, beryllium, beryllium oxide, or beryllium alloys are required to meet specific standards (40 CFR 61.30 through 61.34).	Verify that emissions to the atmosphere do not exceed 10 grams of beryllium over a 24-hour period unless approval has been received for a larger quantity of emissions. (1)(2) Verify that emissions testing is done within 90 days of the startup of a new source. (1)(2) Verify that monitoring sites are operated continuously. (1)(2)(9) Verify that records of the emissions testing results are kept and made available for 2 years. (1)(2)

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
GASOLINE	
1-16. Leaded gasoline shall not be introduced into any motor vehicle that is labeled "unleaded gasoline only," or that is equipped with a gasoline tank filler inlet designed for introduction of unleaded gasoline (40 CFR 80.22).	Interview DOL to determine what grades of gasoline are used, where they are dispensed, and what controls are in place to ensure proper fueling of vehicles. (6)
...	...
1-17. Fuel pumps are required to display specific signs. (40 CFR 80.22).	Inspect the installation gas stations to ensure that: (6)(30) - signs stating the only unleaded gas should be introduced into labeled vehicles are displayed at each pump stand - nozzles are properly sized - each fuel pump is labeled indicating the type of fuel, i.e., "unleaded gasoline" or "contains lead anti-knock compounds."
...	...
1-18. Gasoline which is distributed, resold, retailed, or dispensed on an installation during specific regulatory control periods shall not exceed the reid vapor pressure standards outlined in Appendix 1-8 (40 CFR 80.27(a), and 80.27(b).	Determine which of the following regulatory control periods a facility is to be monitored under: (6)(30) - June 1 to September 15 for retail outlets, wholesale purchasers, and consumer facilities - May 1 to September 15 for all other facilities. Verify that the standards outlined in Appendix 1-8 are being met. (1)(6) Verify that the facility uses the testing methodologies and sampling methodologies outlined in Appendices D and E of 40 CFR 80 when determining compliance. (1)(6)
...	...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-19. Gasoline blended with alcohol that is distributed, retailed, resold, or dispensed at an installation shall meet specific requirements (40 CFR 80.27(d)).	Determine if the installation distributes, retails, resells, or dispenses any gasoline blended with alcohol. (1)(2)(6) Verify that the gasoline contains at least 9 percent ethanol (by volume). (6)(30) Verify that the standards in Appendix 1-8 are not exceeded by more than 1 lb per square in. (1.0 psi). (6)(30) Verify that gasoline pumps at retail outlets or wholesale purchaser-consumer facilities have a legible and conspicuous label affixed that indicates the gasoline being dispensed contains ethanol and the percentage of ethanol. (6)(30) Verify that each invoice, loading ticket, bill of lading, delivery tickets, and other documents accompanying each shipment contains a legible and conspicuous statement that the gasoline being shipped contains ethanol. (6)(30) Verify that the invoices, loading tickets, bills of lading, delivery tickets, and other documents are kept for one year by the following: (6)(30) - distributors - resellers - carriers - retailers - wholesale purchaser-consumers.
...	...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-20. Bulk gasoline terminals with greater than 75,000 gallons gasoline throughput per day that deliver liquid product into greater tank trucks and that started construction or modification after December 17, 1980 are required to meet specific operating standards (40 CFR 60.500 through 60.506).	Verify that each facility has a vapor collection system designed to collect the total organic compound vapors displaced from tank trucks during product loading and to prevent the total organic compounds collected at on-loading rack from passing to another loading rack. (1)(6)(30) Verify that emissions from the vapor collection system do not exceed 35 mg of total organic compound per liter of gasoline loaded except that facilities with existing vapor processing systems that were constructed of refurbished before December 17, 1980 may emit 80 mg of total organic compounds per liter of gasoline loaded. (1)(6)(30) Determine if the following loading procedures are followed: (1)(6)(30) - vapor tightness documentation is available for each gasoline tank truck - the tank identification number is recorded as each gasoline tank truck is loaded - each tank identification number is cross-checked with the file of tank vapor tightness documentation within 2 weeks after the tank is loaded - steps are taken to ensure that only vapor-tight tanks are loaded and vapor collection systems are operational. Verify that the vapor collection and liquid loading equipment is designed and operated to prevent gauge pressure in the delivery tank from exceeding 4,500 pascals (450 mm of water) during product loading. (1)(6)(30) Verify that pressure vacuum vents in the vapor collection system do not open at a system pressure of less than 4,500 pascals (450 mm of water). (1)(6)(30) Verify that a monthly inspection of the vapor collection system, the vapor processing system, and each loading rack handling gasoline is done during loading and inspection records are kept on file for 2 years. (1)(6)(30) Verify that leaks are repaired within 15 calendar days after detection. (1)(6)(30) Verify that records of all replacements or additions of components performed on existing vapor processing systems are kept for at least 3 years. (1)(6)(30)
...	...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
VOCs	
1-21. Publication rotogravure printing presses, except for proof presses, that started construction, modification, or reconstruction after October 28, 1980 are required to meet specific standards concerning VOC emissions (40 CFR 60.430 through 60.435).	Determine if the installation operates any publication rotogravure printing presses. (1)(2) Verify that gases are not being discharged containing VOC equal to more than 16 percent of the total mass of VOC solvent and water used at that facility during any one performance averaging period. (1)(2) (NOTE: Each performance averaging period is 30 consecutive calendar days.) Verify that facilities using waterbourne ink systems or solvent-bourne ink systems with solvent recovery systems record the amount of solvent and water used, solvent recovered, and estimated emission percentage for each calendar month and maintain these record for 2 years. (1)(2)(6)
...	...
1-22. Storage vessels for petroleum liquids with a storage capacity greater than 40,000 gallons but less than 65,000 gallons, that started construction or modification after March 8, 1974 but before May 19, 1978, or with a capacity greater than 65,000 gallons and started construction or modification after June 11, 1973 but before May 19, 1978, are required to meet specific standards for emissions and monitoring (40 CFR 60.110 through 60.113).	Determine whether or not the installation has any petroleum storage tanks meeting these parameters. (1)(2)(6) Determine what the vapor pressure is of the petroleum liquids being stored. (1)(2)(6) Verify that if the true vapor pressure of the petroleum stored is equal to or greater than 1.5 psia but not greater than 11.1 psia the storage vessel is equipped with a floating roof and a vapor recovery system or their equivalents. (1)(2)(6) Verify that if the true vapor pressure of the petroleum liquid being stored is greater than 11.1 psia, the storage vessel is equipped with a vapor pressure recovery system or its equivalent. (1)(2)(6) Verify that if proper vapor recovery and return or disposal systems are not in place, a record is maintained of the petroleum liquid stored, the period of storage, and the maximum true vapor pressure of the liquid during the storage period. (1)(2)(6) (NOTE: Facilities storing petroleum liquids with a Reid Vapor pressure of less than 1.0 psia are not required to keep records.)
...	...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-23. Storage vessels for petroleum liquids with a storage capacity greater than 40,000 gallons constructed after May 18, 1978 are required to meet specific standards (40 CFR 60.110a through 60.115a).	Determine whether the installation has any liquid petroleum storage vessels meeting these parameters. (1)(2) Determine the true vapor pressure of the liquids stored. (1)(2) Verify that vessels storing petroleum liquid with a true vapor pressure equal to or greater than 1.5 psia but less than 11.1 psia are equipped with one of the following: (1)(2) - an external floating roof meeting design requirements outlined in 40 CFR 60.112a - a fixed roof with an internal floating type cover equipped with a continuous closure device between the tank wall and edges - a vapor recovery system that collects all VOC vapors and gases discharged from the storage vessel and a vapor return or disposal system to process the VOC vapors and gases to reduce emissions by at least 95 percent by weight - an equivalent, approved system. Verify that vessels storing petroleum liquids with a vapor pressure greater than 11.1 psia are equipped with a vapor recovery system that collects all VOC vapors and gases and a vapor return or disposal system that is designed to process the VOC vapors to reduce emissions by at least 95 percent by weight. (1)(2) Verify that the following testing is done: (1)(2) - gap measurement for primary seals of external floating roofs shall be measured at least once every 5 years - gap measurement for secondary seals of external floating roofs shall be measured at least once every year. Verify that the following records are kept: (1)(2) - records of gap measurement are to be kept for at least 2 years following the date of measurement - the petroleum liquid stored, the period of storage, and the maximum true vapor pressure during the storage unless the storage vessel has a vapor recovery and return or disposal system.
...	...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-24. Storage vessels for volatile organic liquids (VOLs) having a capacity of greater than or equal to 40 m^3 for which construction, reconstruction, or modification was started after July 23, 1984 are required to meet specific standards (40 CFR 60.110b through 60.115b). (NOTE: These standards do not apply to pressure vessels designed to operate in excess of 204.9 kPa and without emissions to the atmosphere, vessels which are permanently attached to mobile vehicles, vessels located at bulk gasoline plants, vessels located at gasoline service stations.) ...	Determine if any of the storage vessels on the installation meet these parameters. (1)(2)(6) Determine what the vapor pressure is of the liquids being stored in the vessels. (1)(2)(6) Verify that storage vessels with a design capacity greater than or equal to 151 cubic meters containing VOL with a vapor pressure equal to or greater than 5.2 kPa but less than 76.6 kPa or storage vessels with a capacity greater than or equal to 75 cubic meters but less than 151 m^3 containing VOL that has a maximum vapor pressure equal to or greater than 27.6 cubic meters but less than 76.6 kPa are equipped with one of the following: (1)(2)(6) - a fixed roof in combination with an internal floating roof, - an external floating roof, - a closed vent system and control device that reduces emissions by 95 percent by weight - an approved equivalent system. Verify that storage vessels with a design capacity greater than or equal to 75 m^3 containing a VOL with a maximum true vapor pressure greater than or equal to 76.6 kPa is equipped with one of the following: (1)(2)(6) - a closed vent system and control device that reduces emissions by 95 percent by weight - an approved equivalent alternative method. Verify that the accumulated areas or gaps do not exceed: (1)(2)(6) - 212 cm^2 per meter of tank diameter between the tank wall and the primary seal and the width of any portion of any gap does not exceed 3.81 cm - 21.2 cm^2 per meter of tank diameter between the tank wall and the secondary seal and the width of any portion of any gap does not exceed 1.27 cm. ...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

1-25. Storage vessels for volatile organic liquids (VOLs) having a capacity of greater than or equal to 40 m^3 for which construction, reconstruction, or modification was started after July 23, 1984 are required to meet specific inspection, documentation, and notification requirements standards (40 CFR 60.110b through 60.115b).
 	
(NOTE: These standards do not apply to pressure vessels designed to operate in excess of 204.9 kPa and without emissions to the atmosphere, vessels which are permanently attached to mobile vehicles, vessels located at bulk gasoline plants, vessels located at gasoline service stations.)
	Verify that the following inspections are made: (1)(2)(9)
	
	- internal floating roofs, primary seals, and secondary seals shall be inspected for holes, tears, or defects before filling the tank
	- vessels with a liquid-mounted or mechanical shoe primary seal shall have the internal floating roof and primary or secondary seals visually inspected at least once every 12 months after the initial fill
	- verify that as problems are found, the vessel is either repaired or removed from service within 45 days
	- vessels with a double-seal system are inspected at least every 5 years
	- internal floating roofs, primary seals, secondary seals, gaskets, slotted membranes, and sleeve seals are to be inspected each time the storage vessel is emptied and degassed
	- when control equipment is installed, measurement of gap areas is done:
	  - at least once every 5 years for gaps between the tank wall and the primary seal
	  - at least once a year for gaps between the tank wall and the secondary seal.
	
	Verify that a procedure is in place to notify the USEPA in advance of performing gap measurement and provide them, upon request, with copies of the following records which are to be maintained for 2 years: (1)(2)
	
	- inspection records
	- repair or removal from service of a vessel
	- operating plans
	- monitoring records
	- records showing the dimensions of storage vessels and capacity.
	
	Verify that for vessels with a design capacity greater than or equal to 151 m/u3/d storing a liquid with a maximum true vapor pressure greater than or equal to 3.5 kPa or with a design capacity greater than or equal to 75 m/u3/d but less than 151 m/u3/d, storing a liquid with a true vapor pressure greater than or equal to 15.0 kPa, a record is kept of the VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the storage period. (1)(2)
	
	- this does not apply to vessels storing a waste mixture of indefinite or variable composition or vessels equipped with a closed vent system and control device.

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-25. (continued)	Verify that, except for vessels equipped with a closed vent system and control device, a procedure exists to notify the USEPA within 30 days if the maximum true vapor pressure of a liquid exceeds the following limits for the capacities listed: (1)(2) - vessels with a design capacity greater than or equal to 151 m/u3/d storing a liquid with a maximum vapor pressure that is normally less than 5.2 kPa - vessels with a design capacity greater than 75 m/u3/d but less than 151 m^3 storing a liquid with a maximum true vapor pressure that is normally less than 27.6 kPa, notify the USEPA within 30 days when the maximum true vapor pressure of the liquid exceeds the allowed maximum true vapor pressure according to capacity.

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
FUGITIVE EMISSIONS **1-26.** The emission of volatile hazardous air pollutants, which includes vinyl chlorides and benzene, from pumps, compressors, pressure relief devices, sampling connection systems, flanges and other connectors, and product accumulator vessels operating in VHAP service, including emissions of vinyl chlorides and benzene, are required to be managed according to specific requirements (40 CFR 61.110 through 112, 61.240 through 242-1, 61.242-10, 61.246, 61.247). ...	Determine where the installation operates sources in volatile hazardous air pollutant (VHAP) service. Verify that when a leak is detected: (1)(2) - a weatherproof and readily visible identification marked with the equipment identification number is attached to the leaking equipment - the identification is removed only after no leak has been detected for 2 months or the leak is repaired - leaks detected for pumps, compressors, pressure-relief devices in liquid service, and flanges are recorded in a log and maintained for 2 years at a readily accessible location. Verify that the following records are maintained: (1)(2) - a list of identification numbers of all equipment to which a standard applies - a list of equipment designated for no detectable emissions - dates of compliance tests - a list of identification numbers for equipment in vacuum service - information and data used to demonstrate that a piece of equipment is not in VHAP service. Verify that a semiannual report listing the number of leaks identified, items which were not repaired, explanation of repair delays or infeasibility of a shutdown, dates of shutdowns, and revisions to previous reports is submitted to the USEPA Administrator. (1)(2) ...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-27. The emission of volatile hazardous air pollutants, which includes vinyl chlorides and benzene from pumps in VHAP service are required to be monitored and controlled (40 CFR 61.240 through 61.242-2 and 61.110 through 61.112). ...	Determine where the installation operates pumps in volatile hazardous air pollutant (VHAP) service. Verify that pumps meet the following standards: (1)(2) - they are visually inspected weekly for leaks - they are monitored monthly using standard test methods for leaks - leaks are repaired within 15 days. (NOTE: exemptions include: - pumps equipped with properly operating dual mechanical seal systems are exempt from the monitoring requirements - pumps designated for no detectable emissions, as indicated by a reading of less than 500 ppm above background only have to comply with the repair requirements if there is no externally actuated shaft penetrating the pump house and is tested as having no detectable emissions - pumps equipped with a closed-vent system capable of capturing and transporting any leakage from the seal or seals to a control device are exempt from all standards - pumps in unmanned plant sites are exempt from weekly inspection requirements if each pump is visually inspected as often as possible and at least monthly.) ...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

1-28. The emission of volatile hazardous air pollutants, which includes vinyl chlorides and benzene, from compressors in VHAP service are required to be monitored and controlled (40 CFR 61.110 through 112, 240 through 242-1, 242-3).	Determine where the installation operates compressors in volatile hazardous air pollutant (VHAP) service.
	
	Verify that compressor meet the following: (1)(2)
	
	- they are equipped with a seal system that includes a barrier fluid system and that prevents leakage of process fluids and:
	  - operates with the barrier fluid at a pressure greater than the compressor stuffing box pressure, or
	  - is equipped with a barrier fluid system that is connected by a closed-vent system to a control device, or
	  - is equipped with a system that purges the barrier fluid into a process stream with zero VHAP emissions
	  - the barrier fluid is not in VHAP service
	- barrier fluid systems are equipped with a sensor to detect the failure of the seal system, barrier fluid system, or both and sensor are checked daily or have an audible alarm unless the compressor is located within the boundary of an unmanned plant site
	- leaks are repaired within 15 days.
	
	(NOTE: The following are exempt from the compressor requirements:
	
	- compressors equipped with closed vent systems for capturing and transporting leakage into a control device are exempt from seal system requirements
	- compressors designated for no detectable emissions are exempt form all requirements if it is demonstrated to be operating with an instrument reading of less then 500 ppm above background and is tested for compliance annually.)

...	...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-29. The emission of volatile hazardous air pollutants, which includes vinyl chlorides and benzene, from pressure relief devices, sampling connection systems, flanges and other connectors, and product accumulator vessels operating in VHAP service are required to be monitored and controlled (40 CFR 61.110 through 61.112, 61.240 through 242-1, 61.242-4, 61.242-5, 61.242-8, and 61.242-9).	Determine where the installation operates sources in volatile hazardous air pollutant (VHAP) service. Verify the pressure relief devices in gas/vapor service meet the following, except during pressure releases: (1)(2) - they are operated with no detectable emissions, as indicated by an instrument reading of less then 500 ppm above background - after a pressure release, the device is returned to a state of no detectable emissions within 5 days. (NOTE: Pressure relief devices equipped with a closed-vent system capable of capturing and transporting leakage to a control device are exempted from the listed requirements.) Verify that sampling connectors are equipped with a closed-purge system or closed vent system that: (1)(2) - returns the purged process fluid directly to the process line, or - collects and recycles the purged process fluid, or - is designed and operated to capture and transport all purged process fluid to a control device. (NOTE: In-situ sampling systems are exempt from the requirements for sampling connectors.) Verify that pressure relief devices in liquid service and flanges and other connectors are monitored within 5 days if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method and repair is done within 15 days. (1)(2) Verify that product accumulator vessels are equipped with a closed-vent system capable of capturing and transporting any leakage from the vessel to a control device. (1)(2)
...	...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-30. The emission of volatile hazardous air pollutants, which includes vinyl chlorides and benzene, from pumps, compressors, pressure relief devices, sampling connection systems, flanges and other connectors, and product accumulator vessels operating in VHAP service, including emissions of vinyl chlorides and benzene, are required to be managed according to specific requirements (40 CFR 61.110 through 112, 61.240 through 242-1, 61.242-10, 61.246, and 61.247).	Determine where the installation operates sources in volatile hazardous air pollutant (VHAP) service. Verify that when a leak is detected: (1)(2) - a weatherproof and readily visible identification marked with the equipment identification number is attached to the leaking equipment - the identification is removed only after no leak has been detected for 2 months or the leak is repaired - leaks detected for pumps, compressors, pressure-relief devices in liquid service, and flanges are recorded in a log and maintained for 2 years at a readily accessible location. Verify that the following records are maintained: (1)(2) - a list of identification numbers of all equipment to which a standard applies - a list of equipment designated for no detectable emissions - dates of compliance tests - a list of identification numbers for equipment in vacuum service - information and data used to demonstrate that a piece of equipment is not in VHAP service. Verify that a semiannual report listing the number of leaks identified, items which were not repaired, explanation of repair delays or infeasibility of a shutdown, dates of shutdowns, and revisions to previous reports is submitted to the USEPA Administrator. (1)(2)
...	...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

1-31. Valves and lines in VHAP service, this includes vinyl chlorides and benzene, are required to be properly operating and monitored (40 CFR 61.110 through 61.116, 61.242-6, 61.242-7, 61.243-1, 61.246, and 61.247).	Determine what valves and lines at the installation are in VHAP service. (1)(2)
	
	Verify that open-ended valves or lines are equipped with a cap, blind flange, or second valve that seal the open end at all times except during operations requiring process fluid flow through the valve or line. (1)(2)
	
	Verify that open-ended valves or lines with a second valve are operated so that the valve on the process fluid end is closed before the second valve is closed. (1)(2)
	
	Verify that valves are properly operated and monitored: (1)(2)
	
	- valves are monitored monthly except that valves for which a leak has not been detected for 2 successive months may be monitored quarterly until a leak is detected
	- after notifying the USEPA Administrator the following practices may be used:
	  - after 2 consecutive quarterly leak detection periods where the percentage of valves leaking is equal to or less than 2.0, the operator may begin to skip 1 of quarterly leak detection periods
	  - after 5 consecutive quarterly leak detection periods where the percentage of the valves leaking is equal to or less than 2.0, the operator may begin to skip 3 quarterly leak detection periods
	- repair is done within 15 days of leak detection.
	
	(NOTE: the following valves are exempted from specific requirements:
	- valves designated for no detectable emissions are exempt from the monthly monitoring requirements if there is no external actuating mechanism in contact with the process fluid and the valve is tested for compliance annually
	- valves designated as unsafe-to-monitor are exempt form the monthly monitoring requirements if it is demonstrated that the valve is unsafe to monitor and there is a written plan requiring monitoring of the valve during safe-to-monitor times
	- valves designated as difficult to monitor are exempt from the monthly monitoring requirements if it is demonstrated that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface and a written plan is followed that requires monitoring of the valve at least once a year.)
	
	(NOTE: Repair may be delayed if the repair is technically infeasible or if the equipment is isolated.)

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
1-31. (continued)	Verify that when a leak is detected: (1)(2) - a weatherproof and readily visible identification marked with the equipment identification number is attached to the leaking equipment - the identification is removed only after no leak has been detected for 2 months or the leak is repaired - leaks detected for valves shall be recorded in a log and maintained for 2 years at a readily accessible location. Verify that the following records are maintained: (1)(2) - a list of identification numbers of all equipments to which a standard applies - a list of equipment designated for no detectable emissions - dates of compliance tests - a list of identification numbers for equipment in vacuum service - information and data used to demonstrate that a piece of equipment is not in VHAP service. Verify that a semiannual report listing the number of leaks identified, items which were not repaired, explanation of repair delays or infeasibility of a shutdown, dates of shutdowns, and revisions to previous reports is submitted to the USEPA Administrator. (1)(2)
...	...
1-32. Systems and devices used to control VHAP emissions, including benzene and vinyl chloride emissions, shall be properly operated (40 CFR 61.110 through 61.112, 61.242-11, 61.246. 61.247).	Verify that closed-vent systems and control devices used to control VHAP emissions meet the following: (1)(2) - vapor recovery systems are designed and operated to recover the organic vapors vented to them with 95% efficiency or greater - enclosed combustion devices are designed and operated to reduce the VHAP and benzene emissions vented to them with an efficiency of 95% or greater or provide a minimum residence time of 0.50 seconds at a minimum temperature of 760 degrees C - closed-vent systems shall have no detectable emissions and shall be monitored annually and leaks repaired within 15 days - these systems are operated at all time: when emissions may be vented to them. Verify that for closed vent system and control devices the following records are kept in a readily accessible location: (1)(2) - detailed schematics dates and descriptions of any changes to the system periods when they are not operating dates of startups and shutdowns.
...	...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
SOLVENT DEGREASERS **1-33.** Exhaust ventilation in areas where degreasers are operating should not exceed an amount dependent on the required minimum control velocity and the tank width to length ratio (Tables G-14 and G-15 in 29 CFR 1910.94 (d)(4)). ...	Determine the air handling capacity of ventilating fans. (9) Determine if exhaust ventilation at the degreaser exceeds limitations. (9) ...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
DRY CLEANING	
1-34. Petroleum solvent dry cleaning dryers, washers, filters, stills, and settling tanks at petroleum dry cleaning plants with a total manufacturers' rated dryer capacity equal to or greater than 38 k (84 lb) that started construction or modification after December 14, 1982, except for dryers installed between December 14, 1982 and September 21, 1984 in a plant with an annual solvent consumption level less than 4,700 gallons, are required to meet specific standards of operation (40 CFR 60.620 through 60.625).	Verify that dryers are solvent recovery dryers. (1)(2)(9) Verify that the petroleum solvent filters are cartridge filters that are drained in their sealed housing for at least 8 hours before their removal. (1)(2)(9) Determine if the facility has been granted approval from the USEPA to use alternate equipment or procedures to reduce VOC emissions. (1)(2)(9) (NOTE: Perchloroethylene drycleaners are regulated by some states.)
...	...
ACID PRODUCTION UNITS	
1-35. Nitric acid production units that started construction or modification after August 17, 1971 are required to meet specific standards (40 CFR 60.70 through 60.74).	Verify that gases are not discharged that contain nitrogen oxides in excess of 1.5 kg per metric ton of acid produced (3 lb/ton) when the production is expressed as 100 percent nitric acid. (1)(2)(9) Determine if a continuous monitoring system for the measurement of nitrogen oxides is in place. (1)(2)(9)
...	...
1-36. Sulfuric acid production units which started construction or modification after August 17, 1971 are required to meet specific standards (40 CFR 60.80 through 60.85).	Verify that these facilities do not emit gases that contain sulfur dioxide in excess of 2 kg per metric ton of acid produced (4 lb tion is expressed as percent H_2SO_4. (1)(2)(9) Verify that the gases emitted do not exhibit 10 percent opacity or greater and they do not contain sulfuric acid mist, expressed as H_2SO_4, in excess of 0.075 kg per metric ton of acid produced (0.15 lb tion is expressed as 100 percent H_2SO_4. (1)(2)(9) Determine if a continuous monitoring system is in place for the measurement of sulfur dioxide. (1)(2)(9)
...	...

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COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
CHLOROFLUORO-CARBONS AND HALONS **1-37.** Installations that use chlorofluorocarbons (CFCs) and halons must do a CFC and Halon Annual Report (DoD Directive 6050.9).	Determine if the CFCs and Halon Annual Report (DD Form 2530) has been completed. (2) (NOTE: The reviewer should keep a copy of the report, as it will be used in later stages of the review when facilities are inspected.) (2) Inspect areas where CFCs and halons are used / stored for the following requirements: (2) - dependence on CFCs and halons is reduced - emissions are being minimized - conservation practices have been implemented.

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Appendix 1-1

Standards of Performance, 40 CFR Part 60

Source Category	Fuel Type	Pollutant	Emission Level	Monitoring Requirement
		Subpart D		
Steam generators* (>250 MBtu/hr) constructed or modified after 8/17/71	Solid Fossil Fuel	Particulate Opacity SO_2 NO_x (except lignite and coal refuse)	0.10 lb/MBtu 20%; 27% 6 min/hr 1.2 lb/MBtu 0.70 lb/MBtu	None. Continuous Continuous Continuous
	Liquid Fossil Fuel	SO_2 NO_x	0.80 lb/MBtu 0.30 lb/MBtu	Continuous Continuous
	Gaseous Fossil Fuel	NO_x	0.20 lb/MBtu	Continuous
	Lignite	NO_x	0.60 lb/MBtu	Continuous
	Lignite mined in ND SD, or MT burned in a cyclone fired unit	NO_x	0.80 lb/MBtu	Continuous
		Subpart E		
Incinerators (>50 tons/day) constructed or modified after 8/17/71	Inciner-ators	Particulate CO_2	0.08 gr/dscf corrected to 12% CO_2	Record of daily charging rates and hours of operation

***Does not include electric utility steam generating unit that started construction or modification after September 18, 1978.**

Appendix 1-2

Formulas for Calculating Emissions Limitations

Steam generating units that started construction, modification, or reconstruction after June 19, 1984 with a heat input capacity of greater than 100 MBtu/hr.

SULFUR DIOXIDE from facilities combusting coal or oil:

$$E = \frac{(K_a H_a + K_b H_b)}{(H_a + H_b)}$$

where:

- E - the sulfur dioxide emission limit
- K_a - 1.2 lb/MBtu
- K_b - .80 lb/MBtu heat input
- H_a - the heat input from the combustion of coal
- H_b - the heat input from the combustion of oil

SULFUR DIOXIDE from facilities combusting coal or oil alone or with other fuel while using emerging technology:

$$E_s = \frac{(K_c H_c + K_d H_d)}{(H_c + H_d)}$$

where:

- E_s - the sulfur dioxide emission limit (expressed in NO_2), ng / J (lb /MBtu) heat input
- K_c - 260 ng / J (0.60 lb/MBtu)
- K_d - 170 ng / J (0.40 lb/MBtu)
- H_c - the heat input from the combustion of coal, J (MBtu)
- H_d - the heat input from the combustion of oil, J (MBtu)

NITROGEN OXIDE EMISSIONS from facilities simultaneously combusting coal, oil, or natural gas with by-products/waste:

$$E_n = \frac{[(EL_{go} H_{go}) + (EL_{ro} H_{ro}) + (EL_c H_c)]}{(H_{go} + H_{ro} + H_c)}$$

where:

- E_n - the nitrogen oxides emission limit (expressed as NO_2), ng / J (lb /MBtu)
- EL_{go} - the appropriate emission limit from paragraph (a)(1) for combustion of natural gas or distillate oil, ng / J (lb /MBtu)
- H_{go} - the heat input from combustion of natural gas or distillate oil and gaseous by-product /waste, ng / J (lb /MBtu)
- EL_{ro} - the appropriate emission limit from paragraph (a)(2) for combustion of residual oil, ng / J (lb /MBtu)
- H_{ro} - the heat input from combustion of residual oil and/or liquid by-product/waste
- EL_c - the appropriate emission limit from paragraph (a)(3) for combustion of coal
- H_c - the heat input from combustion of coal.

NITROGEN OXIDE EMISSIONS from facilities simultaneously combusting mixtures of coal, oil, or natural gas:

$$E_n = \frac{[(EL_{go} H_{go}) + (EL_{ro} H_{ro}) + (EL_c H_c)]}{(H_{go} + H_{ro} + H_c)}$$

where:

- E_n - the nitrogen oxides emission limit (expressed as NO_2), ng / J (lb /MBtu)
- EL_{go} - the appropriate emission limit from paragraph (a)(1) for combustion of natural gas or distillate oil, ng / J (lb /MBtu)
- H_{go} - the heat input from combustion of natural gas or distillate oil
- EL_{ro} - the appropriate emission limit from paragraph (a)(2) for combustion of residual oil
- H_{ro} - the heat input from combustion of residual oil
- EL_c - the appropriate emission limit from paragraph (a)(3) for combustion of coal
- H_c - the heat input from combustion of coal.

Appendix 1-3

Particulate Emission Standards

Steam generating units with a heat input capacity of greater than 100 MBtu/hour that started construction, modification, or reconstruction after June 19, 1984.

FACILITY TYPE	PARTICULATE EMISSIONS
Combusts only coal or coal and other fuels with an annual capacity factor for the other fuels of 10 percent or less.	0.05 lb/MBtu heat input
Combusts coal and other fuels and has an annual capacity factor greater than 10 percent and is subject to federally enforceable requirements limiting operations to an annual capacity factor greater than 10 percent for fuels other than coal.	0.10 lb/MBtu heat input
Combusts coal or coal and other fuels, was constructed after June 19, 1984 but before November 25, 1986 and has: a) an annual capacity factor for coal and coal and other fuels of 30 percent or less b) has a maximum heat input capacity of 250 MBtu c) has a federally enforceable requirements limiting operation of affected facility to an annual capacity factor of 30 percent or less for coal or coal and other solid fuels.	0.20 lb/MBtu heat input
Combusts oil or mixture of oil and uses a conventional or emerging technology to reduce sulfur dioxide emissions.	0.10 lb/MBtu heat input
Combusts wood or wood with other fuels except coal and has an annual capacity factor greater than 30 percent for wood.	0.10 lb/MBtu heat input
Combusts wood or wood with other fuels, except coal, with a maximum heat input capacity of 250 MBtu/hour and has an annual capacity factor of 30 percent or less for wood and is subject to a federally enforceable requirement limiting operation to an annual capacity factor of 30 percent or less.	0.20 lb/MBtu heat input

Appendix 1-3
(continued)

FACILITY TYPE	PARTICULATE EMISSIONS
Combusts municipal-type solid waste or mixtures of municipal-type solid waste with other fuels with an annual capacity factor of 10 percent or less for other fuels.	0.10 lb/MBtu heat input
Combusts municipal-type solid waste or mixtures of municipal-type solid waste with other fuels with an annual capacity factor of 30 percent or less for other fuels and has a maximum heat input capacity of 250 MBtu/hour or less that was constructed between June 19, 1984 and November 25, 1986 with a federally enforceable requirements limiting operating to an annual capacity factor of 30 percent.	0.20 lb/MBtu heat input

Appendix 1-4

Emissions Standards For Nitrogen Oxides

Fuel burning sources greater than 100 MBtu/hr heat input that started construction, modification, or reconstruction after June 19, 1984.

FUEL/STEAM GENERATING UNIT TYPE	NITROGEN OXIDE EMISSION LIMIT LBS/MILLION Btu (EXPRESSED AS NO_2) HEAT INPUT
(1) Natural gas and distillate oil except for	
low heat release rate	0.10
high heat release rate	0.20
(2) Residual oil	
low heat release rate	0.30
high heat release rate	0.40
(3) Coal	
mass feed stoker	0.50
spreader-stoker and fluid bed combustion	0.60
pulverized coal	0.70
lignite	0.60
lignite mined in ND, SD, or MT, and combusted in a slag tap furnace	0.80
coal derived synthetic fuels	0.50
(4) Duct burner used in combined cycle system	
natural gas and distillate oil	0.20
residual oil	0.40

Appendix 1-5

Emission Standards For Electric Utility Steam Generators

Electric steam generators greater than 250 MBtu/hr constructed or modified after 9/18/78 and electric utility combined cycle gas turbines that combust greater than 250 MBtu/hr.

FUEL TYPE	POLLUTANT	EMISSION LEVEL	MONITORING
Solid Fuels.	nitrogen oxides[1]	65% reduction	Continuous
--coal-derived fuels		0.50 lb/MBtu heat input	
--any fuel containing >25%, by weight, lignite mined in ND, SD, or MT, and is combusted in a slag tap furnace.		0.80 lb/MBtu heat input	
--Subbituminous coal		0.50 lb/MBtu heat input	
--Bituminous coal		0.60 lb/MBtu heat input	
--Anthracite coal		0.60 lb/MBtu heat input	
--all other fuels		0.60 lb/MBtu heat input	
	particulate	0.03 lb/MBtu heat input and 1 percent of the potential combustion concentration	
	opacity	20 %; 27% for 6 min.	Continuous
	sulfur dioxide[1]	1.2 lb/MBtu heat input and 10% of the potential combustion concentration (90% reduction)	Continuous
		30% of the potential combustion concentration if emissions are <0.60 lb/MBtu (70% reduction)	
Solid solvent refined coal	sulfur dioxide[1]	1.20 lb/MBtu and 15% of the potential combustion concentration	

[1]Emission reduction requirements do not apply to facilities operating under a sulfur dioxide commercial demonstration permit. When different fuels are combusted simultaneously, the applicable standard is determined by proration.

Appendix 1-5
(continued)

FUEL TYPE	POLLUTANT	EMISSION LEVEL	MONITORING
Liquid Fuels	nitrogen oxides[1]	30% reduction	Continuous
--coal-derived fuels		0.50 lb/MBtu heat input	
--shale oil		0.50 lb/MBtu heat input	
--all other fuels		0.30 lb/MBtu heat input	
	particulate	0.03 lb/MBtu heat input and 30% of the potential combustion concentration	
	opacity	20%; 27% for 6 min.	Continuous
	sulfur dioxide	0.80 lb/MBtu heat input and 10% of the potential combustion concentration (90% reduction)	Continuous
		100% of the potential combustion concentration when emissions are <0.20 lb/MBtu.	
Gaseous fuels	nitrogen oxides[1]	25% reduction	Continuous
--coal-derived fuels		0.50 lb/MBtu heat input	
--all other fuels		0.20	
	particulate	0.03 lb/MBtu heat input	
	opacity	20%; 27% for 6 min.	
	sulfur dioxide	0.80 lb/MBtu heat input and 10% of the potential combustion concentration	
		100% of the potential combustion concentration when emissions are <0.20 lb/MBtu.	

[1]Emission reduction requirements do not apply to facilities operating under a sulfur dioxide commercial demonstration permit. When different fuels are combusted simultaneously, the applicable standard is determined by proration.

Appendix 1-6

Municipal Waste Combustor Operating Standards for Carbon Monoxide

Municipal Waste Combustor Technology	emission limit (ppm by volume)
Mass burn waterwall	100
Mass burn refractory	100
Mass burn rotary waterwall	100
Modular starved air	50
Modular excess air	50
RDF stoker	150
Bubbling fluidized bed combustor	100
Circulating fluidized bed combustor	100
Coal/RDF mixed fuel fired combustor	150

Appendix 1-7

Nitrogen Oxide Emissions From Stationary Gas Turbines

Formula A:

$$STD = 0.0075 \frac{(14.4)}{Y} + F$$

Formula B:

$$STD = 0.0150 \frac{(14.4)}{Y} + F$$

STD = allowable NO_x emissions (percent by volume at 15 percent oxygen and on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

F = NO_x emission allowance for fuel-bound nitrogen, defined as follows:

Fuel-Bound Nitrogen (% by weight)	F
N <0.015	0
0.015 <N <0.1	0.04(N)
0.1 <N <0.25	0.004 + 0.0067(N - 0.1)
N >0.25	0.0025

N is the nitrogen content of the fuel (percent by weight)

APPENDIX 1 - 8

Reid Vapor Pressure (RVP) for Installation Geographic Area

Applicable Standards[1] 1990 - 1991

State	May	June	July	Aug.	Sept.
Alabama	10.5	10.5	9.5	9.5	10.5
Arizona	9.5	9.0	9.0	9.0	9.5
Arkansas	10.5	10.5	9.5	9.5	10.5
California[2]:					
North Coast	10.5	9.5	9.5	9.5	9.5
South Coast	9.5	9.5	9.5	9.5	9.5
Southeast	9.5	9.5	9.5	9.5	9.5
Interior	9.5	9.5	9.5	9.5	9.5
Colorado	10.5	9.5	9.5	9.5	9.5
Connecticut	10.5	10.5	10.5	10.5	10.5
Delaware	10.5	10.5	10.5	10.5	10.5
District of Columbia	10.5	10.5	10.5	10.5	10.5
Florida	10.5	10.5	10.5	10.5	10.5
Georgia	10.5	10.5	9.5	9.5	10.5
Idaho	10.5	10.5	10.5	10.5	10.5
Illinois:					
North of 40° Latitude	10.5	10.5	10.5	10.5	10.5
South of 40° Latitude	10.5	10.5	9.5	9.5	10.5
Indiana	10.5	10.5	10.5	10.5	10.5
Iowa	10.5	10.5	10.5	10.5	10.5
Kansas	10.5	10.5	9.5	9.5	10.5
Kentucky	10.5	10.5	10.5	10.5	10.5
Louisiana	10.5	10.5	9.5	9.5	10.5
Maine	10.5	10.5	10.5	10.5	10.5
Maryland	10.5	10.5	10.5	10.5	10.5
Massachusetts	10.5	10.5	10.5	10.5	10.5
Michigan	10.5	10.5	10.5	10.5	10.5
Minnesota	10.5	10.5	10.5	10.5	10.5
Mississippi	10.5	10.5	9.5	9.5	10.5
Missouri	10.5	10.5	9.5	9.5	10.5
Montana	10.5	10.5	10.5	10.5	10.5
Nebraska	10.5	10.5	10.5	10.5	10.5
Nevada:					
North of 38° Latitude	10.5	9.5	9.5	9.5	9.5
South of 38° Latitude	9.5	9.5	9.5	9.5	9.5
New Hampshire	10.5	10.5	10.5	10.5	10.5
New Jersey	10.5	10.5	10.5	10.5	10.5

Applicable Standards
(Continued)

State	May	June	July	Aug.	Sept.
New Mexico:					
North of 34 Latitude	9.5	9.0	9.0	9.0	9.5
South of 34 Latitude	9.5	9.0	9.0	9.0	9.5
New York	10.5	10.5	10.5	10.5	10.5
North Carolina	10.5	10.5	9.5	9.5	10.5
North Dakota	10.5	10.5	10.5	10.5	10.5
Ohio	10.5	10.5	10.5	10.5	10.5
Oklahoma	10.5	9.5	9.5	9.5	10.5
Oregon:					
East of 122° Longitude	10.5	10.5	10.5	10.5	10.5
West of 122° Longitude	10.5	10.5	10.5	10.5	10.5
Pennsylvania	10.5	10.5	10.5	10.5	10.5
Rhode Island	10.5	10.5	10.5	10.5	10.5
South Carolina	10.5	10.5	9.5	9.5	10.5
South Dakota	10.5	10.5	10.5	10.5	10.5
Tennessee	10.5	10.5	9.5	9.5	10.5
Texas:					
East of 99° Longitude	10.5	9.5	9.5	9.5	9.5
West of 99° Longitude	9.5	9.0	9.0	9.0	9.5
Utah	10.5	9.5	9.5	9.5	9.5
Vermont	10.5	10.5	10.5	10.5	10.5
Virginia	10.5	10.5	10.5	10.5	10.5
Washington:					
East of 122° Longitude	10.5	10.5	10.5	10.5	10.5
West of 122° Longitude	10.5	10.5	10.5	10.5	10.5
West Virginia	10.5	10.5	10.5	10.5	10.5
Wisconsin	10.5	10.5	10.5	10.5	10.5
Wyoming	10.5	10.5	10.5	10.5	10.5

[1] Standards are expressed in pounds per square inch (psi).

[2] California areas include the following counties:

North Coast: Alameda, Contra Costa, Del Norte, Humbolt, Lake, Marin, Mendocino, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, and Trinity;

Interior : Lassen, Modoc, Plumas, Sierra, Siskiyou, Alpine, Amador, Butte, Calaveras, Colusa, El Dorado, Fresno, Glenn, Kern (except that portion lying east of the Los Angeles County Aquaduct), Kings, Madera, Mariposa, Merced, Placer, Sacramento, San Joaquin, Shasta, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba, and Nevada;

South Coast: Orange, San Diego, San Luis Obispo, Santa Barbara, Ventura, and Los Angeles (except that portion lying north of the San Gabriel mountain range and east of the Los Angeles County Aquaduct);

Southeast : Imperial, Riverside, San Bernardino, Los Angeles (including that portion lying north of the San Gabriel mountain range and east of the Los Angeles County Aquaduct), Mono, Inyo, and Kern (including that portion lying east of the Los Angeles County Aquaduct).

Applicable Standards
(Continued)

Applicable Standards[1] 1992 and Beyond

State	May	June	July	Aug.	Sept.
Alabama	9.0	7.8	7.8	7.8	7.8
Arizona	9.0	7.8	7.8	7.8	7.8
Arkansas	9.0	7.8	7.8	7.8	7.8
California	9.0	7.8	7.8	7.8	7.8
Colorado	9.0	7.8	7.8	7.8	7.8
Connecticut	9.0	9.0	9.0	9.0	9.0
Delaware	9.0	9.0	9.0	9.0	9.0
District of Columbia	9.0	7.8	7.8	7.8	7.8
Florida	9.0	7.8	7.8	7.8	7.8
Georgia	9.0	7.8	7.8	7.8	7.8
Idaho	9.0	9.0	9.0	9.0	9.0
Illinois	9.0	9.0	9.0	9.0	9.0
Indiana	9.0	9.0	9.0	9.0	9.0
Iowa	9.0	9.0	9.0	9.0	9.0
Kansas	9.0	7.8	7.8	7.8	7.8
Kentucky	9.0	9.0	9.0	9.0	9.0
Lousiana	9.0	7.8	7.8	7.8	7.8
Maine	9.0	9.0	9.0	9.0	9.0
Maryland	9.0	7.8	7.8	7.8	7.8
Massachusetts	9.0	9.0	9.0	9.0	9.0
Michigan	9.0	9.0	9.0	9.0	9.0
Minnesota	9.0	9.0	9.0	9.0	9.0
Mississippi	9.0	7.8	7.8	7.8	7.8
Missouri	9.0	7.8	7.8	7.8	7.8
Montana	9.0	9.0	9.0	9.0	9.0
Nebraska	9.0	9.0	9.0	9.0	9.0
Nevada	9.0	7.8	7.8	7.8	7.8
New Hampshire	9.0	9.0	9.0	9.0	9.0
New Jersey	9.0	9.0	9.0	9.0	9.0
New Mexico	9.0	7.8	7.8	7.8	7.8
New York	9.0	9.0	9.0	9.0	9.0
North Carolina	9.0	7.8	7.8	7.8	7.8
North Dakota	9.0	9.0	9.0	9.0	9.0
Ohio	9.0	9.0	9.0	9.0	9.0
Oklahoma	9.0	7.8	7.8	7.8	7.8
Oregon	9.0	7.8	7.8	7.8	7.8

Applicable Standards
(Continued)

State	May	June	July	Aug.	Sept.
Pennsylvania	9.0	9.0	9.0	9.0	9.0
Rhode Island	9.0	9.0	9.0	9.0	9.0
South Carolina	9.0	7.8	7.8	7.8	7.8
South Dakota	9.0	9.0	9.0	9.0	9.0
Tennessee	9.0	7.8	7.8	7.8	7.8
Texas	9.0	7.8	7.8	7.8	7.8
Utah	9.0	7.8	7.8	7.8	7.8
Vermont	9.0	9.0	9.0	9.0	9.0
Virginia	9.0	7.8	7.8	7.8	7.8
Washington	9.0	9.0	9.0	9.0	9.0
West Virginia	9.0	9.0	9.0	9.0	9.0
Wisconsin	9.0	9.0	9.0	9.0	9.0
Wyoming	9.0	9.0	9.0	9.0	9.0

INSTALLATION:	COMPLIANCE CATEGORY: CLEAN AIR ACT (CAA) USA ECAS	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine (4) Safety and Health Officer (5) Fire Department (6) Director of Logistics (DOL) (9) Chief of Operations and Maintenance (O&M) (30) Army Air Force Exchange Station (AAFES)

Section 2

CLEAN WATER ACT (CWA)

SECTION 2

CLEAN WATER ACT (CWA)

A. Applicability of this Protocol

This protocol includes regulations, responsibilities and compliance requirements associated with wastewater discharge at Army installations.

- Wastewater discharge can include any of the following:
  - Sanitary or industrial wastewater discharge directly to a receiving stream, or through an on-site treatment facility
  - Sanitary or industrial wastewater discharge to an off-site Public Owned Treatment Plant or to a treatment plant of another DoD or Federal activity
  - Storm water discharge associated with industrial activity on the installation going to a receiving stream or water body.

Most Army installations have wastewater discharge of one type or another, and therefore this protocol will be applicable to most installations.

Wastewater discharge is primarily regulated on the Federal level United States Environmental Protection Agency (USEPA) and/or by state regulatory agencies. This protocol integrates all wastewater related compliance requirements from Federal, state, DoD, and Army regulations. However, because the focus of wastewater discharge compliance is an installation's specific permits, many of the review items in this protocol are presented in a generic manner.

It also contains information on POL regulations and requirements. This protocol applies to Army installations which store, transport, dispose, or utilize petroleum-based fuels or lubricants (POL). The protocol presents review action items which respond to regulations, procedures, and organizational mechanisms designed to prevent or limit the accidental release of POL materials to surface water, ground water, or soils.

This protocol covers management of above and below ground POL bulk storage tanks, organizational tanks, pipeline delivery systems, truck fill stands, immediate operating storage areas, and fueling/ defueling flight line operations. POL materials addressed include jet fuel (JP-4), AVGAS, MOGAS, diesel fuel and lubricating oils. Waste petroleum based solvents (including PD-680) are addressed in Section 3, Hazardous Waste Management. The portion of this

protocol dealing with underground storage tanks also applies to hazardous materials storage.

POL Management is regulated by Federal (EPA) and state regulatory agencies. The implementation of the required regulatory responses at the installation level are based on DoD and U.S. Army regulations and technical orders. The primary focus of the review protocol worksheets is the organizational mechanisms which control or prevent environmental releases at the source.

B. Federal Legislation

- Congress enacted the Federal Water Pollution Control Act in 1948. Since then, the Act has been largely amended by the enactment of the Clean Water Act (CWA) of 1977 [Public Law 95-217], and is principally codified at 33 USC 1251, et. seq. CWA's intent was to restore and protect the integrity of the Nation's waters by controlling the discharge of pollutants into those waters.

- The Water Quality Improvement Act of 1974 is the primary Federal law governing the discharge of oil into navigable waters. This regulation prohibited the discharge of "harmful" quantities of oil into navigable waters. 40 CFR 110, *Protection of Environment - Discharge of Oil*, defines "harmful" quantities as those discharges which will cause a sheen or discoloration of the surface of the water or a sludge or emulsion to be deposited beneath the surface of the water.

- 40 CFR 112, *Oil Pollution Prevention - Non-Transportation Related Onshore and Offshore Facilities*, was pursuant to Section 311 (j)(1)(c) of the Federal Water Pollution Control Act Amendments of 1972. This regulation requires that operators of facilities which have discharged, or due to their location, could reasonably be expected to discharge oil into or onto the navigable waters of the United States, prepare a Spill Prevention Control and Countermeasure (SPCC) Plan. This SPCC Plan must address the use of pollution prevention equipment, spill response training of operating personnel, the use of secondary containment, and an oil spill contingency plan. "Oil" is defined in 40 CFR 122.2 as oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse and oil mixed with wastes other than dredged spoil.

- CWA regulates wastewater discharge directly into navigable or surface waters and those indirect discharge into Publicly Owned Treatment Works (POTWs) (40 CFR 403). CWA also established the National Pollutant Discharge Elimination System (NPDES), which prohibits the direct discharge of any pollutants from a point source into U.S. waters except by special permits (40 CFR 122).

  40 CFR Parts 405 through 471 contain categorical effluent limitations. Army installations may be affected with the implementations of: electroplating (40

CFR 413); steam electric power generating (40 CFR 423); metal finishing (40 CFR 433); photography (40 CFR 459); and hospital (40 CFR 460). The effluent guidelines for photographic sources and hospitals only deal with limitations on direct discharges. Effluent limitations for installations with these activities will be stipulated in the installations' specific NPDES permit.

Section 313(a) of the CWA (codified at 33 USC 1323) subjects Federal agencies to Federal, state, and local water pollution controls both substantively and procedurally. Section 313(a) limits Federal facility liability to "civil penalties arising under Federal law or imposed by a state or local court to enforce an order or the process of such court." Like the Clean Air Act, the CWA also provides for Presidential exemptions for executive branch agencies.

The CWA also provides for citizen suits against Federal facilities for failing to obtain the necessary permits, violations of the terms of a permit, or violation of effluent standards or limitations [Section 505 a (l) and (f), 33 USC 1365].

The CWA makes it illegal for any person (including Federal facilities) to discharge pollutants from a point source into waters of the United States without a permit [Section 301, 33 USC 1311]. Section 402 (33 USC 1342(a)) provides for the issuance of such permits [which may be issued by the states -- see Section 402 (a)(5), 33 USC 1342(b)] under the NPDES, and Section 404 (33 USC 1344) provides for the issuance of permits for discharges of dredged or fill material. (Note: Certain Federal projects specifically authorized by Congress do not require Section 404 permits.)

C. State/Local Requirements

- States normally have wastewater discharge legislation and regulations that require permitting similar to the NPDES program. The state is often delegated authority to administer the NPDES permits for discharges in their state. These permits are often joint permits issued pursuant to both Federal CWA and state legislation. In some cases, the state will not administer the NPDES program and will issue a state permit (SPDES) even though a NPDES permit has been issued by the USEPA. This dual permitting is common. The states and the USEPA normally cooperate in the permit issuance process to ensure that the two permits are consistent, but there may be differences in monitoring requirements and the number of pollutants limited. These requirements normally do not conflict, but may require additional sampling and dual reporting.

States also have more stringent requirements for wastewater treatment plant operations. Many states have sanitary treatment plant (STP) operator licensing and certification programs that require operators to pass an exam and have a required level of experience.

Local entities (counties, cities) also may have enforceable wastewater discharge limitations that regulate discharges to an off-site POTW. Local limitations often include pH, temperature, and concentrations of various organic and inorganic compounds. Major industrial operations may require a POTW permit and a monitoring program. In some cases, another DoD activity may stipulate effluent discharge limitations for discharges to their treatment plant if the Army installation discharges to the DoD facility.

Many states and some major metropolitan and regional planning agencies have developed legislation and implemented regulations which closely parallel the Federal statutes Some, however, may differ in important ways, and the evaluator should obtain copies of the state or local requirements for OHSPC and SPCC plans, where appropriate, and review them for those differences before conducting the evaluations. In particular, the evaluator should check for differences in the definitions of reportable quantities and the specific procedures for reporting spills that may exist in state/local regulations. In all cases the most stringent regulations should be followed.

D. DoD Regulations

- DoD Instruction 4120.14, *Policies for Improvements Needed to Abate Water Pollution Emanating from DoD Facilities*, (NOTAL) implements within DoD policies provided by EO 12088, *Federal Compliance with Pollution Standards*, and OMB Circular A-106 and establishes policies for developing and submitting plans for installing improvements needed to abate water pollution emanating from DoD facilities.

- DoD Directive 4140.25M, *Procedures for the Management of Petroleum Products*, describes procedures for the management of petroleum products on military installations.

- DoD Directive 5030.41, *Oil and Hazardous Substances Pollution Prevention and Contingency Program*, addresses requirements for compliance with the National Oil and Hazardous Substances Pollution Contingency Plan.

- Defense Environmental Quality Program Policy Memorandum (DEQPPM) 79-3, *Management of Recoverable and Waste Liquid Petroleum Products*, addresses the management of recoverable and waste liquid petroleum products.

E. U.S. Army Regulations

- Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*, directs all Army facilities to comply with the provisions of the Clean Water

Act. Chapter 3 outlines the Water Resources Management Program, which includes regulation and guidance beyond the limits of the Clean Water Act and the Safe Drinking Water Act (discussed in Section 3 of this manual). The Water Resources Management Program requires the Army to conserve all water resources, control or eliminate all sources of pollutants, cooperate with Federal, state, regional, and local authorities in forming and carrying out water pollution control plans, control runoff and erosion, and consider nonpoint source abatement in all construction, operation, and land management activities.

The paragraph on the Clean Water Act (para. 3-3) provides specific instructions for meeting compliance requirements. It covers discharge permits under NPDES, site inspections, connection to municipal/regional wastewater systems, pretreatment standards, investigation of complaints, and notification procedures.

Chapter 8 of AR 200-1 addresses Oil and Hazardous Substances Spill Contingency Planning, Control, and Emergency Response. It prescribes the policy and procedure for prevention and control of spills of oil and hazardous substances, and sets out guidance in accordance with regulations implemented by the Clean Water Act.

F. Key Compliance Requirements

- Discharge Permits - NPDES permits are required for all point source discharges to "navigable waters." Discharges shall comply with all terms and conditions of an USEPA or state issued permit under the State Pollutant Discharge Elimination System (SPDES).

- Monitoring, Recordkeeping, and Reporting - Discharge permits usually require monitoring that includes the installation, use, and maintenance of equipment for influent and effluent and receiving water sampling. Recordkeeping and reporting, including scheduled discharge monitoring reports (DMR), are also required.

- Discharges to Army POTWs or treatment plant of another DoD activity - Discharges to off-site treatment facilities shall meet all applicable general and categorical pretreatment standards in 40 CFR 401-471. Army installations that discharge to off-site treatment facilities must adhere to the discharge limitations that are stipulated in local ordinances. However, many local POTW authorities have not yet developed pretreatment programs.

- Industrial Pretreatment - The USEPA has set effluent standards for many industries that discharge to POTWs. These categorical standards are contained in 40 CFR 404 to 471, and are implemented through local pretreatment programs established by POTWs. In some instances, a state may assume this local responsibility. Industrial discharge limitations are stipulated in local ordinances. Installations can control discharges and impose their own pretreatment

requirements on discharges to their collection system through the installation wastewater regulation.

Industrial activities on Army installations which may be subject to categorical discharge limitations are:
electroplating (40 CFR 413)
steam electric power generating (40 CFR 423)
metal finishing (40 CFR 433).

Effluent limitations for photographic sources (40 CFR 459) and hospitals (40 CFR 460) govern only direct discharges, and will therefore be contained in a installation's NPDES permit.

- Operator Certification/Training - state regulatory agencies require all superintendents and operators of waste treatment facilities to be certified by the state. Periodic refresher training is also required of treatment plant personnel to maintain their certification.

- Sludge Disposal - Sludge from wastewater treatment plants must be disposed of in accordance with state regulations. Normally, testing of sludge is required to ensure that it does not have heavy metal concentrations that would render it a hazardous waste. Permits are normally required to dispose of sludge by land application.

- Spill Prevention Control and Countermeasure Plan - Army installations that operate POL facilities are required to prepare a SPCC Plan (40 CFR 112). This plan must be prepared in accordance with the guidelines set forth in 40 CFR 112.7, and the plan must be reviewed every three years and modified within six months of significant changes in POL facilities, or if new, field proven technology has been developed which will significantly reduce the likelihood of a spill (40 CFR 112.5).

- Spill Response Training - All Army personnel involved with the management and handling of oil and hazardous substances must take part in periodic spill prevention and response training programs (40 CFR, Parts 112.7, 264.16 and 265.16).

- Facility Design and Inspection Procedures - 40 CFR 112.7 sets forth minimum design criteria and inspection procedures for POL facilities and operations which must be addressed in the SPCC Plan, and Army Regulations or Technical Orders.

G. Responsibility for Compliance

- The Directorate of Engineering and Housing (DEH) is responsible for monitoring wastewater discharge and stream water quality at selected locations around the installation.

- The Preventive Medicine Officer is responsible for proper sample collection from drinking water systems at Army installations and determining compliance with standards. Interpretation of results of water analyses, and notification to state regulatory authorities when maximum contaminant levels are exceeded are also the responsibility of the Preventive Medicine Officer.

- Spill Response Team (SRT) is tasked to respond to spills when requested by an On-Scene Commander (OSC) and to perform spill containment, recovery, clean-up, disposal and restoration activities as directed by the OCS. The SRT is a multidisciplinary team often including the following persons: Facilities Engineer, Environmental Coordinator, Director of Safety and Health, Fire Chief, Military Police, Public Affairs Officer, Safety Officer, and Staff Judge Advocate.

- Fire Department provides support in emergency response, spill events, exercises, and fire protection activities. In addition, the department will be responsible to make periodic fire safety inspections of flammable/combustible storage and handling areas, hazardous waste storage areas, and accumulation points on the installation.

- Safety Officer is responsible for conducting work place safety evaluations and inspections of the handling and storage of hazardous materials and waste. The Safety Officer will provide the appropriate manager with a report of their findings and recommended corrective actions. The Safety Officer is also responsible for ensuring the prompt and accurate investigation of any hazardous material mishaps that result in injury or property damage.

- Fuels Management Officer of DEH is responsible for the safe and efficient receipt, storage, handling, issuing, and accounting of all petroleum products to include all general operations and inspections.

- Directorate of Engineering and Housing (DEH) is responsible for the maintenance of all installed petroleum storage and dispensing systems. This responsibility often is discharged by the Liquid Fuels Maintenance (LFM) shop. The DEH also is responsible for the calibration of permanently installed meters.

H. Key Compliance Definitions

These definitions were obtained from the Federal, DoD, and U.S. Army Regulations cited previously, and from 40 CFR 122 and Section 402 of the Clean Water Act.

- *Approved Municipal Facility* - a water treatment facility that has been inspected and approved by a state, local, or other regulatory agency that has jurisdiction.

- *Best Available Technology (BAT)* - the best technology treatment techniques, or other means which the administrator finds, examined for efficacy under field conditions and not solely under lab conditions that are available (taking cost into consideration). For the purposes of setting Maximum Contaminant Levels (MCLs) for synthetic organic chemicals, any BAT must be at least as effective as granular activated carbon, or air stripping.

- *Good Management Practice (GMP)* - schedules of activities, prohibitions of practices, maintenance procedures, and other management procedures, to prevent or reduce the pollution of "water of the United States." GMPs also include the treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

- *Certificate* - proof of certification as an operator or superintendent, it is issued by a state regulatory agency.

- *Community Water System* - a public water system that serves at least 15 service connections used by year-round residents or that regularly serves at least 25 of the same persons over 6 months per year.

- *Composite Sample* - a combination of individual samples obtained at regular intervals over a time period. Either the volume of each individual sample is proportional to discharge flow rates or the sampling interval (for constant volume samples) is proportional to the flow rates over the time period used to produce the composite. The maximum time period between individual samples shall be 2 hours.

- *Contaminated Water* - water that has been intruded by micro-organisms, chemicals, wastes, or wastewater in a concentration that makes the water unfit for its intended use.

- *Daily Average Concentration* - the arithmetic average of all the daily determinations of concentration made during a calendar month. Daily determinations of concentrations made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the daily determination of

concentration shall be the arithmetic average of all the samples collected during that calendar day.

- *Daily Average Discharge* - the total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less-than-daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days during the calendar month when the measurements were made.

- *Daily Average Temperature* - the arithmetic mean of temperature measurements made hourly basis, or the mean value plot of the record of a continuous automated temperature recording instrument, either during a calendar month, or during the operating month if flows are of shorter duration.

- *Daily Maximum Concentration* - the daily determination of concentration for any calendar day.

- *Daily Maximum Discharge* - the total discharge by weight during any calendar day.

- *Daily Maximum Temperature* - the highest arithmetic mean of the temperatures observed for any 2 consecutive hours during a 24-hour day, or during the operating day if flows are of shorter duration.

- *Direct Discharger* - any point source discharger who discharges directly into any stream, river, bay, ocean, or any other watercourse.

- *Erosion* - the wearing away of a land surface by wind or water.

- *Grab Sample* - an individual sample collected in less than 15 minutes.

- *Gross Alpha Particle Activity* - the total radioactivity due to alpha particle emissions as inferred from measurements on a dry sample.

- *i-s = Immersion Stabilization* - a calibrated device immersed in the effluent stream until the reading is stabilized.

- *Indirect Discharger* - a point-source discharger whose discharge is conveyed directly to a publicly or privately owned waste treatment facility and not directly to a watercourse. An indirect discharger may not require an NPDES permit.

- *Industrial Activity* - this terms includes, but is not limited to, material handling sites; refuse sites; sites used for the application or disposal of process

wastewaters; sites used for the storage and maintenance of material handling equipment; shipping and receiving areas; storage areas (including tank farms) for raw materials; and areas where industrial activity has taken place in the past and significant materials remain and exposed in storm water. This also includes construction activities that result in the disturbance of more than five acres, recycling centers, and steam electric power generating facilities.

- *Installation Spill Contingency Plan (ISCP)* - a plan maintained to identify resources for spill cleanup at the installation level and to provide assistance to outside agencies. An ISCP must contain:

  -responsibilities, duties, procedures, and resources to be used to cleanup spills
  -description of immediate response actions to be taken when a spill occurs.

- *Interference* - a discharge which, alone or in conjunction with one or more discharges from other sources inhibits or disrupts the POTW and causes a violation of any requirement of the POTW's NPDES permit.

- *Maximum Contaminant Level (MCL)* - the maximum permissible level of a contaminant in water that is delivered to the free flowing outlet of the ultimate user, except in the cases where the maximum permissible level is measured at the point of entry to the distribution system.

- *Navigable Waters* - Includes all navigable "waters of the United States including the territorial seas," and includes, but is not limited to:

  (1) all waters which are presently used, or were used in the past, or may be susceptible to use as a means to transport interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide, and including adjacent wetlands; the term "wetlands" as used in this regulation shall include those areas that are inundated or insaturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas; the term "adjacent" means bordering, contiguous or neighboring;

  (2) tributaries of navigable waters of the United States, including adjacent wetlands;

  (3) interstate waters, including wetlands; and

(4) all other waters of the United States such as interstate lakes, rivers, streams, mudflats, sandflats, and wetlands, the use, degradation or destruction of which affect interstate commerce including, but not limited to:

(i) interstate lakes, rivers, streams, and wetlands which are utilized by interstate travelers for recreational or other purposes; and

(ii) interstate lakes, rivers, streams, and wetlands from which fish or shellfish are or could be taken and sold in interstate commerce; and

(iii) interstate lakes, rivers, streams, and wetlands which are utilized for industrial purposes by industries in interstate commerce.

- *Nontransient Noncommunity Water System (NTNCWS)* - a public water system that is not a community water system and that regularly serves at least 25 of the same persons over 6 months per year.

- *NPDES Permit* - a permit granted by USEPA to a direct discharger which permits wastewater discharge to a watercourse in accordance with the conditions of the permit. NPDES means National Pollutant Discharge Elimination System.

- *Noncontact Cooling Water* - the water that is contained in a leakfree system, i.e., no contact with any gas, liquid, or solid other than the container for transport; the water shall have no net poundage addition of any pollutant over intake water levels.

- *Nonpoint Source* - a diffuse source of water pollution that does not discharge through a pipe, such as runoff from construction activities and agricultural, silvicultural, and urban areas.

- *Oil* - is defined in 40 CFR 122.2 as oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse.

- *Palatable Water* - water that is pleasing to the taste and free of objectionable color, turbidity, taste, or odor. Palatability does not imply potability.

- *Pass Through* - a discharge which exits the POTW into waters in quantities or concentrations which, alone or in conjunction with one or more discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit.

- *PicoCurie (pCi)* - quantity of radioactive material producing 2.22 nuclear transformations/ minute.

- *Point of Entry Treatment Device* - a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed throughout the house or building.

- *Point-of-use Treatment Device* - a treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap.

- *Point Source* - any discernible confined and discrete conveyance including but not limited to a pipe, ditch, channel, or conduit from which pollutants are or may be discharged.

- *Population Served* - the number of installation residents served plus one-third of the nonresidents usually served by the system (Revised rules are under consideration).

- *Potable Water* - water that has been examined and treated to meet the proper standards and declared by responsible authorities to be fit for drinking.

- *Primacy (Primary Enforcement Responsibility)* - the primary responsibility for administration and enforcement of primary drinking water regulations and related requirements applicable to public water systems within a state.

- *Public Water System* - a system for providing to the public piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

- *Raw Water* - 1) untreated water that enters the first unit of a water treatment plant; 2) water used as a source of water supply taken from a natural or impounded body of water, such as a stream, lake, pond, or underground aquifer.

- *Red Water* - highly contaminated industrial waste.

- *Runoff* - water from rain, snow melt, or irrigation that flows over the ground surface to streams. It can collect pollutants from land and air and carry them to receiving waters.

- *Sediment* - solid material, such as silt, sand, and organic matter, that moves from its site of origin and settles to the bottom of a watercourse or water body. Excessive amounts of sediment can clog a watercourse and interfere with navigation, fish migration, spawning, etc. If disturbed, sediment can be resuspended in the water column, where it contributes to turbidity.

- *Silviculture* - management of forest land for timber. Some silvicultural practices, such as clear-cutting, may contribute to water pollution by increasing the erodibility of the land.

- *Soil Stabilization* - a nonstructural GMP that involves the use of mulches and ground covers, reduces precipitation velocity, and effectively decreases the amount of sediment in runoff, thus reducing the volume of runoff.

- *Spill Prevention, Control, and Countermeasure Plan* - The SPCC plan shall be a carefully thought-out plan prepared in accordance with good engineering practices, and which has the full approval of management at a level with authority to commit the necessary resources.

- *State* - any of the 50 states, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Commonwealth of the Northern Mariana Islands, and the Trust Territory of the Pacific Islands.

- *Structural GMPs* - devices constructed for pollution control purposes, such as detention/retention basins, diversion structures, and filter structures.

- *Superintendent* - an individual who is designated by any employing or appointing person, county, municipality, sanitary district, or state as the individual in responsible charge of a water works, wastewater works, or industrial wastewater works.

- *Watershed* - the area of land that drains into a particular watercourse or water body.

CLEAN WATER ACT (CWA)

GUIDANCE FOR WORKSHEET USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
All installations	2-1 through 2-4	(1)(2)(3)(9)(12)(15)(21)(22)
If the installation has any permitted discharges of sanitary or industrial wastewater or storm water	2-5 through 2-16	(1)(2)(9)(14)
If the installation stores, transports, or disposes petroleum products	2-17 through 2-27	(1)(2)(6)
If the installation has diked areas, or discharges wastewater	2-28 through 2-33	(2)(9)(14)
If the installation has aboveground or belowground tanks, or piping	2-34 through 2-40	(2)(9)

(a)CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
(2) Environmental Coordinator (EC)
(3) Preventive Medicine Officer
(6) Director of Logistics (DOL)
(9) Chief of Operations and Maintenance (O&M)
(12) Director of Plans, Training, Mobilization, and Security (DPTMSEC)
(14) Wastewater Treatment Plant Supervisor (O&M)
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CLEAN WATER ACT (CWA)

Records to Review:

- NPDES/SPDES Permits
- NPDES/SPDES Permit renewal applications (if expire within 180 days)
- Discharge monitoring reports for the past two years
- Laboratory records and procedures and USEPA QA results
- Monthly operating reports for wastewater treatment facilities
- Flow monitoring calibration certification and supporting records
- Ash pond volume certification and supporting records
- Red water inspection records
- Special reports, certifications, etc., required by NPDES permit
- Spill Prevention Control and Countermeasure (SPCC) Plan
- All records required by SPCC Plan
- Oil transfer manual (33 CFR parts 154 and 156)
- All notices of noncompliance
- All notices of violations
- NPDES state or Federal inspection reports and citations/violations
- Sewage treatment plant operator certification
- Water treatment plant operator certification
- Administrative Orders
- Sewer and storm drain layout
- Local sewer ordinance
- Local service use permit
- Notification to local POTW
- Old Spill Reports
- Repair/Maintenance records for the wastewater treatment system
- Design plans for wastewater treatment plans
- Names and phone numbers of operator of sewage treatment plant
- Lab operators (wastewater analysis)

Physical Features to Inspect:

- Discharge to POTW
- Discharge outfall pipes
- Wastewater treatment facilities
- Industrial treatment facilities
- Streams, rivers, open waterways
- Floor & sink drains (especially in industrial areas)
- Storm water collection points (especially in industrial areas)
- Oil storage tanks
- Oil/water separators
- Fire Training Pit
- Nonpoint source discharge areas

People to Interview:

- Directorate of Engineering and Housing (DEH)
- Environmental Coordinator (EC)
- Preventive Medicine Officer
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COMPLIANCE CATEGORY: CLEAN WATER ACT (CWA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
2-1. Determine actions or changes since previous audit/review of wastewater discharges.	Check copies of previous wastewater discharge audit/review and determine if noncompliance issues have been resolved. (1)(2)
...	...
2-2. The installation should maintain current and effective regulations on wastewater discharge requirements (USEPA, DoD, Army, and state requirements).	Verify current copies of the following are maintained at the installation: (1)(2)(3)(22) - 40 CFR 122, *The National Pollutant Discharge Elimination System.* - 40 CFR 136, *Test Procedures for the Analysis of Pollutants.* - 40 CFR 403, *General Pretreatment Regulations for Existing and New Sources.* - 40 CFR 413, *Electroplating Point Source Category.* - 40 CFR 423, *Steam Electric Power Generating Point Source Category.* - 40 CFR 433, *Metal Finishing Point Source Category.* - 40 CFR 459, *Photographic Point Source Category.* - 40 CFR 460, *Hospital Point Source Category.* - 40 CFR 690, *Standards of Performance for VOC Emissions From Petroleum Refinery Wastewater Systems.* - DoD Instruction 4120.14, *Policies for Improvements Needed to Abate Water Pollution Emanating from DoD Facilities.* - AR 200-1, *Environmental Protection and Enhancement.* - AR 420-46, *Water and Sewage.* - TM 5-665, *Operations and Maintenance of Domestic and Industrial Wastewater Systems.* - TM 5-814-3, *Domestic Wastewater Treatment.* - TM 5-814-8, *Evaluation Criteria Guide for Water Pollution Prevention, Control, and Abatement Programs.* - *Standard Methods for Water/Wastewater Analysis.* Determine if current state/local wastewater discharge regulations are maintained and followed at the installation. (1)
...	...

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COMPLIANCE CATEGORY: CLEAN WATER ACT (CWA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-3. Installations are required to abide by state and local regulations (AR 200-1, para 1-39(3)).	Verify that the installation is abiding by state and local regulations. (1)(2) Verify that the installation is operating according to permits issued by the state or local agencies. (1)(2) NOTE: Issues which are typically regulated by state and local agencies include: - nonpoint sources - wastewater - monitoring and record keeping for NPDES permitted sources - certifications requirements for laboratories analyzing samples - wastewater treatment plant operator certification - sludge disposal - pretreatment standards - discharges to sewage treatment facilities - industrial wastewater - septic tanks - storm water discharge.
...	...
2-4. Each installation is required to have a system for investigating water pollution complaints and allegations from individuals and water pollution control authorities (AR 200-1, para. 3-3g(1) and (2)).	Check procedures for investigating water pollution complaints and allegations. (1)(2)(9)(21)(22) (Note: Note any cases of legal or potential legal action and whether they are reported immediately through Judge Advocate channels to Army Headquarters.)
...	...

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COMPLIANCE CATEGORY: CLEAN WATER ACT (CWA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
PERMITS	
2-5. The NPDES program requires permits for the discharge of pollutants for any point source into waters of the United States. All discharge points on the installation should be covered by a discharge permit (AR 200-1, para. 3-3a(2),(3),(4), c(1)). (NOTE: Storm water run-off discharge is usually exempt from permit requirements, unless associated with industrial activity [see definitions], or a municipal storm sewer system serving over 100,000 persons.)	Verify that upon receipt of the draft NPDES permit, installation: (1)(2) - requests a 60-day extension of review period - forwards a copy to USAEHA for review and written comments - forwards written comments from USAEHA to USEPA and/or appropriate state agency. Check where sanitary, industrial and storm water runoffs are discharged and identify these discharge points on a base map. (1) Check all NPDES discharge permits to verify information is still valid for the following items: (1) - correct name and mailing address of permittee - expiration dates - discharge is as described in permit - treatment processes (if any) are as described in permit application - location of discharge points properly described in permit - correct name and location of receiving water on the permit - monitoring and and reporting requirements. Verify that permit-required sampling and monitoring is being done as specified by the permit. (1) Check Discharge Monitoring Reports for compliance with permitting requirements. (1)(9) Verify notification was given to USEPA/state of new, different, or increased discharges since last permit application was submitted. (1) Determine if application has been made for a NPDES permit for any nonpermitted direct discharges other than uncontaminated storm water runoff. (1) Verify that compliance dates listed in permit are being met. (1)
...	...
2-6. Samples must be collected according to proper collection procedures as specified in 40 CFR 136.3.	Determine the following: (2)(9)(14) - proper sample containers are used - samples refrigerated during compositing - proper preservation techniques used. Determine if monitoring and analysis are performed more frequently than permits require. (2)(9)
...	...
2-7. Each permitted discharge point should be physically observed. (GMP).	Check each permitted effluent discharge point on installation. Note appearance, odors, or other observed characteristics (oil sheen, visible foam, visible floating solids, color). (2)(9)(14)

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COMPLIANCE CATEGORY: CLEAN WATER ACT (CWA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-8. Noncompliance must be reported (AR 200-1 para. 3-3a(4)). ...	Determine if Commander reports any potential problems that might cause installation to be in noncompliance with permits. (2)(9) Verify that notice of violation (NOV) reports are sent through command channels to USATHAMA, ATTN: CETHA-EC-S. (2)(9) ...

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COMPLIANCE CATEGORY: CLEAN WATER ACT (CWA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
POTW'S	
2-9. National pretreatment standards dictate that specific pollutants may not be introduced into a POTW (40 CFR 403.5(b)).	Verify that the following prohibited pollutants are not being introduced into the POTW: - pollutants that create a fire or explosion hazard including waste streams with a closed cup flashpoint of less than 60 /uo/dC (140 /uo/dF) - pollutants that cause corrosive structural damage to the POTW; specifically forbidden are discharges with pH lower than 5.o unless facility is designed to accommodate such discharges - solid or viscous pollutants which could result in an obstruction to the POTWs flow - pollutants, including oxygen, released at a discharge flowrate or pollutant concentration that would cause interference - interference cause heat specifically exceeding 40 /uo/dC (140 /uo/dF) that inhibits biological activity in the POTW - petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through - pollutants that result in toxic gases, vapors, or fumes within the POTW which may cause acute worker health and safety problems - trucked or hauled pollutants received anywhere other than POTW designated discharge points.
...	...
2-10. Personnel engaged or employed in operation and maintenance of water pollution control facilities must be trained (AR 200-1, para. 3-6).	Verify that periodic training is conducted by interviewing operating/maintenance staff at plant. (9)(14) Check operating staff training records to verify training is conducted. (9)(14)
...	...
2-11. Supervisors at Army treatment plants are required to provide training in safety and occupational hazards to operating staff (TM 5-660, para. 1-17).	Verify that safety and occupational hazards instructions are posted around plant or readily available to plant personnel. (9)(14) Verify that continual training is conducted on proper safety practices at plant. (9)(14)
...	...

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COMPLIANCE CATEGORY: CLEAN WATER ACT (CWA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-12. Treatment plant supervisors are required to maintain certain operating logs and records (TM 5-660, para, 18-20).	Check logs and records of plant supervisor for domestic wastewater plants.(9)(14) Verify that forms are posted daily and are neat and legible. (9)(14) Check with treatment plant supervisor and compare industrial wastewater effluent with permit limitation. (9)(14) Verify that copies are distributed as follows: (9)(14) - original retained by DEH - duplicate to MACOM - required copies are submitted to state.
...	...
2-13. Even where not covered by NPDES permit, storm water discharge on the installation should be uncontaminated and period surveillance of these discharges should be completed (GMP).	Check storm water surveillance locations. (2)(9)(15) Check analytical records and discuss any instances of elevated readings for any parameters. (2)(9) Check plan for storm sewer system and location of all outfalls and discharge points. (2)(9)(15) Check areas of storm water discharge physically for evidence of contamination (oil sheen, discoloration, etc.). (2)(9) Check any oil/water separators on the installation for proper operation and maintenance. (2)(9) Check major industrial shops or industrial areas physically and looks for evidence of contaminated waste streams discharging to floor drains, to storm system, or to catch basins. Key shops to be visited include: (2)(6)(9) - battery shop - corrosion control - engine shop - motor pool - paint shop - plating shop - petroleum, oils, and lubricants (POL) area.
...	...

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COMPLIANCE CATEGORY: CLEAN WATER ACT (CWA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-14. Installations discharge wastewater to an off-site POTW or a treatment plant of another DoD activity, are normally required to meet certain categorical discharge limitations and other discharge requirements including industrial pretreatment standards (40 CFR 403). (NOTE: Discharges to Army-owned treatment facilities are required to comply with all pretreatment regulations applicable for discharges to POTWs (AR 200-1, para. 3-3(e).)	Check permits, registration, and/or copies of pretreatment or discharge limitation requirements from POTW authority or other DoD activity. (2)(9)(14) Verify that monitoring is being done to comply with these discharge limitations and monitoring records are being kept for at least 3 years. (2)(9)(14) Verify that requirements for reporting analytical results to POTW are being met. (2)(9)(14) Check if compliance schedule for installation of a pretreatment system is applicable to installation. (2)(9)(14) Check if there are sections of sanitary sewer systems that have infiltration/exfiltration (I/E) problems. Verify that the problems are identified for correction. (2)(9)(14)
...	...
INDUSTRIAL WASTEWATER	
2-15. Industrial wastewaters must be treated and disposed of in accordance with certain requirements (40 CFR 264.13 and .16).	Determine if industrial wastewater survey has been conducted to determine the current source, composition, and pattern of discharge. (2)(9)(14) Determine if facility personnel are trained to operate industrial wastewater equipment and manage industrial wastewater. (2)(9)(14)
...	...
2-16. All petroleum refinery wastewater systems on the installation constructed after May 4, 1987 are subject to standards of performance for VOC emissions (40 CFR 60.692-2- Subpart QQQ, and 692-5).	Ensure that each class of wastewater system meets all applicable emissions requirements: (2)(9)(12)(14) - individual drain system - oil-water separators - aggregate facilities - closed vent systems and control devices.
...	...

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COMPLIANCE CATEGORY: CLEAN WATER ACT (CWA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

PETROLEUM PRODUCTS
 	
2-17. Army installations that store, transport, or dispense petroleum products are required to prepare, according to guidelines, a SPCCP (40 CFR 112.7), and an ISCP (AR 200-1, Chap.8) (SPCCP and ISCP may be combined into one plan with two distinct sections - SPCCP and ISCP).
	Verify that the SPCCP, and the ISCP have been prepared. (2)(6)
	
	Review SPCCP for:
	
	- general information about the installation including:
	  - name
	  - type of function
	  - location address
	  - charts of installation drainage patterns
	  - location maps
	- name and title of designated coordinator
	- inventory of all storage, handling, and transfer facilities that could produce a significant spill. For each listing include:
	  - prediction of direction and rate of flow
	  - total quantity of oil that could be spilled as a result of major failure.
	Review the ISCP for: (2)
	
	- command approval
	- spill reporting procedures
	- prespill planning for major potential spill areas
	- listing of spill containment and cleanup equipment/facilities
	- oil spill contingency plan
	- training procedures for Installation Response Team (IRT)
	- records of yearly spill response exercises
	- plan review and update procedures
	- name, responsibilities, and duties of Installation On-Scene Coordinator (IOSC).
	
	Verify that copies of the ISCP are available at every potential spill site. (2)

...	...
2-18. As a good management practice, OHSPC, SPCC, or ISCP should specify the conduct of periodic spill response exercises.	Check spill response exercise files to verify compliance with stated frequency requirements. (1)(2)
...	...

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COMPLIANCE CATEGORY: CLEAN WATER ACT (CWA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-19. Each SPCCP and any amendments must be certified by a professional engineer that the plan and each amendment is prepared according to sound engineering practices (AR 200-1, chap. 8).	Inspect the SPCCP for certification. (2)
...	...
2-20. The SPCC must be amended whenever there is material change in facility design, construction, operations, or maintenance, which alters potential for an oil spill or whenever facility has: (a) discharged more than 1000 gallons into navigable waters in a single spill event, or (b) discharged oil in harmful quantities in two reportable spill events within any 12-month period (AR 200-1, 8-7 [c][4], 40 CFR 112.4 and 40 CFR 112.5).	Verify if plan was subject to amendment for reasons of installation POL operation changes or spill incidents. Verify that plan was amended and recertified by a professional engineer. (2)(6)(9) Confirm that the SPCC Plan is tested annually (mock spillage event). (1)(2)(6)(9)
...	...
2-21. Each SPCC plan must be reviewed at least once every 2 years (AR 200-1, 8.4, 40 CFR 112.5 [b]).	SPCC plan has been reviewed at least once every 2 years. A record of reviews should be available for inspection. (2)(6)
...	...
2-22. An Installation On-Scene Coordinator (IOSC) and an Installation Response Team (IRT) must be appointed by the installation commander (AR 200-1, 8-4 [h][12]).	Verify that IOSC and IRT have been appointed. Confirm that they are trained and knowledgeable of contingency plan.
...	...

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COMPLIANCE CATEGORY: CLEAN WATER ACT (CWA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-23. Installations should have a plan for the management of reclaimed, recoverable, and waste liquid petroleum products (AR 200-1 Chap. 8, AR 420-47, and AR 703-1).	Verify that a Management of Recoverable and Waste Liquid Petroleum Products Plan has been prepared and adopted. (2)(6)
...	...
2-24. All installation personnel involved with the management and handling of oil and hazardous substances must take part in periodic training in spill prevention and response (AR 200-1, 8-7[c][6], 40 CFR 112.7 and 40 CFR 264).	Verify that proper training has been conducted. Training is to be conducted once per year for all personnel working at oil and hazardous substance sites; within 6 months for all supervisory personnel; before starting work for unsupervised positions; and after a spill response in which training deficiencies were noted. (1)(2)(9)(13)
...	...

2-25. Spills of petroleum products must be reported to appropriate Federal and state regulatory agencies. Reports must also be prepared for USEPA, state agencies, and the Army for each incident (33 CFR 153, 40 CFR 110.9, and AR 200-1, 8-6[d]).	Interview DEH and Fire Chief to determine if spills have occurred. (1)(5)(6)
	
	Verify that the IOSC is immediately notified by telephone USAEHSC when any spills occur. (1)(5)
	
	(Note: see Appendix 6-1 for proper recording procedure for telephone reports.)
	
	Verify that if spill is of a reportable quantity of oil: (1)
	
	- National Response Center and state and local authorities were notified;
	- if in coastal area or in navigable waters, U.S. Coast Guard District Office was notified.
	
	Examine records in spill incident files to verify that proper written notification and followup reports: (1)(2)
	
	- were prepared within 15 calendar days of telephone notification;
	- include the following:
	  - location
	  - topographic maps
	  - flow diagrams.

...	...

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COMPLIANCE CATEGORY: CLEAN WATER ACT (CWA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

PETROLEUM PRODUCTS - STORAGE/CONTAINMENT
 	
2-26. Appropriate containment diversionary structures, and cleanup equipment to prevent discharged petroleum products from reaching navigable water course should be readily available on installation (40 CFR 112.7(c), and AR 200-1 Chap. 8).
 	
(NOTE: See definition of "navigable water.")
	Determine the locations, types, and quantities of materials. (1)(2)(5)(9)
	
	- absorbent material
	- oil retention booms
	  - diversionary
	  - absorbent
	- sand bags/temporary curbing devices
	- fuel recovery pumps/collection hoses
	- fuel recovery tank trucks
	- spill response team personnel gear:
	  - boots
	  - gloves
	  - respiratory gear.
	
	Each oil storage area for following items: (2)(5)(6)
	
	- adequacy of material types and quantities
	- accessibility of storage location
	- condition of equipment.

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COMPLIANCE CATEGORY: CLEAN WATER ACT (CWA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-27. All bulk storage tanks should be provided with a secondary means of containment for the entire contents plus sufficient free board to allow for precipitation, in case of tank or piping rupture (40 CFR 112.7[e][2][ii] and AR 200-1, Chap. 8).	Check bulk storage area and remote tanks to verify adequate containment is provided. (1)(2)
...	...
2-28. Diked areas should be sufficiently impervious to contain spilled contents (40 CFR 112.7[e][2][ii]).	Check condition of dikes looking for signs of erosion cracks, animal burrows, and vegetative growth. (2) Check that dikes are inspected regularly by interviewing DEH Utilities Division Fuel Management Officer. (2)
...	...
2-29. Drainage of rain water from diked areas should be controlled by a valve that is locked when not in active use (other positive means may be used); valve must be attended when open; water drained from diked areas must not cause a harmful discharge as defined in 40 CFR 110 (40 CFR 112.7[e][1] and [2], and AR 200-1, Chap. 8).	Inspect drainage valves at each diked area and confirm that valves are closed and locked when not in use. (1)(2) By interviewing, determine if drainage valves are attended when open. (1)(2) Verify that operating personnel understand the meaning of a harmful discharge. (1)(2) Inspect records to determine if any drainage water was tested to determine if it would represent a harmful discharge. (1)(2)
...	...
2-30. Drainage water that is determined to contain petroleum products in harmful quantities must be treated before discharge to meet applicable water quality standards (40 CFR 112.7 [e][2], and AR 200-1, Chap. 8).	By interviewing, determine if discharges containing harmful quantities of petroleum products were properly treated, recovered, or disposed of. (9)(13) Verify that records are kept of treatment and disposal methods. (9)(13)
...	...

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COMPLIANCE CATEGORY: CLEAN WATER ACT (CWA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-31. A product recovery system should be installed at the tank water drain-off valve for tanks storing aviation fuels (AR 200-1, Chap. 8, and AR 703-1, Appendix E).	Inspect aviation fuel tanks to verify that product recovery systems are in place and operating correctly. (9)(13) (NOTE: Federal regulations do not require product recovery system for ground use petroleum products; however, state and local regulations may require such systems; inspect to verify that required operable systems in place.)
...	...
2-32. As a good management practice the DEH Utilities Maintenance and Operations and DOL Fuel Maintenance should have a Memorandum of Agreement pertaining to draining of floating roof tank and interior dike basin.	Memorandum of Agreement has been prepared and signed or coordinated through the DEH Director and the Environmental Coordinator/Officer. (1)(2)(9)
...	...
2-33. Wastewater and fuel sludges resulting from periodic tank cleaning should not be discharged to surface waters, sewers, or to the ground; discharge of such material must comply with all Federal, state, and local regulations (40 CFR 110, AR 200-1, Chap. 8, and AR 420-47, Chap. 6).	Determine that residues from tank cleaning operations were properly disposed. (1)(2)(9)(13) Determine if tank bottom residue from tank cleaning operations are being considered by USEPA for listing as a hazardous waste, and, if regulated as hazardous, determine that tank bottom residues are disposed according to applicable RCRA requirements. (1)(2)
...	...
2-34. Installation Fuels Management is required to have a quality control and inspection program (AR 200-1, Chap. 8, and AR 703-1).	Verify internal quality inspections for the following: (9)(13) - at least five spot check inspections are being conducted per week; - if unsatisfactory areas were observed, those areas are reinspected after 30 days, but before 45 days, unless otherwise directed. Verify that quality control and inspection personnel are conducting external inspections annually by interviewing. (9)
...	...

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COMPLIANCE CATEGORY: CLEAN WATER ACT (CWA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-35. Aboveground storage tanks should be subject to periodic integrity testing (40 CFR 112.7[e][2] and AR 200-1, Chap. 8).	Verify that annual leak tests have been conducted and check the results (a decrease in converted fuel volume equal to or greater than 1/4 inch constitutes a suspected leak). (1)(2)(9) Verify that DEH Director, Environmental Coordinator/Officer, and Safety Officer have been notified of all confirmed leaks by interviewing. (1)(2) Verify that leaking tanks have been repaired or replaced. (1)(2)
...	...
2-36. Buried fuel piping should have a protective wrapping and coating and should be cathodically protected if soil conditions warrant (40 CFR 112.7; 49 CFR 195).	Confirm through interviews and records review that buried fuel piping is properly protected from corrosion. (2)(5)(6)(9) For impressed current system, determine if the voltage is greater than -0.85, but not more than -3.0 volts (monthly). (2)(6)(9) For sacrificial anode system, determine if the voltage is greater than -0.85, but not more than -3.0 volts (biannually). (2)(6) Determine if leak detection and failure are reported. (2)(6)
...	...
2-37. Underground metallic storage tanks installed must be protected from corrosion by coatings, cathodic protection, or other effective methods, unless soil conditions show that it is not necessary (40 CFR 112.7 [e] [2]).	Inspect records and conduct interviews to verify that new underground storage tanks are appropriately protected from corrosion. (2)(6)(9) For impressed current system, determine if the voltage is greater than -0.85, but not more than -3.0 volts (monthly). (2)(6)(9) For sacrificial anode system, determine if the voltage is greater than -0.85, but not more than -3.0 volts (biannually). (2)(6)(9) Determine if the voltage is greater than -0.85, but not more than -3.0 volts. (2)(6)(9) Determine if leak detection and failure are reported. (2)(6)(9)
...	...
2-38. Periodic inspection of MOGAS, diesel, kerosene, and aviation fuel test cell storage tanks is required (AR 200-1, Chap. 8).	Check records and conduct interviews to verify that inspections have been conducted as required. (2) Verify that leaking or deteriorated tanks have been repaired or replaced. (1)(2) Confirm leaks were reported to the DEH Director, Environmental Coordinator/Officer, and Safety Officer. (1)(2)
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (5) Fire Department (6) Director of Logistics (DOL) (9) Chief of Operations and Maintenance (O&M) (12) Director of Plans, Training, Mobilization, and Security (DPTMSEC) (13) Engineering, Plans, and Services (EP&S) (14) Wastewater Treatment Plant Supervisor (O&M) (15) Land Management Officer (DEH) (21) Public Affairs Office (22) Staff Judge Advocate

COMPLIANCE CATEGORY: CLEAN WATER ACT (CWA) USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
2-39. All Army operated aboveground and belowground fuel piping systems operated by the Army should be regularly examined and any suspected leaks should be investigated immediately (40 CFR 112.7 (e) (3), and TM 5-343, Chap. 9).	Verify that regular inspections, including an annual pressure test, records check, and interviews have been conducted. (2) Verify that aboveground general condition of items, such as flange joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces have been assessed. (6) Confirm that leaks have been reported and leaking pipes repaired or replaced. (1)(2)(6)
...	...
2-40. Army operated off-installation pipelines should be inspected regularly (TM 5-343, Ch. 9).	Check records to confirm inspections are performed. (1)(2) Interview to confirm detected leaks and failures have been reported and leaking pipes repaired or replaced. (6)
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (5) Fire Department (6) Director of Logistics (DOL) (9) Chief of Operations and Maintenance (O&M) (12) Director of Plans, Training, Mobilization, and Security (DPTMSEC) (13) Engineering, Plans, and Services (EP&S) (14) Wastewater Treatment Plant Supervisor (O&M) (15) Land Management Officer (DEH) (21) Public Affairs Office (22) Staff Judge Advocate

INSTALLATION:	COMPLIANCE CATEGORY: CLEAN WATER ACT (CWA) USA ECAS	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (5) Fire Department (6) Director of Logistics (DOL) (9) Chief of Operations and Maintenance (O&M) (12) Director of Plans, Training, Mobilization, and Security (DPTMSEC) (13) Engineering, Plans, and Services (EP&S) (14) Wastewater Treatment Plant Supervisor (O&M) (15) Land Management Officer (DEH) (21) Public Affairs Office (22) Staff Judge Advocate

Section 3

SAFE DRINKING WATER ACT (SDWA)

SECTION 3

SAFE DRINKING WATER ACT (SDWA)

A. Applicability of this Protocol

This protocol identifies rules, regulations, and requirements for any U.S. Army installation that has jurisdiction over any public water supply system. A public water system is defined as "any collection, treatment, storage, or distribution facility for the provision of piped water for human consumption, provided that the system for which it exists has at least 15 service connections or regularly serves at least 25 individuals daily for a total of at least 60 days per year."

- Army installations that meet all the criteria listed below are not required to comply with the requirements of the Safe Drinking Water Act since, by definition, they are not "public water systems." (40 CFR 141.3)

  a) System consists only of distribution and storage facilities and does not have any collection and treatment facilities.

  b) Installation gets all of its water from a public water system that is owned or operated by another party (non-Army).

  c) Installation does not sell water to any party.

  Even though the above criteria may apply to an Army installation, as a practical matter, Army regulations require compliance with drinking water standards and monitoring requirements. Therefore, this protocol should be used to determine compliance with drinking water requirements even though some items may be noted as not applicable (N/A) by the evaluator.

B. Federal Legislation

- The Safe Drinking Water Act (SDWA) [P.L. 93-523 and its amendments, specifically the Safe Drinking Water Amendments of 1977 (P.L. 95-190) and the Safe Drinking Water Amendments of 1986 (P.L. 99-339); generally codified at 42 USC 300f-300j and referred to as "SDWA"] specify a system for the protection of drinking water supplies through establishment of contaminant limitations and enforcement procedures. The U.S. Environmental Protection Agency (USEPA) has promulgated contaminant limitations in two phases: primary drinking water standards to protect public health; and, secondary drinking water standards affecting the aesthetic qualities of drinking water. In addition, the SDWA mandates the regulation of underground drinking wells to protect drinking water sources through the Underground Injection Control Program.

The 1986 amendments to the SDWA require states to develop programs to protect wellhead areas. Section 1428(h) of the amendments requires all Federal agencies having jurisdiction over any potential source of contaminants identified by a state wellhead protection program to be subject to and comply with all requirements of the state program "as any other person, including payment of reasonable charges and fees."

- *The National Primary Drinking Water Regulations*, 40 CFR 141, were promulgated pursuant to the SDWA and, among other things, specify Maximum Contaminant Levels (MCLs) for six categories of contaminants:

  - Inorganic Chemicals
  - Organic Chemicals
  - Turbidity
  - Microbiological Contaminants
  - Natural radioactivity
  - Man-made radionuclides.

  Appendix 3-2 shows the National Primary Drinking Water Standards applicable to all Army installations.

- The National Secondary Drinking Water Regulations (40 CFR 143) establish secondary MCLs for 13 contaminants that affect the aesthetic qualities of drinking water. At much higher concentrations of these contaminants, health implications may exist in addition to aesthetic degradation. Compliance with the National Secondary Drinking Water Regulations is optional.

- The Underground Injection Control (UIC) Program (40 CFR 144) prohibits any underground injection of waste, except as authorized by permit or rule.

- The SDWA requires each Federal activity with jurisdiction over a public water system to comply with applicable Federal, state, or local requirements, whether substantive or administrative, "in the same manner, and to the same extent, as any nongovernmental entity." The SDWA also provides for citizen suits for noncompliance.

C. State/Local Requirements

- States have primary responsibility ("primacy") to enforce compliance with national primary drinking water standards and sampling, monitoring, and notice requirements in conformance with 40 CFR 141. USEPA executes the enforcement responsibilities until individual state programs are approved.

- States that have primacy may establish drinking water regulations, monitoring schedules, and reporting requirements more stringent than, or in addition to, those in the Federal regulations. It is very important to remember that Army public water systems in these states are required to comply with these additional requirements. The standards identified in the questions of this section are minimum, Federal requirements. Generally speaking, most states that have primacy adopt drinking water regulations that closely reflect the Federal requirements. Almost all states have achieved authorization from USEPA to administer drinking water compliance programs including UIC programs.

D. DoD Regulations

- DoD Directive 6230.1, *Safe Drinking Water*, of 24 April 1978, sets forth DoD policy for provisions of adequate safe drinking water and compliance with the Safe Drinking Water Act and the standards established by 40 CFR 141.

E. U.S. Army Regulations

- Army Regulation (AR) 40-5, *Preventive Medicine*, establishes practical measures for the preservation and promotion of health and the prevention of disease and injury. Among other things, it explains the Army Preventive Medicine Program, establishes military occupational and environmental health standards, and provides a basic guide for commanders, the installation medical authorities (IMAs), and other interested persons and agencies.

- AR 200-1, *Environmental Protection and Enhancement*, mandates Army compliance with SDWA.

- AR 420-46, *Water and Sewage*, establishes policies and procedures governing installations that supply water and dispose of sewage and industrial wastes. It applies to all DA installations. In general, it addresses the following facilities engineering activities: the furnishing of sewage services; operations of water and sewage pumping and treatment plants; the maintenance, repair, and alteration of facilities and appurtenances required for the production, pumping, treatment, and distribution of water; and the collection and disposal of sewage and industrial waste.

- AR 700-136, *Land Based Water Resources Management in Contingency Operations*, sets policy and procedures for water resources management in support of contingency operations. It defines the Army role in joint contingency operations and outlines responsibilities for water support. This regulation does not apply to fixed installation water support operations or civil works emergency water management.

F. Key Compliance Requirements

- National Primary Drinking Water Standards - Contaminant limitations, monitoring requirements, and enforcement procedures are contained in the National Drinking Water Standards, 40 CFR Part 141. Army activities with public water systems were required to comply with these requirements, or state requirements where the state has enforcement authority, no later than 24 July 1977.

- Sampling and Analysis - Sampling and analytical requirements for public water systems are also promulgated in 40 CFR Part 141 or in applicable state regulations. Initial sampling to characterize each specified contaminant (and any required subsequent sampling) shall be conducted within required time frames and at the frequencies specified. Sample analyses shall be performed in laboratories certified by USEPA or approved by the state.

- Reporting and Recordkeeping - Results of tests, analyses, and measurements required for compliance shall be forwarded within prescribed times to appropriate USEPA regional offices or approved state agencies, as applicable. Records of bacteriological analyses shall be retained for 5 years; chemical/ physical analyses, for 10 years.

- Noncompliance Monitoring and Reporting - Installations operating public water systems shall report to USEPA regional offices or the approved state any instances of noncompliance with primary drinking water standards, variances, or exemptions, including failure to comply with sampling/monitoring requirements. Noncompliance conditions shall also be reported to all persons served by the public water system. The timing and means for all notifications shall be as prescribed in 40 CFR 141 or applicable state/ local regulations.

- Operating Out of Compliance - Variances (and exemptions) may be granted by USEPA or approved by the states subject to public notice and hearing requirements to enable noncomplying public water systems to continue operating. Variances (and exemptions) must include schedules and methods for attaining compliance.

- Water System Operator Certification - Army water system operators shall meet operator certification requirements of the state in which the system is located. Job descriptions for new or vacant Army water system operator positions shall require a state certification or license as a condition of employment at all facilities where state certification requirements are applicable.

G. Responsibility for Compliance

- Preventive Medicine Office is responsible for proper sample collection from drinking water systems at Army installations and determining compliance with drinking water standards. Coordination with the Occupational and Environmental Health Laboratory (OEHL), interpretation of results of water analyses, and notifications to state regulatory authorities when maximum contaminant levels are exceeded are also the responsibilities of the Preventive Medicine Office.

- The Directorate of Engineering and Housing (DEH) designs, constructs, and operates the water distribution system to provide sufficient drinking water to installation personnel. The DEH is responsible for providing adequate water treatment to assure drinking water does not exceed the maximum contaminant levels established for human consumption. Training of operating personnel to meet proficiency levels consistent with the operator certification requirements that apply to their location is also the responsibility of the DEH. It also maintains an up-to-date map of the complete potable water system, makes repairs, and maintains the system. The DEH is also responsible for negotiating and maintaining the installation's water supply contract.

H. Key Compliance Definitions

These definitions were obtained from the Federal, DoD, and U.S. Army Regulations cited previously, and from 40 CFR 141, 142, and the Safe Drinking Water Act and its amendments.

- *Best Available Technology (BAT)* - the best technology treatment techniques, or other means which the administrator finds, examined for efficacy under field conditions and not solely under lab conditions that are available (taking cost into consideration). For the purposes of setting Maximum Contaminant Levels (MCLs) for synthetic organic chemicals, any BAT must be at least as effective as granular activated carbon.

- *Coagulation* - a process using coagulant chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs.

- *Community Water System* - a public water system that serves at least 15 service connections used by year round residents or regularly serves at least 25 of the same persons over 6 months per year.

- *Contaminant* - any physical, chemical, biological, or radiological substance or matter in water.

- *Contaminated Water* - water that has been intruded by micro-organisms, chemicals, wastes, or wastewater in a concentration that makes the water unfit for its intended use.

- *Conventional Filtration Treatment* - a series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal.

- *Daily Average Temperature* - the arithmetic mean of temperature measurements made hourly, or the mean value plot of the record of a continuous automated temperature recording instrument, either during a calendar month, or during the operating month if flows are of shorter duration.

- *Daily Maximum Concentration* - the daily determination of concentration for any calendar day.

- *Daily Maximum Temperature* - the highest arithmetic mean of the temperatures observed for any 2 consecutive hours during a 24-hour day, or during the operating day if flows are of shorter duration.

- *Diatomaceous Earth Filtration* - a process resulting in substantial particulate removal in which:

  - a precoat cake of diatomaceous earth filter media is deposited on a support membrance (septum), and
  - while the water is filtered by passing through the cake on the septum, additional filter media known as body feed is continuously added to the feed water to maintain the permeability of the filter cake.

- *Direct Filtration* - a series of processes including coagulation and filtration but excluding sedimentation resulting in substantial particulate removal.

- *Disinfectant* - any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone added to water in any part of the treatment or distribution process, that is intended to kill or inactivate pathogenic micro-organisms.

- *Disinfectant Contact Time* - ("T" in CT calculations) means the time in minutes that it takes for water to move from the point of disinfectant application or the previous point of disinfectant residual measurement to a point before or at the point where residual disinfectant concentration ("C") is measured. Where only one "C" is measured, "T" is the time in minutes that it takes for water to move from the point of disinfectant application to a point before or at where residual disinfectant concentration ("C") is measured. Where more than one "C" is measured, "T" is:

- for the first measurement of "C", the time in minutes that it takes for water to move from the first or only point of disinfectant application to a point before or at the point where the first "C" is measured and
- for subsequent measurements of "C", the time in minutes that it takes for water to move from the previous "C" measurement oint to the "C" measurement point for which the particular "T" is being calculated. Disinfectant contact time in pipelines must be calculated based on "plug flow" by dividing the internal volume of the pipe by the maximum hourly flow rate through that pipe. Disinfectant contact time within mixing basins and storage reservoirs must be determined by tracer studies or an equivalent demonstration.

- *Disinfection* - a process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.

- *Domestic or Other Non-Distribution System Plumbing Problem* - a coliform contamination problem in a public water system with more than one service connection that is limited to the specific service connection from which the coliform-positive sample was taken.

- *Filtration* - a process for removing particulate matter from water by passage through porous media.

- *Flocculation* - a process to enhance agglomeration or collection of smaller floc particles into larger, more easily settleable particles through gentle stirring by hydraulic or mechanical means.

- *Good Management Practice (GMP)* - schedules of activities, prohibitions of practices, maintenance procedures, and other management procedures, to prevent or reduce the pollution of "water of the United States." GMPs also include the treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

- *Grab Sample* - an individual sample collected in less than 15 minutes.

- *Gross Alpha Particle Activity* - the total radioactivity due to alpha particle emissions as inferred from measurements on a dry sample.

- *Ground Water Under the Direct Influence of Surface Water* - refers to any water beneath the surface of the ground with:

  significant occurrence of insects or other macro-organisms, algae, or large-diameter pathogens such as *Giardia lamblia*, or
  significant and relatively rapid shifts in water characteristics such as turbidity,

temperature, conductivity, or pH which closely correlate to climatological or surface water conditions.

Direct influence must be determined for individual sources in accordance with criteria established by the State.

- *Legionella* - means a genus of bacteria, some species of which have caused a type of pneumonia called Legionaires Disease.

- *Maximum Contaminant Level (MCL)* - the maximum permissible level of a contaminant in water that is delivered to the free-flowing outlet of the ultimate user of a public water system. Turbidity is the exception to this; the maximum permissible level for turbidity is measured at the point of entry to the distribution system. Contaminants added to the water under circumstances controlled by the user, except those resulting from corrosion of piping and plumbing caused by water quality, are excluded from this definition.

- *Maximum Contaminant Level Goal (MCLG)* - refers to the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. Maximum contaminant level goals are nonenforceable health goals.

- *Maximum Total Trihalomethane Potential* - means the maximum concentration of total trihalomethanes produced in a given water containing a disinfectant residual after 7 days at a temperature of 25 degrees Celsius or above.

- *Near the First Service Connection* - means at 1 of the 20 percent of all service connections in the entire system that are nearest the water supply treatment facility, as measured by water transport time within the distribution system.

- *Non-Community Water System* - a public water system that is not a community water system.

- *Non-Transient, Non-Community Water System (NTNCWS)* - a public water system that is not a community water system and that regularly serves at least 25 of the same persons over 6 months per year.

- *Palatable Water* - water that is pleasing to the taste and free of objectionable color, turbidity, taste, or odor. Palatability does not imply potability.

- *Person* - an individual, corporation, company, association, partnership, municipality, or state, Federal, or tribal agency.

- *Picocurie (pCi)* - quantity of radioactive material producing 2.22 nuclear transformations/ minute.

- *Point of Disinfectant Application* - the point where the disinfectant is applied and water downstream of that point is not subject to recontamination by surface water runoff.

- *Point-of-Entry Treatment Device* - a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed throughout the house or building.

- *Point-of-Use Treatment Device* - a treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap.

- *Population Served* - the number of base residents served plus one-third of the nonresidents usually served by the system (revised rules are under consideration).

- *Potable Water* - water that has been examined and treated to meet the proper standards and declared by responsible authorities to be fit for drinking.

- *Primacy (Primary Enforcement Responsibility)* - the primary responsibility for administration and enforcement of primary drinking water regulations and related requirements applicable to public water systems within a state.

- *Public Water System* - a system for providing piped water to the public for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. This term includes:

  any collection, treatment, storage, and distribution facilities under control of the operator of such system, and

  any collection or pretreatment storage facilities not under such control that are used primarily in connection with such system.

  A public water system is either a "community water system" or a "noncommunity water system."

- *Raw Water*

  untreated water that enters the first unit of a water treatment plant; or
  water used as a source of water supply taken from a natural or impounded body of water, such as a stream, lake, pond, or underground aquifer.

- *Rem* - the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A millirem (mrem) is 1/1000 of a rem.

- *Residual Disinfectant Concentration* - ("C" in CT calculations) is the concentration of disinfectant measured in mg/l in a representative sample of water.

- *Sanitary Survey* - an on-site review of the water source, facilities, equipment, operation ad maintenance of a public water system for the purpose of evaluating the adequacy of such source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water.

- *Sedimentation* - a process for removal of solids before filtration by gravity or separation.

- *Slow Sand Filtration* - a process involving passage of raw water through a bed of sand at low velocity (generally less than 0.4 m/h)resulting in substantial particulate removal by physical and biological mechanisms.

- *Standard Sample* - the aliquot of finished drinking water that is examined for the presence of coliform bacteria.

- *State* - the agency of the state or tribal government that has jurisdiction over public water systems. During any period when a state or tribal government does not have primary enforcement responsibility pursuant to Section 1413 of the Act (42 USC 300g-2), the term "state" means the Regional Administrator of the USEPA.

- *Superintendent* - an individual who is designated by any employing or appointing person, county, municipality, sanitary district, or state as the individual responsible for operation of a waterworks, wastewater works, or industrial wastewater works.

- *Supplier of Water* - any person who owns or operates a public water system.

- *Surface Water* - all water that is open to the atmosphere and subject to surface runoff.

- *System with a Single Service Connection* - a system which supplies drinking water to consumers via a single service line.

- *Total Trihalomethanes (TTHM)* - the sum of the concentration in milligrams per liter of the trihalomethane compounds (trichloromethane [chloroform], dibromochloromethane, bromodichloromethane, and tribromomethane [bromoform]) rounded to two significant figures.

- *Trihalomethane (THM)* - one of the family of organic compounds, named as derivatives of methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.

- *Virus* - means a virus of fecal origin which is infectious to humans by waterborne transmission.

- *Waterborne Disease Outbreak* - the significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a public water system which is deficient in treatment, as determined by the appropriate local or State agency.

- *Watershed* - the area of land that drains into a particular watercourse or water body.

SAFE DRINKING WATER ACT (SDWA)

GUIDANCE FOR WORKSHEET USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
All installations	3-1 through 3-6	(1)(2)(3)(9)
Contaminant Monitoring		
Inorganic Chemicals		
Nitrates	3-7 through 3-8	(1)(2)(3)(9)
Fluoride	3-9 through 3-12	(1)(2)(9)
Other Inorganic Chemicals	3-13 and 3-14	(2)(3)(9)
Organic Chemicals		
Total Trihalomethanes	3-15	(3)(9)
Organic Chemicals other than Total Trihalomethanes	3-16 and 3-17	(2)(3)(9)
Microbiological	3-18 through 3-22	(2)(3)(9)
Sodium	3-23	(2)(9)
Corrosivity	3-24	(2)(9)
Turbidity	3-25 through 3-27	(1)(3)(9)
Radiological	3-28	(1)(2)(3)(9)
Notification	3-29 through 3-31	(2)(3)(9)
If the installation is located near a sole source aquifer	3-32	(1)

(a)CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
(2) Environmental Coordinator (EC)
(3) Preventive Medicine Officer
(9) Chief of Operations and Maintenance (O&M)

SAFE DRINKING WATER ACT (SDWA)

GUIDANCE FOR WORKSHEET USERS (Continued)

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
If the installation uses surface water or ground water under the direct influence of surface water	3-33 through 3-36	(1)(3)(9)
If the installation operates an underground injection well	3-37	(1)(9)
If the installation operates swimming pools	3-38 through 3-41	(1)(2)(3)(9)

(a)CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
(2) Environmental Coordinator (EC)
(3) Preventive Medicine Officer
(9) Chief of Operations and Maintenance (O&M)

SAFE DRINKING WATER ACT (SDWA)

Records to Review:

- Bacterial and chemical analyses of drinking water, including sampling dates and locations, dates of analyses, analytical methods used, and results of analyses
- Monthly operating reports (flow, chlorine residual, etc.)
- State and public notification of noncompliance with primary drinking water regulations
- Action taken by the facility to correct violations of primary drinking water regulations
- Sanitary surveys of the water system conducted by the facility, a private consultant, or any local, state, or Federal agency
- Public notification of noncompliance with secondary MCL for fluoride
- Variance or exemption granted to the facility for its water supply system
- Permit authorizing the operation of an underground injection well
- Records of planning and construction of injection wells
- Results of injection well monitoring
- Records, including any petition for review, of facility projects that may potentially cause contamination of a sole source aquifer through its recharge zone
- Design plans for potable water treatment plant
- Name and phone number of operator of drinking water plant
- Swimming pool/beaches operator
- Lab operators water quality
- Potable water wells data
- Permits

Physical Features to Inspect:

- Drinking water collection, treatment, and distribution facilities
- On-site laboratory analysis facilities
- Swimming pools
- Underground injection wells

People to Interview:

- Directorate of Engineering and Housing (DEH)
- Environmental Coordinator (EC)
- Preventive Medicine Officer
- Chief of Operations and Maintenance (O&M)

COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
DOCUMENTATION	
3-1. Determine actions or changes since previous audit/review.	Check copy of previous audit/review to determine whether noncompliance issues have been resolved. (1)(2)
...	...
3-2. The installation should maintain a current file of applicable Federal, DoD, U.S. Army and state regulations on drinking water.	Verify that installation is aware of state/local drinking water regulations. (1)(2)(3)(9) Verify the following are current and readily available: - DoD Directive 6230.1, *Safe Drinking Water.* - AR 200-1, *Environmental Protection and Enhancemer...* - AR 700-136, *Land Based Water Resources Management in Contingency Operations.* - AR 420-46, *Water and Sewage.* - AR 40-5, *Preventive Medicine.* - TB MED 575, *Occupational and Environmental Health: Swimming Pools and Bathing Facilities.* - TB MED 576, *Occupational and Environmental Health: Sanitary Control and Surveillance of Water Supplies at Fixed Installations.* - TB MED 577, *Occupational and Environmental Health: Sanitary Control and Surveillance of Field Water Supplies.* - TM 5-660, *Maintenance and Operation of Water Supply, Treatment, and Distributions Systems.* - TM 5-813 series (1 through 7), *Water Supply.* - 40 CFR 141, *National Primary Drinking Water Regulations.* - 40 CFR 143, *National Secondary Drinking Water Regulations.* - 40 CFR 144, *Underground Injection Control Program.* Check contract for purchase of water to determine compliance with conditions contained in contract (e.g., quality, quantity, connections, etc.).
...	...
3-3. Installations are required to abide by Federal, State, regional, and local regulations (AR 200-1, para.1-39a(3)).	Verify the installation is abiding by Federal, State, regional, and local requirements. (1) Verify the installation is operating according to permits issued by state or local agencies. (1)(2) (NOTE: Issues which are typically regulated by state and local agencies include: (1)(2) - more stringent contaminant level requirements - certification and training requirements - water system surveys - reporting requirements - monitoring frequency - use of ground water - use and maintenance of wells - UIC programs.)

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (9) Chief of Operations and Maintenance (O&M)

COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
...	...
3-4. DEH must keep records of actions taken to correct or repair any part of the distribution system (AR 420-46, para. 15; TM 5-660, para. 1-8 through 1-11).	Verify any changes to water system since previous audit/review and review map of complete potable water system. (9) Check water system records to determine operational changes and that records have been maintained for at least 3 years. (2)(9) Check that monthly operating reports on performance are reviewed and the water supply system master plan is updated every 5 years. (9)
...	...
3-5. Installations are required to periodically survey water systems and maintain on their premises or at a convenient location near their premises certain records (40 CFR 141.33(b) and 141.33(c)).	Verify the following: (1)(3)(9) - bacteriological analysis records are kept for not less than five years. - chemical analysis records are kept for no less than 10 years. (NOTE: actual laboratory reports may be kept, or data may be transferred to tabular summaries, provided that the following information is included: - the date, place, and time of sampling, and the name of the person who collected the sample - identification of the sample as to whether it was a routine distribution system sample, check sample, raw or process water sample or other special purpose sample - date of analysis - laboratory and person responsible for performing the analysis - the analytical technique/method used, and - the results of the analysis.) Verify records of action(s) taken by the installation to correct violations of primary drinking water regulations are kept for a period not less than 3 years after the last action taken with respect to the particular violation involved. (1)(3)(9) Verify copies of any written reports, summaries or communications relating to sanitary surveys of the water system conducted by the installation itself, by a private consultant, or by any local, State or Federal agency are kept for a period not less than 10 years after completion of the sanitary survey involved. (1)(3)(9) Verify records concerning a variance or exemption granted to the installation are kept for a period ending not less than 5 years following the expiration of such variance or exemption. (1)(2)(9)
...	...

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-6. Water treatment plant operators must be properly trained and certified (40 CFR 141.32; 141.36; and AR 200-1 para.3-6).	Verify water treatment plant operators are certified and receive periodic refresher training. (9)
...	...
CONTAMINANT MONITORING **Inorganic Chemicals** **Nitrates**	
3-7. Water from surface sources and ground water sources must be monitored and checked for nitrates (40 CFR 141.11; 40 CFR 141.23(a)(1); and 40 CFR 141.23(a)(2)).	Check potable water analysis records. (2)(3)(9) Verify that nitrate contaminant levels are monitored and do not exceed 10 mg/L MCL. (3)(9) For surface water sources, verify water is checked for nitrates annually. (3)(9) For ground water sources, verify water is checked for nitrates every 3 years. (3)(9)
...	...
3-8. If the MCL for nitrates is exceeded, a second collection and analysis must be started within 24 hours. If this second analysis also shows a level of nitrates in excess of 10 mg/L, findings must be reported (40 CFR 141.11; 141.23(d); 141.31(b); 141.32(a)(1); and TB MED 576 para.H-1).	Determine if the MCL for nitrates has been exceeded. Verify if the MCL for nitrates was exceeded, the following were notified: (1)(2)(3) - Director Post Medical Services - MACOM Surgeon - DEH - Staff Judge Advocate - Installation Commander - State Agency (within 48 hours)
...	...

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Fluoride	
3-9. Water must be tested for fluoride according to a certain schedule (40 CFR 141.11(c); 141.62(b); and TB MED 576, para.6-3 c(1)).	Determine if water treatment plant operators are conducting daily sampling and analysis. (3)(9) Verify that plant operators are recording and reporting quantities of fluoride added and the average results of daily fluoride tests (in mg/L to the nearest tenth) (DA Form 4141 Facilities Engineering Operating Log, Water - General). (3)(9)
...	...
3-10. Fluoride sampling must be performed at certain points in the distribution system (40 CFR 141.24(g)(1); and TB MED 576)	Determine if fluoridation samples are taken at least once per week and recorded on DD Form 686. (3)(9) Verify copies of report are sent to dental section and DEH. (3)(9) Determine if Installation Medical Authority tests for fluoride at random sample points at time of random microbiological sampling. (3)(9) Determine the following: (3)(9) - *If the system draws water from one or more sources, verify the system samples each source at the entry point(s) to the distribution system.* - If the system draws water from more than one source and sources are combined before distribution, verify the system samples at an entry point to the distribution system during periods representative of the maximum fluoride levels occurring under normal operating conditions.
...	...
3-11. Fluoride in drinking water must not exceed the primary MCL of 4.0 mg/L. A level exceeding the secondary drinking water MCL of 2.0 mg/L requires public notification (40 CFR 141.11(c); 143.3; and 143.5).	Review a sample of DD Forms 686 and check fluoride readings as compared to the MCL and secondary MCL. (1)(2)(9) Verify if MCL was exceeded, system reported this to the State within seven days and initiated three additional analyses at the same sampling point within one month. (2)(9) Verify if the average of four additional analyses rounded to the same number of significant figures as the MCL for the substance in question exceeds the MCL, the system notified the State and gave notice to the public pursuant to 40 CFR 141.31 and 141.32, respectively. (2)(9)
...	...

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-12. Fluoride in drinking water must not exceed maximum levels specified in TB MED 576, Table 6 or applicable state limits if more stringent.	Check sample of DD Forms 686 and compare fluoride readings to maximum limits shown below: (3)(9) Temp. of — Max. Fluoride Level (mg/L) 53.7 and below — 2.4 53.8 - 58.3 — 2.2 58.4 - 63.8 — 2.0 63.9 - 70.6 — 1.8 70.7 - 79.2 — 1.6 79.3 - 90.5 — 1.4
...	...
Inorganic Chemicals (other than Nitrates and Fluoride)	
3-13. Water from surface sources and ground water sources must be monitored and checked for inorganic chemicals other than nitrates and fluoride (40 CFR 141.11; and 141.23(a)(1)).	Check potable water analysis records. (2)(3)(9) For surface water sources, verify water is checked for inorganic chemicals other than nitrates and fluoride annually. (2)(3)(9) For ground water sources, verify water is checked for inorganic chemicals other than nitrates and fluoride every three years. (2)(3)(9) Verify levels of inorganic chemicals are monitored and do not exceed applicable MCLs (see Appendix 3-1). (2)(9)
...	...
3-14. If MCLs of inorganic chemicals are exceeded, re-testing and notification requirements must be met (40 CFR 141.23(b); and 141.23(c)).	Verify if the MCL for any inorganic chemical listed in Appendix 3-1 is exceeded, the system reported this to the State within seven days and initiated three additional analyses at the same sampling point within one month. (2)(9) Verify if the average of four additional analyses rounded to the same number of significant figures as the MCL for the substance in question exceeds the MCL(s) for one or more inorganic chemicals, the system gives proper notice to the State and the public pursuant to 40 CFR 141.31 and 141.32, respectively. (2)(9)
...	...

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Organic Chemicals **Total Trihalomethanes** **3-15.** Sampling and analysis for total trihalomethanes (TTHMs) must be done for any community water systems that serve a population of 10,000 or more and which add a disinfectant (oxidant) to the water in any part of the system. State requirements may be more stringent (40 CFR 141.30).	Determine if the following sampling criteria are being met: (3)(9) - the minimum number of samples are being taken and analyzed: (NOTE: the minimum number of samples are based on the number of treatment plants used by the system; however, a system drawing water from a single aquifer through multiple wells may be considered "one" treatment plant (with state approval) for purposes of determining the number of samples to be taken.) - all required samples are collected within a 24-hour period - for community water systems using surface water sources or ground water sources and not able to meet a lower sampling schedule (40 CFR 141.30 (b)(2) (surface water or ground water) or 40 CFR 141.30 (c)(1) (ground water only)), verify analyses for TTHM are performed according to the following requirements (40 CFR 141.30) (b)(1)): Verify analyses are made at quarterly intervals on at least four water samples for each treatment plant used by the system. Verify at least 25% or samples are taken at locations reflecting the maximum residence time of the water in the system. Verify the remaining samples are taken at representative locations in the distribution system.

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-15 (Continued)	Check written documentation from state allowing for a lower sampling schedule (if applicable) (3)(9) If the requirements of 40 CFR 141.30 (b)(2) (lesser sampling schedule for surface water sources or ground water sources have been met, verify the system analyzes a minimum of one sample for TTHMs per quarter taken at a point in the distribution system reflecting the maximum residence time of the water in the system. (3)(9) If the requirements of 40 CFR 141.30 (c)(1) (much lesser sampling schecude for ground water source systems) have been met, verify a minimum of one sample for maximum TTHM potential is taken per year for each treatment plant used by the system taken at a point in the distribution system reflecting maximum residence time of the water in the system. Verify if under this reduced schedule, a sample resulted in a TTHM level of over 0.10 mg/l and if it is confirmed, or if the system makes any significant change to its source of water or treatment program, the system immediately began the more stringent monitoring requirements for TTHM found in 40 CFR 141.30 (b)(1). (3)(9)
...	...
Organic Chemicals (other than Total Trihalomethanes)	
3-16. The Code of Federal Regulations (CFR) contains three seperate lists of organic contaminants. The chemicals on each list have certain monitoring requirements. (40 CFR 141.12, 141.24, 141.40(e), 141.61(a))	The MCLs for those organic chemicals listed in 141.12 are in Appendix 3-2. The monitoring requirements are as follows: (40 CFR 141.24 (a through f) For surface water source systems, verify: (3)(9) - samples for testing for organic chemicals other than total trihalomethanes (TTHMs) are collected during the period of the year designated by the state as the period in which contamination by pesticides is most likely to occur. - the analyses for other organic chemicals are repeated at least at three year intervals. For ground water source systems, verify: (3)(9) - analyses are completed according to state schedule. If the level of one or more of these organic chemicals other than TTHMs exceeds certain levels, certain procedures must be taken (40 CFR 141.24(b)) Verify if an analysis of the water indicates a level of contamination exceeding the level shown for those chemicals listed in Appendix 3-2, notification is made to the state within 7 days and three additional analyses are initiated within one month. (2)(9)

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-16 (Continued)	Verify if the average of four analyses made pursuant to the above requirement exceeds the maximum contaminant level of any organic chemical listed in Appendix 3-2, appropriate notification is made to the state and to the public pursuant to 40 CFR 141.31 and 141.32, respectively. (2)(9) The MCLs for those organic chemicals listed in 40 CFR 141.40(e) are in Appendix 3-3. The monitoring requirements are as follows: (40 CFR 141.40) For surface water source systems, verify system samples at point in the distribution system representative of each water source or at entry points to the distribution system after any application of treatment. Verify system takes at least the minimum number of samples (one year of quarterly samples per water source). For ground water source systems, verify system samples at points of entry to the distribution system representative of each well after any application of treatment. Verify system takes at least the minimun number of samples (one sample per entry point to the distribution system). For those organic chemicals listed in 40 CFR 141.40(e) (Appendix 3-3), if an installation is: - a community water system or a non-transient, non-community water system serving more than 10,000 people, verify all distribution or entry-point samples (as appropriate) are analyzed beginning no later than January 1, 1988 - a community water system or non-transient non-community water system serving from 3,300 to 10,000 people, verify all distribution or entry-point samples (as appropriate) are analyzed beginning no later than January 1, 1989. - all other community or non-transient, non-community water systems, verify all distribution or entry-point samples representing all source waters beginning no later than January 1, 1991. The MCLs for those organic chemicals listed in 141.61(a) are in Appendix 3-4. The monitoring requirements are as follows: (40 CFR 141.24(g)) - For surface water source systems, verify system samples at points in the distribution system representative of each source or at entry points to the distribution system after any application of treatment. Verify also system samples each source every three months at the same location or a more representative location each quarter. (3)(9) - For ground water systems, verify system samples at points of entry to the distribution system representative of each well after any application of treatment. Verify also system sampling is conducted at the same location(s) or more representative location(s) every three months for one year. (3)(9)

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-16 (Continued)	For those organic chemicals listed in 141.61(a) (Appendix 3-4), if an installation is: - a community water system or a non-transient, non-community water system serving more than 10,000 people, verify all distribution or entry-point samples (as appropriate) are analyzed beginning no later than January 1, 1988 - a community water system or non-transient non-community water system serving from 3,300 to 10,000 people, verify all distribution or entry-point samples (as appropriate) are analyzed beginning no later than January 1, 1989. - all other community or non-transient, non-community water systems, verify all distribution or entry-point samples representing all source waters beginning no later than January 1, 1991. Verify all community and non-transient, non-community water systems repeat the monitoring requirements of 40 CFR 141.40 no less frequently than every five years from the above dates.
...	...
3-17. Testing for vinyl chloride may be required (40 CFR 141.24(g)(6))	For surface water source systems, states may require testing for vinyl chloride For ground water source systems, analysis for vinyl chloride is required only if the system has detected one or more of the following two-carbon organic compounds: - trichloroethylene - tetrachloroethylene - 1,2-dichloroethane - 1,1,1-trichloroethane - cis-1,2-dichloroethylene - trans-1,2-dichloroethylene or - 1,1,-dichloroethylene Verify (if applicable) the analysis for vinyl chloride is made for samples taken at each distribution or entry point at which one or more of the two-carbon organic compounds were found. (2)(9)
...	...
Microbiological	
3-18. Water must be tested for coliform bacteria at representative locations according to a prescribed sampling schedule. (40 CFR 141.21(a)).	Check map of sampling locations of water distribution system, and that sampling points are representative of principal use (dining facilities, housing, administration areas). (1)(2)(3)(9) Verify that taps connected to dead-end sections of distribution system are sampled. (1)(2)

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-18 (Continued)	Sampling Schedule (1)(2)(3): - Community water system: - determine if sampling schedule meets minimum criteria as specified in Appendix 3-5. - Non-community water system: - determine if the sampling schedule in Appendix 3-6 is met. Verify samples are collected at regular time intervals throughout the month (1)(2)(3): - Ground water-supplied system (not including ground water under the direct influence of surface water) which serves 4,900 persons or less: - this system may collect all samples on a single day if taken from different sites. - System using surface water or ground water under the direct influence of surface water which does not practice filtration in compliance with 40 CFR 141 Subpart H - this system must collect at least one sample near the first service connection each day the turbidity level of the source water exceeds 1 NTU. This sample must be analyzed for total coliforms. If one or more turbidity measurements in any day exceed 1 NTU, verify the system collects this coliform sample within 24 hours of the first excess, unless the State determines that for non-system logistical reasons, the sample cannot be analyzed within 30 hours of collection. Verify these sample results are included in determining the MCL for total coliforms. Verify that the analysis is conducted in accordance with approved methods. (NOTE: Check samples are not included in calculating the total number of samples taken for compliance.)
...	...

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-19. When a routine sample is total coliform-positive, repeat samples must be taken according to a specified schedule. (40 CFR 141.21(b)(1) through 141.21(b)(7) (effective date: Dec. 31, 1990).	Verify if a routine sample is total coliform-positive, the following procedures have been performed: (1)(2)(3) - the system collected a set of repeat samples within 24 hours of being notified of the positive result. - for a system which collects more than one routine sample per month, verify system collected no fewer than three repeat samples for each total coliform-positive sample found. - for a system which collects one routine sample per month or less, verify it collected no fewer than four repeat samples for each total coliform-positive sample found. - the system collected at least one repeat sample from the sampling tap where the original total coliform-positive sample was taken, and at least one repeat sample at a tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sampling site. - the system collected all repeat samples on the same day. - the system collected an additional set of repeat samples in the manner specified above if one or more repeat samples in the original set of repeat samples was total coliform-positive Verify the system repeated this process until either total coliforms are not detected in one complete set of repeat samples or the system determines that the MCL for total coliforms has been exceeded and notifies the State. - if the system collects fewer than five routine samples per month and has one or more total coliform-positive samples and the State does not invalidate the sample(s), it collected at least five routine samples during the next month the system provides water to the public. - if, after the system collects a routine sample and before it learns the results of the analysis of that sample, it collects another routine sample(s) from within five adjacent service connections of the initial sample, and the initial sample, after analysis, is found to contain total coliforms, the system may count the subsequent sample(s) as a repeat sample instead of as a routine sample. Verify all routine and repeat samples not invalidated by the State have been included in determining compliance with the MCL for total coliforms. (see Appendix 3-7 for table summarizing main points).
...	...
3-20. If a routine or repeat sample is total coliform-positive, it must be tested for fecal coliforms or *E. coli* (40 CFR 141.21(e))	Verify if a routine or repeat sample is total coliform-positive, the system tests for the presence of fecal coliforms or *E. coli*. (1)(3) Verify if fecal coliforms or *E. coli* has been found present, the system notified the State by the end of the day when the system was notified of the test result, unless the system was notified of the result after the appropriate State office was closed, in which case the system notified the State before the end of the next business day. (1)(3)

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
...	...
3-21. Testing for total coliforms must follow a set procedure (40 CFR 141.21(f)) (effective date: Dec. 31, 1990).	Verify the standard sample volume used for total coliform analysis is 100 ml. Verify total coliform analysis is conducted by the system in accordance with one of the following analytical methods (1)(2)(3): - Multiple-Tube Fermentation (MTF) Technique (10 fermentation tubes must be used) - Membrance Filter (MF) Technique - Presence-Absence (P-A) Coliform Test, or - Minimal Medium ONPG-MUG (MMO-MUG) Test - In lieu of the 10-tube MTF Technique, a system may use the MTF Technique using either five tubes (20-ml sample portions) or a single culture bottle containing the culture medium for the MTF Technique, i.e., lauryl tryptose broth formulated in an approved manner) If the system conducts fecal coliform tests, verify it conducts fecal coliform analysis according to the method found in 40 CFR 141.21(f)(5). (1)(3) If the system conducts tests for *Escherichia coli*, verify it conducts its analysis in accordance with one of the two methods contained in 40 CFR 141.21(f)(6). (1)(3)
...	...
3-22. Systems which have exceeded the MCL for total coliforms and/or which have failed to comply with a coliform monitoring requirement have certain reporting duties (40 CFR 141.21(g)(1), 141.21(g)(2)).	If a system has exceeded the MCL for total coliforms, verify it reported the violation(s) to the State no later than the end of the next business day after it learns of the violation(s), and also notified the public in accordance with 40 CFR 141.32. (1)(3) If a system has failed to comply with a coliform monitoring requirement, including the sanitary survey requirement, verify it reported the monitoring violation(s) to the State within ten days after it discovered the violation(s), and also notified the public in accordance with 40 CFR 141.32. (1)(3)
...	...

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Sodium **3-23.** Drinking water system managers must determine the concentration of sodium in the system (40 CFR 141.41; AR 420-46; and TM 5-660, para.105(c)). ...	Verify sodium concentration samples are taken at the entry point of the distribution system and analyzed: (2)(9) - verify systems using surface water sources in whole or in part are sampled annually per plant at the entry point of the distribution system - verify systems using ground water sources are sampled at least every three years: - suppliers report to EPA and/or State within the first 10 days of the month following the month in which the sample results were received - the flame photometric method is used to analyze sodium concentration levels (NOTE: Systems which use multiple wells drawing raw water from a single aquifer may be considered one treatment plant for determining the minimum number of samples.) ...

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Corrosivity **3-24.** Drinking water system managers must determine the corrosivity characteristics of water entering the system (40 CFR 141.42; AR 420-46; and TM 5-660 para.105(b)).	Verify that corrosivity samples are collected at point of entry to distributive center and analyzed accordingly: (2)(9) - verify systems using ground water sources have one sample analyzed per plant - verify systems using surface water sources have two samples analyzed per plant within 1 year, one during mid-winter and one during mid-summer: - corrosivity characteristics includes measurement of pH, calcium hardness, alkalinity, temperature, total dissolved solids, and calculation of Langelier Index; installations may also have to monitor for additional parameters possibly indicating corrosivity, such as sulfates and chlorides. In these cases, the Aggressive Index can be used instead of the Langelier Index. - supplier of water reports the results of analysis for corrosivity characteristics to USEPA and / or state within first ten days of month following the month in which analytical results were received. (NOTE: Multiple wells drawing water from a single aquifer may be considered one treatment plant for the purpose of determining the minimum number of samples.) Verify that installation has identified if the following construction materials are present in system and are reported to state: (9) - lead from piping, solder, caulking, interior lining of distribution mains, alloys, and home plumbing - copper from piping and alloys, service lines, and home plumbing - galvanized piping, service lines, and home plumbing - ferrous piping materials such as cast iron and steel - asbestos cement pipe Determine whether the facility has implemented procedures for managing lead in drinking water. (9)
...	...

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Turbidity	
3-25. For water supplied in whole or in part from surface sources, turbidity levels must be monitored at a representative entry point(s) to the distribution system and be below a certain level (40 CFR 141.13)	Verify the MCL for turbidity (see Appendix 3-8) has not been exceeded. (1)(9)
...	...
3-26. Turbidity levels must be analyzed according to a set procedure (40 CFR 141.21) (NOTE: These requirements of 40 CFR 141.22 apply as follows: - until Dec. 30, 1990 for unfiltered systems, unless the State has determined prior to that date that filtration is required; - until Jun. 29, 1993 for filtered systems; - until Jun. 29, 1993 for unfiltered systems that the State has determined must install filtration, or until filtration is installed, whichever is later.)	Verify turbidity measurements are made by the Nephelometric Method in accordance with an approved technique. (1)(3)(9) Determine if the turbidity levels are monitored at representative entry points in the public water system at least once per day. (1)(3)(9) If the MCL for turbidity has been exceeded, determine whether the sampling and measurement was confirmed by resampling as soon as practicable and preferably within one hour. (1)(3)(9)
...	...
3-27. When turbidity levels exceed the MCL, the state must be notified within 48 hours (40 CFR 141.22(b)).	Determine whether the state was informed within 48 hours whenever the MCL turbidity levels were exceeded. (9) Determine if the monthly average of the daily samples exceeded the MCL for turbidity, or if the average of two samples taken on consecutive days exceeded 5 TU, the system reported to the State this fact and notified the public as outlined in 40 CFR 141.31 and 141.32. (1)(2)(3)(9)
...	...

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Radiological **3-28.** Installations which have community water systems must monitor for gross alpha particle activity, radium-226 and radium-228 (40 CFR 141.26(a))	Verify installation analyzes gross alpha particle activity, radium-226 and radium-228 (as applicable) using an annual composite of four consecutive quarterly samples or the average of the analyses of four samples obtained at quarterly intervals. (3)(9) (NOTE: In certain circumstances, a gross alpha particle activity measurement may be substituted for the required radium-226 and radium-228 analysis if the measured gross alpha particle activity does not exceed 5 pCi/l at a confidence level of 95 percent.) Verify if a gross alpha particle activity sample exceeds 5 pC/l, the same or an equivalent sample was analyzed for radium-226. (3)(9) Verify if the concentration of radium-226 exceeds 3 pCi/l, the same or an equivalent sample was analyzed for radium-228. (3)(9) Verify installation monitors the above at least once every four years. (3)(9) Verify if installation introduces a new water source for its community water system, the contaminants listed above have been/will be monitored within one year of the introduction of the new water source. (3)(9) Verify if the average annual maximum contaminant level for gross alpha particle activity or total radium is exceeded, the installation gives notice to the State and notifies the public pursuant to the requirements of 40 CFR 141.31 and 141.32, respectively. If the level is exceeded, verify monitoring at quarterly intervals was/is continued until the annual average concentration no longer exceeds the maximum contaminant level or until a monitoring schedule as a condition to a variance, exemption or enforcement action shall become effective. (3)(9) (see Appendix 3-9 for table summarizing MCLs for natural radioactivity and manmade radioactivity).
...	...

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Notification of Organic or Inorganic Chemical Excess	
3-29. When any Primary Drinking Water Standards for organic or inorganic chemicals are exceeded, notifications must be made within 7 days to the state (TB MED 576, and 40 CFR 141.23 and 141.24).	Determine if any excesses in reviewed analytical records have been reported to state within 7 days. (2)(3)
...	...
3-30. Following above notification three additional samples from the same sampling point must be analyzed within 1 month and average compared to the maximum contaminant level. If average of these analyses exceeds the MCL, installation personnel must be notified in addition to public. (40 CFR 141.23 and 141.24).	Verify if MCL for any parameter was exceeded and if public notification procedures were followed. (2) Verify Post Commander, Post Staff Judge Advocate, Office of Information, DEH, and Installation Medical Authority were also notified. (2)
...	...
3-31. If installation water supply system has failed to comply with an MCL or monitoring schedules public notification procedures must be followed (40 CFR 141.31 and 141.32).	Determine if public notification procedures have been followed: (2)(9) - Notices are placed in newspapers for 3 consecutive days or in weekly newspaper for 3 consecutive weeks. - Notice is published within 14 days after the noncompliance has been verified. - Written notices sent to occupants of installation housing.
...	...
SOLE SOURCE AQUIFER	
3-32. Projects that may affect the recharge zone of a sole source aquifer are regulated (40 CFR 149.104).	Determine if the installation is located near a sole source aquifer. Determine if any projects may potentially cause direct or indirect contamination through its recharge zone. (1)
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (9) Chief of Operations and Maintenance (O&M)

COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
FILTRATION AND DISINFECTION	
3-33. Systems which use surface water or ground water under the direct influence of surface water will be required to install filtration equipment unless they fulfill the requirements of being able to avoid filtration (40 CFR 141.71) (NOTE: Until required, the checklist items are GMPs.)	Verify installation is aware of the following requirements: (3)(9) - To avoid filtration, a system using a surface water source must meet all of the conditions of 40 CFR 141.71(a) (Source water quality conditions) and 40 CFR 141.71(b) (Site-specific conditions) and is subject to 40 CFR 141.71(c) (Treatment technique violations) beginning Dec. 30, 1991, unless the State has determined that filtration is required. - To avoid filtration, a system using a ground water source under the direct influence of surface water must meet all of the conditions of 40 CFR 141.71(a) and 40 CFR 141.71(b) and the system is subject to 40 CFR 141.71(c) beginning 18 months after the State determines that it is under the direct influence of surface water, or December 30, 1991, whichever is later unless the State has determined that filtration is required. - If the State determines before Dec. 31, 1991 that filtration is required, the system must have installed filtration and meet the criteria for filtered systems specified in 40 CFR 141.72(b) and 141.73 by June 29, 1993.
...	...
3-34. If filtration cannot be avoided, one of the following filtration techniques is required according to the time schedule identified above (40 CFR 141.73)	Verify (if required) one of the following filtration techniques is used by the system: (1)(3)(9) - Conventional filtration treatment or direct filtration (40 CFR 141.73(a)): - Slow sand filtration (40 CFR 141.73(b)): - Diatomaceous earth filtration (40 CFR 141.73(c)): - Other filtration technologies (40 CFR 141.73(d)):
...	...

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Monitoring Requirements For Systems That Do Not Provide Filtration **3-35.** A system that uses a surface water source and does not provide filtration treatment must begin monitoring beginning Dec. 31, 1990, unless the State has determined that filtration is required (in which case the State may mandate alternative monitoring requirements until filtration is in place. A system that uses a ground water source under the direct influence of surface water and does not provide filtration treatment must begin monitoring beginning Dec. 31, 1990 or 6 months after the State determines that the ground water source is under the direct influence of surface water, whichever is later, unless the State has determined that filtration is required (in which case the State may mandate alternative requirements until filtration is in place). (40 CFR 141.74 (b)). ...	Verify the following monitoring procedures are being performed (as applicable): (1)(3)(9) - Fecal coliform or total coliform density measurements are performed on representative source water samples immediately prior to the first or only point of disinfectant application. The system must sample for fecal or total coliforms at the minimum frequency each week the system serves water to the public detailed in see Appendix 3-10. Also, one fecal or total coliform density measurement must be made every day the system serves water to the public and the turbidity of the source water exceeds 1 NTU (these samples count towards the weekly coliform sampling requirement) unless the State determines that the system, for logistical reasons outside the system's control, cannot have the sample analyzed within 30 hours of collection. - Turbidity measurements must be performed on representative grab samples of source water immediately prior to the first or only point of disinfectant application every four hours (or more frequently) that the system serves water to the public. A system may substitute continuous turbidity monitoring for grab sample monitoring if it validates the continuous measurement for accuracy on a regular basis using a protocol approved by the State - The total inactivation ratio for each day that the system is in operation must be determined based on the values contained in Tables 1.1-1.6, 2.1, and 3.1 of 40 CFR 141.74. ...

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Reporting and Record-keeping Requirements For Systems That Do Not Provide Filtration **3-36.** A system that uses a surface water source or one that uses a ground water source under the direct influence of surface water and does not provide filtration has certain reporting requirements. For a surface water source system, certain information as outlined in 40 CFR 141.75 must be reported starting Dec. 31, 1990, unless the State has determined that filtration is required (in which case the State may specify alternative reporting requirements until filtration is in place). For a system using ground water under the direct influence of surface water, the certain information must be reported beginning Dec. 31, 1990 or 6 months after the State determines that the ground water source is under the direct influence of surface water, whichever is later, unless the State has determined that filtration is required (in which case the State may specify alternative reporting requirements until filtration is in place) (40 CFR 141.75(a)) ...	Verify the following has been reported: (1)(3)(9) - source water quality information (40 CFR 141.75 (a)(1)) - disinfection information specified in 40 CFR 141.74 (b) (40 CFR 141.75 (a)(2)). - no later than 10 days after Sep. 30 of each year, a report summarizing a system's compliance with all watershed control program requirements specified in 40 CFR 141.71 (b)(2) (40 CFR 141.75 (a)(3)). - no later than 10 days after Sep. 30 of each year, a report summarizing the system's on-site inspection conducted during that year pursuant to 40 CFR 141.71 (b)(3) (40 CFR 141.75 (a)(4)). - as soon as possible, when a system discovers a waterborne disease outbreak potentially attributable to a system's water system which has occurred, this must be reported to the State (40 CFR 141.75 (a)(5)). ...

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
UNDERGROUND INJECTION WELLS	
3-37. Underground Injection Wells are regulated and permitted by 40 CFR 144, 146, and 147.	Determine if the facility operates one or more underground injection wells. (1)(9) Verify wells are operated in accordance with all permit and 40 CFR 144 requirements. (1)(9) Verify that each well is constructed in accordance with 40 CFR 146 standards. (1) Verify that each well complies with the state Underground Injection Control (UIC) program regulations. (1)
...	...
SWIMMING POOLS	
3-38. Installations with swimming pools should conduct sampling at least twice a week for bacteriological analysis (TM 5-660, para. 10-12a).	Check samples of documentation (DD Form 686) and verify that analysis is performed properly at least twice a week. (3)(9)
...	...
3-39. At least two chlorine residual tests and two pH tests should be conducted weekly for each swimming pool (TM 5-660, para. 10-12c(2)).	Verify that required tests are being conducted. (1)(2)(3) A chlorine residual test must be conducted at each corner of the pool every hour during pool operation. The chlorine residual must be recorded every 3 hours.
...	...
3-40. Lifeguard or pool operator should check turbidity once a day. Testing of pH must be conducted at each end of the pool every 3 hours or a minimum of 3 times each day (TM 5-660, para. 10-12b(1) and 10-12c(1)).	Verify that required tests are being conducted. (2)(3)
...	...

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COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
3-41. A preseason and post-season inspection of swimming pools and bathing areas should be conducted (TM 5-660, para. 10-15d and 16e).	Verify that required inspections are being conducted. (1)(2)(3) Preinspection is required 48 hours prior to opening and post inspection 15 days after closure.
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (9) Chief of Operations and Maintenance (O&M)

Appendix 3 - 1

Primary Drinking Water Standards for Inorganic Chemicals (40 CFR 141.11)

Contaminant	*MCL (mg/L)*
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium	0.05
Fluoride	4.0
Lead	0.05
Mercury	0.002
Nitrate (as N)	10.00
Selenium	0.01
Silver	0.05

Appendix 3 - 2

Mzximum Contaminent Levels (MCLs) for Organic Chemicals (40 CFR 141.12)

(Applies to Community Water Systems)

Contaminant	*MCL (mg/L)*
Chlorinated Hydrocarbons:	
Endrin	0.0002
Lindane	0.004
Methoxychlor	0.1
Toxaphene	0.005
Chlorophenoxys:	
2,4-D	0.01
2,4,5-TP Silvex	0.01
Total Trihalomethanes *	0.10

* The MCL for total trihalomethanes is only applicable to community water systems serving a population of 10,000 or more individuals and that add a disinfectant (oxidant) to the water in any part of the drinking water treatment process.

Appendix 3 - 3

Certain Organic Chemicals Requiring Special Monitoring (40 CFR 141.40(e) & (f))

(Applies to Community Water Systems and Non-Transient, Non-Community Water Systems)

1. Chloroform
2. Bromodichloromethane
3. Chlorodibromomethane
4. Bromoform
5. trans-1,2-Dichloroethylene
6. Chlorobenzene
7. m-Dichlorobenzene
8. Dichloromethane
9. cis-1,2-Dichloroethylene
10. o-Dichlorobenzene
11. Dibromomethane
12. 1,1-Dichloropropene
13. Tetrachloroethylene
14. Toluene
15. p-Xylene
16. o-Xylene
17. m-Xylene
18. 1,1-Dichloroethane
19. 1,2-Dichloropropane
20. 1,1,2,2-Tetrachloroethane
21. Ethylbenzene
22. 1,3-Dichloropropane
23. Styrene
24. Chloromethane
25. Bromomethane
26. 1,2,3-Trichloropropane
27. 1,1,1,2-Tetrachloroethane
28. Chloroethane
29. 1,1,2-Trichloroethane
30. 2,2-Dichloropropane
31. o-Chlorotoluene
32. p-Chlorotoluene
33. Bromobenzene
34. 1,3-Dichloropropene
35. Ethylene dibromide (EDB) *
36. 1,2-Dibromo-3-chloropropane (DBCP) *

* Systems must monitor for EDB and DBCP only if the State determines they are vulnerable to contamination by either or both of these substances (see 40 CFR 141.40(f) for definition of "vulnerable").

Appendix 3 - 4

National Revised Primary Drinking Water Regulations;

MCLs for Organic Chemicals (40 CFR 141.61)

(Applies to Community Water Systems and Non-Transient, Non-Community Water Systems)

Contaminant	*MCL (mg/L)*
Benzene *	0.005
Vinyl Chloride *	0.002
Carbon Tetrachloride *	0.005
1,2-Dichloroethane *	0.005
Trichloroethene *	0.005
1,1-Dichloroethylene *	0.007
1,1,1-Trichloroethane*	0.020
para-Dichlorobenzene *	0.075

* The effective date for these organic contaminants is January 9, 1989 for community water systems and nontransient, noncommunity systems.

Appendix 3 - 5

Total Coliform Monitoring Frequency for Community Water Systems (40 CFR 141.21(a)(2))

Population served per month	Minimum number of samples per month
25 to 1,000*	1
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80
83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300
1,230,001 to 1,520,000	330
1,520,001 to 1,850,000	360
1,850,001 to 2,270,000	390
2,270,001 to 3,020,000	420
3,020,001 to 3,960,000	450
3,960,001 or more	480

* Includes public water systems which have at least 15 service connections, but serve fewer than 25 persons.

Appendix 3 - 6

Total Coliform Monitoring Frequency for Non-Community Water Systems[1]

Water Source	Population Served	Minimum Monitoring Frequency	Effective Date of Requirement
Surface	any	Same as CWS[2]	Beginning Dec. 31, 1990
Ground	1>1,000	Same as CWS[2] [3]	Beginning Dec. 31, 1990
Ground	>1,000	State discretion[4]	Dec. 31, 1990 until June 29, 1994
Ground	>1,000	State discretion	After June 29, 1994
Ground water under direct influence of surface water	Any classification	Same as CWS[2]	Within one year of State

[1] Includes both transient and non-transient non-community water systems.

[2] System must monitor at same frequency as a like-sized community water system.

[3] State may reduce the monitoring frequency for any month the system serves 1,000 persons or fewer.

[4] State may not permit a system to monitor less than once per year.

"CWS" means Community Water System.

Appendix 3 - 7

Monitoring Requirements Following a Total Coliform-Positive Routine Sample

No. samples/month	No. repeat samples[1]	No. routine samples next month[2]
1 or less	4	5
2	3	5
3	3	5
4	3	5
5 or more	3	See Appendix 3-1[3]

[1] Number of repeat samples in the same month for each total coliform-positive routine sample.

[2] Except where State has invalidated the original routine, or where State substitutes an on-site evaluation of the problem, or where the State waives the requirement on a case-by-case basis. (See 40 CFR 141.21a(b)(5) for more details.)

[3] Systems need not take any additional samples beyond those it is required to take according to Appendix 3-1.

NOTES:

(1) The MCL for microbiological contaminants is based on the presence or absence of total coliforms in a sample, rather than coliform density.

(2) Facilities testing <40 samples per month may have one total coliform-positive result and still be in compliance with the total coliform MCL. Those testing ≥ 40 samples per month may have no more than 5 percent total coliform-positive results and still be in compliance with the total coliform MCL (40 CFR 141.63(a)(1), 40 CFR 141.63(a)(2)).

(3) Any fecal coliform-positive repeat sample or *E. coli*-positive repeat sample, or any total coliform-positive repeat sample following a fecal coliform-positive or *E. coli*-positive routine sample constitutes a violation of the MCL for total coliforms. This is a violation that may pose an acute risk to health for public notification requirement purposes in 40 CFR 141.32 (40 CFR 141.63(b)).

Appendix 3 - 8

Turbidity (40 CFR 141.13)

1 TU (turbidity unit) as determined by a monthly average pursuant to 40 CFR 141.22*

5 TU based on an average for two consecutive days pursuant to 40 CFR 141.22

---

* This figure is subject to one exception. Five or fewer turbidity units may be allowed if the supplier of water can demonstrate to the state that the higher turbidity does not do any of the following:

  - interfere with disinfection
  - prevent maintenance of an effective disinfectant agent throughout the distribution system, or
  - interfere with microbiological determinations.

Appendix 3 - 9

Natural Radioactivity (40 CFR 141.15)

Contaminant	*MCL (pCi/L)*
Combined radium-226 and radium-228	5
Gross alpha particle activity*	15

* This includes radium-226 but excludes radon and uranium.

Manmade Radioactivity (40 CFR 141.16)

1. Average annual concentrations assumed to produce a total body or organ dose of 4 millirem (mrem)/year

Radionuclide	*Critical Organ*	*pCi/L*
Tritium	total body	20,000
Strontium-90	bone marrow	8

2. Detection Limits for Manmade Beta Particle and Photon Emitters*

Radionuclide	*Detection Limit in pCi/L*
Tritium	1,000
Strontium-89	10
Strontium-90	2
Iodine-131	1
Cesium-134	10
Gross Beta	4
Other	10% of the applicable limit

* Additional standards for radioactivity from manmade radionuclides may be applicable where the source water is contaminated by effluent from nuclear facilities.

Appendix 3 - 10

Monitoring Requirements for Fecal or Total Coliforms for Systems That Do Not Provide Filtration

System Size (persons served)	Samples/Week[1]
<500	1
501 to 1,300	2
3,301 to 10,000	3
10,001 to 25,000	4
>25,000	5

[1] Samples must be taken on separate days.

INSTALLATION:	COMPLIANCE CATEGORY: SAFE DRINKING WATER ACT (SDWA) USA ECAS	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (9) Chief of Operations and Maintenance (O&M)

Section 4

RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C (RCRA-C)

SECTION 4

RCRA Subtitle C

A. Applicability of this Protocol

This protocol applies to Army installations that generate, store, treat, or dispose of any type of hazardous waste. Federal regulations establish 100 kilograms of hazardous waste or 1 kilogram of acute hazardous waste generated in any one calendar month as the minimum quantity of waste that requires full compliance with the regulations. Since this quantity is quite small (equivalent to 6 drums per year), it is likely that almost all Army installations will be affected by the regulations addressed in this protocol.

This protocol and its associated evaluation worksheets are necessarily more complex than other protocols in this volume. All evaluation items will not be applicable to all installations. Guidance is provided on the worksheets to direct the elevator to the evaluation questions related to the type of hazardous waste activities/facilities on the installation. This protocol focuses on the hazardous waste Code of Federal Regulations (CFR) 40 CFR 260-271 since these are the primary regulations that affect most Army installations. However, installation environmental coordinators should determine the additional requirements mandated by their respective state regulations (if appropriate) and include evaluation questions on worksheets in the same format as shown in this protocol.

B. Federal Legislation

The Resource Conservation and Recovery Act (RCRA) (P.L. 94-580; 42 USC 6901) and its amendments mandated regulations that control hazardous waste from its origin to ultimate treatment, storage, or disposal. All Army installations are responsible for complying with these regulations. Installations located in states that have interim or final authorization to run their own RCRA program, are responsible for being knowledgeable of and following state requirements. While some state programs are identical to the Federal guidelines, others may have more stringent requirements.

The requirements of RCRA with respect to Federal facilities subject them to Federal, state, and local requirements just as any nongovernmental entity.

- RCRA Section 6001, *Application of Federal, State, and Local Law to Federal Facilities*, states that all branches of the Federal government, having jurisdiction over any solid waste management facility or disposal site, shall comply with Federal, state, and local solid waste or hazardous waste

disposal requirements. The President may exempt any solid waste management facility of any department if it is "in the paramount interest" of the United States. An exemption may be granted for 1 year.

There are several other sections of RCRA that have specific application to Federal facilities. These include:

- Section 3004(u), *Continuing Releases at Permitted Facilities* and Section 3004 (v), *Corrective Action Beyond Facility Boundary*, states that all treatment, storage, and disposal facilities must satisfy new requirements. These requirements involve:
  a) identifying all solid waste management units at the facility
  b) identifying releases of hazardous wastes or constituents that have occurred from those units
  c) performing corrective action for those releases. These provisions are implemented through Army Regulation 200-1, *Environmental Protection and Enhancement*, and are covered in Section 16 of this manual, *Environmental Program Management*. The provisions apply to all regulated facilities, inactive and closed as well as operating units. All Federal facilities are subject to corrective action requirements to the same extent as any facility owned or operated by private parties.

Every Part B permit application submitted under RCRA must include schedules of compliance for corrective action (where corrective action cannot be completed before issuance of the permit) for all releases of hazardous waste or "constituents" from solid waste management units, regardless of when the waste was placed there. The permit applicant thus must provide full disclosure of all locations within the facility's boundaries where wastes may have been managed since the site was originally opened and must provide for action to abate any damage that any release of hazardous waste or constituents may have caused.

- Section 3004 also requires Federal agencies to operate under the same property-wide definition of "facility": the entire site under control of the owner or operator involved in hazardous waste management. In 1986, United States Environmental Protection Agency (USEPA) interpreted ownership to refer not to the United States as a whole but rather to individual Federal departments, agencies, and instrumentalities (51 Federal Register 7722 (1986)).

- Section 3007(c), *Inspections*, states that the Administrator will annually inspect all Federal agency hazardous waste treatment, storage, and disposal facilities. Additional state inspections of such facilities may also occur.

Facilities must, upon written request from the state, compile, publish, and submit information relating to on-site waste storage and disposal that has taken

place before permits were required. Specifically, the amount, nature, and toxicity of such waste must be ascertained; and any resulting health or environmental hazards must be assessed for this hazardous waste site inventory reporting these requirements.

Facilities are also required to inform the general public of toxic chemicals stored on site and any releas of them, as defined in 40 CFR 372.65. This regulation is addressed in Section 7, CERCLA/SARA.

- Section 3016, *Inventory of Federal Agency Hazardous Waste Facilities,* provides that each Federal agency must submit to USEPA an inventory of the sites that it owns or operates or previously owned or operated where hazardous waste is or was stored, treated, or disposed at any time. The inventory should be submitted biennially and include the following information:

  - Location of the site
  - Amount and toxicity of the waste
  - Extent of environmental contamination
  - Current status of site
  - List of disposal sites at the facility and monitoring reports
  - Response actions
  - Identification of waste treatment, storage, or disposal techniques
  - Name and address of the responsible Federal agency for each site.

If a facility does not provide adequate information, the Administrator shall notify the chief official of that agency. If after 90 days an inventory has not been developed, the Administrator shall carry out the inventory. USEPA procedures for developing this inventory are modified every 2 years.

Applicable RCRA Subtitle F, *Federal Responsibilities.*

- Section 6002, *Federal Procurement,* states that each procuring agency must select those items made of the highest percentage of recovered materials practicable unless such items are unreasonable, fail to meet performance standards, or are only available at an unreasonable price.

- Section 6003, *Cooperation with Environmental Protection Agency,* states that all Federal agencies must make available all information required by the Administrator concerning past or present waste management practices and past or presently owned, leased, or operated solid or hazardous waste facilities.

- Section 6004, *Applicability of Solid Waste Disposal Guidances to Executive Agencies*, states that Executive Agencies must comply with Solid Waste Management Regulations where the Agency:

  - Has jurisdiction over real property or the operation of a facility that is involved in solid waste management

  - Generates solid waste and which, if conducted by a person other than the Agency, would require a permit or license to dispose of the waste.

- Section 9007, *Federal Facilities*, states that Federal facilities' underground storage tanks containing regulated substances or petroleum must comply with all Federal, state, and local requirements. Underground Storage Tanks are covered in Section 6 of this manual, RCRA Subtitle I. (Note: there are also requirements for hazardous waste storage tanks regulated under Subtitle C of RCRA.) The President may exempt a Federal agency from compliance if it is determined to be "in the paramount interest of the United States." The exemption is granted for 1 year and may only be renewed at 1-year intervals.

General and technical standards under RCRA for treatment, storage, and disposal (TSD) facilities are contained in two parts. Permitting standards, contained in 40 CFR 264, are applied through the RCRA permitting process and regulate long-term continued operation of a TSD facility. Interim status standards, contained in 40 CFR 265, regulate the operation of existing TSD facilities before receipt of a RCRA permit. The 40 CFR 264 standards are generally more complete and stringent. This protocol is based primarily on the 40 CFR 264 permitting standards. An exception is the use of 40 CFR 265 standards for accumulation points, which is allowed by the "less than 90 day storage" provisions of 40 CFR 262.34.

- *Land Disposal Restriction Program (LDR Program)*, 40 CFR 268 is unique in that it provides a catalyst for the banning of untreated wastes from land disposal. As of August 8, 1988, all land disposal methods including underground injection wells were covered by these regulations. Several categories of waste are covered by the "land-ban" rules. Also, many solvents are given special treatment standards. A list of wastes to be covered by the land-ban was established and divided into 3 parts. These parts (or "thirds") were gradually phased into the land-ban program. Refer to Appendix 4-4 for further information. Though referred to as the *California List Rule*, these wastes rules are applicable to all states. Congress adopted this list, which consists of liquid hazardous wastes containing metals,

cyanides, PCBs, corrosives with a pH of 2.0 or less or greater than 12.5 and liquid/nonliquid hazardous wastes containing halogenated organic compounds. For more information on the "California List" see Appendix 4-7.

A complete review of 40 CFR parts 260 through 270 is required as well as state regulations to adequately assess the installation's hazardous waste management program. Appendix 4-2 through 4-7 are not intended to be comprehensive of all hazardous waste information.

40 CFR 260	-	*Hazardous Waste Management System: General.*
40 CFR 261	-	*Identification and Listing of Hazardous Waste.*
40 CFR 262	-	*Standards Applicable to Generators of Hazardous Waste.*
40 CFR 263	-	*Standards Applicable to Transporters of Hazardous Waste.*
40 CFR 264	-	*Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.*
40 CFR 265	-	*Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.*
40 CFR 266	-	*Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities.*
40 CFR 267	-	*Interim Standards for Owners and Operators of New Hazardous Waste Land Disposal Facilities.*
40 CFR 268	-	*Land Disposal Restrictions.*
40 CFR 270	-	*Administered Permit Programs: The Hazardous Waste Permit Program.*
40 CFR 271	-	*Requirements for Authorization of State Hazardous Waste Programs.*
40 CFR 372	-	*Toxic Chemical Release Reporting: Community Right-to-Know.*
49 CFR 172 through 49 CFR 179	-	*Transportation of Hazardous Waste.*

C. State/Local Requirements

Many states have met USEPA requirements in 40 CFR 271 and have been authorized to manage their own state programs. RCRA encourages states to develop hazardous waste statutes and to operate regulatory programs in lieu of the Federal USEPA-managed program. Many states have adopted the USEPA regulations by reference or have promulgated regulations identical to the USEPA regulations. Several other states have developed hazardous waste regulatory programs that are substantially equivalent to the Federal program or have

implemented programs significantly more stringent than the USEPA program. These differences between individual state regulations and the Federal program require that evaluators check the status of the state's authorization and then determine which regulations apply. Since the protocol worksheets are based exclusively on the requirements of the Federal RCRA/USEPA program, it is necessary to determine in what ways the applicable state program differs from the RCRA/USEPA program.

In all cases, the most stringent regulations should be followed.

D. DoD Regulations

There are two DoD Policy Memorandums that address hazardous waste and are applicable to Army installations:

- Defense Environmental Quality Program Policy Memorandum (DEQPPM) 80-5, *DoD Hazardous Material Disposal Policy*, designates the Defense Logistics Agency is the single manager for disposal of hazardous materials within DoD. This policy is implemented through regional Defense Reutilization and Marketing Offices (DRMOs) around the country that are responsible for managing the off-site disposal of hazardous wastes for Army installations.

- DEQPPM 80-8, *RCRA Hazardous Waste Management Regulations*, establishes management procedures for implementing the DoD Hazardous Waste Management Program.

E. U.S. Army Regulations

- Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*, Chapter 6, defines Army policy and procedures for managing hazardous waste, including resource recovery, recycling, waste reduction, and training programs.

  The hazardous waste management program requirements of AR 200-1 are that Army, USAR, and ARNG installations and tenants will be aware of and comply with all applicable laws (Federal, state, and local); ensure that program and budget requests identify resource requirements to carry out management duties; encourage the use of joint or regional facilities to minimize costs; minimize generation and land disposal of hazardous wastes; prohibit the storage of hazardous wastes in underground storage tanks; conform to all laws, including international laws, on ocean dumping; and in general, "generate, transport, treat, store, and dispose of wastes such as pesticides, hazardous chemical stocks,

medical, dental, and veterinary supplies, radioactive materials, propellant, explosive, and pyrotechnic materials (PEP), explosive ordnance, or chemical warfare agents in a manner that protects public health and the environment" (para. 6-2).

- Army Regulation (AR) 420-47, *Solid and Hazardous Waste Management*, remains in force with the exception of Chapters 5 and 6, Appendix A, B, and C, and the glossary, which have been superseded by AR 200-1. The remaining chapters cover responsibilities regarding solid and hazardous waste, collection and storage of both solid and hazardous waste, thermal processing and land disposal of solid (nonhazardous) waste, and monitoring records.

F. Key Compliance Requirements

- Generator Requirements - Any Army installation that generates at least 100 kg/month (approximately one-half drum) of hazardous waste or 1 kg/month of acute hazardous waste is required to conduct analysis of the wastes; properly label, store, or otherwise manage the wastes on-site; prepare manifests; comply with state and Federal reporting requirements; and properly dispose of its hazardous waste off-site. Hazardous wastes may either be wastes that appear in USEPA's "Listed Wastes" in 40 CFR 261, or are wastes that demonstrate characteristics of ignitability (flashpoint less than 140^{O}F), corrosivity (pH less than 2.0 or greater than 12.5), reactivity, or exhibit characteristics of toxicity. Typically, an Army installation will generate solvents, waste oils, paint, and paint sludges.

  A generator of hazardous wastes needs to have an USEPA ID number, but does not need a permit if waste is stored on the installation for less than 90 days.

  (Note: there are deviations from the 90-day storage requirement for small quantity generators [100-1000 kg/month].)

- Installation Hazardous Waste Management Plan - Each installation commander will ensure that a written hazardous waste management plan is maintained to provide installation personnel with procedures and responsibilities to manage hazardous wastes consistent with all applicable laws and regulations. The Directorate of Engineering and Housing (DEH) will prepare the plan and provide copies to all facility personnel that generate, transport, treat, store, and dispose of hazardous waste. The plan will be signed by the IC and will:

  - include responsibilities of installation organizations and personnel in generating, treating, storing, and disposing of hazardous waste

- show USEPA and state identification numbers to generate, treat, store, dispose of, transport, or offer for transportation hazardous wastes
- specify the type and quantity of hazardous waste for each hazardous waste generating activity (including tenants)
- describe waste minimization projects, funds, and saving
- identify the location of all hazardous waste TSDFs
- describe installation procedures to treat, store, dispose of, transport on-post, or offer for transport off-post hazardous waste, consistent with the requirements of 40 CFR 260-271, *Hazardous Waste Management*, including requirements of a RCRA permit
- include procedures to analyze hazardous wastes; include procedures to inspect the hazardous waste units for malfunction and deterioration, operator errors, and discharges that may be causing, or may lead to release of hazardous waste constituents to the environment, or a threat to human health
- include procedures to prevent unauthorized entry to the hazardous waste units
- describe the program to train all applicable facility personnel with Federal, state, and Army requirements to ensure compliance with RCRA
- include procedures of the contingency plan to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water, consistent with requirements of 40 CFR 264 Subpart D
- include procedures to temporarily treat, store, and dispose of hazardous waste if the use of existing facilities is unavailable, identifying temporary storage facilities, alternate disposal site, and handling procedures
- include a copy of the RCRA operating record, if applicable
- include a copy of the RCRA permit, if applicable
- reference the location of the Spill Prevention Contingency and Countermeasure Plan (SPCCP) and the Installation Contingency Spill Plan (ICSP), and summarize emergency reporting information for reporting and containing spills and illegal dumping (see Section 7 of this manual)
- include references for obtaining technical information on determining if a waste is hazardous; the location of off-site RCRA approved TSDFs; the names of state and Federally approved hazardous waste transporters; and the names and addresses of state and Federal regulatory agencies administering the RCRA program.

- Transport Requirements - Containers of hazardous waste shipped off-post must be properly labeled. The labels should identify the waste and its hazard class. Shipments from the installation to a DRMO off-post must also be accompanied by manifests and are subject to the full transportation requirements as stipulated in DOT hazardous materials transportation regulations.

- Accumulation Point Management - An accumulation point is an area in or near the workplace where hazardous waste is accumulated before being turned in to DRMO for disposal. Storage in these areas is temporary and must not exceed 90 days from the time the first waste begins to accumulate in the container. Permits are not required for accumulation points, but certain controls relative to spill containment, inspections, and training are required. (Note: some installations may operate satellite accumulation points where up to 55 gallons of hazardous waste or 1 quart of acute hazardous waste may be accumulated provided the requirements in 40 CFR 262.34 [accumulation time] are met.)

- Permitted TSD Facilities Requirements - The operation of a treatment, storage, and/or disposal facility is subject to regulation and permitting under Federal or state regulations. These regulations are both administrative and technical. The administrative standards require that various plans be developed to ensure that emergencies can be dealt with, that waste received is properly identified, and that operating personnel are adequately trained to operate the facility and respond to emergencies. These administrative standards also include requirements that the facility be inspected routinely, that records of operations are compiled and maintained, and that reports of both routine and contingency operations are made to the applicable regulatory agency. The administrative standards also require that a plan for ceasing operations and closing the facility be developed, kept on-hand, and updated frequently.

  The technical standards applicable to treatment, storage, and disposal facilities fall into two classes: general standards that apply to all TSD facilities and specific standards that apply to various types of facilities, i.e., container storage areas, tanks, surface impoundments, waste piles, land treatment facilities, incinerators, landfills, thermal treatment facilities, and chemical, physical, biological treatment facilities.

  Administrative and technical facility standards are applied to a particular facility through an RCRA permit issued to a facility. Existing facilities which have not been issued an RCRA permit are considered to be in interim status and can continue to operate if they comply with the RCRA mandated Interim Status Standards (ISS). These ISS (which are contained in 40 CFR 265) are similar in scope to the permit standards contained in 40 CFR 264, but are generally less stringent and require less facility modifications or improvements.

G. Responsibility for Compliance

- The Installation Commander - The installation commander is responsible for establishing and maintaining an active program of surveillance of the users of hazardous materials; generators, transporters, and storers of hazardous wastes; the waste minimization program; and disposal activities. By DoD direction, the

installation commander is responsible for compliance with RCRA and state regulations involving host and tenant organizations on the installation. The commander signs all permit applications and reports submitted to USEPA or state agencies as part of this overall management responsibility. In the event that the installation commander is not a colonel or higher or commands less than 250 persons, RCRA permit applications must be referred up the chain of command to an official in the grade of colonel or higher for signature. In either case, operational responsibility for the hazardous waste program rests with the activities that generate, treat, store, transport, or dispose the waste and the activities responsible for implementing health, safety, and environmental protection programs.

- Directorate of Engineering and Housing (DEH) and Directorate of Safety and Health (DSH) - The DEH/DSH will serve as the installation commander's (IC's) expert representative for the management of all wastes, unless otherwise directed by the IC.

  In the area of compliance, the DEH/DSH will immediately advise the IC on the receipt of enforcement notices, such as Notice of Violations (NOVs), consent orders, or RCRA compliance agreements; advise all waste generating activities on state, Federal, host nation, and Army requirements for managing hazardous waste, including requirements for permits and reporting and recordkeeping; prepare all required reports on hazardous waste, including the biennial report (USEPA Form 8700-13 A), the A-106 report (see Section 16), and the annual hazardous waste report; monitor installation compliance with Federal, state, local, and host nation hazardous waste requirements, including activities of tenants and subinstallations; prepare and monitor compliance with the hazardous waste management plan that establishes procedures and responsibilities for managing hazardous wastes.

  In the area of waste management (including disposal), the DEH/DSH will advise the IC, in coordination with generating activities, on the most cost-effective and efficient means of waste storage, treatment, and disposal; provide technical assistance and guidance to hazardous waste generating activities, tenants, and operators of RCRA hazardous waste TSDFs; provide for analysis of waste to determine if it is hazardous under applicable laws; ensure hazardous wastes are properly identified, segregated, and weighed before treatment, storage, disposal, or transportation; certify that wastes are hazardous wastes and provide copies of waste analysis before arranging for off-post transportation; coordinate an annual installation-wide inventory of all hazardous waste, and identify the waste generating activities; establish, monitor, and execute programs in waste management, including waste minimization, resource recovery, and recycling.

- Director of Logistics (DOL) - The DOL will monitor installation-wide use of hazardous materials to ensure progress in meeting Federal and Army hazardous waste minimization goals and requirements, and provide quarterly progress reports to the DEH. On a semi-annual basis, the DOL will recommend opportunities and provide a progress report to the IC in reducing the use and toxicity of hazardous materials, following the concurrence of the DEH.

  Additionally, the DOL will arrange for and monitor all on-post and off-post shipments of hazardous waste, ensuring compliance with applicable laws and requirements; prepare and maintain records on transporting hazardous wastes, including manifests, and records maintained by the DRMO where colocated on an Army installation; sign the hazardous waste manifest as the IC's designee; coordinate with the DEH to obtain certification that wastes meet the Federal and state definition of hazardous wastes before offering for off-post transportation; advise waste generating activities on proper requirements for packaging, labelling, and shipping of solid waste and hazardous waste to enable the DOL to ensure that off-post transportation of these wastes conforms with Federal, state, Army, DoD, and host nation requirements; actively support the DEH in measuring progress to meet Federal and Army waste reduction goals and requirements; and communicate regularly with the Defense Logistics Agency (DLA) activity serving the installation to maintain current information on markets for hazardous wastes.

- Commanders of medical department activities (MEDDACS) and U.S. Army Medical Centers (MEDCENS) - MEDDAC and MEDCEN commanders will: Provide the IC or IC's designee with the hazardous waste management implications of new and revised MEDDAC/MEDCEN practices for review and concurrence; and prepare and maintain a management plan for the disposal of medical waste.

- Installation preventive medicine services (PVNTMED) - Installation PVNTMED personnel will support the hazardous waste management programs, provide technical assistance in identifying wastes and inventorying sources of hazardous wastes, and represent the MEDDAC/MEDCEN as an installation tenant and hazardous waste generator.

- Installation safety officers - The installation safety officer (for ARNG, the state safety officer) will monitor the storage, packaging, transportation, treatment, storage, and disposal of waste, and personnel training requirements to ensure compliance with Federal, state, and Army safety standards.

- Chief, installation public affairs office (PAO) - PAO will establish the necessary supporting public affairs program; coordinate and conduct public involvement to obtain an RCRA permit and RCRA permit modifications, including an Environmental Assessment (EA) or Environmental Impact Statement (EIS);

and assist the commander in preparing for any public hearings or public meetings sponsored by USEPA or states to issue or modify an RCRA permit for the installation.

- Tenants (Federal and non-Federal) - Tenants (such as the DRMO) on Army properties or where the Army is a tenant on non-Army property will comply equally with all laws and requirements.

- Managers of Government-owned contractor-operated (GOCO) facilities - GOCOs that produce hazardous waste on Army installations will: Apportion fees to support the treatment, storage, and disposal of hazardous wastes; establish administrative requirements to preclude the Federal Government from incurring liability associated with treatment, storage, or disposal of hazardous wastes; prohibit the use of DoD personnel in handling solid and hazardous wastes; comply with Federal and state laws and regulations and Army policies on reducing the volume, quantity, or toxicity of hazardous waste; prohibit the use of on-site hazardous waste treatment, storage, and disposal facilities for non-DoD owned hazardous wastes generated off-site; pay fines assessed by state and Federal regulatory agencies for noncompliance (the Army cannot reimburse for such fines).

- Hazardous Waste Generators - Generators will properly identify, label, package, treat, store, dispose of, measure, transport on-post, or offer for transport off-post, hazardous wastes per requirements of RCRA, DOT, and the installation hazardous waste management plan (IHWP). Also, generators will ensure that all hazardous wastes generated during operations are certified by the DEH and tracked to minimize the potential for worker exposure, spills, or mixture with nonhazardous wastes; maintain accountability for and document the flow of hazardous materials from the point of receipt to point of turn-in for disposal; minimize waste generation wherever possible and feasible; provide the DEH with the information necessary to prepare reports per the hazardous waste management plan; maintain an accurate inventory of hazardous waste that reflects changes in operation.

- Hazardous Waste Treatment, Storage, and Disposal Facility (TSDF) Operators - Each TSDF operator is responsible for ensuring compliance with hazardous waste regulations and permit standards applicable to the facility including maintaining operational and training records.

- Defense Reutilization and Marketing Service (DRMS) - This agency may or may not be located on the installation. Regardless, it is the single agency designated by DoD to provide hazardous waste disposal service to the installation on a pay-for- services-rendered basis. The DRMS is responsible for compliance with all USEPA, state, and Army (including installation guidance) regulations at its storage/disposal facility.

H. Key Compliance Definitions

These definitions were obtained from the Federal, DoD, and U.S. Army regulations cited previously.

- *Aboveground Tank* - a device that meets the definition of a "tank" in 40 CFR 260.10 and that is situated in such a way that the entire surface area of the tank is completely above the plane of the adjacent surrounding surface and the entire surface area of the tank (including the tank bottom) is able to be visually inspected.

- *Accumulation Point* - an area that can store up to 55 gallons of hazardous waste.

- *Acute Hazardous Waste* - any waste listed under 40 CFR 261.31 - 261.33(c) with a hazard code of "H." These include USEPA Hazardous waste numbers: F020, F021, F022, F023, F026, and F027.

- *Ancillary Equipment* - any device including, but not limited to piping, fittings, flanges, valves, and pumps used to distribute, meter, or control the flow of hazardous waste from its point of generation to a storage or treatment tank(s), between hazardous waste storage and treatment tanks to a point of disposal on-site, or to a point of shipment off-site.

- *Best Practically Available Treatment (BPAT)* - the treatment that yields the greatest environmental benefit.

- *Component* - refers to either the tank or the ancillary equipment of the tank system.

- *Consignee* - the ultimate treatment, storage, or disposal facility in a receiving country to which the hazardous waste will be sent.

- *Container* - any portable device in which a material is stored, transported, treated, disposed of, or otherwise handled.

- *Corrosion Expert* - a person who, by reason of knowledge of the physical sciences and the principles of engineering and mathematics, acquired by a professional education and related practical experiences is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. Such a person must be certified as being qualified by the National Association of Corrosion Engineers (NACE) or be a registered professional engineer who has certification and licensing that includes education and experience in corrosion control and or buried or submerged metal piping systems or tanks.

- *Debris* - materials that are primarily non-geologic in origin such as grasses and shrubs, and man-made materials such as concrete, clothing, partially buried whole or crushed empty drums, capacitors, and other synthetic manufactured items. This may also include geologic materials identified as not indigenous, or indigenous rocks exceeding a total size that will affect the performance of the available treatment technology.

- *Disposal* - the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including groundwaters.

- *Elementary Neutralization Unit* - a device used for neutralizing only those hazardous wastes that exhibit corrosivity (as defined in 40 CFR 261.22) or are listed in Subpart D of 40 CFR 261 only because of corrosivity and meet the definition of tank, tank system container, transport vehicle, or vessel in 40 CFR 261.10.

- *Existing Tank System or Existing Component* - a tank system or component that is used for the storage or treatment of hazardous waste and that is in operation, or for which installation has commenced on or before July 14, 1986. Installations will have been considered to be commenced if the owner or operator has obtained all Federal, state, and local approvals or permits necessary to begin physical construction of the site or installation of the tank system and if either (1) a continuous on-site physical construction of the site or installation program has begun, or (2) the owner or operator has entered into contractual obligations that cannot be canceled or modified without substantial loss for physical construction of the site or installation of the tank system to be completed within a reasonable time.

- *First Third Wastes* - wastes included in the first one third of the schedule of restricted hazardous wastes listed in 40 CFR 268.10.

- *Full Regulation* - those regulations applicable to generators of greater than 1,000 kg of nonacutely hazardous wastes in a calendar month.

- *Generator* - a business or organization that produces hazardous waste in quantities greater than 1,000 kilograms per month.

- *Hazardous Waste* - a hazardous waste as defined in 40 CFR 261.3.

- *Incinerator* - an enclosed device using controlled flame combustion, the primary purpose of which is to thermally break down hazardous waste. Examples include: rotary kiln, fluidized bed, and liquid injection incinerators.

- *Individual Generation Site* - the contiguous site at or on which one or more hazardous wastes are generated. An individual generation site, such as a large manufacturing plant, may have one or more sources of hazardous waste, but is considered a single or individual generation site if the site or property is contiguous.

- *In-ground Tank* - a device meeting the definition of "tank" in 40 CFR 260.10 whereby a portion of the tank is situated to any degree within the ground, thereby preventing visual inspection of that external surface area of the tank.

- *Installation Inspector* - a person who by means of his knowledge of the physical sciences and the principles of engineering, acquired by a professional education and related practical experience, is qualified to supervise the installation of tank systems.

- *Land Disposal* - includes, but is not limited to, any placement of hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, underground mine or cave, or placement in a concrete vault or bunker intended for disposal purposes.

- *Land Treatment Facility* - a facility or part of a facility at which hazardous waste is applied onto or incorporated into the soil surface; such facilities are disposal facilities if the waste will remain after closure.

- *Landfill* - a disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a land treatment facility, a surface impoundment, or an injection well.

- *Large Quantity Generator* - see Generator.

- *Leak Detection System* - a system capable of detecting the failure of either the primary or secondary containment structure or the presence of a release of hazardous waste or accumulated liquid in the secondary structure. Such a system must employ operational controls (e.g., daily visible containment for releases into the secondary containment system of aboveground tanks) or consist of an interstitial monitoring devise designed to detect continuously and automatically the failure of the primary or secondary containment structure or the presence of a release of hazardous waste into the secondary containment structure.

- *Liquid* - a material that has a vertical flow of over 2 inches (50 mm) within a 3-minute period, or a material having 1 gram (1g) or more liquid separation, when determined in accordance with the procedures specified in ASTM D-4359-84 *Standard Test Method for Determining Whether a Material is a Liquid or Solid*, 1984 edition.

- *Manifest* - the shipping document originated and signed by the generator containing the information required by 40 CFR 262, Subpart B.

- *Manifest Document Number* - the serially increasing number assigned to the manifest by the generator for recording and reporting purposes.

- *Miscellaneous Unit* - a hazardous waste management unit where hazardous waste is treated, stored, or disposed of and that is not a container, tank, surface impoundment, pile, land treatment unit, landfill, incinerator, boiler, industrial furnace, underground injection well with appropriate technical standards under 40 CFR 146, or is eligible for a research development and demonstration permit under 40 CFR 270.65.

- *Movement* - that hazardous waste transported to a facility in an individual vehicle.

- *New Tank System or New Component System* - a tank system or component that will be used for the storage and treatment of hazardous waste and for which installation has commenced after July 14, 1986; except, however, for purposes of 40 CFR 264.193(g)(2) and 265.193 (g)(2), a new tank system is one for which construction commences after July 14, 1986. (See also existing "tank system.")

- *On-Ground Tank* - a device meeting the definition of "tank" in 40 CFR 260.10 and that is situated in such a way that the bottom of the tank is on the same level as the adjacent surrounding surface so that the external tank bottom cannot be visibly inspected.

- *On-Site* - the same continuous property which may be divided by a public right-of-way with access between the separate portions by crossing as opposed to going along the right-of-way.

- *Pile* - any noncontainerized accumulation of solid, nonflowing hazardous waste that is used for treatment or storage.

- *Practical Quantification Limits (PQLs)* - the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

- *Primary Exporter* - any person who is required to originate the manifest for a shipment of hazardous waste in accordance with 40 CFR 262 Subpart B or an equivalent state provision, which specifies a treatment, storage, or disposal facility in a receiving country as the facility to which the hazardous waste will be sent, and any intermediary arranging for the export.

- *Prohibited Wastes* - restricted wastes that are currently ineligible for land disposal (i.e., the prohibition effective date has passed, the waste does not meet all applicable treatment standards or prohibition levels, and no extensions, "no migration" exemptions, or national variances apply).

- *Receiving Country* - a foreign country to which a hazardous waste is sent for the purpose of treatment, storage, or disposal (except short-term storage incidental to transportation).

- *Restricted Wastes* - those categories of hazardous wastes that are prohibited from land disposal either by regulation or by statute, in other words, a hazardous waste that is restricted no later than the date of the deadline established in RCRA Section 3004.

- *Satellite Accumulation Point* - an area where less than 55 gallons of hazardous waste or 1 quart of acutely hazardous waste is stored.

- *Second Third Wastes* - wastes included in the second one-third of the schedule of restricted hazardous wastes listed in 40 CFR 268.10.

- *Small Quantity Generator* - a business or organization that produces hazardous waste in quantities greater than 100 kilograms per month but less than 1,000 kilograms per month.

- *"Soft Hammer" Provisions* - apply to any first third (and second third) wastes for which USEPA fails to set treatment standards and effective dates by the statutory deadlines set forth in 40 CFR 268.10-12. For first third wastes, the deadline is August 8, 1988 and applies until May 8, 1990, or until USEPA promulgates treatment standards, whichever is sooner. These provisions conditionally allow for the disposal of such wastes in a landfill or surface impoundment.

- *Soil* - materials that are primarily geologic in origin, such as silt, loam, or clay, and that are indigenous to the natural geologic environment. Soils DO NOT include wastes withdrawn from active hazardous waste management units.

- *Solid* - a material that has a vertical flow of 2 inches (50 mm) or less within a 3-minute period when determined in accordance with the procedures specified for a transport vehicle or freight container, in which hazardous materials are loaded with no intermediate form of containment and which has:

(1) an internal volume greater th[illegible] 450 liters (118.8 gallons) as a receptacle for a liquid
(2) a capacity greater than 400 kilograms (881.8 pounds) as a receptacle for a solid
(3) a water capacity greater than 1000 pounds (453.6 kilogram) packaging means a capacity of 400 kilograms (881.8 pounds) or less as a receptacle for a gas defined in 40 CFR 173.300.

- *Spill* - the accidental spilling, leaking, pumping, pouring, emitting, or dumping of hazardous wastes or materials which, when spilled into or on any land or water, become hazardous wastes.

- *Storage* - the holding of hazardous wastes for a temporary period, at the end of which the hazardous wastes are treated, disposed of, or stored elsewhere.

- *Sump* - any pit or reservoir that meets the definition of tank and those troughs/trenches connected to it that serve to collect hazardous waste for transport to hazardous waste storage, treatment, or disposal facilities.

- *Surface Impoundment* - a facility or part of a facility that is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials designed to hold an accumulation of liquid wastes or wastes containing free liquids and which is not an injection well.

- *Tank* - a stationary device designed to contain an accumulation of hazardous waste and is constructed primarily of nonearthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.

- *Tank System* - a hazardous waste storage or treatment tank and its associated ancillary equipment and containment system.

- *Temporary Storage Point* - an area where hazardous waste is temporarily stored in tanks or containers for 90 days or less on an installation.

- *Thermal Treatment* - the treatment of hazardous waste in a device that uses elevated temperature as the primary means to change the chemical, physical, or biological character of the waste.

- *Third Third Wastes* - wastes included in the third one-third of the schedule of restricted hazardous wastes listed in 40 CFR 268.10.

- *Transit Country* - any foreign country, other than a receiving country, through which a hazardous waste is transported.

- *Transporter* - a person engaged in the off-site transportation of hazardous wastes by air, rail, highway, or water.

- *Treatability Study* - a study in which a hazardous waste is subjected to a treatment process to determine:

    1) whether the waste is amenable to the treatment process
    2) what pretreatment (if any) is required
    3) the optimal process conditions needed to achieve the desired treatment
    4) the efficiency of a treatment process for a specific waste or wastes, or
    5) the characteristics and volumes of residuals from a particular treatment process.

- *Treatment* - a process that reduces the toxicity of a waste or the likelihood of migration of hazardous constituents from the waste.

- *USEPA Acknowledgement of Consent* - the cable sent to the USEPA from the US Embassy in a receiving country that acknowledges the written consent of the receiving country to accept the hazardous waste and describes the terms and conditions of the receiving country's consent to the shipment.

- *USEPA Hazardous Waste Number* - the number assigned by USEPA to each hazardous waste listed in 40 CFR Part 261, Subpart D, and to each characteristic identified in 40 CFR 261, Subpart C.

- *USEPA Identification Number* - the number assigned by USEPA to each generator, transporter, and treatment, storage, or disposal facility.

- *Underground Tank* - a device meeting the definition of "tank" in 40 CFR 260.10 whose entire surface area is totally below the surface and covered by the ground.

- *Unfit-for-Use Tank System* - a tank system that has been determined through an integrity assessment or other inspection to be no longer capable of storing or treating hazardous waste without posing a threat of release of hazardous waste to the environment.

- *Wastewater Treatment Unit* - a devise that is part of a wastewater treatment facility subject to regulation under section 402 or 307 of the Clean Water Act and receives and treats or stores an influent wastewater that is a hazardous waste (as defined in 40 CFR 261.3) or that generates and accumulates a wastewater treatment sludge that is a hazardous waste, or treats or stores a wastewater treatment sludge and meets the definition of tank or tank system.

- *Zone of Engineering Control* - an area under the control of the owner/operator that upon detection of a hazardous waste release, can be readily cleaned up before the release of hazardous waste or hazardous constituents to ground water or surface water.

RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C

GUIDANCE FOR WORKSHEET USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
All Installations	4-1 through 4-16	(1)(4)(6)(18)(19)(23)(19)
All Generators:		
90-Day Storage	4-17	(1)(6)(19)
Documentation	4-18 through 4-20	(1)(19)
Satellite Accumulation Points	4-21	(1)(19)
Small Quantity	4-22 through 4-24	(1)(6)(19)
Very Small Quantity Generators	4-25	(1)(6)(19)
Imports/Exports	4-26 through 4-33	(1)(6)(23)
All Transporters	4-34 through 4-39	(1)(6)(19)(23)
Transfer Facilities	4-40	(1)(6)(19)(23)
All Treatment/Storage/ Disposal (TSD) Facilities	4-41	(1)(4)(5)(6)(18)(19)(23)
Permitted and Interim Status	4-42 through 4-45	(1)(18)
Personal Training and Records	4-58 and 4-59	(1)(4)(18)(19)
Safety and Prevention	4-60 through 4-69	(1)(4)(18)(19)
Groundwater Monitoring	4-70 through 4-77	(1)(4)(18)(19)

(a)CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
(4) Safety and Health Officer
(5) Fire Department
(6) Director of Logistics (DOL)
(18) TSDF Operators (DEH, DOL, DRMS)
(19) Shop Activity Supervisor
(23) Defense and Reutilization Marketing Service (DRMS)

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
Container and Container Storage Areas		
Empty Containers	4-78	(1)(4)(18)(19)
Containers	4-79 through 4-84	(1)(4)(18)(19)
Container Storage Areas	4-85 through 4-89	(1)(18)(19)
Tank Systems	4-90 through 4-103	(1)(18)
Surface Impoundments	4-104 through 4-112	(1)(18)
Waste Piles	4-113 through 4-117	(1)(18)
Landfills	4-118 through 4-128	(1)(18)
Incinerators	4-129 through 4-138	(1)(18)
Miscellaneous Units	4-139 and 4-140	(1)(18)
Thermal Treatment	4-141 through 4-143	(1)(18)
Chemical/Physical/ Biological Treatment	4-144 through 4-146	(1)(18)
Restricted Wastes	4-147 through 4-170	(1)(2)(4)(18)(19)(23)

(a)CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
(2) Environmental Coordinator (EC)
(4) Safety and Health Officer
(5) Fire Department
(6) Director of Logistics (DOL)
(18) TSDF Operators (DEH, DOL, DRMS)
(19) Shop Activity Supervisor
(23) Defense and Reutilization Marketing Service (DRMS)

RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C

Records to Review:

Generator (including TSDFs if they are also generators):

- Notification (USEPA ID#)
- Hazardous waste manifests
- Manifest exception reports
- Biennial reports (large quantity generators only)
- Delistings
- Speculative accumulation records
- Land disposal restriction certifications
- Employee training documentation
- Hazardous waste tank integrity assessments
- Contingency plan (large quantity generators only)
- Notifications of hazardous waste oil fuel marketing or blending activity
- Accumulation point inspection records
- Hazardous Waste Management Plan
- Used Solvent Elimination Program Contract (DEH or DOL)

In addition to the above, TSDFs would require:

- Location map of TSDFs
- Unmanifested waste reports
- Facility audit reports (Inspection log)
- Waste analysis plan(s)
- Operating record
- Ground water monitoring records and annual reports (where required)
- Facility Biennial reports
- Closure/Post Closure Notices (where applicable)
- Other documents as required by the Permit
- Part A/B permit including:
    - -spill prevention countermeasure and contingency plans (SPCCP)
    - -installation spill countermeasure plan (ISCP)
    - -inspection plan
    - -training plan
    - -closure/post-closure plans
- Hazardous waste inventory

Physical Features to Inspect:

- Disposal sites
- Accumulations points
- Incinerators
- Vehicles used for transport
- Storage facilities (including drums)
- Surface impoundments

People to Interview:

- Directorate of Engineering and Housing (DEH)
- Environmental Coordinator (EC)
- Safety and Health Officer
- Fire Department
- Director of Logistics (DOL)
- TSDF Operators (DEH, DOL, DRMS)
- Shop Activity Supervisor
- Defense and Reutilization Marketing Service (DRMS)

COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-1. Determine actions or changes since previous review of hazardous waste management.	Obtain copy of previous hazardous waste review and determine if non-compliance issues have been resolved. (1)(29)
...	...
4-2. Copies of all relevant Federal and state regulations, DoD directives, Army regulations, and guidance documents on hazardous waste should be maintained at the installation. (NOTE: State may obtain authorization to operate the RCRA program from USEPA, provided regulations at least as stringent as USEPA regulations have been passed and an agreement has been signed with USEPA. State may pass more stringent regulations.)	Determine from interview if copies of the following regulations are maintained and kept current at the installation: (1)(29) - 40 CFR 260-271, *Hazardous Waste Management*. - 40 CFR 372, *Toxic Chemical Release Reporting: Community Right-to-Know*. - 49 CFR 172-179, *Transportation of Hazardous Waste*. - NFPA, *Fire Protection Guide of Hazardous Materials*. - State hazardous waste management regulations. - Policy Letters. - DEQPM 80-5, *DoD Hazardous Materials Disposal Policy*. - DEQPM 80-8, *RCRA Hazardous Waste management Regulations*. - AR 200-1, *Environmental Protection and Enhancement*. - Used Solvent Elimination (USE) Program. Determine if installation environmental staff are familiar with and knowledgeable about regulatory requirements. (1)(4)(29)
...	...
4-3. Installations are required to abide by State and local regulations (AR 200-1; Chapt. 1; Section III; para 1-39(a)(3)).	Verify that the installation is abiding by state and local requirements. (1) Verify that the installation is operating according to permits issued by the state or local agencies. (1)(2) NOTE: Examples of areas regulated by state and local agencies or regulated more stringently than the Federal regulations: (1)(2) - additional manifest requirements - more frequent reporting requirements - transportation - identification of special waste or waste categories - regulation of specific substances as hazardous waste such as: medical, pathological, and infectious wastes; used oil; explosives; used batteries - small quantity generator requirements - disposal requirements - construction and operation of storage and disposal facilities.

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA CAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-4. Each installation will have a written hazardous waste management plan (AR 200-1, para. 6-4b).	Confirm that the DEH has prepared the plan according to the requirements in AR 200-1, para. 6-4b. (1)
...	...
4-5. Each installation will conduct an annual inventory of hazardous waste (AR 200-1, para. 6-4c).	Verify that the DEH has conducted an annual inventory of hazardous wastes, that it is certified by the IC, and that it includes: (1) - the hazardous waste generators - names, addresses, and state/USEPA identification numbers of off-site TSDFs receiving the installation's hazardous waste - the name and USEPA identification number of each transporter used for off-site shipments of hazardous waste - description, USEPA hazardous waste number (from 40 CFR 261, subpart C or D), DOT hazard class, and quantity of each hazardous waste shipped off-site - the USEPA identification number of the off-site facility to which the waste was shipped - a description of efforts undertaken during the year to reduce the volume and toxicity of wastes generated - a description of the changes in volume and toxicity of waste actually achieved in comparison to previous years, beginning with 1985.
...	...
4-6. Army material resources should be procured and used in a way that minimizes waste production (AR 200-1, Chap. 6).	Verify that the Hazardous Waste Management Plan incorporates the Army's hazardous waste minimization (HAZMIN) goals to recycle and reuse material to the greatest extent possible. (1)(6) Verify that the DOL monitors installation-wide use of hazardous materials to ensure progress in meeting HAZMIN goals. (6) Verify that the DOL conducts audits/surveys of the installation to identify opportunities for HAZMIN and land-disposal reductions. (6) Verify that the DOL provides semiannual progress reports to the installation commander on the reduction of use and toxicity of hazardous materials, recommending opportunities for further reductions according to the priorities listed in AR 200-1, para. 6-6d(2). (6)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-7. Installations are required to report HAZ-MIN efforts (AR 200-1 para. 6-6c(1)).	Verify that the installation submits, by March 1 of even numbered years, USEPA Form 8700-13A/B to the appropriate state or USEPA regional administrator (depending upon whether the state has an USEPA-approved RCRA program). (1)(6) - The report should include a description of efforts undertaken during the year to reduce the volume and toxicity of hazardous waste generated, and a description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years.
...	...
4-8. Explosive ordnance may be subject to RCRA requirements (AR 200-1, para. 6-7e).	Confirm that if installation has explosive ordnance that do become waste, the installation proactively adheres to AR 200-1, and appropriate state and Federal RCRA requirements. (1)
...	...
4-9. Chemical warfare agents destined for disposal will be managed as hazardous waste under RCRA, if required (AR 200-1, para. 6-9a).	Verify that if the installation does have chemical warfare agents destined for disposal, they are treated as hazardous waste under RCRA. (1) Verify that the installation commander reports through command channels to HQDA (DALO-SMZ) on the handling, use, inventory, or disposal of chemical warfare agents. Commanders will report on chemical accidents and incidents as required. (1)(18)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-10. Medical, dental, and veterinary supplies and wastes may fall under RCRA (AR 200-1, para. 6-11).	Verify that medical, dental and veterinary supplies and wastes that are RCRA listed or characteristic wastes are managed through the DRMO or a commercial contract with a permitted disposal firm. (1)(23) The U.S. Army Environmental Hygiene Agency has issued a method of destruction for such wastes that are not RCRA listed but should be treated as a RCRA hazardous waste. Confirm that if the generator does not possess the technical capability or facilities to dispose of the items, they contact the DRMO for disposal. (1)(23) Confirm that installation commanders disposing of such medical, dental, and veterinary wastes by land burial maintain records on: (1)(23) - quantities disposed - disposal method used - disposal site location. The transportation of medical wastes that contain etiologic agents (micro-organisms or their toxins that can cause diseases in humans) is subject to the provisions of the Hazardous Material Regulations, 40 CFR 172-172. Determine if such wastes are transported by the installation, and if so, that the following packaging requirements are met: (1)(23) - passenger aircraft or railcar: Maximum in any one package is limited to 50 ml or 50g - cargo-only aircraft: Maximum in any one package is limited to 4 liters or 4 kgs.
...	...
4-11. Installation located in states participating in the Medical Waste Tracking program are required to abide by its provisions (40 CFR 259).	Check that installations in the states of Connecticut, New Jersey, New York, Rhode Island, and Puerto Rico comply with the regulations of the Medical Waste Tracking Act. (1) (NOTE: This demonstration program, except for recordkeeping and reporting, was effective from 6-22-89 to 6-22-91 in CT, NJ, and NY; and from 7-24-89 to 7-24-91 in PR and RI.)

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-12. Installations that generate solid wastes must determine if the wastes are hazardous wastes (40 CFR 260, Appendix I; 40 CFR 261.3, and 40 CFR 262.11).	Determine if installation follows USAEPA criteria for identification of characteristics and listed hazardous wastes. See Appendix 4-2 for criteria and lists. (1) Examine installation hazardous waste management plan. (1) Determine if any hazardous waste on the installation is an acute waste or a waste restricted from land disposal. (1) Determine if there is a master list of the types and quantities of hazardous wastes generated, treated, and disposed of on the installation. (1)
...	...

4-13. Installations that analyze waste samples for "treatability studies" are conditionally exempt from compliance with 40 CFR parts 124, 262-266, 268, and 270 and from section 3010 of RCRA for those samples. (40 CFR 261.4 (e) and (f).	Determine notification (in writing) to Regional or State Administrator of the facility's intention to conduct a study under paragraph 40 CFR 261.4 and cessation of treatability studies no less than 45 days before action. (1)
	
	Determine from records: (4)
	
	- facility possession of a USEPA identification number
	- that quantity of "as received" hazardous waste stored for evaluation does not exceed 1000 kg total (can include up to 500 kg of soils, water, or debris contaminated with "acute hazardous waste" or 1 kg of "acute hazardous waste," not including residues and treatment materials)
	- no more than 90 days have elapsed since the completion of the study or 1 year since the sample was received, whichever date occurs first
	- study does not involve the placement of hazardous waste on the land or allow its open burning
	- the following information must be maintained for 3 years following completion of each treatability study:
	  - name, address, and USEPA identification number of generator of sample
	  - date shipment received
	  - quantity of waste accepted
	  - quantity of "as received" waste in storage daily
	  - date treatment study initiated
	  - amount of "as received" waste introduced to the treatment (daily)
	  - date study concluded
	  - date unused sample and/or residues were returned to generator or:
	  - date, name, and USEPA identification number if sent to a designated facility
	- contracts and all shipping papers (on-site) dealing with transportation of study samples to and from the installation.

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-14. Generators of hazardous wastes must test the waste or use knowledge of the waste to determine if it is restricted from land disposal (40 CFR 268.7).	Determine if restricted wastes are generated. (1)(19) Use the Restricted Waste section questions for generators of these wastes in addition to the questions in this section. (1)(19)
...	...
4-15. Installations that generate, transport, or handle any hazardous waste must have an USEPA identification number (40 CFR 262.12, EPA Form 8700-12).	Determine that USEPA identification number is used on all manifests, records, and reports. (1)(6)
...	...
4-16. An installation must not offer its hazardous waste to transporters or to treatment, storage, or disposal facilities that have not received a USEPA identification number (40 CFR 262.12, Subpart A).	Examine records pertaining to disposal contract awards; verify that all transporters of hazardous wastes or TSDFs have a current USEPA ID number. (1)(6)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL GENERATORS	
90-Day Storage	
4-17. Generators may accumulate hazardous waste on-site for 90 days or less without a permit or interim status provided they meet certain conditions (40 CFR 262.34(a)).	Determine that containers or tank storage complies with Container or Tank Section. (1)(6)(18) Determine that beginning date of each accumulation period is clearly marked and visible on each container. (1)(6)(18) Determine that each container or tank is labeled or clearly marked "HAZARDOUS WASTE." (1)(6)(18) Determine that the generator complies withe the following requirements (see section on ALL FACILITIES): (1)(6)(18) - prevention and emergency - personnel training - waste analysis plan. (NOTE: A generator who accumulates hazardous waste for more than 90 days (without an extension), is subject to all storage facilities and permitting requirements (see section on ALL FACILITIES).)
...	...
Documentation	
4-18. Generators must submit a biennial report, using EPA Form 8700-13A (40 CFR 262.40(b) and 262.41).	Check report for completeness and timely submission. (2) Determine that copies are kept for at least 3 years. (2)
...	...
4-19. Generators are required to use manifests, maintain records, and file manifest exception reports (40 CFR 262.40(a) and 362.42).	Examine manifests (filed in numeric order). (18) Verify that signed copies of manifests are kept for 3 years. (18) Verify that exception reports are submitted to the USEPA Regional Administrator when manifest copies are not returned within 45 days after the waste is accepted by the initial transporter. (18) Verify that exception reports are kept for at least 3 years. (18)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-20. Generators are required to keep records of waste analyses, test, and waste determinations (40 CFR 262.40(c)).	Examine records to verify that appropriate records are kept for at least 3 years from the date the waste was last sent to on-site or off-side TSD. (18)
...	...
Satellite Accumulation Points	
4-21. Generators may accumulate as much as 55 gallons of hazardous waste or one quart of acutely hazardous waste in containers at or near any point of initial generation before complying with the requirements for on-site storage (40 CFR 263.34(c) and 40 CFR 265.173(a)).	Inspect the satellite accumulation point. (18) Verify that the accumulation point is near the point of generation and is under the control of the operator of the waste generating process. (18) Determine that containers are in good condition and are compatible with the waste stored in them (see section on CONTAINERS). (18) Verify that containers are closed except to add and remove waste. (18) Determine that containers are marked with "HAZARDOUS WASTE" or either appropriate identification. (18) Determine that within 3 days after waste exceeds either quantity limitation, the requirements for 90-day storage are met. (18) Determine that the containers holding the excess accumulation is marked with the date the excess began accumulating. (18)
...	...
Small Quantity Generators	
4-22. Generators of more than 100 kg but less than 1000 kg of hazardous waste per month may qualify as a small quantity generator (40 CFR 262.34(d) and (e)).	Inspect containers, storage, and records. (18) Determine that no more than 1000 kg of hazardous waste is generated in any calendar month. (19) Determine that accumulation time does not exceed 180 days. (This is extended to 270 days if the waste must be transported more than 200 miles to a TSD facility.) (19) Determine that no more than 6000 kg is allowed to accumulate on-site. (19) Determine that applicable tank and containers are used (see sections on CONTAINERS and TANKS). (19) (NOTE: When a generator exceeds the generation, accumulation, or time limitations, he becomes subject to all storage facilities and permitting requirements.)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-23. Small quantity generators are required to have an emergency coordinator and emergency response planning (40 CFR 262.34(d)(5)). •	Determine that the installation has an emergency coordinator. (1) Examine the installation spill control plan. (1)(2) Determine that emergency information is posted next to the telephone: (1)(2) - name and telephone number of emergency coordinator - location of fire extinguishers and spill control materials - fire alarms (if present) - telephone number of fire department. Determine that waste handlers are familiar with waste handling and emergency procedures. (1)(2)
...	...
4-24. Small quantity generators are required to use manifests and keep records of hazardous waste activity (40 CFR 262.44).	Examine manifests (filed in numeric order). (18) Verify that signed copies of returned manifests are kept for 3 years. (1)(6) Verify that exception reports are submitted to the USEPA Regional Administrator when a signed manifest copy is not returned within 60 days of the date the waste was accepted by the initial transporter. (1)(6) Verify that exception reports are kept for at least 3 years. (1)(6) Determine that records of test results, waste analyses, and determinations are kept for 3 years. (1)(6) (NOTE: Manifests are not required when the waste type and transportation frequency is specified in a reclamation contract. The vehicle used to transport the waste must be owned and operated by the reclaimer and the contract must be kept in the generator's files for 3 years after termination of the agreement (40 CFR 262.20[e]).)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Very Small Generators **4-25.** Generators of no more than 100 kilograms per month may qualify as conditionally exempt small quantity generators (40 CFR 261.5). ...	Determine that quantity and storage limitations are met: (18) - no more than 100 kg of hazardous waste is generated in a calendar month - a total of 1 kg of acute hazardous waste is generated in a calendar month, or - a total of 100 kg of any residue or contaminated soil, waste, or other debris resulting from the cleanup of any acute wastes in a calendar month is generated - on-site accumulation does not exceed more than 1000 kg of hazardous waste. Determine that appropriate accumulation points and storage is provided (see sections on CONTAINERS and TANKS). (2) Determine that wastes are treated, disposed of, or reused: - wastes may be treated or disposed of on-site - wastes may be turned over to a permitted treatment, storage, or disposal facility - wastes may be beneficially used, reused, reclaimed, or recycled. ...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
EXPORTS/IMPORTS	
4-26. Installations that export hazardous waste outside the United States must comply with notification requirements (40 CFR 262.53).	Verify that 60 days before the initial shipment of hazardous waste to each country in each calendar year, the installation has notified the USEPA (in writing) of the following: (23) - name, mailing address, telephone number, and USEPA ID number of the primary exporter - by consignee for each hazardous waste type: - identification of the hazardous waste shipped, by USEPA identification number - DOT shipping name, hazard class, and importer for the waste - estimated frequency/rate at which such waste(s) is to be exported - estimated total quantity (in units) - all points of entry to and departure from each foreign country the waste will pass through - a description of the approximate length of time the waste will remain in each country, and how it will be handled there - the mode of transportation used to transport the waste - type(s) of containers used - description of the treatment, storage, or disposal method to be used in the receiving country - name and address of the foreign consignee - the notification is sent to: - Office of International Activities, (A106), United States Environmental Protection Agency (USEPA), 401 M Street, SW, Washington, DC, 20460, - with "Attention: Notification to Export" prominently displayed on the front of the envelope.
...	...
4-27. Installations that export are required to have a USEPA acknowledgement of consent that confirms the consent of the foreign country to receive the waste (40 CFR 262.52).	Check records to confirm that a copy of the USEPA acknowledgement of consent is on file. (1)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-28. Manifests are to be used for exports, with special additions (40 CFR 262.54).	Check the manifest copies for compliance with the general manifest requirements. (1)(6) Check the manifests for the following exceptions and additions: - the name and address of the foreign consignee is put in the place of the designated facility's name, address, and USEPA number - the point of departure through which the waste must travel in the United States before entering the foreign country is indicated - this statement must be added to the end of the first sentence of the certification in Item 16 and conform to the terms of the attached EPA Acknowledgement of Consent - a copy of the EPA Acknowledgement of Consent must be attached to the manifest. Check that a copy of the manifest is provided for delivery to the US Customs official at the US point of departure. (1)(6) (NOTE: The primary exporter's state may require the use of its manifest (40 CFR 262.54[e]).)
...	...
4-29. Installations that export hazardous waste must require confirmation of the delivery of the hazardous waste and any significant discrepancies (40 CFR 262.54[f]).	Check signed and returned manifests to confirm delivery. (1)(6) Check for any notations of discrepancies. (1)(6)
...	...

4-30. Installations that export hazardous waste outside the United States are required to file an exception report under certain conditions (40 CFR 262.55).	Check records to confirm that an exception report was filed if: (1)
	
	- a signed copy of the manifest from the transporter that contains the following information was not received within 45 days from the day it was accepted by the initial transporter:
	  - date of departure of the waste from the United States
	  - place of departure of the waste from the United States
	- a written confirmation was not received by the installation from the foreign consignee stating that the hazardous waste was received within 90 days from the date the waste was accepted by the initial transporter
	- the waste is returned to the US.

...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-31. Installations that export hazardous waste must file an annual report with the USEPA Office of International Activities by March 1 of each year (40 CFR 262.56).	Check records to verify that an Annual Report has been submitted by March 1 of every calendar year. (1) Check a random sample of the Annual Reports to ensure that they contain the following information for all hazardous waste exported during the previous calendar year: (1) - type, USEPA hazardous waste number, DOT hazard class, and name for each hazardous waste(s) exported - USEPA ID number for each transporter (where applicable) - quantity of hazardous waste(s) exported - frequency (dates) of hazardous waste(s) exported - ultimate destination for all hazardous waste(s) exported - efforts used to reduce the volume and toxicity of the waste (and the changes achieved during the year in comparison to previous years) - a certification signed by the primary exporter that states: - "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment."
...	...
4-32. Installations that import hazardous waste into the US from a foreign country are required to meet additional requirements for manifests (40 CFR 262.40).	Check the manifest copies for compliance with 40 CFR 262.50. (1) Check the manifest for the following exceptions: (1) - in place of generator's name, address, and USEPA identification number, the name, address, and identification number of the importer are used - in place of the generator's signature on the certification statement, the United States importer (or his agent) must sign and date the certification, and obtain the signature of the initial transporter. (NOTE: The importer's state may require the use of its manifest.)
...	...
4-33. Installations that export must maintain additional records that relate to their export activity (40 CFR 262.57).	Determine that the following are retained for at least 3 years: - a copy of each notification of intent to export - a copy of each EPA Acknowledgement of Consent - a copy of each confirmation of delivery (signed manifests) - a copy of each annual report.
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
TRANSPORTATION	

4-34. Hazardous waste will be transported in accordance with the provisions of AR 200-1, para. 6-4g.	Verify that for on-post transportation: (10)(6)(19)
	- the generating activity is responsible for transportation within the installation
	- the generating activity should document the date, time, and location of delivery, the quantities, and the receiving official's name
	- no deliveries are made without first notifying and receiving approval from the receiving agency
	- the DOL inspects routes and vehicles to ensure maximum safety and reduce the exposure in the event of an accident
	- the DOL inspects routes and vehicles to ensure compliance with Federal, state, and local requirements.
	
	Determine that manifests are used when on-post transportation utilizes public roads. (1)(6)(9)
	
	Verify that for off-post transportation: (1)(6)(19)
	- the installation commander, acting through the DOL, is responsible for ensuring that off-post transport complies with applicable Federal, state, and local regulation. These include:
	  - pretransportation requirements for the marking, labeling, and packaging
	  - signing the hazardous waste manifest and complying with the manifest system and recordkeeping requirements.
	
	(NOTE: When Army transport vehicles are used for off-post transportation and for on-post transportation on public roads, the requirements of 40 CFR 263 apply.)

...	...
4-35. The installation should ensure that transportation of hazardous wastes between buildings is accomplished in accordance with good management practices to help prevent spills, releases, and accidents (GMP).	Determine from transportation branch if procedures exist to manage movement of hazardous wastes throughout the installation. (1) Determine if drivers are trained in spill control procedures. (1) Determine if provisions are made to secure wastes in vehicles during transport. (1)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-36. Transporters are required to have an USEPA Identification Number and must comply with manifest management requirements (40 CFR 263.11, 263.20, and 263.22).	Verify that the transporter has an USEPA Identification Number. (1) Determine that manifests are signed and dated, and a copy returned to the generator on acceptance of the waste. (1) Determine that the manifest accompanies the waste. (1) Determine that the waste is delivered to the designated facility. (1) Determine that a copy (signed by the generator, transporter, and the next designated transporter or facility) is kept for 3 years. (1)
...	...
4-37. Hazardous waste must be packaged and marked in accordance with DOT regulations before it is transported off-site (49 CFR 172, 173, 178, 179, and 262.10).	Interview DRMO relative to pretransport procedures for hazardous waste. (1)(6)(23) Inspect sample of containers awaiting transport. (18)(23) Verify that containers are properly constructed and contain no leaks, corrosion, or bulges. (1)(18)(23) Verify that labeling and marking is consistent with DOT requirements and with the manifests. (1)(18)(23) Verify that containers or 110 gallons or less display the labeling required by 40 CFR 262.32: (18)(23) "HAZARDOUS WASTE - Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency. Generator's name and address _____, Manifest Document Number_____."
...	...
4-38. Transporters must take immediate notification and clean-up action of discharge occurs during transport (40 CFR 263.30 and 263.31, and 49 CFR 171.15 and 171.16).	Determine that transport operators have instructions to notify local authorities and take clean-up action. (1)(6) Determine that transporters give notice to the National Response Center and report in writing when required under 49 CFR 171.15 and 171.16. (1)(6)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

4-39. An installation that transports waste samples for treatability studies is conditionally exempt from regulation when the sample shipment meets required conditions (40 CFR 261.4(e)).	Examine a random sample of hazardous wastes being transported under the exemption for treatability studies to determine that: (1)
	- the mass of each sample shipment does not exceed 1000 kg of nonacute hazardous waste, or 250 kg of soils/water/debris contaminated waste for each generated waste stream
	- proper packing procedures are followed (contents will not spill, leak, or vaporize during shipment)
	- transport complies with applicable shipping requirements of DOT and/or USPS or (if not applicable) the following must be on each container:
	  - name, address, and phone number of samples originator
	  - name, address, and phone number of facility conducting study
	  - quantity of sample
	  - date of shipment of sample
	  - description of sample (USEPA hazardous waste number)
	  - the sample is shipped to an approved lab or testing facility.

...	...
Transfer Facility	
4-40. Transporters may store manifested shipments in containers meeting DOT packaging requirements for 10 days or less at a transfer facility (40 CFR 263.12).	Verify the following: - transfer facility storage is for 10 days or less - DOT packaging requirements are met - shipments are manifested and manifests accompany shipments - storage is consistent with Good Management Practice (see section on STORAGE). (NOTE: Storage for more than 10 days will require a TSD permit.)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL TSD FACILITIES	
4-41. A detailed chemical and physical analysis of a representative sample of the hazardous waste, as specified in the waste analysis plan, must be obtained before treatment, storage, or disposal (40 CFR 264.13(a) Subpart B and 40 CFR 265.13(a) Subpart B).	Determine from interviews with DEH/DRMO and review of files if the written waste analysis plan specifies procedures for determining waste characteristics. (1)(23) If a written plan does not exist, determine how the contents of each drum and nature of wastes are determined (i.e., from manifests, published documented data on waste or waste source, etc.), and who is responsible for determining waste characteristics and preparing certification of waste content. (1)(23) Verify that chain of custody forms are maintained for sample retainers. (1)(23)
...	...
Permitted and Interim Status	
4-42. Installations operating TSDFs will apply for RCRA permits (AR 200-1, para. 6-4d).	Verify that the installations with TSDFs have RCRA permits. (1) Check to see that where tenants operate the TSDF, that the installation applies for the permit, but that the tenant and installation commander jointly sign the application. (1)
...	...
4-43. All permitted installations are required to meet the hazardous waste management requirements of 40 CFR 264.	Examine permit. (1)
...	...
4-44. All installations which have Interim Status are required to meet the hazardous waste management requirements of 40 CFR 265.	Examine installation interim status documentation (notification of hazardous waste activity and Part A application). (1)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-45. The installation is required to treat, store, and dispose of waste in the most efficient manner (AR 200-1, para. 6-4f).	Check that the DEH recommends to the installation commander the most cost-effective and efficient means of waste treatment, storage, and disposal that emphasize waste minimization techniques such as recycling, energy recovery, and detoxification. (1)(19) Confirm that the DEH, in coordination with waste generating activities, determines the appropriate hazardous waste treatment, storage, and disposal options, in accordance with the provisions of AR 200-1. (1)(19) NOTE: If hazardous wastes cannot be disposed of on-site, the installation commander may enter into agreements with local, state, or Federal agencies to participate in construction of regional treatment and disposal facilities on other than Army-owned property. All such agreements must be forwarded through command channels to HQDA (ENVR-EH) for review and approval prior to signature by the installation commander.
...	...
Documentation	
4-46. A master listing of all hazardous waste treatment, storage, and disposal (TSD) facilities should be maintained at the installation (GMP).	Determine from interviews and/or a review of the waste management plan, the locations of all the hazardous waste TSD facilities on the installation. (1)(4)(6)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-47. TSD facility operators must keep written operating records at the facility (40 CFR 264.73-74, 40 CFR 265.73-74).	Check records to verify that the installation has a written operating record. (18) Review the operating record to determine if it includes: (18) - description and quantity of each hazardous waste received at the facility - method(s) and date(s) of treatment, storage, or disposal of each waste received at the facility - the location of each hazardous waste within the facility (cross-referenced to specific manifest document numbers and the quantity at each location) - for disposal facilities, the location and quantity must also be recorded on a map or diagram of each cell or disposal area - records and results of waste analyses - reports of all the incidents that required the implementation of the contingency plan - records and results of inspections (only a 3-year retention period) - monitoring, testing, and analytical data (where required) - for off-site facilities, notices to the generator - closure estimates - annual certification that the installation has a program in place to reduce the volume and toxicity of hazardous waste, and that the proposed method of treatment, storage, or disposal to minimize the present and future threat to human health and the environment - record the quantities and date of placement for each shipment of hazardous waste placed in land disposal units under extension granted by 40 CFR 268.5, a petition granted by 40 CFR 268.6, or a certification granted by 40 CFR 268.8 - a copy of the applicable notice, demonstration, and certification required for any restricted hazardous wastes - certifications and demonstrations provided to generators or received from generators. (NOTE: this information must be recorded and maintained in the operating record until closure of the facility.)
...	....
4-48. Installations receiving hazardous waste from a foreign source must notify the Regional Administrator (40 CFR 264.12(a) and 40 CFR 265.12(a)).	Determine that notification is sent in writing at least 4 weeks before delivery is expected. (1)(18)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-49. Installations that receive hazardous waste from off-site sources must inform the generator in writing that the installation has the appropriate permit and will accept the waste (40 CFR 264.12(b)).	Determine that notification is sent and a copy is kept in the operating record. (18)
...	...
4-50. Installation must follow a written waste analysis plan (40 CFR 264.13 and 265.13).	Compare waste analysis plan and records of actual procedures to verify that the installation is following the waste analysis plan. (1) Examine the plan for these elements: (1)(18) - the testing parameters for each waste and the rationale for their selection - test methods - sampling methods for representative samples - frequency of review or repetition (must assure accuracy) - waste analysis supplied by off-site generators - methods used to meet specific waste analyses requirements. For installation that receive hazardous waste shipments, examine the plan for these elements: (1)(18) - procedure to inspect (and analyze if necessary) each hazardous waste movement to ensure that is is consistent with the manifest - sampling methods for representative samples - test methods.
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-51. Installations that have TSD facilities which receive waste from off-site sources must comply with manifest requirements (40 CFR 264.70-72, 40 CFR 265.70-72).	Determine if facility receives waste from off-site sources. (18) Review a random number of manifests. Look for: (18) - proper signature - date of receipt - any discrepancies. Determine that a copy was sent to the generator within 30 days of receipt of waste. (18) Verify that copies are retained at the facility for 3 years. (18) Verify that exclusion certification from small quantity generators are kept on file. NOTE: Manifest discrepancies such as greater than 10% for bulk waste, variation in piece count, or waste type must be reconciled with transporter and generator. After 15 days the TSD facility operator must submit a letter describing the attempt to reconcile and a copy of the manifest to the appropriate agency. (18)
...	...
4-52. Reports must be submitted to the EPA when an installation accepts an unmanifested waste shipment (40 CFR 264.76 and 40 CFR 265.76).	Determine if unmanifested shipments have been accepted. (18) Determine if reports (Form 8700-13B) are submitted within 15 days. (1)(18) Verify that record of shipment is kept at the facility. (18)
...	...
4-53. Installations with TSD facilities must prepare and submit a single copy of a biennial report to the USEPA Regional Administrator by March 1 of each even numbered year (40 CFR 264.75 and 40 CFR 265.75).	Obtain a copy of the biennial report (USEPA Form 8700-13D or applicable state form). (1)(18) Determine if biennial reports are prepared and submitted and contain the following information: (18) - USEPA Identification Number - facility name and address - calendar year covered by report - description and quantity of each waste received - method of treatment, storage, or disposal for each waste - most recent closure cost estimate - certification signed by owner or operator of the facility - off-site facilities must also report USEPA identification number for each hazardous waste generator from which waste was received - description of efforts undertaken during the year to reduce the volume and toxicity of waste generated - description of changes in volume and toxicity of waste actually achieved during the year in comparison to previous years to the extent that information is available for the years prior to 1984.

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-54. Installations with TSD facilities must have a written closure plan for each facility (40 CFR 264.111-264.112, 40 CFR 265.111-265.112).	Determine if the facility has a written closure plan. (18) Review the closure plan to determine if it addresses: (18) - how and when the facility will be closed - estimates of the maximum amount of wastes in storage and in treatment during the life of the facility - description of decontamination procedures to be used during closure - schedule for closure of each unit.
...	...
4-55. All TSD facilities must have a ground water monitoring and response program, unless a written exemption has been obtained (40 CFR 264.90, 40 CFR 265.90).	Determine whether the facility has a ground water monitoring program. (18) If no program exists, verify that: (18) - an exemption under 40 CFR 264.1 or 40 CFR 264.90(b) has been granted to a permitted facility, or - an exemption under 265.90(c) or (d) has been granted to an interim status facility and that a written demonstration exists at the facility that has been certified by a qualified geologist or geotechnical engineer.
...	...
4-56. Installations must have written inspection plans (40 CFR 264.15 and 40 CFR 265.15).	Examine the Inspection Plan and verify that the following are included: - check list with the items to be inspected and the types of problems to be looking for - inspections are done at a minimum, as follows: - containers, weekly - storage tanks, daily - loading areas, daily when in use - treatment tanks, daily - surface impoundments, daily - incinerators, daily - thermal treatment facilities, daily - chemical, physical, biological treatment facilities, daily
...	...
4-57. An inspection log must be kept (40 CFR 264.15(d) and 40 CFR 265.15(d)).	Examine the inspection log. (18) Verify that entries are included as follows: (18) - date and time of inspection - name of inspector - notation of observation - date and nature of necessary repairs. Determine that inspection logs are maintained for 3 years. (18)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Personal Training and Records	
4-58. All installation personnel who handle hazardous waste must meet training requirements (40 CFR 264.19(a) and (b), and 40 CFR 265.16(a) and (b)).	Verify that the elements of the training program are complete: (2)(3)(18) - contingency plan implementation - key parameters for automatic waste feed cut-off system - procedures for using, inspecting, and repairing emergency and monitoring equipment - operation of communication and alarm systems - response to fire or explosion - response to leaks or spills - facility shutdown procedures - new employee training is completed within 6 months of employment - annual review of initial training is provided - employees do not work unsupervised until training is complete.
...	...
4-59. Employment and training records must be maintained for installation staff who manage hazardous waste (40 CFR 264.16(d) and (e), and 40 CFR 265.16(d) and (e)).	Examine employment records and verify the inclusion is the following: (18) - job title and description for each position - description of the training for each position - the name of the person in each position Examine training records and verify the inclusion of the following: (18) - the name of employee filling each job - documentation of initial individual training - documentation of annual review - continuous records for current employees - records for former employees kept for 3 year after employment - records transferred with employees.
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Safety and Prevention	
4-60. Installations with TSD facilities must control entry to the active portion of each facility (40 CFR 264.14 and 40 CFR 265.14).	Inspect each TSD facility on the installation. Observe the following features: (18) - a 24-hour surveillance system (e.g., television monitors, surveillance by guards) is in place and in operation - the facility is surrounded by a fence or natural barrier - entrances are locked, or monitored by an attendant or roadway access is controlled (NOTE: these requirements are satisfied if the active portion of the facility is located within a fenced yard or locked building.) - signs with wording "Danger Unauthorized Personnel Keep Out," are posted at each entrance and other locations as appropriate - signs with wording "Hazardous Waste Area," are posted (in two languages, if necessary) - signs are legible from 25 feet.
...	...
4-61. All TSD facilities must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned release of hazardous waste (40 CFR 264.30- 264.37 and 40 CFR 265.30-265.37).	Inspect the TSD facility to determine if the following required equipment is easily accessible and in working condition: (18) - internal communications or alarm system, such as a horn, klaxon, or PA system within 10 feet of waste handling areas - a telephone or hand-held two way radio - portable fire extinguishers and special extinguishing equipment (foam, inert gas, or dry chemicals) - spill control equipment - decontamination equipment - fire hydrants or other source of water (reservoir, storage tank, etc.) with adequate volume and pressure, or foam producing equipment - make a spot check to assess condition of equipment (boots without holes, respirators with unused cartridges, etc.) (GMP). Determine from interviews if installation security, the installation fire department, and installation hospital are familiar with the facility layout and properties of wastes handled and associated hazards. (18) Determine if equipment is tested and maintained as necessary. (18) (Determine if emergency response drills or exercises are held (GMP).)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-62. Installations with TSD facilities must have a contingency plan (40 CFR 264.50 -40 CFR 264.54, and 40 CFR 265.50-54).	(NOTE: TSD Facilities may be addressed in the installation's SPCC plan or other emergency plan, or if none exists, in a separate contingency plan.) Examine the Spill/Accident Contingency Plan. Verify that separate sections of the plan identify actions /procedures for the following: (18) - fire - explosion - release of hazardous waste. Verify that the plan describes arrangements agreed to by the following local organizations: (18) - designated primary authority when appropriate - police - fire departments - hospitals - contractors - state emergency services - local emergency services. Verify that emergency equipment listed in plan is consistent with what physically is found in the TSD facility, including: (18) - fire extinguishers - spill control equipment - alarm systems - decontamination equipment. Verify that evacuation procedures and routes for facility personnel are included in the plan. (18) Verify that copies of the contingency plan are maintained at the TSD facility and also have been submitted to the following: (18) - installation security - installation fire department - installation safety manager - local police - local fire department - local hospital - local civilian emergency agencies. Determine if the contingency plan is routinely reviewed and updated. (1)(5) Determine if records containing the time, date and details of any incident that requires implementation of the contingency plan are kept. (1)(4)(5)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

4-63. TSD facility contingency plans should have specific procedures for responding to spills and accidents (GMP).
 	
(NOTE: the review items listed are not required by regulations but are considered good management practices. A good contingency plan should have these or similar procedures.)
	Examine the contingency plan for the following typical good management procedures: (18)
	
	- determine the chemical involved (including, if possible, formulation, manufacturer, and percent active ingredient)
	- provide immediate first aid and evacuation around spill area
	- secure the spill site by roping off area and posting warning signs
	- contain and control spilled chemical by:
	  - putting on protective equipment
	  - preventing further leakage by repositioning containers
	  - cover the spill (if liquid) with absorbent material or (if solid) with polyethylene bags
	  - trench or encircle area with a dike of sand, absorbent material, soil or rags.
	- cleanup of dry spills:
	  - roll up bags slowly and sweep
	  - collect residue in heavy duty plastic bags
	- cleanup of liquid spills:
	  - work absorbent material into spill
	  - collect absorbent material into properly labeled leak- proof container
	  - remove contaminated soil to a depth 3 inches below wet surface lining.
	- decontamination procedures:
	  - remove the bulk of the spill
	  - apply decontamination solution
	  - allow 1 to 6 hours reaction time
	  - apply absorbent material.
	- disposal procedures:
	  - remove all contaminated materials and place in a sealed leak-proof drum
	  - dispose of drum in same manner as hazardous waste.
	- post spill procedures:
	  - sample affected areas to ensure effective decontamination
	  - investigate cause of the spill
	  - fully document spill in operating record.

...	...
4-64. Each TSD facility should have an emergency coordinator on the facility premises or on call at all times (40 CFR 264.55 and 40 CFR 265.55).	Determine that, at all times, there is at least one employee at the facility or on call with responsibility for coordinating all emergency response measures. (18) Verify that the emergency coordinator is thoroughly familiar with the facility, the characteristics of the waste handled, and the provisions of the contingency plan. In addition, verify the emergency coordinator has the authority to commit the resources needed to carry out the contingency plan. (1)

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-65. TSD facility emergency coordinators must follow certain emergency procedures whenever there is an imminent or actual emergency situation (40 CFR 264.56 and 40 CFR 265.56).	Review the contingency plan for the TSD facility. Verify that the emergency coordinator is required to follow these emergency procedures: (1)(18)(5) - immediately activate facility alarms or communication systems and notify appropriate installation, state, and local response parties - identify the character, exact source, amount, and real extent of any released materials - assess possible hazards to human health or the environment, including direct and indirect effects (e.g., release of gases, surface runoff from water or chemicals used to control fire or explosions, etc.) - stop processes and operations at the facility - collect and contain the released waste - remove or isolate containers - monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes or other equipment whenever appropriate - provide for treatment, storage or disposal of recovered waste, contaminated soil or surface water, or other material - ensure that no waste that maybe incompatible with the released material is treated, stored, or disposed until cleanup is completed - ensure that all emergency equipment is cleaned and fit for its intended use before operations are resumed - notify USEPA and appropriate state and local authorities when cleanup is complete and operation resumes.
...	...
4-66. TSD facility operators must record the time, date, and details of any incident that requires implementing the contingency plan (40 CFR 264.56(j), and 40 CFR 265.56(j)).	Review TSD facility operating records. Verify that incidents have been recorded and corrective actions taken. (1)(18) Verify that written reports have been submitted to the USEPA regional administrator within 15 days after the incident. (1)(4)(18)
...	...
4-67. TSD facilities must comply with certain closure schedules (40 CFR 265.113).	Determine that within 90 days after receiving final volume of waste, all hazardous waste has been treated and removed or disposed of on site. (18) (NOTE: During partial and final closure periods, all contaminated equipment, structures, and soils must be properly disposed. By removing any hazardous wastes or constituents during closure, the TSD facility becomes a hazardous waste generator and is subject to the requirements of 40 CFR 262.) Verify that complete, partial, or final closure activities with the ground closure plan are done within 180 days after recovering final volume of waste (or after approval of the closure plan, whichever is later for interim status). (18)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

4-68. All TSD facilities are required to follow certain notification procedures for partial and final closure (40 CFR 264.112(d) and 40 CFR 265.112(d)).	Confirm that: (18)
	- TSD facilities with surface impoundments, waste piles, land treatment, or landfill units notify the Regional Administrator
	  - 180 days prior to expected date of beginning closure of 1st unit for interim status TSDs without an approved closure plan
	  - 60 days prior for all permitted facilities with approved closure plans
	- TSD facilities with only tanks, containers, or incinerator units notify the Regional Administrator 45 days prior to date of beginning final closure.

...	...
4-69. When installations handle ignitable, reactive, or incompatible waste, their safe management must be documented (40 CFR 264.17 and 265.17).	Verify from the operating record and/or observation that safety management practices are used and documented: - wastes are separated and protected from sources of ignition or reaction - smoking and open flame is confined to specially designated locations. "No Smoking" signs are used when necessary - precautions are taken to prevent dangerous reactions (uncontrolled fumes, gases, mists, extreme heat, fire, etc.).
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Ground Water Monitoring **4-70.** All permitted TSD facilities must follow the procedures for ground water monitoring and response programs as specified in the facility permit (40 CFR 264.90-264.101).	Obtain a copy of the facility permit and refer to the ground water monitoring plan to conduct this portion of the review. (18) Verify that monitoring requirements in the permit are consistent with monitoring being done. (1)(18) - number and locations of wells agree with permit - parameters and sampling frequency agree with permit - a sequence of at least four samples from each well is tested - installation is using methods of sample collection and analysis specified by permit - the installation has specified in the permit one of the approved statistical methods for each hazardous constituent - the statistical method chosen is conducted separately for each of the hazardous constituents in each well. Verify that flow measurement meets requirements and intent of the plan: (1)(18) - ground water flow rate is determined - direction of flow in uppermost aquifer is determined. Review ground water monitoring plan and record selected parameters and concentration limits. Review two most recent monitoring reports and record dates and findings. Compare permit limits and monitoring reports and note any discrepancies. (1)(18) Verify that a record of the ground water monitoring analytical data measured to determine statistical significance is maintained at the facility. (1)(18) If any increases are noted, verify that the statistical procedure specified in the permit has been used to determine if a statistically significant increase has occurred. If so, verify that the USEPA Regional Administrator was notified in writing within 7 days, and check the notification for the following information: (1)(18) - indication of which constituents have been shown to have a significant increase - all monitoring wells have been immediately sampled to determine whether constituents listed in 40 CFR 264 Appendix 4 are present - an application for permit modification is submitted to the Regional Administrator within 90 days. Confirm that whenever ground water compliance standard as set forth in 40 CFR 264.92 is exceeded, a corrective action program is instituted (40 CFR 264.100). (1)(18) Confirm that whenever hazardous constituents from a regulated unit are detected at a compliance point, that a compliance monitoring program is instituted (40 CFR 264.99). (1)(18)

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-71. Permitted TSD facilities must also comply with conditions specified in the permit that establish a ground-water protection standard (40 CFR 264.92).	Check a copy of the permit to verify that: (18) - hazardous constituents to which the ground water protection standard apply are specified - concentration limits for the hazardous constituents in the ground water are established - point of compliance and compliance period are specified. Confirm through interviews and examining records that: (18) - installation does not exceed concentration limits specified in permit, and for any constituents listed in Table 1, 40 CFR 264.94(a)(2), the installation does not exceed the respective value listed there (see Appendix 4-6).
...	...
4-72. Installations with Permitted TSD facilities must also institute other monitoring and response programs for all releases of hazardous wastes from any unit at the facility (40 CFR 264.101, Subpart F).	Review TSD facility permit. The permit should specify corrective programs and actions and contain schedules for compliance. (1) Verify that corrective actions are being implemented in accordance with the permit requirements as follows: (1) - compliance monitoring as specified in 40 CFR 264.99 when hazardous constituents are detected at compliance points - corrective program as outlined in 40 CFR 264.100 when ground water protection standard is exceeded or when concentration limits from a regulated unit are exceeded in the ground water between the compliance point and down-gradient facility property boundary - detection monitoring program as specified in 264.98 in all other cases.
...	...
4-73. Interim status TSD facilities must conduct waste analysis and trial tests (40 CFR 265.200).	If the installation has interim status, determine if the proper waste analysis and trial tests are completed when a tank system is used to treat or store a substantially different waste than before or if a substantially different process is used than previously. (18)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-74. Interim status facilities must monitor ground water during the active life and post closure of the facility unless exempt under 40 CFR 265.90(c)(e) or 265.91. Owners and operators of an interim status TSD facility must analyze ground water samples and have a sampling analysis plan (40 CFR 265.92).	Determine if the TSD facility has a ground water monitoring system that is capable of yielding samples for analysis consisting of: (18) - at least one monitoring well installed hydraulically up-gradient (in the direction of increasing static head) from the limit of the waste management area - sufficient number, location, and depth to yield ground water samples that are representative of background ground water quality in the uppermost aquifer near the facility - at least three wells installed hydraulically down-gradient (decreasing static head) at the limit of the area of the waste management facility. These must be placed so that they can immediately detect any statistically significant change in the amount of hazardous waste constituents. Verify that well is cased so that the integrity of the monitor well bore hole is maintained. (18) Ensure that the ground water analysis plan is kept and maintained at the facility. (18) Verify that the plan includes the following: (18) - sample collection procedure - sample preservation and shipment procedure - analytical procedures - chain of custody procedure. Ensure that the collection and sampling analysis procedures are done in accordance with 40 CFR 265.92(b)(c)(d). (18)
...	...
4-75. Owners and operators of interim status TSD facilities must have a ground water quality assessment program (40 CFR 265.93).	Determine if owner/operator has developed a quality assessment program. (18) Review contents of program to ensure that it meets the standards of 40 CFR 265.93. (18)
...	...
4-76. If ground water is not monitored according to 40 CFR 265.93 (d)(4), records must be maintained and reports filed with the appropriate agency (40 CFR 265.94).	Determine if ground water monitoring meets the requirements of 40 CFR 265.93 (d)(4), if not, review records and copies of reports filed with the appropriate agency. (4)(19)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-77. All interim status land treatment facilities used to manage hazardous waste must follow certain recordkeeping and reporting requirements, including the preparation of an outline of a ground water monitoring program that supplies specific information (40 CFR 265.93 and 265.94). ...	Determine whether the installation has landfills, surface impoundments, waste piles, or other land facilities used to manage hazardous waste. (18) Determine that the facility has an outline of a ground water monitoring program. (18) Examine the outline to verify that it is capable of determining: (18) - whether hazardous waste (or constituents) have entered ground water - the rate and extent of this migration - concentration of the hazardous waste(s) and/or constituents. Examine the outline to verify that the plan consists (at a minimum) of the following: (18) - monitoring wells (at least one) installed hydraulically up-gradient from the limit of the waste management area - the number, location, and depth of the wells is sufficient to yield samples that are representative of the background water quality in the nearest, uppermost aquifer and is not affected by facility. ...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
CONTAINERS AND CONTAINER STORAGE AREAS **Empty Containers** **4-78.** Hazardous waste containers must meet the regulatory definition of "empty" before they are exempted from hazardous waste requirements (40 CFR 261.7).	Determine that empty containers meet the appropriate criteria: (18) - For containers or inner liners holding hazardous waste: - all wastes are removed that can be removed using common practices AND - no more than 2.5 centimeters (1 inch) of residue remain. - For containers or inner liner if the container is less than or equal to 110 gallons: - no more than 3% by weight of the total container capacity. - For containers or inner liners if the container is greater than 110 gallons: - no more than 0.3% by weight of the total container capacity. - For containers that held a compressed gas: - the pressure in the container approaches atmospheric. - For containers or inner liners if the container held an acute hazardous waste: - tripled rinsed using a solvent able to remove the acute waste OR - cleaned by another method identified through the literature or testing to achieve equivalent removal - if the inner liner is removed. (NOTE: Any wastes, rinse waters, containers, or inner liners must be handled as hazardous waste when appropriate.)
...	...
Containers **4-79.** Containers used to store hazardous waste must be in good condition and not leaking (40 CFR 264.171 and 265.171).	Check that containers are not leaking, bulging, rusting, damaged or dented. (18) Determine that waste is transferred to a new container or managed in another appropriate manner when necessary. (18)
...	...
4-80. Containers must be made of or lined with materials compatible with the waste stored in them (40 CFR 264.172 and 265.171).	Check that containers are compatible with waste, in particular, check that strong caustics and acids are not stored in plastic drums. (18)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-81. Containers must be closed during storage and handled in a safe manner (264.173).	Check that containers are closed (check bungs on drums, look for funnels). (18) Determine that handling practices will not cause damage to the containers or cause them to leak. (18)
...	...
4-82. Containers holding ignitable or reactive waste must be located 50 feet from the property line (40 CFR 264.176).	Check the distance from any storage containers to the property line. (18) (NOTE: This restriction does not apply to Small Quantity Generators.)
...	...
4-83. The handling of incompatible wastes, or incompatible wastes and materials in containers must comply with safe mangement practices (40 CFR 264.177).	Check that incompatible wastes are not placed in the same containers or unwashed containers that previously held incompatible wastes (check for hydrocarbons in acid drums and other incompatible wastes as listed in Appendix 4-1). (18) Check that waste analysis results and other documentation is kept in the operating record. (18) Check that containers holding hazardous wastes incompatible with wastes stored nearby in other containers, open tanks, piles, or surface impoundments are separated or protected from each other by a dike, berm, wall or other device. (18)
...	...
4-84. Containers should be managed in accordance with good management practices (GMP).	Inspect containers and storage areas: (18) - containers are not stored more than 2 high and have pallets between them - containers of highly flammable wastes are electrically grounded (check for clips and wires and make sure wires lead to ground rod or system) - at least 3 feet of aisle space is provided between rows of containers.
...	...
Container Storage Areas	
4-85. Containers must be kept in designated storage areas (GMP).	Determine that all containers are identified and stored in appropriate areas. (18) (NOTE: Any unidentified solid waste containers and/or containers not in designated storage areas must be tested to determine if solid or hazardous waste requirements apply.)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-86. Areas where containers are stored must be inspected weekly (40 CFR 264.174).	Check inspection log to determine that: (18) - inspections are scheduled weekly - inspections are made for leaking and deteriorating containers - the containment system is inspected.
...	...
4-87. Container storage areas must have containment systems (40 CFR 264.175(a) and (b)).	Inspect container storage areas and observe the following criteria: (18) - storage base is free of cracks or gaps and is impervious enough to contain leaks, spills, and precipitation - base is sloped or operated to drain and remove leaks, spills, or precipitation unless the containers are elevated - system has capacity to contain 10% of the container volume or the volume of the largest container whichever is greater - run-on is prevented unless the system has enough excess capacity to hold any possible run-on - spilled or leaked waste and accumulated precipitation is removed in a timely manner. (NOTE: If the collected material is a hazardous waste, it must be handled accordingly. If it is discharged through a point source, it is subject the Clean Water requirements.)
...	...
4-88. Containment for containers holding wastes that do not contain free liquids must meet reduced criteria (40 CFR 264.175(c)).	Determine that container criteria is met: (18) - area is sloped or able to drain and remove liquid resulting from precipitation, or - containers are elevated or protected from contact with accumulated liquid. (NOTE: Storage areas must have complete containment systems when the containers holding F020, F022, F023, F026, and F027 do not contain free liquids.)
...	...
4-89. When container storage areas are closed, specific conditions must be met (40 CFR 264.178).	Determine that closure criteria was met: (1) - all hazardous waste and residues were removed from the containment system - remaining containers, liners, bases, and soils (containing or contaminated with hazardous waste or hazardous waste residues) were decontaminated or removed - all hazardous wastes (including materials removed from the containment system) were managed appropriately.
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
TANK SYSTEMS **4-90.** Large quantity generators who uses tanks to store wastes at accumulation points must comply with the general regulations for ignitable, reactive, and incompatible wastes as outlined in 40 CFR 265.17(b). ...	Verify that the treatment, storage, or disposal of such wastes is conducted so that it does not: (19) - generate extreme heat, pressure, fire, explosion, or other violent reaction - produce uncontrolled toxic mists, fumes, dust, or gases in sufficient quantities to threaten human health - produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosion - damage the structural integrity of the device or facility containing the waste, or - through other means threaten human health or the environment. ...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-91. Installations with hazardous waste facilities that use tank systems to treat or store hazardous waste must comply with regulations to prevent any migration of wastes or accumulated liquid to the soil, ground water, or surface water (40 CFR 264.190-264.199 for installations permitted and 40 CFR 265.190-201 for those with interim status).	Determine if the installation treats or stores hazardous wastes in tanks. (18) Conduct an inspection of each tank that does not have secondary containment for ruptures. (18) Conduct an inspection of each tank for ruptures, leaks, corrosion, or other signs of failure (dead vegetation, wet spots, etc). (18) Inspect each uncovered tank to ensure that it is operated with sufficient freeboard. (18) Verify that each tank system that does not have secondary containment has had an integrity assessment review and is certified by a certified and independent engineer (a written copy must be kept on file at the facility). (18) Examine a copy of the assessment for the following information: (18) - design standards of tank system age - age documentation (estimated if information not available) - design and strength is adequate and compatible with wastes stored - corrosion protection measures (e.g., cooling cathodic protection) - leak test results or other tank integrity examination. Check each tank system with secondary containment to ensure: (18) - presence of one or more of the following devices: 1) a liner (external to the tank) 2) a vault 3) a double-walled tank, or 4) an equivalent device as approved by the Regional Administrator - capacity for detecting and collecting releases and accumulated liquids until removed

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-91. (continued)	- compatibility of construction or lining materials with wastes and sufficient strength of materials - adequate base or foundation to support secondary containment system - leak detection system (detection within 24 hours) - design for draining and removing spills from surrounding system within 24 hours. Inspect each covered tank used to treat or store ignitable or reactive wastes to ensure it complies with buffer zone requirements specified in NFPA's "Flammable and Combustible Liquids Code." (18) Inspect tanks to ensure they do not contain ignitable or reactive waste unless: (18) - the waste has been treated, rendered or mixed so it no longer is ignitable or reactive - the waste is stored or treated to protect it from any materials or conditions that may cause it to ignite or react - the tank is used solely for emergencies.
...	...
4-92. Installations with new tank systems must submit a written assessment review certified by an independent, qualified, registered professional engineer (40 CFR 264.192, 40 CFR 265.192).	Determine if the installation has any new tank systems. (18) Review records for submittal of proper certification. (18) (NOTE: Tank systems that store or treat materials that become hazardous waste subsequent to July 14, 1986 must conduct this assessment within 12 months after the date that the substance becomes a hazardous waste.)
...	...
4-93. Tank systems must have a method of secondary containment (40 CFR 265.193, 40 CFR 264.193).	Verify that all new tank systems have secondary containment or an appropriate variance. (18) Check existing tank systems used to treat or store USEPA Hazardous Waste numbers F010-023, F026, and F027 by January 12, 1989. (18)

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-93. (continued)	Check that existing tanks which have their age documented must have secondary containment by January 12, 1989 or by the time the tank is 15 years old, whichever is later. (18) Check that for tanks whose age is unknown, secondary containment must occur by January 12, 1995 or if the facility is more than 7 years old, the tank must have containment by the time the facility reaches age 15. (18) Determine if tank systems treating or storing waste that is determined to be hazardous after January 12, 1987 are ruled by the same guidelines as above with the exception that the reference date should be that of the day the waste was determined to be hazardous. (18) (NOTE: Exceptions to this requirement include: - above ground piping which is visually inspected daily - welded flanges, connections, or joints inspected daily - sealless magnetic coupling pumps inspected daily - pressured above ground piping with automatic shutoffs (193(c)) - any systems which have been granted a variance according to 40 CFR 264.193(g) or 40 CFR 265.193 (g)(h).)
...	...
4-94. Containment systems must be constructed according to USEPA regulations in 40 CFR 264.193 (b)-(e).	Determine that the containment system is designed, installed, and operated to prevent migration of waste or accumulated liquid out of the system and to the soil during the use of the system. (18) Determine that the system is capable of detecting and collecting releases and accumulated liquids until the materials can be removed. (18)
...	...
4-95. Tank systems without secondary containment equipment must comply with leak testing requirements until secondary equipment is installed (40 CFR 264.193 and 40 CFR 265.193).	Determine if installation tests for leaks on tank systems that do not have secondary containment according to 264.193(i) and 265.193(i). (18)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-96. Tanks used for hazardous waste treatment or storage must follow certain requirements (40 CFR 264.194, 40 CFR 265.194).	Determine if installation follows the operators requirements. (18) Verify that hazardous wastes or treatment reagents are not be placed in tanks if they could cause the tank system (including ancillary equipment, or containment system) to fail. (18) Determine if appropriate measures are taken to prevent overfill or spills. These should, at a minimum, include: (18) - spill prevention controls - overfill prevention controls - maintenance of sufficient freeboard to prevent overtopping by wave, wind action, or precipitation for uncovered tanks.
...	...
4-97. Installations must conduct inspections of tank systems and associated equipment (40 CFR 264.195 and 40 CFR 265.195).	Check that a schedule and procedure is developed and followed to inspect overfill controls for permitted installations. (1)(18) Determine if the following inspections are conducted at least once a day: (18) - waste feed cut-off systems and bypass systems if in interim status - tank monitoring equipment (e.g., pressure and temperature gauges) - waste levels in uncovered tanks - above ground tanks (for signs of corrosion, erosion, leakage of fixtures or seams) - area surrounding tank, including the secondary containment system, for signs of leakage (wet spots, dead vegetation) - areas subject to spills, such as loading and unloading areas. Determine if there is a written procedure and schedule for emptying and inspecting the tank for cracks, leaks, or corrosion on the sides or bottom. (Frequency must be based on type of tank, type of corrosion protection used, waste characteristics, etc.). (1)(18)
...	...
4-98. Installations must respond to leaking tanks (40 CFR 264.196, 40 CFR 265.196).	Check that leaking tanks are mitigated as follows: (18) - cessation of use, prevent flow or addition of wastes - removal of waste from tank: 1) within 24 hours of detection (or other reasonable time as demonstrated by the owner/operator) remove as much waste as necessary to prevent further release and allow inspection and repair 2) release into a secondary containment system must be removed within 24 hours (or in as timely a manner as is possible to prevent harm to human health and the environment) - containment of visible releases - prevent further migration to soils or surface water - remove and properly dispose of any visible contamination of soil and surface water.

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-98. (continued)	Verify that notification to the regional administrator is made within 24 hours for any release to the environment. (1)(18) (NOTE: Releases of less than 1 lb that are immediately contained and cleaned up are exempt from reporting for all others, a report must be submitted within 30 days.) Review reports of any leak and ensure they comply with 40 CFR 265.196 (a)(2) and 264.196 (a)(2). (18)
...	...
4-99. Operators of tank systems must properly close the system (264.197, 265.197).	Determine if the installation has closed any tank systems. (1)(18) Review closure process with appropriate guidelines from 40 CFR 264.197 or 40 CFR 265.197). (1)(18) Review installation post-closure plan for the tank system. (1)(18)
...	...
4-100. Incompatible wastes stored in tanks must follow the guidelines of 40 CFR 264.17(b) or 265.17(b) (40 CFR 264.199, 40 CFR 265.199).	Determine if the installation treats or stores incompatible wastes in tanks. Refer to guidance on *incompatible wastes for TSD facilities* (See TSD FACILITIES Section). (18)
...	...
4-101. Small quantity generators must comply with certain storage tank requirements (40 CFR 265.201).	Determine if the installation is a small quantity generator that stores or treats wastes in tanks. (1) - follow incompatible waste guidelines of 265.17(b) - no reagent or wastes may be placed in the tank if they would cause it to rupture, leak, or otherwise fail before the end of its intended life - uncovered tanks must have at least 2 feet of freeboard unless the tank has a containment structure - continuous feed tanks must have a waste-feed cutoff or other stop system. Verify that small quantity generators also inspect: (1) - discharge equipment - monitoring control data - waste level in tank - construction material of the tank - surrounding area's construction materials.
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-102. Small quantity generator must comply with closure requirements (265.200(d)).	Determine that tank systems closed or in the process of being closed have had all hazardous waste removed from tanks, discharge control equipment, and discharge confinement structures. (1)
...	...
4-103. Cathodic containment systems (if present) must be inspected to ensure their proper functions (40 CFR 264.195(c) and 40 CFR 265.195(b)).	Determine if the following procedures were conducted: (1) - proper functioning of the cathodic protection system within 6 months of its installation - annual inspection of the cathodic protection system - all sources of impressed current are inspected and/or tested bimonthly.
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
SURFACE IMPOUNDMENTS	

4-104. Installations that use surface impoundments to treat, store, or dispose of hazardous wastes must comply with certain regulations (40 CFR 264.220-264.230 Subpart K).	Determine if the installation treats, stores, or disposes of wastes in surface impoundments. (18)
	
	Inspect each surface impoundment. Confirm that the following criteria are met: (18)
	
	- the impoundment has a liner designed, constructed, and installed to prevent any migration of waste out of the impoundment
	- the liner is placed on a foundation or base capable of providing support to the liner that will prevent failure due to settlement, compression, uplifting, etc.
	- the liner is installed to cover all surrounding earth likely to be in contact with the waste
	- the impoundment has at least 2 feet of freeboard and shows no sign of overtopping by overfilling, wind or wave action, or a storm
	- the impoundment has a containment system, such as an earthen dike, covered with grass, rock, or shale which shows no sign of erosion
	- the impoundment does not contain ignitable or reactive waste unless:
	  - the waste has been treated, rendered, or mixed so it is no longer ignitable or reactive
	  - the waste is managed in a way that it is protected from materials or conditions that may cause it to ignite or react
	  - the impoundment is used solely for emergencies.

...	...
4-105. Owner/ operators of new or expansions of existing surface impoundments with interim status must notify the administrator within 60 days before receiving wastes. Part A of the permit application process must be completed. Within 6 months after receiving waste, the interim facility must file a part B application (40 CFR 265.221).	Review records for notification of waste shipment. (18) Review part A permit and application for part B permit. (18)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-106. Waste analysis is required for certain surface impoundments (40 CFR 265.225).	Determine if the installation performs waste analysis when: (1)(18) - waste is chemically treated and is substantially different from waste previously treated in the impoundment - a substantially different process is being used.
...	...

4-107. Installations that have surface impoundments must follow certain closure and post-closure requirements (40 CFR 264.228 and 40 CFR 265.228).	Determine if the installation has closed or plans to close any surface impoundment activities. (1)(18)
	Determine if all waste residues, including contaminated containment systems, subsoils, structures, and equipment have been managed as hazardous wastes. If not, the impoundment must be closed as a landfill in accordance with 40 CFR 265.310 with the additional requirements: (18)
	- eliminate free liquids by removing liquid wastes or solidifying the remaining wastes and waste residues
	- stabilize remaining wastes to a bearing capacity sufficient to support the final cover
	- cover the surface impoundment with a final cover designed and constructed to:
	  - provide long-term minimization of the migration of liquids through the closed impoundment
	  - function with minimum maintenance
	  - promote drainage and minimize erosion or abrasion of the cover
	  - accommodate the settling and subsidence so that the cover's integrity is maintained
	  - have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

...	...
4-108. All surface impoundments must have double liners and a leachate collection system between liners (40 CFR 264.221, and 40 CFR 265.221).	Determine if the installation has installed a new surface impoundment, replaced an existing impoundment, or initiated a lateral expansion. (1) If so, verify that the impoundment has two or more liners and a leachate collection system between liners, OR the double liner requirement has been waived by the USEPA Regional Administrator. (1) Verify that the liner meets certain specifications as stated in 40 CFR 264.221(c) and 40 CFR 265.221(c). (1)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-109. Permitted facilities must inspect the construction of liners and cover systems (40 CFR 264.226 (a)). (NOTE: This excludes those systems already in existence.)	Determine if the installation makes inspections of liner and cover systems. (18)
...	...
4-110. Installations must conduct inspections while surface impoundments are in operation (40 CFR 264.226).	Determine if the impoundment is inspected at least daily to check the freeboard level. (18) Determine if inspections are conducted at least weekly and after storms to detect evidence of the following: (18) - deterioration, malfunctions, or improper operation of overtop piping control systems - sudden drops in the level of the impoundment contents - severe erosion or other signs of deterioration in dikes or other containment devices.
...	...
4-111. Prior to the issuance of a permit and/or after any period of 6 months or more of disuse, the installation TSD must obtain certification from a qualified engineer that surface impoundment dikes have structural integrity (40 CFR 264.226 (c)).	Check records to determine if the installation is permitted or if any impoundment has been out of service for 6 months or more. (1)(18) Examine a copy of the certification for the following: (1)(18) - verification that the impoundment can withstand the amounts and types of waste it will contain - that the impoundment will not fail due to scouring or piping without dependence on any liner system.
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-112. A surface impoundment facility must be taken out of service if any of the following events occur: - level of liquids drops suddenly and the drop is not related to changes in flows into or out of the impoundment - the dike leaks (40 CFR 264).	Determine if the installation has closed a service impoundment for these reasons. If so, determine if the following procedures were taken: (1)(18) - immediate shut off of flow or addition of wastes into the impoundment - contain any surface leakage that has occurred - stop the leak - any other necessary steps to prevent catastrophic failure - if there is no other manner in which to stop the leak, empty the impoundment - notify the regional administrator within 7 days after detecting the problem. Verify that if a surface impoundment that has failed is to be brought back into service, the following requirements must be met: (1)(18) - the portion of the impoundment that failed must be repaired - if removed from service for dike failure; the dike's structural integrity must be recertified - if removed from service because of a sudden drop in the level, a liner must be installed to any existing portion; for any other portion, the repaired liner system must be recertified.

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-112. (continued)	(NOTE: USEPA has scheduled certain wastes to be restricted from land disposal beginning August 8, 1988 (40 CFR 268.30) -See Appendixes 4-5 and 4-6 for a list of dates of restrictions and restricted wastes.) (NOTE: If the impoundment is not going to be brought back into service according to these requirements, it must be closed according to 40 CFR 264.228.)
...	...
WASTE PILES	
4-113. All TSD installations that store or treat hazardous waste in waste piles must meet certain standards (40 CFR 264.250-264.258, and 40 CFR 265.250-258). (NOTE: Waste piles closed with wastes left in place are regulated as landfills. Waste piles inside or under a protective structure are exempt if they contain no liquids, are protected from run-on and wind dispersal, and will not generate leachate. Waste piles can be managed as a landfill. If this is the management method, see the section on LANDFILLS.) (NOTE: USEPA has scheduled certain wastes to be restricted from land disposal beginning August 8, 1988 (40 CFR 268.30). See Appendixes 4-5 and 4-6 for a list of dates of restrictions and restricted wastes.)	Determine if the installation treats or stores hazardous waste in waste piles. (1)(18) Inspect each waste pile and determine that the following standards are met: (18) - the pile has a liner and is located on an impermeable base - the liner is installed to cover all surrounding earth likely to be in contact with the waste or leachate - a leachate collection and removal system is located immediately above the liner - leachate depth over the liner does not exceed 1 foot - protection from wind, precipitation, and runon is provided - a runoff collection system is in place and in operating condition - tanks and basins associated with the run-on and runoff control systems are emptied. (NOTE: Permitted waste pile operations follow more specific design and operating requirements as well as monitoring and inspection requirements. These requirements include the following sections 40 CFR 264.251 and 264.254.)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-114. Waste analysis must be conducted in accordance with 40 CFR 265.13 "General Waste Analysis." Additionally, the owner/operator must provide other analysis (40 CFR 265.252).	Verify that a representative sample is analyzed from each incoming waste before it is added to the pile unless the following is relevant: (18) - the only waste the facility receives that is suitable for piling is compatible with the existing components of the pile - the waste received is compatible with the pile it is to be added to. Verify that the analysis conducted is capable of differentiating the types of waste being placed in the piles to prevent the mixing of incompatible wastes. (18) Verify that a visual inspection of the waste for color and texture is done for the waste to be added to the pile. (18)
...	...
4-115. Interim status waste piles that produce a leachate considered to be a hazardous waste must meet certain requirements (40 CFR 265.253).	Determine if the waste pile facility has leachate runoff which is hazardous. (18) If the leachate is hazardous, determine that the following precautions are met: (18) - The pile must be placed on an impermeable base that is compatible with the contents of the pile. - A runon system must be in place that is capable of preventing flow onto the active portion of the pile during peak discharge from at least a 25 year storm. - A runoff system must be in place to collect and control at least the water volume from a 24-hour, 25-year storm. - Collection and holding facilities associated with runon and runoff control systems must be emptied or otherwise managed expediently to maintain design capacity of the system. - The pile must be protected from precipitation and run-on by some other means. - No liquids or wastes containing free liquids may be placed on the pile.
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

4-116. All TSD facilities with waste piles containing ignitable or incompatible wastes must follow certain requirements (40 CFR 265.256-257, 40 CFR 264.256-257).	Verify that ignitable wastes are not placed into piles unless the following is met: (18)
	- addition to an existing pile:
	  - results in the waste or mixture no longer meeting the definition of ignitable reactive waste
	  - it complies with the general requirements for ignitable wastes as found in 40 CFR 265.17(b)
	- the waste is managed in such a way that it is protected from any material or conditions that may cause it to ignite or react.
	
	Verify that incompatible wastes are not placed in the same pile unless the requirements of 40 CFR 265.17(b) are met as well as the following: (18)
	- Piles that are incompatible with any waste or other material stored nearby in other containers, piles, open tanks, or surface impoundments must be separated from the other materials, or protected from them by means of a dike, berm, wall, or other device.
	- Hazardous waste may not be piled on the same area where incompatible wastes or materials were previously piled unless that area has been decontaminated sufficiently to ensure compliance with 40 CFR 265.17(b).

...	...
4-117. If the installation treats any hazardous wastes in permitted piles included in the following categories, certain requirements must be met (40 CFR 264.259).	Determine if the installation treats any of the following wastes in permitted piles: (18) - F020-F023 - F026 - F027. Verify that these wastes are kept in enclosed piles unless the owner/operator has an approved management plan. (18)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-118. Installations must conduct inspections of permitted waste piles while they are in operation (40 CFR 264.254).	Determine if the waste pile is inspected at least weekly and after storms to detect evidence of the following: (18) - deterioration, malfunctions, or improper operation in runon and runoff systems - proper functioning of wind dispersal control system - presence of leachate in, and proper functioning of leachate control system.
...	...
4-119. Installations that operate waste piles must must follow the requirements for closure and post-closure care (40 CFR 264.258 and 265.258).	Verify that at the time of closure the owner/operator has removed or decontaminated all waste residues, contaminated containment system components, subsoils, and structures and equipment contaminated with hazardous waste unless an exception applies in accordance with 40 CFR 261.3(d) which identifies hazardous wastes. (18) Verify that if after all reasonable efforts the owner/operator finds that they cannot remove all contaminated subsoils practicably, the facility is managed with the closure and post-closure care required for a landfill. (18)
...	...
4-120. Permitted waste pile operations must follow additional requirements for closure and post-closure care (40 CFR 264.258).	Verify that if the owner/operator has a waste pile that does not comply with the liner requirement and is not exempted from this requirement, they comply with the following: (1)(18) - Include in the written closure plan (40 CFR 264.112) for the pile sections that comply with the removal of all contaminated substances and a contingency plan if all contamination cannot be removed. - In addition, a contingency post-closure plan must also be prepared for the waste pile and be submitted to the appropriate agency within 90 days after determining the waste pile must be closed.
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
LAND TREATMENT	
4-121. Installations with land treatment systems must meet certain standards (40 CFR 264.270-264.282). (NOTE: USEPA has scheduled certain wastes to be restricted from land disposal beginning August 8, 1988 (40 CFR 268.30). See Appendices 4-5 and 4-6 for a list of dates of restrictions and restricted wastes.)	Determine if the installation operates a land treatment facility. (18) Inspect each land treatment facility. Observe that the following standards are met: (18) - the treatment zone is no more than 5 feet from the initial soil surface - the treatment zone is more than 3 feet above the seasonal high water table - only wastes that are degraded chemically or biologically in the soil are disposed of in the facility - runon is diverted away from the active portion of the site - runoff collection and treatment systems are in place and in operation - tanks and basins associated with the runon and runoff control systems are emptied - wind dispersal is controlled. Verify that if food crops are grown at the site, the following requirements are met: (18) - the USEPA Regional Administrator must be notified - prior to planting, the installation must demonstrate that hazardous constituents will not be transferred to the food, ingested by animals, or occur in greater concentrations in the crops when compared to crops grown in similar conditions on untreated soils - crops grown with cadmium contaminated wastes must meet special requirements (40 CFR 264.276(b)). Determine that each land treatment system has a written unsaturated zone monitoring plan. (18)
...	...
4-122. Installations must conduct inspections while land treatment facilities are in operation (40 CFR 264.273).	Determine that the land treatment system is inspected weekly and after storms to detect evidence of: (18) - deterioration, malfunctions, or improper operation of runon and runoff control systems - improper functioning of wind dispersal control measures.
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-123. A waste analysis must be conducted before placing waste that exceeds the concentrations of Table 1 of 40 CFR 261.24 (Maximum Concentration of Contaminants for Toxicity Characteristic) that determines the concentrations in the waste of the item which has caused the waste to be considered EP Toxic.	Determine if the installation land treats any waste listed in 40 CFR 261 Subpart D. If so, review records for waste analyses to determine the concentrations of the substance that caused it to be listed as a hazardous waste. (1)(18)
...	...
4-124. Land treatment facilities must keep an operating record that includes dates and rates of application (40 CFR 265.279).	Review operating records. (1)(18)
...	...

4-125. All land treatment facilities are required to have closure and post-closure plans (40 CFR 264.280).
 	
(NOTE: See 40 CFR 264.281(b) or 265.281(b) for a detailed listing of the closure, post-closure plan requirements.)
	Verify that the plan addresses the objectives and the methods by which they are to be achieved including: (1)(18)
	
	- control migration of hazardous waste into ground water
	- control release of contaminated run-off into surface water
	- control release of airborne particulate contaminants caused by wind.
	
	Verify that other information regarding natural and physical features are contained in the plan, including: (18)
	
	- the type and amount of waste applied to the facility
	- mobility of and expected migration of the waste and its constituents
	- site location, topography, and surrounding land use with respect to *the potential effects of pollutant migration*
	- climate, including amount, frequency, and pH of precipitation
	- geologic soil profiles, and surface and subsurface hydrology.
	
	Verify that owner/operator takes into consideration various methods of addressing closure and post-closure care objectives: (18)
	
	- removal of contaminated soils
	- placement of final covering considering:
	  - function of the cover
	  - characteristics of the cover
	  - monitoring ground water.

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-126. Land treatment facilities must follow special guidelines for ignitable and incompatible wastes (40 CFR 264.281-282 and 265.281-282).	Determine if the facility handles any ignitable or incompatible waste. (18) Verify that ignitable or incompatible waste are not land treated unless: (18) - the waste is immediately incorporated into the soil so that the resulting mixture no longer meets the definition of ignitable or reactive waste - the requirements of 264.17(b) or 265.17(b) are met, or - the waste is managed in such a way that it is protected from any materials that may cause it to react. Verify that incompatible wastes are not applied to land treatment facilities unless the requirements of 40 CFR 265.17(b) are met. (18)
...	...

4-127. Land treatment facilities that have permitted status must follow additional requirements (40 CFR 264.272 and 264.273).	Verify that permitted land treatment facilities have a treatment program that is designed to ensure that hazardous constituents placed in or on the treatment zone are degraded, transformed, or immobilized within the treatment zone. (18)
	
	Examine the facility permit for specific requirements. (18)
	
	Verify that, at a minimum, the requirements include: (18)
	
	- wastes that are capable of being treated at the unit based on demonstration (40 CFR 264.272)
	  - each waste before being applied to the treatment zone must be demonstrated by the owner/operator to be completely degraded, transformed, or immobilized
	  - this demonstration may be done through field tests, laboratory analyses, available data, or in the case of existing units, operating data.
	
	  (NOTE : These tests must follow the specific requirements of 40 CFR 264.272(b)(c).)
	
	- design measures and operating practices necessary to maximize the success of degradation, transformation, and immobilization processes in the treatment zone
	- unsaturated zone monitoring requirements for permitted facilities.
	
	(NOTE: Specific design and operating practices for permitted facilities are outlined in 40 CFR 264.278.)

...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-128. Permitted land treatment facilities must follow specific requirements for closure and post-closure care (40 CFR 264.280).	Determine if the permitted facility understands and follows the specific procedures outlined in 40 CFR 264.280. (18)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
LANDFILLS	
4-129. Installations that dispose of hazardous waste in landfills must comply with certain regulations (40 CFR 264.301 (f)(g)(h), and 265.302). (NOTE: USEPA has scheduled certain wastes to be restricted from land disposal, beginning August 8, 1988 (40 CFR 268.30) -See Appendixes 4-5 and 4-6 for a list of dates of restrictions and restricted wastes.)	Determine whether the installation disposes of hazardous waste in an on-site landfill. (1) Inspect landfill procedures to determine if the following criteria are met: (18) - surrounded by sound run-on diversion system with capacity to prevent flow during peak discharge of 25-year storm: no ponding of water on site - adequate collection and control of runoff: no indication of improper or inadequate drainage; adequate capacity to collect and control water from a 24-hour, 25-year storm - collection and holding tanks or basins for run-on and runoff control systems emptied expeditiously after storms - adequate control of wind dispersal: no blowing debris - adequate cover of waste material.
...	...
4-130. Certain landfills must have double liners and leachate collection systems (40 CFR 264.301, 40 CFR 265.301). (NOTE: Interim status facilities must notify the Regional Administrator at least 60 days before receiving wastes designated for new, existing, or laterally expanded landfills (40 CFR 265.301(b).)	Determine if the installation has installed a new landfill, replaced an existing landfill, or expanded an existing landfill laterally. (1) If so, verify that the landfill has two or more liners and a leachate collection system above and between the liners OR a waiver of double liner requirement has been obtained from the USEPA Regional Administrator. (1)
...	...
4-131. Installations must maintain a landfill map in their operating records depicting the waste cells and the type and location of hazardous waste in each cell (40 CFR 264.309, 40 CFR 265.309).	Determine if a landfill map is available and if it contains: (1)(18) - the exact location and dimensions of each cell, including depth, with respect to a permanently secured benchmark - contents of each cell and approximate location of each waste type within each cell.
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-132. Installations that dispose of hazardous wastes in landfills must provide long-term, post-closure care (40 CFR 264.310, 40 CFR 265.310).	Determine whether the installation is in compliance with the requirements of 40 CFR 264.310 (for permitted status facilities) or 40 CFR 265.310 (for interim status facilities). (18)
...	...
4-133. No ignitable, reactive, or incompatible wastes, may be placed in a landfill unless certain criteria are met (40 CFR 264.312-313, 265.312-313).	Determine through observation and interviews of landfill operators that the following operating criteria are met: (18) - no land disposal of solvents - no landfilling of ignitable or reactive wastes unless the waste is treated, rendered, or mixed before being landfilled so that it is no longer ignitable or reactive. Determine if such waste is landfilled without treatment in containers provided that: (18) - the wasted is disposed of in nonleaking containers that are carefully handled and placed to avoid heat, sparks, rupture, etc. - the containers are covered daily with soil or other noncombustible materials - the containers are disposed of in cells that do not contain or will not contain other wastes that generate heat sufficient to cause waste ignition - no incompatible wastes are placed in the same landfill cell (see Appendix 4-1).
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-134. Placement of bulk or noncontainerized hazardous waste, any liquid that is not a hazardous waste, or waste containing free liquids in a landfill is prohibited (40 CFR 264.314, 40 CFR 265.314).	Determine through observation and interviews that effective May 8, 1985, no bulk or noncontainerized liquid hazardous waste or hazardous waste containing free liquids is placed in the landfill. (18) Verify that the installation has assessed the presence or absence of free liquids using method 9095 as described in USEPA publication number SW-846, "Test Methods for Evaluating Solid Waste Physical/Chemical Methods." (18) Determine that effective November 8, 1985, any liquid that is not a hazardous waste is not placed in the landfill, unless USEPA finds that no reasonable alternative is available. (18) Confirm through observations and interviews that no containers holding free liquid are placed in landfill unless: (18) - free standing liquid is removed, absorbed, or solidified - container is very small, such as an ampule - container is a battery capacitor or other device designed to hold liquid for other than storage - container is a lab pack as defined in 40 CFR 264.316 or 40 CFR 265.316 and meets the special requirements for those containers.
...	...

4-135. Containers and lab packs disposed of in a landfill must meet special requirements (40 CFR 264.315-264.316, 40 CFR 265.315-265.316).	Determine through observation and interviews that: (18)
	
	- unless they are very small, such as an ampule, containers placed in the landfill are:
	  - at least 90% full
	  - empty containers are crushed
	- no lab packs (small containers of waste in overpacked drum) are place in landfill unless:
	  - inside containers are not leaking and are of size and type specified in DOT regulations (49 CFR 173, 178, and 179)
	  - inside containers are overpacked in a full open-head metal shipping container of no more than 110 gallon capacity surrounded by nonreactive absorbent material
	  - outer metal container is full
	  - incompatible wastes are not placed in the same outside container
	  - reactive wastes other than cyanide or sulfide bearing wastes must be treated and rendered nonreactive before packaging.

...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-136. TSD installations that dispose of hazardous waste in landfills with permitted status must comply with certain regulations (40 CFR 264.301).	Determine if the installation disposes of hazardous wastes in an on-site landfill. (1)(18) Inspect the landfill. Determine whether the following criteria are met: (18) - a liner system designed, constructed, and installed to prevent any migration of waste out of the landfill is in place - the liner is placed on a properly supported base or foundation - the liner is installed to cover all surrounding earth likely to be in contact with the waste. Obtain a copy of the permit and verify that a leachate collection and removal system is in place immediately above the liner that collects and removes leachate from the landfill and is specified in the permit (unless exempt under 40 CFR 264.301(b)). (18)
...	...
4-137. Final status TSD installations with landfills *must conduct inspections* during and immediately after construction (40 CFR 264.303(a)).	Verify that liners were inspected during construction for overall integrity. (18) Confirm that immediately after construction was completed, *the following* inspections were performed: (18) - synthetic liners and covers to ensure tight seams and joints and absence of tears - soil-based and admixed liners for imperfections that may increase impermeability (e.g., cracks and root-holes).
...	...
4-138. Permitted TSD installations with landfills must conduct inspections while landfills are in operation (40 CFR 264.303, Subpart N).	Determine if a landfill map is available and if it contains: (1)(18) - the exact location and dimensions of each cell, including depth, with respect to a permanently surveyed benchmark - contents of each cell and approximate location of each waste type within each cell.
...	...
4-139. Installations with final status also have specific requirements for hazardous wastes F020, F021, F022, F023, F026, and F027 (40 CFR 264.317).	Determine whether or not these wastes are landfilled and if the installation has a proper management plan for their disposal that is approved by the Regional Administrator. (18)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
INCINERATORS	

4-140. Operators of incinerators must conduct monitoring while incinerating hazardous waste (40 CFR 264.347, Subpart O).	Determine if the operator conducts, at a minimum, the following monitoring while incinerating hazardous waste: (18)
	- The following are monitored continuously:
	  - waste feed rate
	  - combustion temperature
	  - combustion gas velocity
	  - CO (prior to release)
	  - other relevant level controls (CO, O2, afterburner and temperature, etc.) as specified in the permit.
	- Daily:
	  - incinerator and associated equipment for leaks, spills etc.
	- Weekly:
	  - emergency waste feed cutoff system
	  - associated emergency cutoff alarms.
	
	(NOTE: The storage and burning of hazardous wastes at boiler and industrial furnace facilities is also regulated. Determine if installation stores or burns hazardous wastes at such facilities; if so, ensure that the operator is aware of standards for such facilities and restriction on emissions.)

...	...

4-141. Installations with interim status that use incinerators for hazardous waste must sufficiently analyze all wastes burned (40 CFR 265.341).	Determine if the installation incinerates hazardous wastes. (1)
	
	Examine the operating record for the facility to determine if the results of each waste are kept on file. (18)
	
	Confirm that for each waste burned at the installation, the results of the waste analysis establish: (18)
	- steady state (normal) operating conditions including:
	  - waste fuel feed
	  - auxiliary fuel feed
	  - air flow
	- type of pollutants that might be emitted
	- heating value
	- halogen content
	- sulfur content
	- lead concentration level
	- mercury concentration level.

...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-142. Installations with interim status may be exempt from all the requirements for hazardous waste incinerators (except closure) under certain conditions (40 CFR 265.340(b)).	Determine whether the following requirements are met: (18) - the installation has written documentation that the wastes they incinerate do not contain any hazardous constituents listed in 40 CFR 261, Appendix VIII - the documentation is retained at the installation - the wastes are listed as hazardous solely because of their ignitable (Hazard Code I) or corrosive (Hazard Code C) properties, or both as listed and determined in 40 CFR 261, part C or D - the wastes are listed as reactive (Hazard Code R) for characteristics other than those listed in 40 CFR 261.23(a)(4)(5) and will not be burned when other hazardous wastes are present in the combustion zone.
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-143. Installations with interim status may burn certain wastes only if they have proper certification (40 CFR 265.352).	Examine operating record to determine whether the installation burns USEPA hazardous waste numbers F020-F023, F026, or F027. (18) Verify that the installation has received certification from the Assistant Administrator for Solid Waste and Emergency Response if such wastes are burned at the installation. (1)(18)
...	...
4-144. Installations with interim status that incinerate hazardous waste must not feed hazardous waste unless the incinerator is at a steady state (40 CFR 265.345).	Observe the incinerator during startup and shutdown to confirm that waste is not fed until steady state conditions are reached. (18)
...	...

4-145. An interim status installation that incinerates hazardous waste must conduct monitoring and inspections (40 CFR 265.347).	Determine if the following monitoring and inspection procedures are followed: (18)
	
	- existing instruments related to combustion and emission are monitored every 15 minutes including the instruments that control:
	  - waste feed
	  - auxiliary fuel feed
	  - air flow
	  - incinerator temperature
	  - scrubber flow
	  - scrubber pH
	- the complete incinerator and associated equipment are monitored at least daily for leaks, spills, and fugitive emissions including:
	  - pumps
	  - valves
	  - conveyors
	  - pipes
	  - emergency shutdown controls
	  - system alarms.

...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-146. Installations that have permitted status for hazardous waste incinerators must comply with certain regulations (40 CFR 264.340-351).	Determine if the installation incinerates hazardous waste. (1)(18) Examine a copy of the hazardous waste incinerator permit to determine if specific waste (Principal Organic Hazardous Constituents [POHC]) are specified. (18) Inspect each hazardous waste incinerator and interview operators. Determine that only the wastes listed in the permit are burned, and only under the operating conditions set forth in the permit. (18) Determine that sufficient waste analyses are conducted throughout normal operations to verify that waste feed is within the limits specified in the permit. (18) Verify that for each waste specified in the permit, the incinerator achieves a Destruction and Removal Efficiency (DRE) of 99.99%. (18) Verify that the DRE for all wastes incinerated is determined by the following equation: (18) (NOTE: DRE = (W [IN] - W [OUT])/w[IN] * 100% where: W[IN] = mass feed rate of one POHC in the waste stream feeding the incinerator and W [OUT] = mass emissions rate of the same POHC present in the exhaust emissions.) Confirm that installations that incinerate USEPA Hazardous Waste Numbers F020-F023, F026, or F027 achieve a DRE of 99.9999% for each waste specified in their permit, and that the Regional Administrator is notified of the intent to burn such wastes. (18)
...	...

4-147. Permitted status installations that incinerate hazardous wastes may burn only those wastes specified in the permit, except in approved trial burns (40 CFR 264.342-344).	Verify that for wastes not noted in the permit, a trial burn plan is prepared as set forth in 40 CFR 270.62(b) which includes: (18)
	
	- an analysis of each waste or mixture that contains the following information:
	  - heat value of the waste
	  - viscosity or description of physical form of waste
	  - identification of any hazardous constituent set forth in 40 CFR 261, App VIII
	  - detailed engineering description of the incinerator
	  - detailed description of sampling and monitoring procedures
	- detailed test schedule for each waste including:
	  - date
	  - duration
	  - quantity burned
	- detailed test protocol (range of temperatures, waste feed rate, etc.)
	- description of emission control equipment
	- procedures for shutdown in case of malfunction.

...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-148. Installations with permitted status that incinerate hazardous wastes must conform to certain emission standards (40 CFR 264.343(b)(c)).	Determine whether the incinerator produces stack emissions of hydrogen chloride (HCL). (18) Verify that if HCL emissions exceed 1.8 kg/hr, the emissions are controlled so that no greater than 1.8 kg/hr or 1% HCL in the stack gas prior to entering any pollution control equipment, whichever is larger, is emitted. (18) Verify that particulate matter no greater than 180 milligrams per dry standard cubic meter is emitted. (18)
...	...
4-149. Installations with permitted status must be operated in accordance with the operating standards specified in their permit (40 CFR 264.345).	Determine that for each waste feed, the permit specifies acceptable operating limits including the following conditions: (18) - carbon monoxide (CO) level in stack exhaust gas - waste feed rate - combustion temperature - appropriate indicator of combustion gas velocity - allowable variations in system design or operating procedure - other operating requirements necessary for meeting performance standards - until incinerator is within conditions of operations specified in the permit during startup and shutdown, waste is not fed into incinerator - fugitive emissions from the combustion zone are controlled by one of the methods specified in 40 CFR 264.345(d). Confirm that the incinerator has a functioning system that automatically cuts off the waste feed to the incinerator whenever the operating conditions deviate from those specified in the permit, and that the incinerator ceases operating whenever the limits specified in the permit for waste feed, incinerator design, or operating conditions are exceeded. (18)

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

MISCELLANEOUS UNTIS
 	
4-150. Installations with permitted status that treat, store, or dispose of hazardous wastes in miscellaneous units must comply with environmental performance standard requirements (40 CFR 264.601).
 	
...
	Determine whether the installation treats, stores, or disposes of any hazardous waste in miscellaneous units. (1)(18)
	
	Examine a copy of the installation permit for inclusion of terms and provisions for miscellaneous units, including the requirements of 40 CFR 264, Subparts I through O, 40 CFR 270, 40 CFR 146 if appropriate. (1)(18)
	
	Verify that the permit covers the following requirements and that the installation is in compliance with the permit: (1)(18)
	
	- prevention of any release due to migration in the ground water, surface water, wetlands, soil surface, or air, taking in to consideration:
	  - volume and physical and chemical characteristics of waste including its potential for emission and dispersal of gases, aerosols, and particulates
	  - potential for migration through soil, liners, or other containing structures
	  - the effectiveness of containing, confining, and collection systems and structures in preventing migration and/or reducing or preventing emissions into the air
	  - the hydrological, geological, atmospheric, meteorological, and topographic characteristics of the unit and surrounding area, including the topography if the land around the unit
	  - regional patterns of precipitation
	  - existing quality and quantity of ground water, surface water, and direction of flow, including other sources of contamination
	  - existing quality of surface soils
	  - existing quality of the air, including other sources of contamination and their cumulative effect on the air
	  - proximity to and withdrawal rates of current and potential ground water and surface water users
	  - regional pattern of land use
	  - potential for deposition or migration of waste into rootzone
	  - potential health risks caused by human exposure to the waste
	  - potential for damage from exposure to domestic animals, wildlife, crops, vegetation, and physical structures.
	
	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-151. Permitted facilities that treat, store, or dispose of hazardous wastes in miscellaneous units must comply with monitoring, analysis, inspection, responses, reporting, and corrective action regulations (40 CFR 264.602).	Determine whether the installation complies with the following regulations: (1)(18) - follow the general inspection requirements of 40 CFR 264.15 - test and maintain equipment in compliance with 40 CFR 264.33 - prepares a biennial report as specified in 40 CFR 264.75 - prepares unmanifested waste reports and additional reports, if applicable, as required in 40 CFR 264.76-77 - has a post closure plan as outlined in 40 CFR 264.118 - takes corrective action to prevent releases as defined in 40 CFR 264.101.

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
THERMAL TREATMENT	

4-152. Interim status installations with thermal treatment facilities must meet certain requirements (40 CFR 265.370-265.383).
 	
(NOTE: At closure, all hazardous wastes and residues must be removed from the thermal treatment facility.)
	Determine if the installation operates a thermal treatment facility (other than an incinerator). (1)
	
	Inspect each thermal treatment facility. Observe that the following requirements are met: (18)
	
	- the thermal treatment process is operating at steady state (normal) conditions, including temperature, before adding hazardous waste (unless the process is a noncontinuous [batch] process that requires a complete thermal cycle to treat the waste
	- waste analysis is performed on waste not previously treated at the facility that includes:
	  - establishing steady state (normal) operating condition
	  - type of pollutants which might be emitted
	  - heating value
	  - halogen and sulfur content
	  - concentrations of lead and mercury.
	
	Determine that if open burning or detonation of waste explosives is conducted, the following standards are met: (18)
	
	- pounds of waste explosives or propellants determines the minimum distance from open burning or detonation to property of others as shown below:
	
	  - 0-100: 204m (670 ft)
	  - 101-1,000: 380m (1250 ft)
	  - 1,001-10,000: 530m (1730 ft)
	  - 10,001-30,000: 690m (2260 ft).

...	...
4-153. Interim status thermal treatment facilities must be certified, if they treat certain wastes (40 CFR 265.383).	Determine whether or not the installation thermally treats USEPA waste numbers F020-F023, F026, or F027. (1) Verify that the installation has received certification from the Assistant Administrator for Solid Waste and Emergency Response to burn such wastes. (1)(18)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

4-154. Operators of interim status thermal treatment facilities must conduct monitoring and inspections while thermally treating hazardous waste (40 CFR 265.377).	Determine if the operator conducts at a minimum the following monitoring while thermally treating hazardous wastes: (18)
	- every 15 minutes, the following instrumentation for temperature and emission controls are monitored and appropriate corrections are made immediately
	  - waste feed rate
	  - auxiliary fuel rate
	  - treatment process temperature
	  - relevant process flow and level controls
	- every hour, stack emissions are visually checked for normal appearance (color and opacity)
	- every day, the complete thermal treatment process and associated equipment are checked including:
	  - pumps, valves, conveyors, pipes, etc. inspected for leaks, spills, and fugitive emissions
	  - emergency shutdown controls and systems alarms are checked for proper operation.

...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
CHEMICAL/ PHYSICAL/ BIOLOGICAL	
4-155. Installations with interim status chemical, physical, and biological treatment facilities must meet certain requirements (40 CFR 265.400- 406). (NOTE: Final standards governing fully permitted chemical, physical and biological treatment facilities have not been issued. The requirements in this protocol pertain to interim status facilities.)	Determine if the installation operates a chemical, physical, or biological treatment facility to treat hazardous wastes. (1) Inspect each chemical, physical, or biological treatment facility. Observe that the following criteria are met (40 CFR 265.402): (18) - wastes or treatment reagents are not placed in treatment process or equipment if they could cause ruptures, leaks, corrosion or other failures - in addition to the analyses required by 40 CFR 265.13, continuously fed systems are equipped with waste feed cutoff or bypass system - waste analyses and treatment tests (e.g., bench scale or pilot plant tests) are performed, or written, documented information is obtained whenever a substantially different waste is treated or a substantially different treatment process is used.
...	...
4-156. Installations with chemical, physical, and biological treatment facilities must conduct regular inspections (40 CFR 265.403).	Determine if the chemical, physical, and biological treatment facility is inspected in accordance with the following: (18) - at least daily, discharge control and safety equipment (e.g., waste feed cutoff system, bypass system, drainage systems, and pressure relief systems) to ensure good working order - at least daily, data from monitoring equipment is checked to ensure process is operated in accordance with its design - at least weekly, construction materials of the treatment process or equipment is inspected to detect corrosion, leaks, etc - at least weekly, construction materials of and the area surrounding dikes or other discharge confinement structures are inspected to detect erosion or signs of leakage (dead vegetation, wet spots, etc.).
...	...
4-157. Installations with interim status may not place ignitable, reactive, or incompatible waste in a treatment process or equipment unless certain requirements are met (40 CFR 265.405-406).	Determine whether the facility treats any of these wastes. (1)(18) Verify that any ignitable or reactive waste is treated or mixed in such a way before or immediately after placement in the treatment process so that the resultant material no longer meets the definition for ignitable or reactive wastes and is treated in such a way that it is not exposed to conditions that may cause it to react or ignite. (18) Confirm that incompatible wastes are not placed in the same treatment process, equipment, or in unwashed equipment that previously held an incompatible waste. (18)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
RESTRICTED WASTES	
4-158. Regulations for managing restricted wastes differ according to whether USEPA has set treatment standards for the wastes or not. Those restricted wastes without treatment standards are considered "soft hammer" wastes (40 CFR 264.13 and 40 CFR 265.13).	Establish whether the installation's restricted wastes have set treatment standards (see Table CCW or Table CCWE in the Appendix). (1)
...	...
4-159. Restricted wastes with set treatment standards and any mixture of such wastes, or any other product derived from treating, storing, or disposing of such wastes may be land disposed only if they meet or fall below the treatment standards set forth in Tables CCW or CCWE. The initial generator must test the waste according to whether the treatment standard is expressed as concentrations in the waste extract (CCWE) or if the treatment standards are expressed as concentrations in the waste (CCW) (40 CFR 268.41(a) and 40 CFR 268.43(a)).	Verify that the installation (if it is the initial generator) has determined if the waste(s) meets the appropriate treatment standards by: (1) - testing a representative sample of the waste if the treatment standard is listed in Table CCWE - testing the entire waste if the treatment standard is listed in Table CCW.
...	...
4-160. No generator, transporter, storer, or disposal facility shall use dilution in any manner on a restricted waste or a residual of that restricted waste as a method to achieve the set treatment standards for such waste (40 CFR 268.3).	Verify that the installation does not use dilution as a method of waste treatment. (1)(18)(19)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

4-161. Installations that generate restricted wastes with set treatment standards, and whose wastes also meet those standards, can land dispose or their wastes without further treatment, provided that certain recordkeeping requirements are met (40 CFR 268.7).	Check records to determine that the following was submitted to the facility receiving waste (either a treatment, storage, or land disposal facility) with each shipment: (1)(23)
	
	- a certification stating that the waste meets the applicable treatment standards and any appropriate prohibition levels set forth in 40 CFR 268.32
	- a written notice containing the following information:
	  - the appropriate treatment standard for the waste
	  - the hazardous waste number of the waste
	  - the manifest number associated with the shipment
	  - any available waste analysis data
	  - date the waste is subject to prohibition levels.
	
	(NOTE: installations that also operate an on-site land disposal facility must put the information contained in the notice, except the manifest number, into the operating record of the land disposal facility.)

...	...
4-162. Installations that generate restricted wastes with set treatment standards, and whose wastes do not meet the standards set forth in Tables CCW or CCWE or exceed the applicable prohibition level set forth in 40 CFR 268.32, must attempt to treat the wastes by the Best Practically Available Treatment (BPAT). This attempt must be verified in written form, called a demonstration (40 CFR 268.7).	Check records to verify that a written demonstration is on file for every restricted waste that did not meet the set treatment standards or exceeded the applicable prohibition levels. (1) Check a random sample of the written demonstrations to determine that they contain the following information: (1) - list of facilities contacted - list of facility officials contacted - addresses of facilities contacted - telephone numbers of facilities contacted - contact dates - explanation and documentation that either BPAT is not available or justification that treatment chosen is the BPAT. Check records to determine that a copy of the demonstration accompanied the first shipment of the waste. (1)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-163. Installations that generate restricted wastes with set treatment standards, and whose wastes do not meet the standards set forth in Tables CCW or CCWE or exceed the applicable prohibition level set forth in 40 CFR 268.32 must certify in writing that they have contracted to use the BPAT or that the BPAT is currently unavailable (40 CFR 268.8).	Check records for the following written certification: (1) - IF BPAT IS USED: "I certify under penalty of law that the requirements of 40 CFR 268.8(a)(1) have been met, and that I have contracted to treat my waste (or will otherwise provide the treatment) by the practically available treatment technology which yields the greatest environmental benefit, as indicated in my demonstration. I believe that the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment." - IF BPAT IS UNAVAILABLE: "I certify under penalty of law that the requirements of 40 CFR 268.8 (a)(1) have been met and that disposal in a landfill or surface impoundment is the only practical alternative to treatment currently available. I believe that the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment." Check a random sample of the shipping records to verify that a copy of the proper certification accompanied every shipment. (1)
...	...
4-164. The written certification and documentation must be submitted to the Regional Administrator by the generator prior to land disposal of the waste(s) for validation (copies for subsequent shipments need not be submitted unless conditions change) (40 CFR 268.8).	Check records to verify that the demonstration and certification were sent to the Regional Administrator prior to land disposal of the waste(s). (1) Determine from the records if installation's certification was validated by the Regional Administrator. (1) If the certification was invalidated by the Regional Administrator, determine if the following procedures were instituted: (1) - all facilities receiving the waste have been notified that the installation's certification is invalid - copies of this communication are kept on-site - further shipments of the waste(s) are stopped immediately.
...	...
4-165. Installations that generate restricted wastes with set treatment standards and whose wastes do not meet those standards, must also include a written notice with every shipment of the waste (40 CFR 268.7).	Check records to determine that a written notice was included with every shipment. (1)(23)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-166. Installations that generate restricted wastes are subject to a 5-year record retention period. (This time period is automatically extended if the installation is subject to any unresolved enforcement action requested by the Regional Administration or regarding a regulated activity.) (40 CFR 268.7).	Check records to determine that written copies of the following are kept on-site for 5 years from the date the waste was subject to such documentation: (1) - certification - notice - waste analysis data - demonstration (if applicable) - any information used to come to determination results.
...	...
4-167. Installations that generate any restricted wastes that do not have set treatment standards ("soft hammer wastes") may be conditionally disposed of in a landfill or surface impoundment until USEPA sets treatment standards or until May 8, 1990, whichever is sooner (40 CFR 268.7). (NOTE: other forms of land disposal are not similarly restricted and may continue to be used for disposal of untreated wastes until USEPA promulgates treatment standards or until May 8, 1990, whichever is sooner.)	Confirm from records that: (1) - installation is subject to a valid certification - the installation has notified the receiving facility that the waste is prohibited from disposal in a landfill or surface impoundment unit unless accompanied by a valid certification - the installation has notified the receiving facility that the waste is prohibited from disposal in a landfill or surface impoundment unit unless those units are in compliance with the minimum technological requirements (MTR) set forth in 40 CFR 268.5 (h)(2) - installation has sent a copy of a valid certification and notice to the treatment, storage, or disposal facility receiving the waste(s).
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
4-168. Installations that treat any restricted wastes, or any mixture, or any other product derived from the treatment, storage, or disposal of such wastes must certify that such wastes were treated according to the generators demonstration (40 CFR 268.8).	Check records to determine that the installation has copies of the following in its operating record: (2) - the generators demonstration (if applicable) - the generators certification - a copy of the treatment facility's certification which reads as follows: "I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operations of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with treatment as specified in the generator's demonstration. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."
...	...
4-169. If wastes or treatment residues from restricted wastes are to be further managed at another treatment, storage, or disposal facility, the installation sending the waste must comply with the notice and certification requirements for generators (40 CFR 268.8).	Verify that prior to disposal of any restricted wastes without set treatment standards ("soft hammer") in a landfill or surface impoundment, the installation has obtained a copy of a valid certification from the initial generator. (Other forms of land disposal are not similarly restricted and may continue to be used for the disposal of untreated wastes until USEPA sets treatment standards or until May 5, 1990, whichever is sooner). (2) Conduct a spot check of the units containing "First Third-soft hammer" wastes for the following MTR requirements: (1)(4) - double liners - leachate collection system - ground water monitoring system. Verify that before land disposal of any restricted wastes with set treatment standards, the installation has on site: (1) - a copy of certification (either from the generator or treatment facility) indicating that the wastes have been treated and meet the applicable treatment standard - a copy of the generator's certification, notice, and demonstration.
...	...
4-170. Installations are prohibited from storing any restricted wastes unless such wastes are subject to a valid certification (40 CFR 268.44(k)).	Check records to verify that a copy of a valid certification from the initial generator is on site. (2)
...	...

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Appendix 4-1

Potentially Incompatible Hazardous Wastes

Below are examples of potentially incompatible wastes, waste components, and materials, along with the harmful consequences that result from mixing materials in one group with materials in another group. The list is intended as a guide to indicate the need for special precautions when managing these potentially incompatible waste materials or components. This list is not intended to be exhaustive. Operators must, as the regulations require, adequately analyze their wastes so they can avoid creating uncontrolled substances or reactions of the type listed below, whether listed below or not.

In the lists below, the mixing of a *Group A* material with a *Group B* material may have the potential consequences as noted.

Group 1-A	Group 1-B
Acetylene sludge Alkaline caustic liquids Alkaline cleaner Alkaline corrosive liquids Alkaline corrosive battery acid Caustic wastewater Lime sludge and other corrosive alkalies Lime wastewater Lime and water Spent caustic	Acid sludge Acid and water Battery acid Chemical cleaners Electrolyte, acid Etching acid liquid or solvent Pickling liquor and other corrosive acids Spent acid Spent mixed acid Spent sulfuric acid

Potential Consequences: Heat generation, violent reaction.

Group 2-A	Group 2-B
Aluminum Beryllium Calcium Lithium Magnesium Potassium Sodium Zinc powder Other reactive metals and metal hydrides	Any waste in Group 1-A or 1-B

Potential Consequences: Fire or explosion; generation of flammable hydrogen gas.

Appendix 4-1 (continued)

Group 3-A	Group 3-B
Alcohols Water	Any concentrated waste in Groups 1-A or 1-B Calcium Lithium Metal hydrides Potassium SO_2Cl_2, $SOCl_2$, PCl_3, CH_3SiCl_3 Other water-reactive waste

Potential Consequences: Fire, explosion, or heat generation; generation of flammable or toxic gases.

Group 4-A	Group-4-b
Alcohols Aldehydes Halogenated hydrocarbons Nitrated hydrocarbons Unsaturated hydrocarbons Other reactive organic compounds and solvents	Concentrated Group 1-A or Group 1-B wastes Group 2-A wastes

Potential Consequences: Fire explosion, or violent reaction.

Group 5-A	Group 5-B
Spent cyanide and sulfide solutions	Group 1-B wastes

Potential Consequences: Generation of toxic hydrogen cyanide, or hydrogen sulfide gas.

Group 6-A	Group 6-B
Chlorates Chlorine Chlorites Chromic acid Hypochlorites Nitrates Nitric acid, fuming Perchlorates Permanganates Perioxides Other strong oxidizers	Acetic acid and other organic acids Concentrated mineral acids Group 2-A wastes Group 4-A wastes Other flammable and combustible wastes

Potential Consequences: Fire, explosion, or violent reaction.

Source: "Law, Regulations, and Guidelines for Handling of Hazardous Waste." California Department of Health, February 1975. (As referenced in 40 CFR, Part 264, Appendix V)

Appendix 4-2

40 CFR 261, *Identification and Listing of Hazardous Waste*

TABLE I

Hazardous Waste from Nonspecific Sources

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
Generic		
F001	the spent halogenated solvents used in degreasing. Trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and the chlorinated fluorocarbons; all spent solvent mixtures or blends used in degreasing containing before use, a total of 10 percent or more (by volume) of one or more of the above halogenated solvents or those listed in F002, F004, F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(t)
F002	the following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,1,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures or blends containing, before use, a total of 10 percent or more by volume, of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(t)

* HAZARD CODES (Column 3)

t = toxic waste
i = ignitable waste
r = reactive waste
h = acute hazardous waste

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
F003	the spent nonhalogenated solvents, xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures or blends containing, before use, only the above spent nonhalogenated solvents; and all spent solvent mixtures or blends containing, before use, one or more of the above nonhalogenated substances, and a total of 10 percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; the still bottoms from the recovery of these solvents and spent solvent mixtures.	(i)
F004	the spent nonhalogenated solvents, cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures or blends containing, before use, only the above spent nonhalogenated solvents; and all spent solvent mixtures or blends containing, before use, one of the above nonhalogenated substances, and, a total of 10 percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and the still bottoms from the recovery of these solvents.	(t)
F005	the following spent nonhalogenated solvents: toluene, methyl ethyl ketone, carbons disulfide, isobutanol, pyridine, benzene, 2-ethoxylethanol, and 2-nitropropane; all spent solvent mixtures or blends containing, before use, a total of 10 percent or more by volume of one or more of the above nonhalogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these solvents.	(i,t)
F006	wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zincalum-	

* HAZARD CODES (Column 3)
t = toxic waste
i = ignitable waste
r = reactive waste
h = acute hazardous waste

** (except wastewater and spent carbon from hydrogen chloride purification); the manufacturing or production use: as a reactant, chemical intermediate, or component in a formulating process. The listing for F020 and F023 does not include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
F006	inum plating on carbon steel; (5) cleaning stripping associated with tin, zinc, and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.	(t)
F007	spent cyanide plating bath solution from electroplating operations.	(r,t)
F008	plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.	(r,t)
F009	spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.	(r,t)
F010	quenching bath residues from oil baths from metal heat-treating operations where cyanides are used in the process.	(r,t)
F011	spent cyanide solutions from salt bath pot cleaning from metal heat-treating operations.	(r,t)
F012	quenching wastewater treatment sludges from metal heat-treating operations where cyanides are used in the process.	(t)
F019	wastewater treatment sludges from the chemical conversion coating of aluminum.	(t)
F020	wastes from use of tri- or intermediates used to produce its derivatives. **	(h)

* HAZARD CODES (Column 3)
t = toxic waste
i = ignitable waste
r = reactive waste
h = acute hazardous waste

** (except wastewater and spent carbon from hydrogen chloride purification); the manufacturing or production use: as a reactant, chemical intermediate, or component in a formulating process. The listing for F020 and F023 does not include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
F021	wastes of pentachlorophenol, or intermediates used to produce its derivatives. **	(h)
F022	wastes, of tetra-, penta-, or hexachlorobenzenes under alkaline conditions. **	(h)
F023	wastes, of tri- and tetrachlorophenols. **	(t)
F024	wastes, including but not limited to distillation residues, heavy ends, tars, and reactor cleanout wastes from the production of chlorinated aliphatic hydrocarbons, having carbon content from one to five, utilizing free radical catalyzed processes (omits light ends, spent filters and filter aids, spent dessicants, wastewater, wastewater treatment sludges, spent catalysts and wastes listed in 40 CFR 261.32).	(t)
F026	wastes of tetra-, penta-, or hexachlorobenzene under alkaline conditions.	(h)
F027	discharded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols (does not include hexachlorophene synthesized from prepurified 2,4,5-trichlorophenol as the sole component).	(h)
F028	residues from incineration or thermal treatment of soil contaminated with USEPA hazardous waste Nos. F020, F021, F022, F023, F026 and F027.	(t)

* HAZARD CODES (Column 3)

t = toxic waste
i = ignitable waste
r = reactive waste
h = acute hazardous waste

** (except wastewater and spent carbon from hydrogen chloride purification); the manufacturing or production use: as a reactant, chemical intermediate, or component in a formulating process. The listing for F020 and F023 does not include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
F032	wastewaters, process residuals, preservative drippage, and discarded spent formulations from wood preserving processes at facilities that currently use or have previously used chlorophenolic formulations (except wastes from process that have complied with the cleaning or replacement procedures set forth in 40 CFR 261.35 and do not resume or initiate use of chlorophenolic formulations). This listing does not include K001, bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/ or pentachlorophenol.	(t)
F033	wastewaters, process residuals, preservative drippage, and discarded spent formulations from wood preserving processes at facilities that currently use or have previously used chlorophenolic formulations (except wastes from process that have complied with the cleaning or replacement procedures set forth in 40 CFR 261.35 and do not resume or initiate use of chlorophenolic formulations). This listing does not include K001, bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/ or pentachlorophenol.	(t)
F034	wastewaters, process residuals, preservative drippage, and discarded spent formulations from wood preserving processes at facilities that currently use creosote formulations. This listing does not include K001, bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/ or pentachlorophenol.	(t)
F035	wastewaters, process residuals, preservative drippage, and discarded spent formulations from wood preserving processes at facilities that currently use inorganic preservatives containing arsenic or chromium. This listing does not include K001, bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/ or pentachlorophenol.	(t)

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t = toxic waste
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r = reactive waste
h = acute hazardous waste

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
K009	distillation bottoms from the production of acetaldehyde from ethylene.	(t)
K010	distillation side cuts from the production of acetaldehyde from ethylene.	(t)
K011	bottom stream from the wastewater stripper in the production of acrylonitrile.	(r,t)
K013	bottom stream from the acetonitrile column in the production of acrylonitrile.	(r,t)
K014	bottoms from the acetronitrile purification column in the production of acrylonitrile.	(t)
K015	still bottoms from the distillation of benzyl chloride.	(t)
K016	heavy ends or distillation residues from the production of carbon tetrachloride.	(t)
K017	heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.	(t)
K018	heavy ends from fractionation in ethyl chloride production.	(t)
K019	heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.	(t)

* HAZARD CODES (Column 3)

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i = ignitable waste
r = reactive waste
h = acute hazardous waste

** (except wastewater and spent carbon from hydrogen chloride purification); the manufacturing or production use: as a reactant, chemical intermediate, or component in a formulating process. The listing for F020 and F023 does not include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
K020	heavy ends from the distillation of vinyl chloride in vinyl chlride monomer production.	(t)
K021	aqueous spent antimony catalyst waste from fluoromethanes production.	(t)
K022	distillation bottom tars from the production of phenol/acetone from cumene.	(t)
K023	distillation light ends from the production of phthalic anhydride from naphthalene.	(t)
K024	distillation bottoms from the production of phthalic anhydride from naphthalene.	(t)
K025	distillation bottoms from the production of nitrobenzene by the nitration of benzene.	(t)
K026	stripping still tails from the production of methyl ethyl pyridines.	(t)
K027	centrifuge residue from toluene diisocyanate production.	(r,t)
K028	spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.	(t)
K029	waste from the product stream stripper in the production of 1,1,1-trichloroethane.	(t)
K030	column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene.	(t)

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** (except wastewater and spent carbon from hydrogen chloride purification); the manufacturing or production use: as a reactant, chemical intermediate, or component in a formulating process. The listing for F020 and F023 does not include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
K083	distillation bottoms from aniline production.	(t)
K085	distillation of fractionation column bottoms from the production of chlorobenzene.	(t)
K103	process residues from aniline extraction from the production of aniline.	(t)
K104	combined wastewater streams generated from nitrobenzene or aniline production.	(t)
K105	separated aqueous stream from the reactor product washing step in the production of chlorobenzenes.	(t)
K093	distillation light ends from the production of phthalic anydride from orthoxylene.	(t)
K094	distillation bottoms from the production of phthalic anhydride from orthozylene.	(t)
K095	distillation bottoms from the production of 1,1,1-trichloroethane.	(t)
K096	heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane.	(t)
K111	product washwaters from the production of dinitrotoluene via nitration of toluene.	(c,t)

* HAZARD CODES (Column 3)

t = toxic waste
i = ignitable waste
r = reactive waste
h = acute hazardous waste

** (except wastewater and spent carbon from hydrogen chloride purification); the manufacturing or production use: as a reactant, chemical intermediate, or component in a formulating process. The listing for F020 and F023 does not include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
K112	reaction byproduct water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene.	(t)
K113	condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	(t)
K114	vicinals from the purification of toluenediamine in the production of toluenediamine.	(t)
K115	heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	(t)
K116	organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediamine.	(t)
K117	wastewater from the reactor vent gas scrubber in the production of ethylene dibromide via bromination of ethene.	(t)
K118	spent adsorbent solids from purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.	(t)
K136	still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.	(t)

* HAZARD CODES (Column 3)

t = toxic waste
i = ignitable waste
r = reactive waste
h = acute hazardous waste

** (except wastewater and spent carbon from hydrogen chloride purification); the manufacturing or production use: as a reactant, chemical intermediate, or component in a formulating process. The listing for F020 and F023 does not include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
	INORGANIC CHEMICALS	
K071	brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used.	(t)
K073	chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production.	(t)
K106	wastewater treatment sludge from the mercury cell process in chlorine production.	(t)
	Hazardous Waste from Explosives Manufacturing	
K044	wastewater treatment sludge from the manufacturing and processing of explosives.	(r)
K045	spent carbon from the treatment of wastewater containing explosives.	(r)
K046	wastewater treatment sludges from the manufacturing, formulation, and loading of lead-based initiating compounds.	(t)
K047	pink/red water from TNT operations.	(r)

* HAZARD CODES (Column 3)

t = toxic waste
i = ignitable waste
r = reactive waste
h = acute hazardous waste

** (except wastewater and spent carbon from hydrogen chloride purification); the manufacturing or production use: as a reactant, chemical intermediate, or component in a formulating process. The listing for F020 and F023 does not include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.

Appendix 4-3

F-solvent Waste Constituents

CONSTITUENTS OF USEPA HAZARDOUS WASTES F001-F005	EXTRACT CONCENTRATIONS[a] (in miligrams per liter)	
SPENT SOLVENT WASTE	WASTEWATER[b]	OTHER[c]
Acetone	0.05	0.59
n-Butyl alcohol	5.00	5.00
Carbon disulfide	1.05	4.81
Carbon tetrachloride	0.05	0.96
Chlorobenzene	0.15	0.05
Cresols (cresylic acid)	2.82	0.75
Cyclohexanone	0.125	0.75
1,2-Dichlorobenzene	0.65	0.125
Ettsyl acetate	0.05	0.75
Ethylbenzene	0.05	0.053
Ethyl ether	0.05	0.75
Isobutanol	5.00	5.00
Methanol	0.25	0.75
Methylene chloride	0.20	0.96
Methyl ethyl ketone	0.05	0.75
Methyl isobutyl ketone	0.05	0.33
Nitrobenzene	0.66	0.125
Pyridine	1.12	0.33
Tetrachloroethylene	0.079	0.05
Toluene	1.12	0.33
1,1,1-Trichloroethane	1.05	0.41
1,1,2 Trichloro-1,2,2-trifluoroethane	1.05	0.96
Trichloroethylene	0.062	0.091
Trichlorofluoromethane	0.05	0.96
Xylene	0.05	0.15

[a] An extract of the waste is obtained by employing the Toxicity Characteristic Leaching Procedure (TCLP). The TCLP is an analytical method used to determine whether the concentrations of hazardous constituents in the waste extract or an extract of the treatment residual meet the treatment standards.

[b] For determining the applicable treatment standard, F-solvent wastewaters are defined as solvent-water mixtures containing less than or equal to 1 percent total organic carbon (TOC).

[c] Wastewaters that contain more than 1 percent TOC solvent-containing solids, solvent-containing sludges, and solvent-contaminated soils.

Appendix 4-4

California List Rule

On 8 July 1987, the USEPA promulgated the second phase of the Land Disposal Restrictions (LDR) program which restricts the land disposal of the California List wastes. The California List consists of liquid hazardous wastes containing certain metals, free cyanides, polycholoronated biphenyls (PCBs), corrosives with a pH less than or equal to 2.0, and liquid and nonliquid hazardous wastes containing halogenated organic compounds (HOCs) as described below:

A. Liquid hazardous wastes, including free liquids associated with any solid or sludge, containing free cyanides at concentrations greater than or equal to 1000 mg/l.

B. Liquid hazardous wastes, including free liquids associated with any solid or sludge, containing any of the following metals (or elements) or compounds of these metals (or elements) at concentrations greater than or equal to those specified below:

Arsenic (as As)	500 mg/l
Cadmium (as Cd)	100 mg/l
Chromium (as Cr VI)	500 mg/l
Lead (as Pb)	500 mg/l
Mercury (as Hg)	20 mg/l
Nickel (as Ni)	134 mg/l
Selenium (as Se)	100 mg/l
Thallium (as Tl)	130 mg/l

C. Liquid hazardous wastes having a pH less than or equal to 2.0.

D. Liquid hazardous wastes containing PCBs at concentrations greater than or equal to 50 ppm.

E. Hazardous wastes containing HOCs in total concentrations greater than or equal to 1,000 mg/l.

Although these liquid wastes can be treated using solidification techniques such that they no longer meet the statutory definitions of California List wastes, it is not USEPA's intent that simple absorption be used instead of permanent treatment. Where physical or chemical changes do not occur, or where hazardous constituents are not otherwise immobilized, "solidification" techniques may be possibly considered "dilution as a substitute for adequate treatment," a prohibited activity in the LDR program.

The rule requires that the Paint Filter Liquids Test be used to determine whether a waste is considered a liquid or nonliquid. This procedure is method 9095 in USEPA Publication No. SW-846, *Test Methods for Evaluating Solid Waste.*

Collectively, these hazardous wastes are referred to as the California List because the State of California developed regulations to restrict the land disposal of hazardous wastes containing these constituents. Congress adopted these prohibitions in the 1984 Amendments to RCRA.

Cyanides and Metals. Liquid hazardous wastes containing cyanide and metals exceeding the levels listed above may not be land-disposed as of 8 July 1987. Any applicable treatment method, except dilution, may be used to treat these wastes to achieve the levels noted above, prior to land disposal.

Halogenated Organic Compounds Under the July 1987 California list rule, the HOCs subject to the LDR are in Appendix III of Part 268. The final rule specifies that hazardous wastes containing HOCs in total concentrations greater than or equal to 1000 mg/l (or 1000 mg/kg), must be incinerated or burned in boilers or industrial furnaces in accordance with existing RCRA regulations. If, however, the HOC waste is also subject to the F-solvent restrictions, the more stringent treatment standard applies.

Corrosives. On 8 July 1987, liquid wastes having a pH of 2.0 or less were prohibited from land disposal. Any applicable, legitimate treatment method may be used to achieve a pH greater than 2.0 prior to land disposal.

Polychlorinated Biphenyls. As of 8 July 1987, liquid hazardous wastes containing PCBs in concentrations exceeding 50 ppm must be incinerated or burned in high efficiency boilers in accordance with the technical standards of 40 CFR 761.70. Additionally, restricted wastes with PCBs may only be stored for up to 1 year.

EFFECTIVE DATES FOR CALIFORNIA WASTES

WASTES	DATE
Liquid hazardous wastes containing >= 1,000 mg free cyanides	07/08/87
Liquid hazardous wastes having a pH <= 2.0	07/08/87
Liquid hazardous wastes containing >= 5.0 ppm PCBs	07/08/87
Liquid hazardous wastes, primarily water, containing >= 1,000 mg HOCs, <= 10,000 mg/l HOCs	07/08/87
Liquid hazardous wastes >= 1,000 mg/l HOCs	11/08/88 a
Nonliquid (non-RCRA/CERCLA) hazardous wastes	
Nonliquid (non-RCRA/CERCLA) hazardous wastes >= 1,000 mg/kg HOCs	11/08/88 a
California waste contaminated soil and debris resulting from RCRA/CERCLA corrective/remedial actions	11/08/90 b

a Between July 8, 1987 - November 8, 1988, if disposed in landfill or surface impoundment, the unit must meet minimum technology requirements. [268.5 (h) (2)]

b Between November 8, 1988 - November 8, 1990, if disposed in landfill or surface impoundment, the unit must meet minimum technology requirements. [268.5 (h) (2)]

Appendix 4-5

Dioxin Treatment Standards

F020-F023 and F026-F028 DIOXIN-CONTAINING WASTES	EXTRACT[a] CONCENTRATION
HxCDD - All Hexachlorodibenzo-p-dioxin	<1 ppb
HxCDF - All Hexachlorodibenzofurans	<1 ppb
PeCDD - All Pentachlorodibenzo-p-dioxins	<1 ppb
PeCDF - All Pentachlorodibenzofurans	<1 ppb
TCDD - All Tetrachlorodibenzo-p-dioxins	<1 ppb
TCDF - All Tetrachlorodibenzofurans	<1 ppb
2,4,5-Trichlorophenol	<0.05 ppm
2,4,6-Trichlorophenol	<0.10 ppm
2,3,4,6-Tetrachlorophenol	<0.10 ppm
Pentachlorophenol	<0.01 ppm

EFFECTIVE DATES FOR SOLVENT-DIOXIDE RULE

WASTES	EFFECTIVE DATE
F001-F005 Solvent Wastes	
F001 - F005	8 Nov 86
F001 - F005 from small quantity generators (100-1000 kg per month)	8 Nov 88
F001 - F005 generated via RCRA or CERCLA corrective or remedial action	8 Nov 88
< 1% total F001 - F005 soil and debris resulting from RCRA or CERCLA corrective or remedial action.	8 Nov 90[b]
Dioxin-Containing Wastes	
Dioxin wastes F020 - F023, F026 - F028	8 Nov 88
F020 - F023, F026 - F028 soil debris resulting from RCRA or CERCLA Corrective or remedial action	8 Nov 90[b]

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[a] As with the solvent wastes, the TCLP method is used to derive a waste extract that is analyzed to determine if treatment standards have been met.

[b] Between November 8, 1988 - November 8, 1990, if disposed in landfill or surface impoundment, the unit must meet the minimum technology requirements.

Appendix 4-6

Restricted Wastes

Wastes To Be Evaluated by August 8, 1988

Wastes Identified in 261.31

F006	F007	F008	F009	F009

Wastes Identified in 261.32

K001	K004	K008	K011	K013
K014	K015	K016	K017	K018
K019	K020	K021	K022	K024
K030	K031	K035	K036	K037
K044	K045	K046	K047	K048
K049	K050	K051	K052	K060
K061	K062	K069	K071	K073
K083	K084	K085	K086	K099
K101	K103	K104	K106	

Wastes Identified in 261.33 (e)

P001*	P004	P005	P010	P011
P012	P015	P016	P018	P020
P030	P036	P037	P039	P041
P048	P050	P058	P059	P063
P068	P069	P070	P071	P081
P082	P084	P087	P089	P092
P094	P097	P102	P105	P108
P110	P115	P120	P122**	P123

* when present at concentrations greater than 0.3%.
** when present at concentrations greater than 10%.

Wastes Identified in 261.33 (f)

U007	U009	U010	U012	U016
U018	U019	U022	U029	U031
U036	U037	U041	U043	U044
U046	U050	U051	U053	U061
U063	U064	U066	U067	U074
U077	U078	U086	U089	U103
U105	U108	U115	U122	U124
U129	U130	U133	U134	U137
U152	U154	U155	U157	U158
U171	U177	U180	U185	U188
U192	U200	U209	U210	U211
U219	U220	U221	U223	U226
U227	U228	U237	U248	U249

Wastes To Be Evaluated by 8 June 1989

Wastes Identified in 261.31

F010	F011	F012	F024	K009
K010	K019	K025	K027	K028
K029	K038	K039	K040	K041
K042	K043	K095	K096	K097
K098	K105			

Wastes Identified in 261.33 (e)

P003	P003	P007	P008	P014
P026	P027	P029	P040	P043
P044	P049	P054	P057	P060
P062	P066	P067	P072	P074
P085	P098	P104	P106	P107
P111	P112	P113	P114	

Wastes Identified in 261.33 (f)

U002	U003	U005	U008	U011
U014	U015	U020	U021	U023
U025	U026	U028	U032	U035
U047	U049	U057	U058	U059
U060	U062	U070	U073	U080
U083	U092	U093	U094	U095
U097	U098	U099	U101	U106
U109	U110	U111	U114	U116
U119	U127	U128	U131	U135
U138	U140	U142	U143	U144
U146	U147	U149	U150	U161
U162	U163	U164	U165	U168
U169	U170	U172	U173	U174
U176	U178	U179	U189	U193
U196	U203	U205	U206	U208
U213	U214	U215	U216	U217
U218	U235	U239	U244	

Wastes To Be Evaluated by 8 May 1990

Wastes Identified in 261.32

K002	K003	K005	K006	K007
K023	K026	K032	K033	K034
K093	K094	K100		

Wastes Identified in 216.33 (e)

P006	P009	P013	P017	P021
P022	P023	P024	P028	P031
P033	P034	P038	P042	P045
P046	P047	P051	P056	P064
P065	P073	P075	P076	P077
P078	P088	P093	P095	P096
P099	P101	P103	P109	P116
P118	P119	P121		

Wastes Identified in 261.33 (f)

U001	U004	U006	U017	U024
U027	U030	U033	U034	U038
U039	U042	U045	U048	U052
U055	U056	U068	U069	U071
U072	U075	U076	U079	U081
U082	U084	U085	U087	U088
U090	U091	U096	U102	U112
U113	U117	U118	U120	U121
U123	U125	U126	U132	U136
U139	U141	U145	U148	U152
U153	U156	U160	U166	U167
U181	U182	U183	U184	U186
U187	U190	U191	U194	U197
U201	U202	U204	U207	U222
U225	U234	U236	U240	U243
U246	U247			

Wastes To Be Evaluated by 2 November 1990

Wastes Identified in 261.32

K107	K108	K109	K110

Appendix 4-7

Maximum Concentration of Constituents for Groundwater Protection

(Table 1 from 40 CFR 264.94)

Constituent	Maximum Concentration (in mg
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium	0.05
Lead	0.05
Mercury	0.002
Selenium	0.01
Silver	0.05
Endrin	0.0002
Lindane	0.004
Methoxychlor	0.01
2,4,5-TP	0.01

INSTALLATION:	COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE C USA ECAS	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (4) Safety and Health Officer (5) Fire Department (6) Director of Logistics (DOL) (18) TSDF Operators (DEH,DOL,DRMO) (19) Shop Activity Supervisor (23) Defense and Reutilization Marketing Office (DRMO)

Section 5

RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE D (RCRA-D)

SECTION 5

RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE D (RCRA-D)

A. Applicability of this Protocol

This protocol addresses the collection, storage, and disposal of solid waste on Army installations.

Solid waste is considered to be nonhazardous trash, rubbish, garbage, bulky wastes, liquids, or sludges generated by any Army installation operations and activities. It also includes any medical/pathological wastes generated by the installation hospital. The handling and disposal of asbestos waste materials are addressed in Section 13, *Asbestos Abatement*.

Recycling and resource recovery activities are also included in this protocol, since this form of solid waste management is required by DoD and U.S. Army directives.

Solid waste management is regulated on the Federal level, but the primary focus is state and local regulatory authorities.

Consequently, many of the evaluation inspection items on the worksheets are presented in a generic manner to address those requirements typically found in state solid waste regulations. A previsit analysis of specific state solid waste regulations is required to conduct a thorough review of this area.

B. Federal Legislation

- Subtitle D of the Resource Conservation and Recovery Act (RCRA) has established Federal standards for the management of nonhazardous solid wastes. The primary goals of the Subtitle are to encourage:

  (1) environmentally sound solid waste management practices,
  (2) recycling of waste materials, and
  (3) resource conservation.

- Subtitle D of RCRA establishes the framework for Federal, state, and local government cooperation in controlling the management of nonhazardous solid waste. The Federal role in this arrangement is to establish the overall regulatory direction, to provide minimum standards for protecting human health and the environment, and to provide technical assistance to states for planning and developing environmentally sound waste management practices. The actual

planning and direct implementation of solid waste programs under Subtitle D, however, remain state and local functions.

- The Solid Waste Disposal Act of 1965, as amended by RCRA, requires that Federal facilities comply with all Federal, state, interstate, and local requirements concerning the disposal and management of solid wastes. These requirements include permitting, licensing, and reporting. 40 Code of Federal Regulation (CFR) 240, *Guidelines For the Thermal Processing of Solid Waste*, regulates incinerators processing a minimum of 50 tons/day. 40 CFR 241, *Introduction of Solid Waste*, covers the land disposal of solid wastes. 40 CFR 243, *Guidelines For the Storage and Collection of Residential, Commercial, and Institutional Solid Waste*, addresses the requirements for the storage and collection of solid waste materials. 40 CFR 244, *Solid Waste Management Guidelines for Beverage Containers*, develops minimum requirements for the management of beverage containers. 40 CFR 245, *Promulgation Resource Recovery Facilities Guidelines*, establishes requirements for resource recovery of residential, commercial, or institutional solid waste. 40 CFR 246, *Source Separations for Materials Recovery Guidelines*, deals with source separation for material recovery.

- The 1984 Hazardous and Solid Waste Amendments to RCRA are the most recent addition to the bank of Federal laws regulating the disposal of solid wastes. These Amendments added a number of previously unlisted materials to the growing list of waste defined as hazardous. Some of these included chlorinated dioxins and dibenzofurans, solvents, refining wastes, chlorinated aromatics, lithium batteries, paint production wastes, and a large number of similar compounds and waste materials.

C. State / Local Requirements

The transport and disposal of solid waste is heavily regulated at the state or local level of government. Most states and municipalities have developed their own code of regulations governing the permitting, licensing, and operations of landfills, incinerators, and source separation/recycling programs. Many of these state and local requirements are more stringent than Federal rules, and the evaluator should carefully review state and local rules and regulations before conducting an environmental review of the Army installations.

D. DoD Regulations

- DoD Directive 4100.15, *Commercial and Industrial Activities*, sets the overall policy that military installations shall not compete with a locally available com-

mercial recycling industry which offers a total solid waste resource recovery system and that regional resource recovery programs shall be used whenever practical.

- DoD Directive 4165.60, *Solid Waste Collection, Disposal, Material Recovery, and Recycling*, provides guidance and direction to all DoD facilities relative to solid waste collection, disposal, material recovery, and recycling in agreement with the Solid Waste Disposal Act.

E. U.S. Army Regulations

- Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*, Chapter 6, *Solid Waste and Hazardous Waste Management Program*, defines Army policy and procedures for managing solid waste, including resource recovery, recycling, waste reduction, and training programs. It mandates compliance with local, state, and Federal solid waste requirements, assures waste management practices that protect the environment and public health, reduce the need for corrective action, minimize the volume of generated waste, and design and procure material so the end item can be economically restored, reconstituted, or converted to other uses.

- Army Regulation (AR) 420-47, *Solid and Hazardous Waste Management*, remains in force with the exception of chapters 5 and 6, appendices a, b, and c, and the glossary, which have been superseded by AR 200-1. The remaining chapters cover responsibilities regarding solid and hazardous waste, collection and storage of both solid and hazardous waste, thermal processing and land disposal of solid (nonhazardous) waste, and monitoring records.

- Army Regulation (AR) 40-5, *Preventive Medicine*, establishes practical measures for the preservation and promotion of health and the prevention of disease and injury.

The Department of the Army (DA) objective is to manage Army solid waste to ensure compliance with appropriate Federal, state, and DA regulations in a manner that permits maximum opportunity for resource recovery without jeopardizing natural resources or health and the environment.

F. Key Compliance Requirements

- Permits and Licenses for On-Site Landfills - Army installations must obtain applicable state or local permits and licenses for the site location and operation of on-site landfills. The Solid Waste Disposal Act of 1965 is the governing Federal legislation.

- Hazardous Waste - Substances regulated as hazardous by Federal, state, or local regulations may not be disposed of as solid waste. RCRA, the Hazardous and Solid Waste Amendments of 1984, and specific state and local regulations will apply.

- Waste Source Separation and Recycling - Army installations are required to comply with Federal, state, and local regulations and requirements governing the separation of wastes into residual value and the recycling of those materials.

- Use of Properly Permitted Off-Site Landfills - Army installations have the responsibility for the proper disposal of solid waste generated by Army operations. This responsibility includes assurance that off-site landfills that receive Army solid wastes are licensed and are operated in compliance with the conditions of those permits.

- Garbage On or In Vessels and Aircraft Arriving From Outside the United States - Army installations located in the United States and territories and possessions are required to comply with certain United States Department of Agriculture (USDA) inspection and disposal requirements if they receive garbage from vessels and aircraft arriving from outside the United States. These regulations are designed to prevent the spread of plant pests and animal diseases.

G. Responsibility for Compliance

- The Directorate of Engineering and Housing (DEH) is responsible for site location, licensing, construction, and operation of on-site landfills, and for the storage and transportation of solid wastes to either on-site or off-site disposal activities operated by the installation. (Note: Contracted services are not under Facilities Engineering.)

H. Key Compliance Definitions

These definitions were obtained from Federal, DoD, and U.S. Army regulations cited previously in this protocol.

- *Good Management Practice (GMP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *Leachate* - water that percolates through a landfill and which contains soluble contaminants, some of which may be hazardous or toxic. Leachate is often characterized by a strong odor and is often a highly concentrated organic waste containing dissolved metals and salts.

- *Recyclable Materials* - materials that normally have been or would be discarded, and that may be reused after undergoing some type of physical or chemical processing. Recyclable materials do not include precious metals and similar materials that may be used again for their original purposes without any special processing.

- *Resource Recovery* - the process of obtaining materials or energy from solid waste. The most common type of resource recovery facility is an incinerator which coproduces electricity for sale to a commercial utility and steam for use as a heating source or industrial energy source.

- *Solid Waste* - garbage, demolition waste, refuse, sludge, and other solid, liquid, semisolid or contained gaseous material that is discarded, has served its intended purpose, or is a mining or manufacturing by-product. For the purposes of this protocol, the definition includes all waste materials that are not defined by regulation to be either hazardous or toxic, and that are normally disposed of by landfilling, incineration, or are recycled or recovered. Demolition wastes are not included in the Federal definition of a solid waste.

- *Source Separation* - the separation of materials with marketable residue value at their point of generation by the generator.

- *Visible Emissions* - any emissions that are visually detectable without the aid of instruments and that contain particulate asbestos material.

RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE D

GUIDANCE FOR WORKSHEET USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
All Installations	5-1 through 5-5	(1)(2)
Recycling	5-4 and 5-5	(1)(2)(9)
Waste Disposal: On-site Landfills	5-6	(1)(2)(9)
Solid Waste Receptacles	5-7 through 5-9	(1)(2)(20)(21)
Waste Disposal: Off-site Landfills	5-10 through 5-11	(1)(2)(9)(20)
Installations That Use Thermal Processing	5-12	(1)(9)
Ash Residue/Sludge Disposal	5-13	(1)(9)
Refuse From Outside the United States	5-14	(1)(2)(9)
Medical/Pathological Wastes	5-15 and 5-16	(1)(3)

(a)CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
(2) Environmental Coordinator (EC)
(3) Preventive Medicine Officer
(9) Chief of Operations and Maintenance (O&M)
(20) Director of Contracting (DOC)
(21) Public Affairs Office (PAO)

RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE D

Records to Review:

- Record of current nonhazardous solid waste management practices
- Documentation of locations (map) and descriptions of all nonhazardous waste treatment, storage, and disposal facilities (TSDFs)
- Records of operational history of all active and inactive TSDFs
- State and Federal inspection reports
- Environmental monitoring procedures or plans and analytical results
- Records of resource recovery practices, including the sale of materials for the purpose of recycling
- Solid waste removal contracts and inspection records
- Regional solid waste management plan
- Unique state and local rules for handling solid waste
- Installation solid waste management plans, Standing Operating Procedures (SOPs)
- Any regulatory agreement, waivers, exemptions, inspection reports, complaince orders, and notices relating to solid waste program
- Groundwater monitoring well data

Physical Features to Inspect:

- Resource recovery facilities
- Incineration and land disposal facilities (active and inactive)
- Areas where nonhazardous waste is disposed
- Construction debris areas
- Waste receptacles
- Solid waste vehicle storage and washing areas
- Groundwater monitoring wells
- Methane gas vents at landfills

People to Interview:

- Directorate of Engineering and Housing (DEH)
- Environmental Coordinator (EC)
- Preventive Medicine Officer
- Chief of Operations and Maintenance (O&M)
- Director of Contracting (DOC)
- Public Affairs Office (PAO)

COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE D USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
5-1. Determine actions or changes since previous review on solid waste management.	Check copy of previous review report and determine whether noncompliance issues were resolved. (1)(2)
...	...
5-2. The installation should maintain a current file of applicable Federal, DoD, U.S. Army, and state regulations.	Determine if copies of the following regulations are current and available at the installation: (1) - 7 CFR 330, *Animal and Plant Health Inspection Service.* - 40 CFR 240-241, 243-246, *Solid Waste Processing, Collection, and Storage.* - 40 CFR 260, *Hazardous Waste Management Systems.* - DoD Directive 4100.15, *Commercial and Industrial Activities.* - DoD Directive 4165.60, *Solid Waste Collection, Disposal, Material Recovery, and Recycling.* - AR 200-1, *Environmental Protection and Enhancement.* - AR 420-47, *Solid and Hazardous Waste Management.* - AR 40-5, *Preventive Medicine.* - state and local regulations. (NOTE: A consolidated listing of approved test methods should also be maintained at the installation.) *(Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,* EPA Publication SW-846, Document #PB87-120-291.)
...	...
5-3. Installations are required to abide by state and local regulations (AR 200-1; Chapt. 1; Section III; para 1-39(a)(3)).	Verify that the installation is abiding by state and local requirements. (1) Verify that the installation is operating according to permits issued by the state or local agencies. (1)(2) NOTE: Issues which are typically regulated by state and local agencies include: (1)(2) - license or permit requirements for existing on-site landfills - requirements for filing a closure plan for on-site landfill specifying monitoring and inspection procedures - design and operations specifications for solid waste receptacles - disposal of solid waste off-site only at a licensed or permitted facility - design and policy procedures of thermal processing of solid waste - analysis for hazardous properties of ash residues and sludge from air pollution control devices at coal-fired installation heating plant operations before sale or disposal - handling and disposal of medical, pathological, and infectious wastes. - recycling requirements. - used tires.

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (9) Chief of Operations and Maintenance (O&M) (20) Director of Contracting (DOC) (21) Public Affairs Office (PAO)

COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE D USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
RECYCLING	
5-4. Army installations should participate in any state or local recycling programs and to reduce the volume of solid waste materials at the source whenever practical (DoD 4165.60, and AR 200-1).	Determine if a solid waste reduction/resource recovery program exists. (1)(9) Verify that recycling program is in compliance with applicable state or local requirements. (1)(2) Confirm that reusable or marketable materials are collected at regular intervals. (2)
...	...
5-5. Proceeds from sales of materials recovered from trash, refuse, and other products are to be detailed in an annual report entitled, *Proceeds from the Sale of Recyclable Materials* (AR 200-1, Chap. 6).	Check that annual report is submitted verifying compliance with recycling requirements. (1)(2)(9)

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE D USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
LANDFILLS	
5-6. Landfills must be operated according to regulatory requirements. As a good management practice, on-site landfills should be inspected quarterly to verify permit conditions are being met (AR 420-47).	Verify that records and interviews to establish landfills have been inspected quarterly. (1)(2)(9) Check that any noted variances from permit conditions have been corrected. (1)(2) Verify that on-site landfills comply with permit conditions and regulatory requirements are being met currently. (1)(2)
...	...
SOLID WASTE STORAGE AND COLLECTION	
5-7. Army installations are required to follow requirements for solid waste storage, collection, and cleaning of equipment (AR 200-1, Chap. 6).	Check that all refuse/garbage is stored in closed containers or covered conditions. (1)(2)(20) Verify that containers are properly cleaned. (1)(2)(9) Confirm frequency of collection and system for handling complaints. (1)(2)(20) Verify that DEH keeps records of actions taken to correct or repair any part of the distribution system (AR 420-46). (1)(9)
...	...
5-8. As a good management practice, installation industrial shop waste receptacles should be inspected quarterly to verify that hazardous wastes are not being deposited (GMP).	Verify records and interviews to confirm that receptacles were inspected. (1) Check that corrective actions were taken where indicated. (1)(2) Inspect a sample of solid waste receptacles at shops for presence of hazardous waste. (1)(2)
...	...
5-9. Installation personnel should be periodically informed about materials that are prohibited from disposal in solid waste receptacles (GMP).	Verify that program exists at the installation to keep personnel informed about proper waste disposal practices. (1)(21)

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE D USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
OFF-SITE DISPOSAL	
5-10. Solid waste that is disposed off-site must be disposed of only at licensed or permitted facilities (DoD Directive 4165.60; AR 40-5-para 11.5, AR 200-1 Chap. 6).	Verify that records and interviews confirm that off-site landfill(s) receiving installation wastes are licensed or permitted. (1)(2)(20) Verify that there is a system for recording complaints or citations, and corrective measures are taken. (1)(2)(20)
...	...
5-11. Solid wastes should be disposed of at regional facilities wherever practical (DoD Directive 4165.60).	Verify that proper efforts have been made to use regional waste disposal facilities. (1)(3)(9)
...	...
THERMAL PROCESSING	
5-12. Thermal processing of solid wastes at an installation is subject to design and policy procedures (40 CFR 240).	Verify that program documentation, limited access, and operation hours conform to permit or other regulatory requirements, and Standing Operating Procedures (SOP). (1)(9) Confirm that thermal processing system meets design and operational requirements. (1)(9)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE D USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ASH RESIDUE/SLUDGE	
5-13. Ash residues and sludge from air pollution control devices at coal-fired installation heating plant operations should be analyzed for hazardous properties before sale or disposal (40 CFR 260, GMP).	Check if installation generates ash residues or sludges. (1)(2)(9) Verify that if handled as a solid waste, testing requirements for hazardous properties is required. (1)(9) Confirm that special handling or testing procedures have been conducted. (1)(9)
...	...
DISPOSAL OF REFUSE FROM OUTSIDE THE UNITED STATES	
5-14. Garbage from outside the United States which is on or unloaded from vessels or aircraft arriving in the United States and certain territories and possessions is subject to certain inspection and disposal requirements to prevent dissemination of pests and diseases (7 CFR 330. 400).	Verify garbage on or unloaded from vessels or aircraft arriving in the places listed below complies with certain inspection and disposal requirements: (1)(9) - the United States from any place outside of the United States - the continental United States from Hawaii or any territory or possession - any territory or possession from any other territory or possession or Hawaii - Hawaii from any territory or possession. Inspect arriving vessels and aircraft and observe that: (1)(9) - garbage is contained in tight leakproof covered receptacles inside guard rails on vessels - garbage is removed in tight, leakproof covered containers under direction of USDA inspector to an approved facility for incineration, sterilization, or grinding into an approved sewage system, or - garbage is removed for other handling and under supervision approved by the USDA. Verify that installation has received approval from Administrator, Animal and Plant Health Inspection Service, USDA for use of sewage system for disposal. (1)(2)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE D USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
MEDICAL/ PATHOLOGICAL WASTES	
5-15. Both medical/pathological waste (see Appendix 5-1), and classified material incinerators should be secured to prevent unauthorized use (GMP).	Verify that incinerators are enclosed and have locks on doors and control cabinets. (1)(3)
...	...
5-16. Ash from medical waste incinerators should be tested to determine whether or not it is required to be disposed of as other than solid waste (GMP>	Verify that ash is tested for heavy metals and is disposed of according to test results.

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (9) Chief of Operations and Maintenance (O&M) (20) Director of Contracting (DOC) (21) Public Affairs Office (PAO)

Appendix 5-1

Regulated Medical Waste

Waste Class	Description
Cultures and Stocks	Cultures and stocks of infectious agents and associated biologicals, including: cultures and stocks of infectious agents from research and industrial laboratories wastes from the production of biologicals; discarded live and attenuated vaccines; and culture dishes and devices used to transfer, inoculate, and mix cultures.
Pathological Wastes	Human pathological wastes, including tissues organs, body parts, and body fluids that are removed during surgery or autopsy or other medical procedures, and specimens of body fluids and their containers.
Human Blood and Blood Products	Liquid waste human blood, products of blood, items saturated and/or dripping with human blood; or items that were saturated and/or dripping with human blood that are not caked with dried human blood; including serum, plasma, and other blood components, and their containers, which were used or intended for use in either patient care, testing, and laboratory analysis, or the development of pharmaceuticals; intravenous bags are also included in the category.
Sharps	Sharps that have been in animal or human patient care or treatment or in medical, research, or industrial laboratories, syringes (with or without the attached needs), pasteur pipettes, scalpel blades, blood vials, needles with attached tubing, and culture dishes (regardless of presence of infectious agents). Also included are other types of broken or unbroken glassware that were in contact with infectious agents, such as used slides and cover slips.
Animal Waste	Contaminated animal carcasses, body parts, and bedding of animals that were known to have been exposed to infectious agents during research (including research in veterinary hospitals), production of biologicals or testing of pharmaceuticals.
Isolation Wastes	Biological waste and discarded materials contaminated with blood, excretion, exudates, secretions from humans who are isolated to protect others from certain highly communicable diseases, or isolated animals known to be infected with highly communicable diseases.
Unused Sharps	The following unused, discarded sharps: hypodermic needles, suture needles, syringes, and scalpel blades.

INSTALLATION:	COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE D USA ECAS	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (9) Chief of Operations and Maintenance (O&M) (20) Director of Contracting (DOC) (21) Public Affairs Office (PAO)

Section 6

RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I (RCRA-I)

SECTION 6

RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I (RCRA-I) AND POL MANAGEMENT

A. Applicability of this Protocol

This protocol covers management of aboveground and belowground POL bulk storage tanks, organizational tanks, pipeline delivery systems, truck fill stands, immediate operating storage areas, and fueling/defueling flight line operations. POL materials addressed include jet fuel (JP-4), AVGAS, MOGAS, diesel fuel, and lubricating oils. Waste petroleum based solvents (including PD-680) are addressed in Section 3, Hazardous Waste Management. The portion of this protocol dealing with underground storage tanks also applies to hazardous materials storage.

B. Federal Legislation

- The 1984 amendments to RCRA [P.L. 94-580, 42 USC 6912, and 42 USC 6991] also included provisions, under Subtitle I, for Underground Storage Tanks (USTs). RCRA codified a comprehensive regulatory program for USTs that store petroleum, petroleum byproducts, or substances defined as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 101(14).

- 40 CFR 280, *Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (USTs)*, and 40 CFR 281, *Approval of State Underground Storage Tank Programs*, fulfill the requirements of RCRA Subtitle C sections 9003(a),(c), and (e), and sections 9009(a) and (b). There are several elements in these regulations, beginning with standards for the installation of new UST systems and the certification of the installation. Owners and operators of UST systems are required to certify all repairs done to existing and new systems. Filling practices must be monitored to prevent overfills and spills. All UST systems must have release detection systems either installed with the new tank or phased in over a 5-year period depending on the age of the existing tank. Tanks are subject to monthly release detection monitoring and annual tank tightness testing. Reporting requirements include notice of the installation of a UST, suspected release or spill, temporary removal from service, and permanent removal. Section 9002 of RCRA has barred the installation of unprotected tanks since 7 May 1985.

- 40 CFR 300, *National Oil and Hazardous Substances Pollution Contingency Plan*, contains the regulations that require the establishment and maintenance of

a National Oil and Hazardous Substance Pollution Contingency (OHSPC) Plan. Most Army installations combine the OHSPC and SPCC plans into one single document, usually called the Spill Prevention and Response (SPR) Plan. 40 CFR 302, *Designation, Reportable Quantities, and Notification*, as amended, defines Reportable Spill Quantities (RQs), which are described in the definition section of this protocol. Section 2, *Hazardous Materials Management*, also addresses compliance with this regulation for substances other than oil.

C. State/Local Requirements

Many state and local governments also have active UST programs. These various governments have developed regulations specific to the physical environment and the regulated communities' needs. Review regulations at the state and local level to ensure that any differences, such as reporting or notice requirements, and monitoring requirements are being complied with. In all cases, the most stringent regulation should be followed.

D. DoD Regulations

- DoD Directive 4140.25M, *Procedures for the Management of Petroleum Products*, describes procedures for the management of petroleum products on military installations.

- DoD Directive 5030.41, *Oil and Hazardous Substances Pollution Prevention and Contingency Program*, addresses requirements for compliance with the National Oil and Hazardous Substances Pollution Contingency Plan.

- Defense Environmental Quality Program Policy Memorandum (DEQPPM) 79-3, *Management of Recoverable and Waste Liquid Petroleum Products*, addresses the management of recoverable and waste liquid petroleum products.

E. U.S. Army Regulations

- AR 200-1, *Environmental Protection and Enhancement*, requires compliance with the most stringent Federal, state, local, host nation, and Army requirements for USTs. It further lifts the categorical exclusion granted to heating oil tanks under Subtitle I of RCRA. Chapter 5, paragraph 7, outlines the basic Army UST requirements to follow in the absence of more stringent regulations.

- AR 420-49, *Heating, Energy Selection, and Fuel Storage, Distribution, and Dispensing Systems*.

F. Key Compliance Requirements

- Petroleum Product Environmental Release Reporting - Army installations are required to notify USEPA and appropriate state agencies when a release of a reportable quantity of POL material enters a navigable water (40 CFR 302).

- Spill Response Training - All Army personnel involved with the management and handling of oil and hazardous substances must take part in periodic spill prevention and response training programs (40 CFR, Parts 112.7, 264.16 and 265.16).

- New Petroleum Underground Storage Tanks installed after December 1988, must be certified that the tank and piping were properly installed; the tank must be equipped with devices to prevent spills and overfill; correct filling practices must be followed; the tank and piping must be protected from corrosion; and both the tank and piping must be equipped with leak detection.

- Existing Petroleum Underground Storage Tanks installed before December 1988, must have corrosion protection for steel tanks and piping, and devices that prevent spills and overfills installed by December 1998. Leak detection needs to be phased in as per Appendix 6-4.

- UST Leaks must be corrected following short and long term requirements.

- Closure procedures must be followed when a UST is temporarily or permanently closed.

- Reporting to regulatory agencies must be accomplished for installation, closure, and suspected releases.

- Records must be maintained to prove leak detection performance, inspection of corrosion protection systems, proper repair or upgrade, and to document proper closure.

- New Chemical USTs installed after December 1988, containing hazardous materials (no UST is to be used to store hazardous wastes) must meet the same installation, corrosion protection, spill and overfill prevention, corrective action, and closure requirements, but must also have secondary containment and interstitial monitoring.

- Existing Chemical USTs installed before December 1988, must meet the same standards as existing petroleum USTs leak detection and must be installed on an accelerated schedule. In addition, chemical USTs must have secondary containment in place by 1998. (Please refer to Appendix 6-3 for phase in schedule).

- Release Detection for Tanks > 2000 Gallons - 40 CFR 280, Subpart D recognizes three basic types of release detection for UST system tanks larger than 2000 gallons:

  1) Permanent release detection systems that allow testing or analysis every 30 days will eventually be required for all USTs. These systems include vapor monitoring, interstitial monitoring, ground water monitoring, and automatic tank gauging and are required on new USTs within 10 years of installation and on existing USTs by 22 December 1998 or within 10 years of upgrade (i.e., installation of corrosion, spill, and overfill protection), whichever is later.

  2) Volumetric leak testing every 5 years coupled with monthly inventory control can be used for the first 10 years of a new UST's life or for 10 years after an existing UST has cathodic, spill, and overfill protection installed.

  3) Annual volumetric leak testing coupled with monthly inventory control can be used on existing USTs without cathodic, spill, and overfill protection until 22 December 1998.

  Existing UST system tanks larger than 2000 gallons must implement the release detection requirements based on when the system was installed. The table below identifies the deadline for providing release detection:

Deadlines for Release Detection:	
UST System Installation Date	Leak Detection Required by 22 December of:
Before 1965	1989
1965-1969	1990
1970-1974	1991
1975-1979	1992
1980-December 1988	1993

- Release Detection for Underground Piping Associated with UST Systems - 40 CFR 280, Subpart D, establishes separate release detection requirements for underground piping depending on whether it conveys substances under pressure or suction.

  1) Pressurized piping must be equipped with an automatic line leak detector and have an annual line tightness test conducted; or use a permanent release detection system that allows monthly monitoring. Permanent

release detection methods acceptable for piping include: vapor monitoring, interstitial monitoring, and ground water monitoring. Deadline for implementing release detection requirements on pressurized piping is 22 December 1990.

2) Suction piping either must have a line tightness test conducted every 3 years or must use a permanent release detection system that allows monthly monitoring. Deadlines for implementing release detection requirements on suction piping are based on when the UST system was installed. The table above identifies the deadline for providing release detection.

   For suction piping constructed to certain standards, no release detection monitoring is required. It must meet five criteria:

   a) Below-grade piping must operate at less than atmospheric pressure

   b) Below-grade piping must be sloped to drain back into the tank when suction is released

   c) Only one check valve can be included in each suction line

   d) Check valve shall be located directly below and as close as practical to the suction pump

   e) Criteria in paragraphs b) through d) must be verifiable.

G. Responsibility for Compliance

- Installation Commander (IC) is responsible for assigning the duty of drafting and reviewing the SPR Plan prior to its promulgation, and for the annual review and update of the ISCP (Installation Spill Control Plan). Often, the IC delegates the specific preparation of the plan to the Directorate of Engineering and Housing (DEH) for implementation by the Environmental Coordinator. The IC also is responsible for review and implementation of the plan for recoverable and waste petroleum.

- Spill Response Team (SRT) is tasked to respond to spills when requested by an On-Scene Commander (OSC) and to perform spill containment, recovery, cleanup, disposal, and restoration activities as directed by the OCS. The SRT is a multidisciplinary team often including the following persons: Facilities

Engineer, Environmental Coordinator, Director of Safety and Health, Fire Chief, Military Police, Public Affairs Officer, Safety Officer, and Staff Judge Advocate.

- Fire Department provides support in emergency response, spill events, exercises, and fire protection activities. In addition, the department will be responsible for making periodic fire safety inspections of flammable/combustible storage and handling areas, hazardous waste storage areas, and accumulation points on the installation.

- Safety Officer is responsible for conducting work place safety evaluations and inspections of the handling and storage of hazardous materials and waste. The Safety Officer will provide the appropriate manager with a report of the findings and recommended corrective actions. The Safety Officer is also responsible for ensuring the prompt and accurate investigation of any hazardous material mishaps that result in injury or property damage.

- Fuels Management Officer of the Directorate of Engineering and Housing (DEH) is responsible for the safe and efficient receipt, storage, handling, issuing, and accounting of all petroleum products to include all general operations and inspections.

- Directorate of Engineering and Housing is responsible for the maintenance of all installed petroleum storage and dispensing systems. This responsibility often is discharged by the Liquid Fuels Maintenance (LFM) shop. The DEH also is responsible for the calibration of permanently installed meters.

- Environmental Coordinator (EC) monitors all POL activities that may affect the environment and usually is responsible for the coordination of the review and updates of the ISCP Plan. The EC also often coordinates the reportable spills notification of appropriate Federal and state agencies on behalf of the Installation On-Scene Commander.

H. Key Compliance Definitions

These definitions were obtained from the various Federal, DoD, and U.S. Army regulations cited previously in this section.

- *Aboveground Release* - any release to the surface of the land or to surface water. This includes, but is not limited to, releases from the aboveground portion of an UST system and aboveground releases associated with overfills and transfer operations as the regulated substance moves to or from a UST system.

- *Ancillary Equipment* - any devices including, but not limited to, such devices as pipings, fittings, flanges, valves, and pumps used to distribute, meter, or control the flow of regulated substances to and from the UST.

- *Associated Piping* - a length or system of piping connected to an UST and used to transport petroleum products or hazardous substances to or from the UST.

- *Belowground Release* - any release to the subsurface of the land and to ground water. This includes, but is not limited to, releases from the belowground portion of an underground storage tank system and belowground releases associated with overfills and transfer operations as the regulated substance moves to or from an underground storage tank.

- *Cathodic Protection* - a technique to prevent corrosion of a metal surface by making that surface the cathode of an electrochemical cell. For example, a tank system can be cathodically protected through the application of either galvanic anodes or impressed current.

- *Cathodic Protection Tester* - a person who can demonstrate understanding of the principles and measurements of all common types of cathodic protection systems as applied to buried or submerged metal piping and tank systems. At a minimum, such persons must have education and experience in soil resistivity, stray current, structure-to-soil potential, and component electrical isolation measurements

- *CERCLA* - Comprehensive Environmental Response Compensation and Liability Act of 1980 as amended.

- *Compatible* - the ability of two or more substances to maintain their respective physical and chemical properties upon contact with one another for the design life of the tank system under conditions likely to be encountered in the UST.

- *Connected Piping* - all underground piping including valves, elbows, joints, flanges, and flexible connectors attached to a tank system through which regulated substances flow. For the purpose of determining how much piping is connected to any individual UST system, the piping that joins two UST systems should be allocated equally between them.

- *Consumptive Use* - with respect to heating oil, this means consumed on the premises.

- *Corrosion Expert* - a person who, by reason of thorough knowledge of the physical sciences and the principles of engineering and mathematics acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems

and metal tanks. Such a person must be accredited or certified as being qualified by the National Association of Corrosion Engineers or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion control of buried or submerged metal piping systems and metal tanks.

- *Dielectric Material* - a material that does not conduct direct electrical current. Dielectric coatings are used to electrically isolate UST systems from the surrounding soils. Dielectric bushings are used to electrically isolate portions of the UST system (e.g., tank from piping).

- *Electrical Equipment* - underground equipment that contains dielectric fluid that is necessary for the operation of equipment such as transformers and buried electric cable.

- *Excavation Zone* - the volume containing the tank system and backfill material bounded by the ground surface, walls, and floor of the pit and trenches into which the UST system is placed at the time of installation.

- *Existing Tank System* - a tank system used to contain an accumulation of regulated substances or for which installation began on or before December 22, 1988. Installation is considered to have commenced if:

  a) the owner or operator has obtained all Federal, state, and local approvals or permits necessary to begin physical construction of the site or installation of the tank system; and if,

  b) (1) either a continuous on-site physical construction or installation program has begun, or
  (2) the owner or operator has entered into any contractual obligations that cannot be canceled or modified without substantial loss for physical construction at the site or installation of the tank system to be completed within a reasonable time.

- *Flow-through Process Tank* - a tank that forms an integral part of a production process through which there is a steady, variable, recurring, or intermittent flow of materials during the operation of the process. Flow-through process tanks do not include tanks used to store material before introduction into the production process or to store finished products or by-products from the production.

- *Free-product* - a regulated substance that is present as a nonaqueous phase liquid (e.g., liquid not dissolved in water.).

- *Gathering Lines* - any pipeline, equipment, facility, or building used in the transportation of oil or gas during oil or gas production.

- *Hazardous Substance UST System* - any underground storage tank system that contains a hazardous substance defined in section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (but not including any substance regulated as a hazardous waste under subtitle C) or any mixture of such substances and petroleum, and which is not a petroleum UST system.

- *Heating Oil* - petroleum that is No. 1, No. 2, No. 4–light, No. 4–heavy, No. 5 –heavy, and No. 6 technical grades of fuel oil; other residual fuel oils (including Navy Special Fuel Oil and Bunker C); and other fuels when used as substitutes for one of these fuel oils.

- *Hydraulic Lift Tank* - a tank holding hydraulic fluid for a closed-loop mechanical system that uses compressed air or hydraulic fluid to operate lifts, elevators, and other similar devices.

- *Liquid Trap* - sumps, well cellars, and other traps used in association with oil and gas production, gathering, and extracting operations (including gas production plants), for the purpose of collecting oil, water, and other liquids. These liquid traps may temporarily collect liquids for subsequent disposition or reinjection into a production or pipeline stream, or may collect and separate liquids from a gas stream.

- *Maintenance* - the normal operational upkeep to prevent an underground storage tank system from releasing a product.

- *Motor Fuel* - petroleum or a petroleum-based substance that is motor gasoline, aviation gasoline, No.1 or No.2 diesel fuel, or any grade of gasohol, and is typically used in the operation of motor engines.

- *New Tank System* - a tank system that will be used to contain an accumulation of regulated substances and for which installation commenced after December 22, 1988.

- *Noncommercial Purposes* - with respect to motor fuel, is not for resale.

- *Oil* - is defined in 40 CFR 122.2 as oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse.

- *Oil and Hazardous Substance Site* - any location where petroleum products or hazardous substances are used and/ or stored in quantities which, if spilled, would constitute a reportable quantity.

- *Oil Separator* - a wastewater pretreatment device or fuel recovery device installed to remove oils from water before the water is released to the environment.

- *On the Premises Where Stored (Heating Oil)* - UST systems located on the same property where the stored heating oil is used and is not bulk storage for transfer elsewhere on the property.

- *Operator* - any person in control of, or having responsibility for, the daily operation of the UST system.

- *Organizational Issue Tank* - a tank not permanently connected to any facility or equipment and used to issue fuel to vehicles, equipment, or portable containers.

- *Organizational Support Tank* - a tank permanently connected to the using facility or equipment, such as facility/housing heating oil tanks and heating plant tanks.

- *Overfill Release* - a release that occurs when a tank is filled beyond its capacity, resulting in a discharge of the regulated substance to the environment.

- *Owner* - (a) in the case of a UST system in use on November 8, 1984, or brought into use after that date, any person who owns a UST system for storage, use, or dispensing of regulated substance - (b) in the case of any UST system in use before November 8, 1984, but no longer in use on that date, any person who owned the UST immediately before the discontinuation of its use.

- *Person* - an individual, trust, firm, joint stock company, Federal agency, corporation, state, municipality, commission, political subdivision of a state, or any interstate body. "Person" also includes a consortium, a joint venture, a commercial entity, and the United States Government.

- *Petroleum UST System* - an underground storage tank system that contains petroleum or a mixture of petroleum with *de minimis* quantities of other regulated substances. Such systems include those containing motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils.

- *Pipe or Piping* - a hollow cylinder or tubular conduit that is constructed of non-earthen materials.

- *Pipeline Facilities* - (including gathering lines) are new and existing pipe rights-of-way and any associated equipment, facilities, or buildings.

- *Reclaimed Product* - product of known or determinable quality that can be used for the original grade or a lower grade without reprocessing except for settling, filtration, and/or blending.

- *Recoverable Product* - product that has served its intended purpose or that contains foreign matter that renders it unfit for original or alternate use, but that through processing or re-refining can be reclaimed for other use by the Army or commercial industry.

- *Recyclable Materials* - materials that normally have been or would be discarded, and that may be reused after undergoing some type of physical or chemical processing. Recyclable materials do not include precious metals and similar materials that may be used again for their original purposes without any special processing.

- *Regulated Substance* - (a) Any substance defined in section 101(14) of CERCLA (but not including any substance regulated as a hazardous waste under subtitle C), and (b) Petroleum, including crude oil or any fraction thereof, that is liquid at standard conditions of temperature and pressure (60^{o} F and 14.7 psia).

  The term "regulated substance" includes, but is not limited to, petroleum and petroleum-based substances comprised of a complex blend of hydrocarbons derived from crude oil though processes of separation, conversion, upgrading, and finishing, such as motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils.

- *Release* - any spilling, leaking, emitting, discharging, escaping, leaching, or disposing from an UST into ground water, surface water, or subsurface soils.

- *Release Detection* - determining whether a release of a regulated substance has occurred from the UST system into the environment or into the interstitial space between the UST system and its secondary barrier or secondary containment around it.

- *Repair* - to restore a tank or UST system component that has caused a release of product from the UST system.

- *Residential Tank* - a tank located on property used primarily for dwelling purposes.

- *Resource Recovery* - the process of obtaining materials or energy from solid waste. Most common type of resource recovery facility is an incinerator that coproduces electricity for sale to a commercial utility and steam for use as a heating source or industrial energy source.

- *SARA* - Superfund Amendments and Reauthorization Act.

- *Septic Tank* - a water-tight covered receptacle designed to receive or process, through liquid separation or biological digestion, the sewage discharged from a building sewer. The effluent from such receptacle is distributed through the soil and settled solids and scum from the tank are pumped out periodically and hauled to a treatment facility.

- *Storm Water or Wastewater Collection System* - piping, pumps, conduits, and any other equipment necessary to collect and transport the flow of surface water run-off resulting from precipitation, or domestic, commercial, or industrial wastewater to and from retention areas or any areas where treatment is designated to occur. The collection of storm water and wastewater does not include treatment except where incidental to conveyance.

- *Surface Impoundment* - a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although may be lined with man-made materials) that is not an injection well.

- *Tank* - a stationary device designed to contain an accumulation of regulated substances and constructed of nonearthen materials (e.g., concrete, steel, plastic) that provide structural support.

- *Underground Area* - an underground room such as a basement, cellar, shaft, or vault, providing enough space for physical inspection of the exterior of the tank situated on or above the surface of the floor.

- *Underground Release* - any belowground release.

- *Underground Storage Tank (UST)* - any one or a combination of tanks (including underground pipes connected thereto) that is used to contain an accumulation of regulated substances, and the volume of which (including the volume of underground pipes connected thereto) is 10 percent or more beneath the surface of the ground. This term does not include any:

  (a) Farm or residential tank of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes
  (b) Tank used for storing heating oil for consumptive use on the premises where stored
  (c) Septic tanks
  (d) Pipeline facility (including gathering lines) regulated by other acts
  (e) Surface impoundment, pit, pond, or lagoon
  (f) Storm water or wastewater collection system
  (g) Flow-through process tank

(h) Liquid trap or associated gathering lines directly related to oil or gas production and gathering operations
(i) Storage tank situated in an underground area if the storage tank is situated upon or above the surface of the floor.

(NOTE: the definition of UST does not include any pipes connected to any tank described in paragraphs (a) through (i) of this definition.)

- *Upgrade* - the addition or retrofit of some systems such as cathodic protection, lining, or spill and overfill controls to improve the ability of an underground storage tank system to prevent the release of product.

- *UST System or Tank System* - underground storage tank, connected underground piping, underground ancillary equipment, and containment system, if any.

- *Wastewater Treatment Tank* - a tank that is designed to receive and treat influent wastewater through physical, chemical, or biological methods.

- *Waste Petroleum Product* - a product that is no longer suitable for any use because of excessive degradation or contamination by hazardous or toxic wastes.

RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I AND POL MANAGEMENT

GUIDANCE FOR WORKSHEET USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
All installations	6-1 through 6-3	(1)(2)(6)
To address:		
Recoverable products	6-4 and 6-5	(2)(6)
Underground storage tanks:		
Tank Filling	6-6 and 6-7	(1)(2)(5)
Repairs	6-8	(1)(5)
Release Detection	6-9 through 6-12	(1)(2)(6)(9)
Hazardous Substance USTs	6-13	(6)
Reports/Notices	6-14 through 6-16	(2)(5)(6)(9)
Records	6-17 and 6-18	(2)(5)(6)(9)
Inspections/Tests	6-19 and 6-20	(2)(5)(6)(9)
If the installation brought USTs into service after 12/22/88	6-21	(2)(6)(9)
If the installation changes service or undergoes closure of UST	6-22 through 6-24	(2)(6)(9)
If the installation has substandard USTs	6-25 and 6-26	(2)(6)(9)
If the installation has upgraded USTs	6-27	(2)(6)(9)
If the installation has a steel UST system	6-28	(2)(6)(9)

(a)CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
(2) Environmental Coordinator (EC)
(5) Fire Department
(6) Director of Logistics (DOL)
(9) Chief of Operations and Maintenance (O&M)

RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I AND POL MANAGEMENT

Records to Review:

- Results of all UST testing, sampling, monitoring, inspection, maintenance, and repair work (for 1 year)
- Registration records for all in-service, temporarily out-of-service, and permanently closed tanks
- Records for UST disposal, closure, and removal from activity and results of excavation area assessment (for 3 years)
- UST inventory - map
- UST replacement program
- Groundwater well monitoring data

Physical Features to Inspect:

- Airfield Refueling Operations
- Refueling facilities, including:
    - Aboveground and belowground storage tanks and dikes
    - Venting
    - Fill pipe
    - Gauges
    - Stations
- Washrack areas
- Vehicle Maintenance areas
- Oil Separators
- Oil and Hazardous Substance Site
- Rapid Refueling Points
- Fuel Bladders

People to Interview:

- Directorate of Engineering and Housing (DEH)
- Environmental Coordinator (EC)
- Fire Department
- Director of Logistics (DOL)
- Chief of Operations and Maintenance (O&M)

COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I AND POL MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
6-1. Determine action or changes since last review of underground storage tank management.	Obtain copies of last review and determine if noncompliance issues have been resolved. (1)(2)(6)
...	...
6-2. Installations should have on file all appropriate regulations pertaining to UST operation, maintenance, and closure.	Review records for copies of the following:(1)(2)(6) - 29 CFR 1910, *Occupational Safety and Health Standards.* - 40 CFR 280, *Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST).* - 40 CFR 110, 112, 300, 302, *Oil Discharge, Pollution, and Contingency Plan.* - AR 200-1, *Environmental Protection and Enhancement.* - AR 420-49, *Heating, Energy Selection and Fuel Storage, Distribution, and Dispensing Systems.* - DoD Directive 4140.25M, *Procedures for The Management of Petroleum Products.* - DoD Directive 5030.41, *Oil and Hazardous Substances Pollution Prevention and Contingency Program.* - DEQPPM 79-3, *Management of Recoverable and Waste Liquid Petroleum Products.* - TM 5-675. - TM 5-678. - Appropriate state and local regulations.
...	...
6-3. Installations are required to abide by state and local regulations (AR 200-1, para. 1-39(a)(3)).	Verify that the installation is abiding by state and local requirements. (1) Verify that the installation is operating according to permits issued by the state or local agencies. (1)(2) NOTE: Issues which are typically regulated by state and local agencies include: (1)(2) - spill management - handling of wastewater and fuel sludge from tank cleaning - use of product recovery systems - containment.
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (4) Safety and Health Officer (5) Fire Department (6) Director of Logistics (DOL) (9) Chief of Operations and Maintenance (O&M,ch)

COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I AND POL MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
6-4. Installations should have a plan for the management of reclaimed, recoverable, and waste liquid petroleum products (AR 200-1 Chap. 8, AR 420-47, and AR 703-1).	Verify that a Management of Recoverable and Waste Liquid Petroleum Products Plan has been prepared and adopted. (2)(6)
...	...
6-5. Petroleum products that are not used for their intended purpose should be reclaimed, recovered, and disposed of as waste (AR 200-1 Chap.8, AR 470-47, Chap.6, and AR 703-1, Appendix E).	Confirm that containers at accumulation points are properly marked and in good condition. (2)(6) Verify that mixed petroleum liquids contaminated by halogenated solvents or industrial chemicals are disposed of as hazardous waste. (2)(6) Verify that used crankcase oils/lubricants are being collected at vehicle hobby shops. (2) If used crankcase oil is listed by USEPA as a hazardous waste and regulated as hazardous, determine that used oil was disposed of according to applicable RCRA regulations. (2)(6)
...	...
UST's - GENERAL	
6-6. The filling of a UST must include the prevention of overfilling and spilling of the substance. New USTs must have devices that will prevent or control and contain spills (40 CFR 280.30(a)).	If possible, observe the filling operations, otherwise review records for reports of overfills or spills resulting from operations. (1)(2)(6)(20) Determine whether the level of the UST is checked before a transfer is made. (1)(2)(6) Site check for safety features of new or upgraded UST as follows: - spill prevention equipment, i.e., catchment basin - overfill prevention equipment such as automatic shutoff at 95 percent full - alert transfer operator at greater than 90 percent capacity by restrictive flow or triggering an alarm mechanism. (1)(4) (NOTE: If the equivalent approved alternative that is no less protective to human health or environment is used or if the transfer is less than 25 gallons, the use of other specified spill/overfill prevention devices is not needed 40 CFR 280.20 (c).)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I AND POL MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
6-7. Any spills or overfills must be investigated and cleaned up in accordance with 40 CFR 280.53.	Review records for documentation of spill or overfill events.(5) Interview Environmental Coordinator to determine if an investigation of the incident took place and what the investigation entailed. (2)

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I AND POL MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
6-8. Repairs to USTs must be performed according to industry code (40 CFR 280.33, 43 and 44).	Check records for repairs. (1) Inquire about who does repairs to USTs and the procedure that is used to repair USTs.(5) - fiberglass reinforced tanks must be repaired by the manufacturers authorized representative or according to industry standards - metal pipe fittings and sections that have leaked due to corrosion must be replaced; fiberglass may be repaired according to manufacturers specifications. Tanks and piping that have been replaced or repaired must be tested for tightness in accordance with (40 CFR 280.43(c)), (40 CFR 280.44(b)) within 30 days. (5) (NOTE: exceptions existing under 40 CFR 280.33(d)(1-3) include: - repairs that are internally inspected - repair portion already monitored monthly - an equally protective test is used.) Within 6 months of repair, tanks with cathodic protection systems must be tested in accordance with 40 CFR 280.31. (5) Records of repairs must be maintained for the life of the tank. (5)
...	...

(1) Directorate of Engineering and Hrusing (DEH) (2) Environmental Coordinator (EC) (4) Safety and Health Officer (5) Fire Department (6) Director of Logistics (DOL) (9) Chief of Operations and Maintenance (O&M,ch)

COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I AND POL MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
RELEASE DETECTION/RELEASES	

6-9. All UST systems and piping must have a release detection system in place (40 CFR 280.43).	Review release detection requirements for appropriate UST. (Petroleum or Hazardous Materials) (See Appendix 6-1 *Release Detection Requirements*). (1)(6)
	
	Tanks must be monitored every 30 days except for: (1)(6)
	
	- UST systems that meet performance standards and monthly inventory requirements may use tank tightness testing at least every 5 years after tank is upgraded or installed
	- UST systems that do not meet performance standards may use monthly inventory controls and annual tank tightness testing until December 22, 1998, at which time the tank must be upgraded or permanently closed
	- tanks that hold less then 550 gallons may use weekly tank gauging.
	
	If piping routinely contains a regulated substance, the piping must have release detection: (1)
	
	- pressurized piping
	- equipped with automatic line leak detector
	- annual tightness testing or weekly monitoring
	- suction piping
	- line tightness testing every 3 years or monthly monitoring.
	- No release detection system is needed for suction piping when:
	  - below grade piping operates at less then atmospheric pressure
	  - below grade piping is sloped so contents of pipe will roll back to tank when suction is released
	  - only one check valve is included in each suction line
	- check valve is located directly below and as close as practical to the suction pump.

...	...
6-10. USTs containing petroleum must meet certain release detection requirements (40 CFR 280.43). (NOTE: Piping must also meet release detection requirements.)	Verify that release detection includes the following: (1) - tanks less than 550 gallons may use manual tank gauging - tanks from 551 to 2000 gallons may use manual and inventory control - tanks more than 2000 gallons must use other method of detection.
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I AND POL MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
6-11. Release detection programs must be based on the age of the UST. For older tanks that are not corrosion resistant programs must have been in place by December 22, 1989. Programs for newer tanks that are corrosion protected must be in place by December 22, 1993 (40 CFR 280.40).	Inspect records for release detection systems. (6) Ensure that the installation has a program in place (or at least in the proposed stage) for release detection. (6) See Appendix 6-4 for phase-in schedule. (NOTE: Any pressurized delivery lines must be retrofitted by December 22, 1990 (2 years).)
...	...
6-12. Owners / operators of leaking USTs must take corrective action (40 CFR 280.60-67).	Interview Environmental Coordinator to determine if there are any leaking USTs and what steps are being taken to mitigate the problem. (2)(6)(9) Review future plans for such USTs including repairs scheduled and the removal of the UST from service. (2)(6)(9) Determine if a plan of corrective action has been implemented, including mitigation of: (2)(6)(9) - safety and fire hazards - removal of saturated soils; and floating free product along with: - an assessment of further action needed. (NOTE: If further action is needed, a corrective action plan must be implemented.)

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I AND POL MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
6-13. All suspected releases must be reported. Discoveries of releases on site, investigations off site, and reporting must be done in accordance with 40 CFR 280.50 (subpart E).	Review reports of suspected releases, as well as positive results from release detection systems; note if these were immediately reported, and if an investigation was performed followed by immediate corrective action. (5) (NOTE: Responses to releases from petroleum or hazardous substance USTs must also comply with Subpart F (280.60) unless it is exempt through 280.10(b) or it is regulated under RCRA subtitle C. 280.10(b) exemptions include: - UST systems holding hazardous wastes listed under Subtitle C of the Solid Waste Disposal Act - waste water treatment tank systems regulated under section 402 of the Clean Water Act - any UST system whose capacity is 110 gallons or less - any UST system that contains a *de minimis* concentration of regulated substances - any emergency spillflow containment UST system that is expeditiously emptied after use.) (NOTE: Unless immediate investigation finds the reading to be false, all suspected releases must be reported and acted upon.)
...	...

6-14. All UST operators must provide: Notification, Reports, Corrective Actions, and Documentation to the implementing agency (40 CFR 280.34(a)).	Determine if the installation has complied with the requirements of UST operators, including the following: (5)
	
	- notification of UST operation (including certification of new UST installation)
	- reports of all releases including suspected releases, spills and overfills, as well as confirmed releases
	- corrective actions planned or taken which would include:
	  - initial abatement measures
	  - initial site characterization
	  - free product removal
	  - investigation of soil and ground water cleanup
	  - plan of corrective action
	  - notification before permanent closure or change in service.
	
	Determine if the installation submits reports requested by the implementing agency. (5)

...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (4) Safety and Health Officer (5) Fire Department (6) Director of Logistics (DOL) (9) Chief of Operations and Maintenance (O&M,ch)

COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I AND POL MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS·	**REVIEWER CHECKS:**
HAZARDOUS SUBSTANCE UST's	

6-15. Hazardous substance USTs must have a secondary containment system (40 CFR 280.42).	Existing Hazardous substance USTs must meet petroleum UST standards. (6)
	
	Existing USTs must meet requirements for new hazardous substance USTs by December 22, 1998 as stated below. (6)
	
	- secondary containment designed and constructed to:
	  - contain regulated substances released until they are detected and removed
	  - prevent release of regulated substance to the environment at any time during the operational life of the UST
	  - be checked for evidence of release at least every 3 days
	- double-walled tanks must be designed, constructed, and installed to:
	  - contain releases from any portion of the inner tank within the inner-wall
	  - detect failure of the inner-wall
	- external liners, including vaults must be designed, constructed, and installed in such a manner that:
	  - contains 100% of the capacity of the largest tank within its boundary
	  - prevents the interference of precipitation or groundwater intrusion with the ability to contain or detect release of regulated substance, and
	  - surround the tank completely.
	
	Underground piping must be equipped with secondary containment that satisfies the above requirements. (6)
	
	Piping that delivers regulated substances under pressure must be equipped with an automatic line leak detector. (6)
	
	Other release detection methods may be used provided that they are approved by the implementing agency. (6)

...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I AND POL MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
NEW UST's	
6-16. Notice must be given within 30 days when a UST system is brought into service. State forms may be used for notification in lieu of an USEPA Form 7530. These notices must be sent to the appropriate agency (40 CFR 280.22).	Review records for proper notification forms. (2)(6)(9) Interview Construction Management and Base Environmental Coordinator, to determine if notification has been made to the proper authorities. (2) Review inventory records for tanks installed after May 8, 1986. (2) Determine if proper notification was given to the appropriate agency. (2) (NOTE: Tanks installed after December 12, 1988 must also provide additional information.)
...	...
6-17. UST owners and operators must also keep specific records at the location of the UST or at an accessible location (40 CFR 280.34(b) and (c)).	Review installation UST records for the following required documents: (2)(5) - a corrosion expert's analysis of the site's corrosion potential if no corrosion protection is used - documentation of corrosion protection operation - documentation of all UST repairs - documentation of compliance with release detection requirements - results of site investigation at the time of permanent closure of the UST - all written claims pertaining to the release detection system used - results of any sampling, testing, or monitoring (1yr) - written documentation of all calibration, maintenance, repair, or release detection equipment (for at least 1 year after the work has been completed). If records are not kept on-site, determine if there is an alternative location where they are kept and if this is a suitable location. (2)(5)(9)
...	...
6-18. Proper installation of UST must be certified (40 CFR 280.20(d)).	Check records for certification that any new UST systems have been properly installed. (2)(6) Review procedures for installation of new or pending USTs and determine that they meet industry standards. (2)(6)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I AND POL MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
6-19. All organizational fuel tanks should be inspected annually (GMP).	Inspect forms to confirm the following: (2)(5)(6)(9) - certified tank calibration charts to measure fuel volumes are present on all tanks of 661 gallons and over - condition of tanks, piping, and dikes is noted - that any confirmed leaking tanks were repaired or replaced. Verify that all tanks of 661 gallons and over are diked. (2)(5)

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I AND POL MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
6-20. New UST systems must be tested for tank tightness (40 CFR 280.20).	Review status of USTs on installation. (2)(6) Ensure that tank tightness testing has been or will be conducted according to the following: (2)(6) - inventory control must be conducted monthly - new UST systems must be tested for tank tightness every 5 years - monthly release detection is required after 10 years. Check records for plans that outline testing dates and procedures. (2)(6)
...	...

6-21. Underground Storage Tank (UST) systems installed after December 22, 1988 must be constructed in such a manner that they will remain structurally sound for their operating life (40 CFR 280.20 b(4)).	Review UST plans to see if they conform to industry standards. (2)(6)(9)
	
	Check USTs for the following: (2)(6)(9)
	
	- leak / spill prevention protection
	- tank must be constructed of one of the following materials:
	  - fiberglass-reinforced plastic
	  - steel that has cathodic protection of one of the following manners:
	  - coated with a suitable dielectric material
	  - field installed cathodic protection (expert installed)
	  - impressed current systems that allow determination of current operating status (must be inspected every 30 days
	  - steel fiberglass-reinforced plastic composite
	  - metal without additional corrosion protection provided that:
	  - the site has been determined by a corrosion expert not to cause corrosion to the tank
	  - records are maintained for the life of the tank that it is in a corrosion free environment
	- cathodic protection systems on steel tanks operated and maintained according to 40 CFR 280.31 or other established guideline listed in 280.20a (2(iv))
	- construction is in a manner that is deemed to prevent release of the regulated substance.
	
	(NOTE: Piping must also meet these criteria with the exception of being constructed of steel fiberglass reinforced plastic composite (unless approval for such is given as listed in 40 CFR 280.20 b(4)).)

...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I AND POL MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
CLOSURE/CHANGE IN SERVICE	
6-22. Notification must be given to the implementing agency (USEPA) for any closure or change in service 30 days in advance or within a reasonable time frame as determined by the implementing agency (40 CFR 280.71(a)).	Review plans for changes in UST service. Determine if notification of such changes were given within 30 days. (2)(6)
...	...
6-23. USTs that are put out-of-service temporarily must have continued maintenance (40 CFR 280.31).	Inspect out-of-service UST facilities to ensure proper maintenance is being performed for the following: (2)(6) - corrosion protection - release detection. Note how long the UST has been out-of-service. If it has been near to or over 1 year, discuss if plans have been made for permanent closure. [NOTE: If UST meets new standards, it may remain "temporarily" out-of-service indefinitely.] (2)(6)(9) If the UST is empty, release detection is not required. (2)(6) (NOTE: An empty UST is one that has no more then 2.5 cm (1 inch) of residue or less then .3 percent by weight of total capacity of the UST system.)
...	...
6-24. UST closure must be done according to proper closure procedure (40 CFR 280.71).	Review USTs that are closed, or in the process of being closed and that the following methods are used: (2) - removal from ground - leave in place with substance removed, and filled with an inert substance and closing it to all future outside access, if permission is provided by HQDA or MACOM. Check for possible abandoned USTs and whether or not there are plans to close off in an appropriate manner. (2)(9) Review records after closure of UST. Determine if a site assessment was made to ensure that no releases to the environment have occurred. (2)
...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I AND POL MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
SUBSTANDARD/UPGRADED TANKS	
6-25. If the installation has any substandard USTs, they must be checked monthly for release detection or combined monitoring of annual tightness and monthly inventory control until they are upgraded (40 CFR 280.40-42).	Review testing records for any substandard UST. (2)(6)
...	...

6-26. Substandard systems must be upgraded or removed from service by December 22, 1998 (40 CFR 280.21).
 	
(NOTE: If a release detection system is not available for the UST, the tank must be phased out by 1993.)
	Review plans for upgrades or decommissioning of a substandard UST. (2)(6)(9)
	
	Upgrading of USTs must include one of the following methods: (2)
	
	- internal lining according to the following requirements:
	  - lining is installed according to requirements in 280.21
	  - within 10 years after installation of lining, and every 5 years thereafter, the lined tank is inspected internally and found to be structurally sound
	- the lining is still performing in accordance with original design specifications.
	- cathodic protection if it meets requirements of 40 CFR 280.21:
	  - tank is internally inspected and assessed to ensure that the tank is structurally sound and free of corrosion
	  - the tank has been installed for less than 10 years and is monitored monthly for releases
	  - the tank is assessed for corrosion by a method that is determined to be equally protective by the implementing agency
	- lining and cathodic protection:
	  - if lining is installed according to requirements
	  - if cathodic protection system meets requirements.
	
	Addition of spill and overfill equipment to meet same standards as new USTs. (2)
	
	Piping must also be upgraded to meet new requirements. (2)

...	...

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COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I AND POL MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
6-27. The upgrading requirements for a petroleum UST must be followed (40 CFR 280.21).	Review upgrading procedures for inclusion of corrosion protection, and spill and overfill protection, including the following: (2) - the retrofitting of corrosion protection - upgrading of piping to meet cathodic protection requirements - spill and overfill protection - hazardous substances systems must also include secondary containment and interstitial monitoring or alternate release detection system approved by the enforcement agency. Review hazardous substance systems for secondary containment and interstitial monitoring (or appropriate alternative). (2)
...	...
STEEL UST's **6-28.** Owners and operators of steel UST systems must comply with certain requirements to ensure the prevention of release of regulated substances (40 CFR 280.20(2).	Check that installations operating steel UST systems are in compliance with the following: (2)(6)(9) - corrosion protection systems must be operated and maintained to provide continuous corrosion protection to the metal portions of the tank that routinely contain regulated substances - all USTs with cathodic protection must be inspected for proper operation by a qualified tester: - within 6 months of installation and at least every 3 years after - criteria used for inspection must coincide with nationally recognized code of practice - USTs with impressed current cathodic protection must be inspected every 60 days for proper operation - records of cathodic protection must be maintained.
...	...

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Appendix 6-1

Release Detection Requirements
40 CFR 280.43

Effective as of 12-22-88

Each method of release detection for tanks used to meet the requirements for petroleum UST systems must be conducted in accordance with the following:

1. Inventory control: Product inventory control must be conducted monthly to detect a release of at least 1.0 percent of flow-through plus 130 gallons on a monthly basis in the following manner:

i) inventory volume measurements for regulated substance inputs, withdrawals, and the amount still remaining in the tank are recorded each operating day;

ii) the equipment used is capable of measuring the level of product over the full range of the tanks height to the nearest one-eight of an inch;

iii) the regulated substance inputs are reconciled with delivery receipts by measurements of the tank inventory volume before and after delivery;

iv) deliveries made through a drop tube that extends to within one foot of the tank bottom;

v) product dispensing is metered and recorded within the local standards of product withdrawn; and

vi) the measurement of any water level in the bottom of the tank is made to the nearest one-eight of an inch at least once a month.

2. Manual gauging: manual tank gauging must meet the following requirements:

i) tank liquid level measurements are taken at the beginning and end of a period of at least 36 hours during which no liquid is added to or removed from the tank;

ii) level measurements are based on an average of two consecutive stick readings at both the beginning and end of the period;

iii) the equipment used is capable of measuring the level of product over the full range of the tank's height to the nearest one-eight of an inch;

iv) a leak is suspected and subject to the requirements of subpart E if the variation between beginning and ending measurements exceeds the weekly or monthly standards of Table A below;

v) only tanks of 550 gallons or less nominal capacity may use this as a sole method of release detection. Tanks of 551 to 2,000 gallons may also use inventory control. See paragraph 1 in this appendix. Tanks of greater than 2,000 gallons nominal capacity may not use this method to meet release detection requirements.

Table A

Nominal Tank Capacity	Weekly Standard (one test)	Monthly Standard (average of four)
550 gallons or less	10 gallons	5 gallons
551-1,000 gallons	13 gallons	7 gallons
1,0001-2,000 gallons	26 gallons	13 gallons

3. Tank tightness testing: Tank tightness testing must be capable of detecting a 0.1 gallon per hour leak rate from any portion of the tank that routinely contains product while accounting for the effects of thermal expansion or contraction of the product, vapor pockets, tank deformation, evaporation or condensation, and the location of the water table.

4. Tank automatic gauging: Equipment for automatic tank gauging that tests for the loss of product and conducts inventory control; must meet the following requirements:

i) the automatic product level monitor test can detect a 0.2 gallon per hour leak rate from any portion of the tank that routinely contains product; and

ii) inventory control is conducted according to requirements (see paragraph 1 above).

5. Vapor monitoring: Testing or monitoring for vapors within the soil gas of the excavation zone must meet the following requirements:

i) the materials used as backfill are sufficiently porous (eg. gravel, sand, crushed rock) to easily allow diffusion of vapors from releases into the excavation area;

ii) the stored regulated substance, or a tracer compound placed in the tank system, is sufficiently volatile (eg. gasoline) to result in a vapor level that is detectable by the monitoring devices located in the excavation zone in the event of a release from the tank;

iii) the measurement of vapors by the monitoring device is not rendered inoperative by the ground water, rainfall, or soil moisture or other unknown interferences so that a release could go undetected for more than 30 days;

iv) the level of background contamination in the excavation zone will not interfere with the method used to detect releases from the tank;

v) the vapor monitors are designed and operated to detect any significant increase in concentration above background of the regulated substance stored in the tank system, a component or components of that substance, or a tracer compound placed in the tank system;

vi) in the UST excavation zone, the site is assessed to ensure compliance with the requirements of paragraph 5 subparagraph i through iv above and to establish the number and positioning of monitor wells that will detect any releases within the excavation zone from any portion of the tank that routinely contains product; and

vii) monitoring wells are clearly marked and secured to avoid unauthorized access and tampering.

6. Ground-water monitoring: Testing or monitoring for liquids in the ground water must meet the following requirements:

i) the regulated substance stored is immiscible in water and has a specific gravity of less than one;

ii) ground water is never more than 20 feet from the ground surface and the hydraulic conductivity of the soil(s) between the UST system and the monitoring wells or devices is not less than 0.01 cm/sec (eg. the soil should consist of gravels, coarse to medium sands, coarse silts or other permeable materials;

iii) the slotted portion of the monitoring well casing must be designed to prevent migration of natural soils or filter pack into the well and to allow entry of reguiated substance on the water table into the well under both high and low ground water conditions;

iv) monitoring wells should be sealed from the ground surface to the top of the filter pack;

v) monitoring wells or devices intercept the excavation zone or are as close to it as is technically feasible;

vi) the continuous monitoring devices or manual methods used can detect the presence of at least one-eight of an inch of free product on tip of the ground water in the monitoring wells;

vii) within and immediately below the UST system excavation zone, the site is assessed to ensure compliance with the requirements of paragraphs 6 i-v above and to establish the number and positioning of monitoring wells or devices that will detect releases from any portion of the tank that routinely contains product; and

viii monitoring wells are clearly marked and secured to avoid unauthorized access and tampering.

7. Interstitial monitoring: Interstitial monitoring between the UST system and a secondary barrier immediately around or beneath it may be used, but only if the system is designed, constructed and installed to detect a leak from any portion of the tank that routinely contains product and also meets one of the following requirements:

i) for double-walled systems, the sampling or testing method can detect a release through the inner wall in any portion of the tank that routinely contains product;

ii) for UST systems with a secondary barrier within the excavation zone, the sampling or testing method used can detect a release between the UST system and the secondary barrier;

a) the secondary barrier around or beneath the UST system consists of artificially constructed material that is sufficiently thick and impermeable (at least 10 to the minus six cm/sec for the regulated substance stored) to direct a release to the monitoring point and permit its detection;

b) the barrier is compatible with the regulated substance stored so that a release from the UST system will not cause a deterioration of the barrier allowing a release to pass through undetected;

c) for cathodically protected tanks, the secondary barrier must be installed so that it does not interfere with the proper operation of the cathodic protection system;

d) the ground water, soil moisture, or rainfall will not render the testing or sampling method used inoperative so that a release could go undetected for more than 30 days;

e) the site is assessed to ensure that the secondary barrier is always above the ground water and not in a 25-year flood plain, unless the barrier and monitoring designs are for use under such conditions; or

f) monitoring wells are clearly marked and secured to avoid unauthorized access and tampering.

iii) for tanks with an internally fitted liner, an automated device can detect a release between the inner wall of the tank and the liner. The liner is compatible with the substance stored.

8. Other methods: Any other type of release detection method, or combination of methods, can be used if:

i) it can detect a 0.2 gallon per hour leak rate or a release of 150 gallons within a month with a probability of detection of 0.95 and a probability of false alarm of 0.05; or

ii) the implementing agency may approve another method, if it can be demonstrated that this method can detect releases as effectively as the methods listed in this appendix.

Each method of release detection for **piping**, used to meet the requirements must be conducted in accordance with the following:

a. Automatic line detectors: Methods which alert the operator to the presence of a leak by restricting or shutting off the flow of regulated substances through piping, or triggering an audible or visual alarm may be used only if they detect leaks of 3 gallons per hour at 10 pounds per square inch line pressure within one hour. An annual test of the operation of the leak detector must be conducted in accordance with the manufacturer's requirements.

b. Line tightness testing: A periodic test of piping may be conducted only if it can detect a 0.1 gallon per hour leak one and one-half times the operating pressure.

c. Applicable tank methods: Vapor monitoring, ground water monitoring and interstitial monitoring may be used if they are designed to detect a release from any portion of the underground piping that routinely contains regulated substances.

Appendix 6-2

Decision Tree for Compliance with EPA Regulations Governing Underground Storage Tanks

40 CFR 280, September 23, 1988

Flow Diagram 1

INITIAL INVENTORY OF ALL UNDERGROUND STORAGE TANKS AND PIPELINE SYSTEMS (USTs) ON THE BASE
40 CFR 280.3c Nov 1985
State Notification Requirements Vary

↓ ↓ ↓

EXCLUDED/UNREGULATED TANKS AND PIPELINES 40 CFR 280.10 and state regulations
Excludes: heating oil tanks, waste-water tanks, hydraulic/electrical system tanks, tanks less than 110 gal, emergency spill containment tanks. [AR 200-1 does not exclude heating oil tanks.]
* Aircraft Hydrant systems and field constructed USTs are deferred from this regulation.

PROPERLY ABANDONED/ CLOSED UNUSED AND UNNEEDED USTs
40 CFR 280.70 and state regulations
Priority for closure based on tank condition and risk to groundwater.

DETERMINE IF CONTENTS ARE HAZARDOUS WASTES OR OTHER REGULATED SUBSTANCES AS DEFINED IN 40 CFR 280.12, 302, and 261

↓ ↓ ↓

HAZARDOUS WASTES USTs STORING SPENT SOLVENTS OIL/SOLVENT MIXTURES, ETC. SHOULD BE RELOCATED ABOVE-GROUND WHENEVER POSSIBLE. OLD USTs SHOULD BE CLOSED IAW 40 CFR 264.

USTs STORING HIGH RISK STOCK CHEMICALS SUCH AS CHLORINATED SOLVENTS SHOULD BE RELOCATED ABOVE-GROUND WHENEVER POSSIBLE. OLD USTs SHOULD BE CLOSED IAW 40 CFR 280.71.

USTs STORING REGULATED SUBSTANCES
SUCH AS FUELS AND HAZARDOUS
CHEMICALS ARE SUBJECT TO 40 CFR 280
EQUIREMENTS FOR LEAK TESTING AND
UPGRADE TO NEW TANK STANDARDS
(next page)

Flow Diagram 2

PRIORITIZED TANK AND PIPELINE TESTING PROGRAM

In order to determine USTs requireing the most immediate attention, each installation should prioritize their USTs for leak testing. Key factors should include: tank age, potential for corrosion, maintenance and past leak testing records, risk to drinking water, state requirements, and AR 200-1 requirments.

↓

INITIAL USTs TESTING PROGRAM

This testing is intended to locate serious leaks and should be carried out with in-house resources. At a minimum it should include:

- temperature corrected 24-hour static tank test
- In high groundwater areas a monitoring well should be installed at each tank site and shallow groundwater sampled for floating fuel.
- Two-hour pressure test for transfer pipelines

The results of this initial testing should be used to prioritize a second round of more accurate leak detection.

↓

CONFIRMATION TESTING

Based on initial testing results, a priority should be established for more accurate testing. This testing may require contractor assistance. Several testing methods are available:

- Precise inventory controls 40:280.43(a)
- Volumetric or tightness testing 40:280.43(c)
- Tracer or other State approved external monitoring methods for tanks too large for volumetric methods
- Hydrostatic testing of transfer pipelines
- Partial excavation for visual inspection.

↓ ↓

NO LEAK FOUND
Go to Diagram 3

CONFIRMED LEAK
Go to Diagram 4

Flow Diagram 3

REQUIRED UPGRADE OR REPLACEMENT OF USTs

In response to the 1984 RCRA Amendments, the EPA has proposed minimum standards for both new and existing USTs. These standards are codified in 40 CFR 280 and will require:

- Cathodic protection for all metal tanks and pipelines
- Overfill prevention devices
- An approved and accurate leak monitoring method. (APPENDIX 6-3 provides a summary of leak detection options available for tanks and pipelines.)
- Secondary containment for hazardous chemical USTs.

Order of Replacement

1. Leaking USTs with high risk to drinking water or risk of explosion. Repair or upgrade too expensive.
2. Nonleaking USTs without cathodic protection which show signs of corrosion.
3. Nonleaking USTs without cathodic protection in soil with low corrosion potential.

Order of Upgrade/Repair

1. Leaking USTs with cathodic protection. Repair and upgrade is economical.
2. Nonleaking USTs without cathodic protection in soil with low corrosion potential.
3. Nonleaking USTs with cathodic protection.

EPA requirements for upgrade/repair are found in 40 CFR 280.21 and 280.33. Alternatives include: interior tank liners, new cathodic protection, spill and overfill devices, leak detection methods.

↓ ↓

CONTINUED MAINTENANCE AND MONITORING

Operators of new or upgraded USTs will be required to:

- Prevent overfills and clean up spillage
- Operate and maintain cathodic protection
- Maintain leak detection equipment
- Report suspected leaks (next pg)
- Keep records of USTs maintenance

(See 40 CFR 280.30-.53)

PROPER TANK CLOSURE

Any USTs taken out of service may follow 40 CFR 280.71 procedures.

Flow Diagram 4

RELEASE REPORTING REQUIREMENTS

All confirmed leaks, suspected leaks based on monitoring, or spills or overfills of fuels exceeding 25 gallons or causing a sheen on surface water must be reported to State or EPA within 24 hours. All spills must be contained or cleaned up.

RELEASE INVESTIGATION AND CONFIRMATION

Immediate investigation using the following methods (or other specified by the state or EPA):

- Inventory check, followed by:
- Tank or pipeline isolation and monitoring systems recheck
- If leak still suspected a tightness or hydrostatic test must be used to locate leak
- If system fails tightness test, soil coring or groundwater sampling should be conducted
- Evaluation of immediate risk to drinking water, explosive vapors, etc. The IRP HARM or an updated risk assessment method should be used.
- Reporting of results to implementing agency.

40 CFR 280.60

CORRECTIVE ACTIONS

A nationwide survey of USTs has shown a 35% leak rate. While Army maintenance programs are much better than average, over a thousand Army tanks and pipelines are probably leaking. A prioritized remediation plan is needed for each installation and MACOM.

A separate set of corrective actions are required for petroleum products vs other hazardous chemicals. These procedures are listed in 40 CFR 280.60 - 280.67 but will vary based on state requirements and risk assessments.

Small leaks can be cleaned up without removing the tank or pipeline. In many cases, loose joints and connections cause leaks but the general condition of the tank is good. In such cases, the tank or pipeline can be repaired IAW 40 CFR 280.33 and the USTs upgraded to new tank standards.

Appendix 6-3

Options for Release Detection

The most immediate and demanding requirements of 40 CFR 280 are the release detection methods which must be implemented or installed in all UST systems. (See APPENDIX 6-4 for phase-in schedule). A synopsis of 40 CFR 280.20 - 280.45 follows. The type of release detection method used will vary with the type and age of the tank or pipeline. Remember that aircraft hydrant refueling systems and "field constructed" bulk tanks have been deferred and do not have to comply with 40 CFR 280 at this time. In addition to USTs used to store fuel, emergency generators are deferred from meeting the requirements for release detection. Emergency generator fuel tanks must comply with all other parts of this requirement.

Release Detection for Tanks

Option 1 - Combination of Precise Inventory Control and Tightness Testing
If tanks meet 40 CFR 280.20 new tank standards, tightness is required every five years. If tanks do not meet new tank standards, tightness test is required every year until 1998 when the tank must either meet new tank standards or be closed.

Option 2 - Combination of Precise Inventory Control and an Automated Gauging Device
The automatic gauging device must be able to detect a leak of 0.2 gall/hr.

Option 3 - Vapor Monitoring in Soils Surrounding Tank

- Only in sandy or gravelly soils
- Monthly gas sampling
- Must detect vapor levels above background levels
- Groundwater must not interfere
- Sufficient number of vapor monitoring wells

Option 4 - Groundwater Monitoring Near Tanks

- Stored liquid must be immiscible in water and have specific gravity <1
- Groundwater must be within 20 feet of ground surface
- Soils must have hydraulic conductivity of 10^{-2} cm/sec or greater
- Proper monitoring well design and proper number of wells
- Use an automatic or manual method capable of detecting a 1/8 inch layer of floating fuel

Option 5 - Interstitial Monitoring
This method only applies to tanks surrounded by a secondary containment barrier. Monitoring wells must be placed between the tank and the containment barrier.

Option 6 - Any other Method (approved by the implementing agency)
which can detect a 0.2 gal/hr leak or 150 gallon release per month with a 95% probability of false positives.

Pipeline Release Monitoring

The EPA regulation places much more stringent requirements on pipes which convey regulated liquids under pressure. Whenever possible, base engineers should modify pumps and pipelines to reduce the length of pressurized piping. The following release detection requirements apply to piping:

Pressurized Piping

- Must be equipped with sensitive automatic leak detector with alarm or auto shut down capabilities; and
- Have annual tightness test or monthly monitoring system soil vapors, ground water monitoring, interstitial monitoring or other approved method.

Suction Piping

- Tightness test every 3 years and in some cases no release detection is required at all.

Appendix 6 - 4

Schedule for Phase-in of Release Detection

Year system was installed	Year when release detection is required (by December 22 of the year indicated)				
	1989	1990	1991	1992	1993
Before 1965 or date unknown.	RD	P			
1965-69		P/RD			
1970-74		P	RD		
1975-79		P		RD	
1980-88		P			RD

P = must begin release detection for all pressurized piping as defined in 280.41(b)(1).
RD = must begin release detection for tanks and suction piping.

INSTALLATION:	COMPLIANCE CATEGORY: RESOURCE CONSERVATION AND RECOVERY ACT, SUBTITLE I AND POL MANAGEMENT USA ECAS	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (4) Safety and Health Officer (5) Fire Department (6) Director of Logistics (DOL) (9) Chief of Operations and Maintenance (O&M,ch)

Section 7

COMPRHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACTS (CERCLA/SARA)

SECTION 7

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACTS (CERCLA/SARA)

A. Applicability of this Protocol

This protocol applies to all Army facilities. Currently, this section contains protocols for implementing the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (Superfund) / Superfund Amendments and Reauthorization Acts (CERCLA/SARA).

The CERCLA / SARA protocol is used to determine the compliance status of the management activities associated with the identification, investigation, and cleanup of hazardous materials contamination.

Specific state regulations are not included in this protocol.

B. Federal Legislation

- The CERCLA was enacted on 11 December 1980 as a series of programs to remedy uncontrolled releases of contaminants from hazardous waste sites. CERCLA addresses past, present, and threatened releases of hazardous substances, pollutants, and contaminants that "may pose an imminent and substantial danger to the public health or welfare" (CERCLA, S.104(a)(1)). Notification and response procedures and authorities for these releases are established in the law, with the provision that they are subject to the more detailed regulatory descriptions provided in the National Contingency Plan.

- The SARA was passed in October 1986 to reauthorize the funding provisions, and to amend the authorities and requirements of CERCLA and associated laws. SARA establishes the Defense Environmental Restoration Program (DERP), which consists of two major programs: the Installation Restoration Program (IRP), which applies to real property under U.S. jurisdiction and currently under the control of the Army, and the Formerly Used Defense Sites (FUDS) program, which applies to real property under U.S. jurisdiction and formerly under the control of the Army. SARA is divided into five major titles, the first two of which are of importance to the IRP. The other three are only indirectly related and will not be mentioned here.

- Title I - Provisions Relating Primarily to Response and Liability contains most of the amendments to CERCLA. Of particular interest to the IRP is Section 120 in which response actions at Federal facilities are addressed. The Defense Environmental Restoration Program (DERP) and the IRP are subject to and must be consistent with Section 120.

- Title II - Miscellaneous Provisions includes additional amendments to CERCLA and to other associated laws. DERP (including IRP) is codified into law as Section 211 of SARA and amended as Chapter 160 of Title 10 of United States Code. DERP is thus not a component of CERCLA, though it is subject to and must be consistent with CERCLA.

- The IRP is designed to clean up past hazardous waste disposal or spill sites. Current hazardous material / hazardous waste operations and spills on an installation are handled under other programs (RCRA and SPCC [Spill Prevention, Containment and Control], respectively).

- Under CERCLA (Superfund) United States Environmental Protection Agency (USEPA) has promulgated regulations in 40 CFR 302 that require notification to USEPA whenever there is a release of a reportable quantity of any hazardous substance. Release into the environment is interpreted broadly to mean release into water, air, or onto the land. If a release is contained within a building or closed facility, it does not need to be reported under these regulations. The regulations specify reportable quantities of 1 pound for all hazardous substances other than those with different reportable quantities as listed in Table 302.4 of 40 CFR 302. Any Army installation that releases a reportable quantity of a hazardous substance is responsible to comply with these regulations.

- Under SARA, the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) was passed. This act was designed to promote emergency planning and preparedness at both the state and local level. It provides citizens and local governments with information regarding the potential hazards in their community. EPCRA requires the use of emergency planning and designates state and local governments as recipients for information regarding chemicals and toxins used in the community. Although Federal facilities are not currently required to comply with Title III, Army policy is to adhere with substantive requirements.

- Executive Order (EO) 12088, *Federal Compliance with Pollution Standards*, of 13 October 1978 requires Federally owned and operated facilities to comply with all Federal, state, and local environmental regulations. It makes the head of each executive agency responsible for seeing to it that the agencies, facili-

ties, programs, and activities it funds meet Federal, state, and local environmental requirements or to correct situations that are not in compliance with such regulations. In addition, the Executive Order requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

C. State/Local Requirements

- SARA requires for Federal facilities that:

  "State laws concerning removal and remedial action, including state laws regarding enforcement, shall apply to removal and remedial actions at facilities owned or operated by a department, agency, or instrumentality of the United States when such facilities are not included on the National Priorities List [NPL]." (Section 120(a)(4))

- Only a few states at the time of publication of this manual have CERCLA-like laws. These laws apply to non-NPL sites, and consequently certain authorities and requirements will vary from state to state.

- State (and local) Applicable or Relevant and Appropriate Requirements (ARARs) are those cleanup standards, standards of control and other substantive environmental protection requirements, criteria, or limitations promulgated under Federal Law or limitations promulgated under Federal law or state law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site. Relevant and appropriate requirements, criteria, or limitations promulgated under Federal or state law that, while not applicable to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that is well suited to the particular site. ARARs are used to establish the standards for cleanup as a function of the chemicals involved, the location, the suspected health effects, response action technologies proposed at the site.

D. DoD Regulations

None.

E. U.S. Army Regulations

- Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*, Chapter 9, *Environmental Restoration Program*, implements the remedial response aspect of CERCLA, as amended by SARA. It provides guidance for the management of IRP and FUDS programs. It details the procedures and the required documents necessary at each stage of the remedial process, from Preliminary Assessment/Site Inventory (PA/SI), through Remedial Investigation/Feasibility Study (RI/FS), to the Remedial Action (RA). AR 200-1 also provides guidance for writing oil and hazardous substance contingency plans. It also provides guidance for dealing with all manner of hazardous materials.

- AR 200-2, *Environmental Effects of Army Actions*, defines Army policy relative to compliance with the National Environmental Policy Act (NEPA) when projects are undertaken pursuant to the requirements of CERCLA / SARA. Basically, this section outlines the required environmental records to be completed during the course of a remedial action under NEPA, from identification through completion. Other chapters in AR 200-2 give detailed information on preparing the documents: Environmental Assessments (EAs), Environmental Impact Statements (EISs), Categorical Exclusions (CXs), Findings of No Significant Impact (FNSIs), Notices of Intent (NOIs), and Records of Decision (RODs). (See Section 12, *National Environmental Policy Act*, and the Appendixes to Section 16 of this manual, *Environmental Program Management*, for more information on these documents.)

F. Key Compliance Requirements

- The legal mandates for the Army Installation Restoration Program are CERCLA and SARA. Objectives of the program are to identify, investigate, cleanup and close out IRP sites.

- Hazardous Substance Release Reporting - Army installations are required to notify USEPA and appropriate state agencies when a release of a reportable quantity of a hazardous substance occurs. The release includes any discharge, spill, or leak to the air, water or onto the land as stipulated in 40 CFR 302, *Designation, Reporting Quantities, and Notification.*

- Community Right-to-Know - Army installations that use or manufacture hazardous or toxic chemicals are required to comply with the regulations of EPCRA.

G. Responsibility for Compliance

- Installation Commanders (ICs) will:

  -monitor proposed actions and programs within their commands

  -task the appropriate staff with preparation of environmental assessments (EAs) and environmental impact statements (EISs) and development of public involvement

  -assure that appropriate environmental documentation is prepared and forwarded to the appropriate proponent

  -initiate the preparation of necessary environmental documentation and assess the environmental consequences of proposed programs and projects

  -coordinate appropriate environmental documents and public affairs initiatives with MACOM, Headquarters Department of the Army (HQDA) agencies, the Army Environmental Office and state and federal regulatory agencies

  -assist in the review of environmental documents prepared by DoD and other Army or Federal agencies, as requested.

- The IC is responsible for all IRP projects on the installation. The IC will ensure that proposals for real property transaction concerning installations included in the IRP will be immediately reported through channels to HQDA (ENVR-E).

- The IC will assign an on-scene coordinator/remedial project manager (OSC/RPM) for all on-going IRP projects on the installation.

- On-scene coordinator/remedial project manager (OSC/RPM) will act as the ICs representative on all IRP matters and perform the duties described in 40 CFR 300.33(b). The OSC/RPM will also:

  - coordinate with the MACOM (for ARNG, National Guard Bureau; for USAR, MUSARCs), USATHAMA, and the Corps of Engineers on all proposals for removal and remedial actions, on installation's POC for regulatory agencies, on monitoring the activities of contractors as requested, on reviewing, and comment on draft reports prepared by USATHAMA or the Corps of Engineers on IRP activities, on reviewing response plans and recommendations for IRP response actions and proposed future actions, ensuring that currently operating facilities are not and do not become sources of hazardous materials contamination, ensuring that USEPA and state, regional, and local officials have adequate opportunity for timely review and comment on

proposed activities, establishing a technical review committee (TRC) per AR 200-1, para. 9-10, developing, implementing and maintaining a community relations program for IRP activities that meets all regulatory guidelines

-establishing an administrative record of the installation that is included or proposed for inclusion on the National Priorities List (NPL).

- USEPA establishes and recommends sites for inclusion on the NPL.

- Public Affairs Office (PAO) will establish the necessary supporting Public Awareness Program(s).

- Installation Fire Department provides support in emergency response, spill events, exercises, and fire protection activities. In addition, the department is responsible for making periodic fire safety inspections of flammable/ combustible storage and handling areas on the installation.

H. Key Compliance Definitions

These definitions were obtained from Army, DoD, and compliance regulations cited previously.

- *Active Waste Disposal Site* - any disposal site other than an inactive site.

- *Administrative Record* - consists of all documents that have a legal bearing on the remedial action. It is required for every response action, is used for judicial review, and forms the basis for the selection of response actions at Third-Party sites.

- *Applicable or Relevant and Appropriate Requirements (ARARs)* - Federal and state laws that must be considered when a remedial action is being chosen.

- *Class I* - includes projects that are out of compliance, have been the subject of an enforcement action, or that involve a signed consent order or compliance agreement with USEPA or a state government agency. USEPA considers these projects to be of critical priority.

- *Class II* - includes those projects that must be dealt with in an agency's current planning cycle to meet a compliance deadline in the immediate future. If projects in this class are not programmed for funding during the current budget cycle, they may be out of compliance before needed money can be provided.

- *Class III* - includes other projects that the individual Federal agencies believe are important but are not related to an imminent compliance requirement.

Projects that will prevent pollution through changes in process technology, redesign, etc., are also included in this class.

- *Cost* - the amount of funds required for putting in place the necessary environmental protection measures, irrespective of the appropriation chargeable.

- *Decision Document* - a means of recording significant decisions in the IRP. Steps or stages that merit a Decision Document include:

  -selecting a remedial action
  -initiating long-term monitoring
  -initiating a removal action
  -closing out a site
  -reactivating a site.

  Decision Documents may be used for both NPL and non-NPL sites.

- *Defense Environmental Restoration Account (DERA)* - the Department of Defense funding program for the Installation Restoration Program (IRP).

- *Demolition* - the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations.

- *Environmental Assessment (EA)* - refers to a concise public document prepared by the installation in order to evaluate the proposed action and its potential effects on the environment. In general, it serves to:
  - briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement, or a finding of no significant impact
  - aid an agency's compliance with the Act when no environmental impact statement is necessary
  - facilitate preparation of a statement when one is necessary.

  The Environment Assessment shall include brief discussions of the need for the proposal, or alternatives, and of the environmental impacts of the proposed actions and alternatives, and a listing of the agencies and persons consulted.

- *Environmental Impact Statement (EIS)* -a detailed written statement required by NEPA for major Federal actions with significant environmental effects.

- *Feasibility Study* - within the IRP (or CERCLA), the means for development, evaluation, selection, and description of remedial action alternatives.

- *Fire Area* - That portion of a building separated from the remainder by walled construction having a rated fire resistance of at least 1 hour. All openings must be protected by an approved assembly having a fire resistance rating of at least 1 hour.

- *FNSI (Finding of No Significant Impact)* - a document that briefly presents the reasons why an action, not otherwise excluded, does not need an EIS.

- *Good Management Practice (GMP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *Liquid* - Any material with a fluidity greater than that of 300 penetration asphalt when tested in accordance with ASTM Test D-5-73. When not otherwise identified, the term "liquid" will include both flammable and combustible liquid.

- *National Priorities List (NPL)* - the list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial response.

- *NOI (Notice Of Intent)* - a notice that an EIS will be prepared and considered. This applies to all significant Federal action. It should contain:
  (a) a description of the proposed action and possible alternatives
  (b) the proposed scoping process and schedule
  (c) the name and address of the person who can give more information.

- *Preliminary Assessment* - the process of collecting and reviewing available information about a known or suspected hazardous waste site or release. The Army, USEPA, or states use this information to determine if the site requires further study.

- *Records of Decision (ROD)* - a public document that explains which cleanup alternative(s) will be used at National Priorities List sites. The Record of Decision is based on information and technical analysis generated during the remedial investigation / feasibility study and consideration of public comments and community concerns.

- *Remedial Action (RA)* - the actual construction or implementation phase that follows the remedial design of the selected cleanup alternative at a site.

- *Remedial Action Plan (RAP)* - the process of selecting and describing remedial actions; also the report documenting that process.

- *Remedial Design (RD)* - an engineering phase that follows the Record of Decision when technical drawings and specifications are developed for the subsequent remedial action at a site.

- *Remedial Investigation (RI)* - the IRP- or CERCLA-related process to determine the nature and extent of the problem posed by a release or threatened release.

- *Remedial Project Manager (RPM)* - the Army official responsible for overseeing remedial responses at IRP sites in accordance with the National Contingency Plan, Section E, and Army policies.

- *Remedial Response* - a long-term action that stops or substantially reduces a release or threatened release of a hazardous substance that is serious, but does not pose an immediate threat to public health and/or the environment.

- *Removal Response* - an immediate action taken over the short-term to address a release or threatened release of a hazardous substance that poses a significant threat to public health or the environment.

- *Renovation* - altering, in any way, one or more facility components. Operations in which load-supporting structural members are wrecked or taken out are excluded.

- *Health Risk Assessment* - an evaluation performed as part of the remedial investigation to assess conditions at a site and determine the risk posed to public health and/or the environment.

- *Site Close-Out* - may occur during several different stages of the cleanup process, depending on the particular site and its circumstances. Regardless of the stage during which close-out occurs, the process could be accompanied by appropriate documentation.

- *Site Inspection* - a technical phase that follows a preliminary assessment designed to collect more extensive information on a hazardous waste site. The information is used to score the site with the Hazard Ranking System to determine whether response action is needed.

- *Structural Member* - any load-supporting member of a facility, such as beams and load-supporting walls; or any nonload-supporting member, such as ceilings and nonload-supporting walls.

- *Third Party Site* - a non-Army site (landfill, recycling facility) to which the Army is alleged to have contributed hazardous wastes directly or through a contractor.

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACTS (CERCLA/SARA)

GUIDANCE FOR WORKSHEET USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
All installations	7-1 through 7-5	(1)(2)(13)
If the installation has an on-going IRP	7-6 through 7-8	(1)(2)(5)(13)(21)
If the installation is considered the source of off-site contamination	7-9	(1)(2)
If the installation releases hazardous substances	7-10 through 7-13	(1)(2)

(a)CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
(2) Environmental Coordinator (EC)
(5) Fire Department
(6) Director of Logistics (DOL)
(13) Engineering, Plans, Training, Mobilization, and Security (DPTMSEC)
(21) Public Affairs Office (PAO)

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT/SUPERFUND AMENDMENTS AND REAUTHORIZATION ACTS (CERCLA/SARA)

Records to Review:

- RCRA Part B Permit
- National Response Center Notification Documentation
- Preliminary Assessment (CERCLA)
- Federal agency property transfer contract
- Policy establishing whether or not agency will comply with all or portions of Title III (EPCRK) and supporting documents/notices
- Information and maps delineating all CERCLA sites or spill sites
- Ground water quality data for all monitoring wells
- Spill plan
- Spill reports
- Hazardous Material Inventory

Physical Features to Inspect:

- Disposal sites

People to Interview:

- Directorate of Engineering and Housing (DEH)
- Environmental Coordinator (EC)
- Fire Department
- Director of Logistics (DOL)
- Engineering, Plans, Training, Mobilization, and Security (DPTMSEC)
- Public Affairs Office (PAO)

COMPLIANCE CATEGORY: COMPREHENSIVE ENVIRONMENTAL RESPONSE, CONPENSATION, AND LIABILITY ACT / SUPERFUND AMENDMENT AND REAUTHORIZATION ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
7-1. Determine actions or changes since last review.	Obtain a copy of previous review report and determine if noncompliance issues have been resolved. (2)
...	...
7-2. Copies of all relevant Federal, DoD, U.S. Army, and state / local regulations should be maintained on the installation.	Determine whether copies of the following regulations and policy letters are maintained and kept current at the installation: (1) - CERCLA/SARA Section 120, *Federal Facilities*. - SARA Section 211, *DoD Environmental Restoration Program*. - 40 CFR 300, Subchapter J, *Superfund Programs*. - 32 CFR 650, *Environmental Quality*. - DoD Directive 5100.50, *Protection and Enhancement of Environmental Quality*. - AR 200-1, *Environmental Protection and Enhancement*.
...	...
7-3. Installations are required to abide by state and local regulations (AR 200-1, para 1-39(a)(3)).	Verify that the installation is abiding by state and local requirements. (1) Verify that the installation is operating according to permits issued by the state or local agencies. (1)(2) NOTE: Issues that are typically regulated by state and local agencies include: (1)(2) - notification requirements - response plan requirements.
...	...
7-4. Screening for past use of hazardous substances and the potential for contamination will be conducted at all major Army installations and subinstallations, and other properties controlled by the Army (AR 200-1, para 9-7a).	Determine if installation has been screened for past use of hazardous substances. (2)
...	...
7-5. Each installation with an on-going IRP program must have a technical review committee (TRC) (AR 200-1; para 9-10).	Determine if the installation has formed and implemented a TRC. (1)(2)(13) Determine if the committee includes representatives from the USEPA, state, and local regulatory agencies, and the public. (1)(2)(13) Verify that the TRC holds public meetings quarterly or at identified milestones. (1)(2)(13)

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COMPLIANCE CATEGORY: COMPREHENSIVE ENVIRONMENTAL RESPONSE, CONPENSATION, AND LIABILITY ACT / SUPERFUND AMENDMENT AND REAUTHORIZATION ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
7-6. In all environmental restoration activities a preliminary assessment/site investigation (PA/SI) is required (AR 200-1, para 9-7f(i)).	Verify that in the IRP, the property over which the installation commander or other Army entity has control, an inventory of all the real property has been done. (2) Determine if at the start of the preliminary assessment a program of full coordination with Federal and state regulatory agencies was established. (1) Verify that if a site investigation is required an environmental analysis in the form of an EA, EIS, or CX was prepared. (1)(2) Verify that when a SI leads to a remedial investigation/feasibility study (RI/FS) that it is conducted in accordance with the provisions in AR 200-1 and that it was started within 6 months after the installation was added to the NPL. (1)(2) Verify that a Record of Decision (ROD) is signed by the Installation Commander after the publication of the FS report. (1)(2) Verify that within 15 months after the completion of the FS and the ROD, a selected alternative has been designed and substantial continuous on-site activity is underway. (1)(2)
...	...
7-7. Installations with IRP sites must appoint a remedial project manager (Executive Order 12580; National Contingency Plan).	Determine if the installations commander has appointed a remedial project manager for all IRP sites. (2)
...	...

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COMPLIANCE CATEGORY: COMPREHENSIVE ENVIRONMENTAL RESPONSE, CONPENSATION, AND LIABILITY ACT / SUPERFUND AMENDMENT AND REAUTHORIZATION ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
7-8. The installation must keep the public informed about and involved with IRP projects (AR 200-1, para. 9-11).	Verify that the public is informed through the PAO, in a timely news release, about: (2)(21) - the discovery of releases or threatened releases - the magnitude of any threat to public health and the environment associated with any such release or threatened release - proposed response actions with respect to any release or threatened release - the initiation of each distinct phase of a response action - findings and the availability of documents for review - discovery of off-site migration of contaminants - the signing of site-specific agreements with regulatory agencies. Verify that all proposed public statements are coordinated with the Installation commander, the OSC/RPM, the SJA, PAO, and environmental staffs of the installation, the MACOM PAO and any other signatories of an IAG if applicable. (2) Verify that public participation activities begin with the initiation of the RI/FS, if not earlier. (2)(5) Verify that a community relations and response plan is prepared for any site on the National Priorities List (NPL). (2)(5) Verify that public comment is solicited for 45 days on any draft FS. (2)(5) Verify that the installation makes prompt notification to applicable USEPA, state and local authorities of the following: (2)(5) - the discovery of releases or threatened releases of hazardous substances - the magnitude of any threat to public health and the environment that may be associated with any such release or threatened release - the proposed response actions with respect to any release or threatened release - the initiation of each distinct phase of a response action.
...	...

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COMPLIANCE CATEGORY: COMPREHENSIVE ENVIRONMENTAL RESPONSE, CONPENSATION, AND LIABILITY ACT / SUPERFUND AMENDMENT AND REAUTHORIZATION ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
OFFSITE CONTAMINATION	
7-9. The Army is required to conduct response actions outside of installation boundaries where the installation is reasonably considered the sole or the major source of the release (AR 200-1, para.9-8).	Check to see if data indicates contamination is migrating from a source on Army-controlled property to outside the installation boundaries. (2) Verify that a process is in place to notify the following: (1) - the MACOM environmental, legal and public affairs staffs. - the USEPA regional office and state and local authorities. Verify that off-site response plans are coordinated with USEPA, state, and local authorities. (1) Verify that the installation seeks to minimize future commitments and liabilities. (1)
...	...
RELEASES	
7-10. Releases in excess or equal to reportable quantities of hazardous substances shall be reported to the National Response Center within 24 hours (40 CFR 302.1 - 6).	Verify that spills in excess of the reportable quantities listed in Appendix 7-1 have been reported. (2) Verify that a procedure is in place for the notification of the National Response Center within 24 hours after becoming aware of the release. (2) Verify that if mixtures or solutions of hazardous substances are released, except for radionuclides, it is reported when: (2) - the quantity of all hazardous constituents of the mixture or solution is known and a reportable quantity or more of any hazardous constituent is released, or - the quantity of one or more of the hazardous constituents of the mixture or solution is unknown and the total amount of the mixture or solution released exceeds the reportable quantity for the hazardous constituent with the lowest reportable quantity. (NOTE: Notification requirements for radionuclide releases are not included in this protocol.)
...	...

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COMPLIANCE CATEGORY: COMPREHENSIVE ENVIRONMENTAL RESPONSE, CONPENSATION, AND LIABILITY ACT / SUPERFUND AMENDMENT AND REAUTHORIZATION ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
7-11. Installations where an extremely hazardous chemical is produced, used or stored where there is a release of a reportable quantity of any extremely hazardous substance of CERCLA hazardous substance are required to meet specific notification requirements (40 CFR 355.40).	Verify that a procedure is in place to immediately notify the community emergency coordinator or local emergency response personnel of any area likely to be affected and the State emergency response commission of a release of a reportable quantity or greater of an extremely hazardous substance or a CERCLA hazardous substance. (1)(2) Check Appendix 7-1 for a listing of extremely hazardous substances and look-up the reportable quantities for those substances in Appendix 7-1. (1)(2) Verify that a procedure is in place to provide a written follow-up emergency notification as soon as practicable after the release. (1)(2) (NOTE: These notification requirements do not apply to: - any release resulting in exposure to persons solely within the boundaries of the facility - any release which is a "federally permitted release" as defined by CERCLA - any release which is "continuous" as defined by CERCLA - any release of a pesticide exempt by CERCLA - any release meeting the definition of release under CERCLA.)
...	...
EMERGENCY PLANNING	
7-12. Facilities where there are extremely hazardous substances present in amounts equal to greater than the threshold limits found in Appendix 7-1 are required to follow specific emergency planning procedures (40 CFR 355.10 -.30, and Part 355 Appendix A).	Determine if the installation has any of the items listed in Appendix 7-1 in amounts equal to or greater than those listed in Appendix 7-1. (1)(2) Verify that the installation has notified the State emergency response commission, or Governor if there is not emergency response commission, that the installation is subject to emergency planning requirements. (1)(2) Verify that a representative has been designated to participate in local emergency planning process as the facility emergency response coordinator. (1)(2) Verify that a procedure is in place to notify the local emergency planning committee of changes at the installation that are relevant to emergency planning. (1)(2)
...	...

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COMPLIANCE CATEGORY: COMPREHENSIVE ENVIRONMENTAL RESPONSE, CONPENSATION, AND LIABILITY ACT / SUPERFUND AMENDMENT AND REAUTHORIZATION ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
RIGHT-TO- KNOW **7-13.** Installations may be required to submit MSDS sheets or an acceptable alternative and an inventory form containing Tier I information to the State and/or local emergency response commission and the fire department with jurisdiction over the facility for each hazardous chemical present at specific types of facilities (40 CFR 370.20- .28; Subpart B).	Verify that MSDA sheets, or an acceptable alternative, and an inventory form containing Tier I information are submitted in the following cases: (1)(2) - when there are hazardous chemicals in excess of 10,000 pounds - when there are extremely hazardous substances in an amount greater than or equal to 500 lbs (55 gals) or the threshold planning quantity (Appendix 7-1) - when the facility falls under the Standard Industrial Classification Codes 20 - 39, all hazardous chemicals present between 10,000 and zero pounds. Determine if instead of submitting MSDS sheets the following has been submitted: (1)(2) - a list of hazardous chemicals for which the MSDS is required, grouped by hazard category - the chemical or common name of each hazardous chemical - any hazardous component of each hazardous chemical except when reporting mixtures. Verify that revised MSDS sheets are provided within three months after the discovery of significant new information concerning the hazardous chemical. (1)(2) (NOTE: A Tier II form may be submitted instead of a Tier I form.)

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Appendix 7 - 1

Consolidated List of Chemicals Covered in Title III of Superfund Amendments and Reauthorization Act (SARA)

This consolidated chemical list includes chemicals subject to reporting requirements under Title III of SARA of 1986. This list, however, does not contain all chemicals subject to reporting requirements in Section 311 and 312 of SARA Title III. These hazardous chemicals, for which material safety data sheets (MSDS) must be developed under Occupational Safety and Health Act Hazard Communication Standards, are identified by broad criteria, rather than enumeration. There are over 50,000 such substances that meet the criteria. The consolidated list has been prepared to help determine whether there is a need to submit reports under Section 304 or 313 of Title III and, for a specific chemical, what reports need to be submitted.

The list includes chemicals referenced under the four following Federal statutory provisions:

(1) SARA Section 302 Extremely Hazardous Substances - The presence of which, in sufficient quantities, requires certain emergency planning activities to be conducted. Releases of these substances are also subject to reporting under Section 304 of Title III. The final rule listing the extremely hazardous substances and their threshold planning quantities (TPQ), was published 22 Apr 87 (52 CFR 13370).

(2) CERCLA Hazardous Substances (RQ) Chemicals - Releases of which are subject to reporting under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or "Superfund") of 1980. Such releases are also subject to reporting under Section 304 of Title III. CERCLA hazardous substances, and their reportable quantities (RQ), are listed in 40 CFR Part 302, Table 302.4.

(3) SARA Section 313 Toxic Chemicals - Emissions or releases of which must be reported annually as part of SARA Title III's community right-to-know provisions. The Section 313 rule containing these chemicals was published on 4 Jun 87 (52 CFR 21152).

(4) RCRA Hazardous Wastes - from the "P" and "U" lists (40 CFR 261.33) of specific chemicals. RCRA hazardous wastes from the "F" and "K" lists are not included here; such waste streams are also CERCLA hazardous substances. This listing is provided as an indicator that you may already have data on a specific chemical that can be used for Title III reporting purposes.

There are four columns in the consolidated list corresponding to these four statutory provisions. If a chemical is listed as an extremely hazardous substance under Section 302, its TPQ is given in the Section 302 column. Similarly, the CERCLA RQ is given for those chemicals that are CERCLA hazardous substances. A key to the symbols used in the Section 302 and CERCLA columns precedes the list. An "X" in the column for Section 313 indicates that the chemical is subject to reporting under Section 313.

The letter-and-digit code in the RCRA column is the chemical's RCRA hazardous waste code. A blank in any of these columns indicates that the chemical is not subject to the corresponding statutory authorities. A fifth column, headed "State," is left entirely blank, to be checked if State reporting requirements apply to a chemical. The heading, "Section 304" over the Section 302 and CERCLA lists indicates that the reporting requirements in Section 304 of SARA Title III apply to Section 302 extremely hazardous substances and CERCLA hazardous substances. As indicated, most chemicals on the consolidated list are subject to reporting requirements under more than one statutory provision.

The Chemical Abstract Service (CAS) registry number is provided for each chemical on the list.

For additional copies of this list, address requests to:

Title III Hotline
US Environmental Protection Agency
WH-562A
401 M Street, SW
Washington, DC 20640
Phone: (800) 535-0262

Key to Symbols in the Consolidated Chemical List

- Indicates that the CERCLA reportable quantity (RQ) is subject to change when an assessment of potential carcinogenicity and/or chronic toxicity is completed; until then, the statutory RQ applies. See 50 CFR 13456 (4 Apr 85) and 51 CFR 34541 (29 Sep 86).

- Indicates that an adjusted RQ has been proposed, but a final judgment has not been made. See 50 CFR 13456 (4 Apr 85).

- EPA may adjust the RQ for methyl isocyanate in a future rulemaking; until then, the statutory 1-pound applies. See 52 CFR 8140 (4 Apr 84).

+ - EPA has proposed to adjust the RQ for radionuclides by establishing RQs in units of curies; until then, the 1-pound RQ applies. See 52 CFR 41593 (16 March 87).

* - Indicates that the chemical is proposed for deletion from the Section 302 (a) extremely hazardous substances. See CFR 41593 (17 Nov 86).

** - Indicates that no RQ is assigned to this generic or broad class. See CFR 13456 (4 Apr 85).

*** - The chemical name associated with this CAS registry number is listed as hydrochloric acid under the CERCLA hazardous substances and the Section 313 toxic chemicals and as hydrogen chloride (gas only) under the Section 302 (a) extremely hazardous substances.

'' - Ferric dextran was designated as a hazardous substance under CERCLA solely because of its listing as a hazardous waste under Section 3001 of RCRA. EPA recently proposed to delist ferric dextran from Table 302.4 of CFR 302.4 and thereby remove its designation as a CERCLA hazardous substance. See 51 CFR 34541 (29 Sep 86).

''' - Uranyl acetate and uranyl nitrate are currently being evaluated for their radioactive properties. Their RQs may be further adjusted in future rule making, adjusting the RQ of radionuclides. See 51 CFR 34541 (29 Sep 86).

SARA TITLE III
CONSOLIDATED CHEMICAL LIST

This is an alphabetical listing of the consolidated list of chemicals.
Numbered chemicals are listed first.

Chemical Name	302	CERCLA	313	RCRA	CAS No.
(1,1'-Biphenyl)-4,4'diamine, 3,3'dimethoxy-		10	x	U091	119-90-4
(1,1'-Biphenyl)-4,4'diamine, 3,3'dichloro-		1	x	U073	91-94-1
(1,1'-Biphenyl)-4,4'diamine, 3,3'dimethyl-		10	x	U095	119-93-7
1,1-Dichloroethane		1000		U076	75-34-3
1,1-Dichloroethylene		100	x	U078	75-35-4
1,1-Dichloropropane		1000			78-99-9
1,2,4-Trichlorobenzene		100	x		120-82-1
1,2-Benzanthracene,7,12-dimethyl-		1		U094	57-97-6
1,2-Benzene dicarboxylic acid, diethyl ester		1000	x	U088	84-66-2
1,2-Benzenediol,4-[1-hydroxy-2-(((methylamino) ethyl]-		1000		P042	51-43-4
1,2-Benzenedi carboxylic acid anhydride		5000	x	U190	85-44-9
1,2-Benzene dicarboxylic acid,[bis(2-ethylhexyl)]ester		100	x	U028	117-81-7
1,2-Benzisothiazolin-3-one,1,1-dioxide and salts		100	x	U202	81-07-2
1,2-Benzphenanthrene		100		U050	218-01-9
1,2-Butylene oxide			x		106-88-7
1,2-Dibromo-3-chloropropane		1	x	U066	96-12-8
1,2-Dichloroethane		100	x	U077	107-06-2
1,2-Dichloroethylene			x		540-59-0
1,2-Dichloropropane		1000	x	U083	78-87-5
1,2-Dihydro-3,6-pyridazinedione		5000		U148	123-33-1
1,2-Dimethylhydrazine		1		U099	540-73-8
1,2-Diphenylhydrazine		10	x	U109	122-66-7
1,2-Ethanediylbis-carbamodithioic acid		5000		U114	111-54-6
1,2-Oxathiolane,2,2-dioxide		10	x	U193	1120-71-4
1,2-trans-Dichloroethylene		1000		U079	156-60-5
1,2,7,8-Dibenzopyrene		10		U064	189-55-9
1,3-Benzenediol		5000		U201	108-46-3
1,3-Dichloropropane		1000			142-28-9

Chemical Name	302	CERCLA	313	RCRA	CAS No.
1,3-Dichloropropene		100	x	U084	542-75-6
1,4-Diethylene dioxide		100	x	U108	123-91-1
1,4-Naphthalenedione		5000		U166	130-15-4
1,Amino-2-methyl-anthraquinone			x		82-28-0
1-Butanamine,N-butyl-N-nitroso-		10	x	U172	924-16-3
1-Butanol		5000	x	U031	71-36-3
1-Methylbutadiene		100		U186	504-60-9
1-Naphthalamine		100	x	U167	134-32-7
1-Propanamine		5000		U194	107-10-8
1-Propanol,2,3-dibromo-phosphate (3:1)		10	x	U235	126-72-7
2,3,4-Trichlorophenol		10			15950-66-0
2,3,5-Trichlorophenol		10			933-78-8
2,3,6-Trichlorophenol		10			933-75-5
2,4,-D esters		100			25168-26-7
2,4,5-T esters		1000			25168-15-4
2,4,5-T salts		1000			13560-99-1
2,2-Dichloropropionic acid		5000			75-99-0
2,3,7,8-Tetrachlorodibenzo p-dioxin (TCDD)		1			1746-01-6
2,3-Dichloropropene		100			78-88-6
2,4,5-T amines		5000			1319-72-8
2,4,5-T amines		5000			3813-14-7
2,4,5-T amines		5000			6369-96-6
2,4,5-T amines		5000			6369-97-7
2,4,5-T amines		5000			2008-46-0
2,4,5-T esters		1000			93-79-8
2,4,5-T esters		1000			1928-47-8
2,4,5-T esters		1000			2545-59-7
2,4,5-T esters		1000			61792-07-2
2,4,5-T		1000		U232	93-76-5
2,4,5-TP acid esters		100			32534-95-5
2,4-D acid		100	x	U240	94-75-7
2,4-D esters		100			94-11-1
2,4-D esters		100			94-79-1
2,4-D esters		100			94-80-4
2,4-D esters		100			1320-18-9
2,4-D esters		100			1928-38-7
2,4-D esters		100			2971-38-2
2,4-D esters		100			53467-11-1
2,4-D esters		100			1928-61-6
2,4-D esters		100			1929-73-3
2,4-Diaminoanisole sulfate			x		39156-41-7
2,4-Diaminosole			x		615-41-7
2,4-Dichlorophenol		100	x	U081	120-83-2
2,4-Dimethylphenol		100	x	U101	105-67-9
2,4-Dinitrophenol		10	x	P048	51-28-5
2,5-Dinitrophenol		10			329-71-5
2,5-Furandione		5000	x	U147	108-31-6

Chemical Name	302	CERCLA	313	RCRA	CAS No.
2,6-Dichlorophenol		100		U082	87-65-0
2,6-Dinitrophenol		10			573-56-8
2,6-Xylidine			x		87-62-7
2-Aminoanthraquinone			x		117-79-3
2-Butanone peroxide		10		U160	1338-23-4
2-Butanone		5000	x	U159	78-93-3
2-Butene,1,4-dichloro-		1		U074	764-41-0
2-Chloroacetophenone			x		532-27-4
2-Chloroethyl vinyl ether		1000		U042	110-75-8
2-Chlorophenol		100		U048	95-57-8
2-Ethoxyethanol		100	x		110-80-5
2-Furancarboxaldehyde		5000		U125	98-01-1
2-Methoxyethanol			x		109-86-4
2-Naphthylamine		10	x	U168	91-59-8
2-Nitropropane		10	x	U171	79-46-9
2-Phenylphenol			x		90-43-7
2-Picoline		5000		U191	109-06-8
3,4,5-Trichlorophenol		10			609-19-8
3,5-Dichloro-N-(1,2-dimethyl-2-propynyl) benzamide		5000		U192	23950-58-5
3,4-Dinitrotoluene		10			610-39-9
4,4'-Diaminodiphenyl ether			x		101-80-4
4,4'-Isopropylidenediphenol			x		80-05-7
4,4'-Methylene bis(N,N-dimethyl) benzenamine			x		101-61-1
4,4'-Methylene dianiline			x		101-77-9
4,4'-Thiodianiline			x		139-65-1
4,6-Dinitro-o-cyclohexylphenol		100		P034	131-89-5
4-Amino-1-methyl benzene		100			106-49-0
4-Aminoazobenzene			x		60-09-3
4-Aminobiphenyl			x		92-67-1
4-Chloro-m-cresol		5000		U039	59-50-7
4-Chlorophenyl phenyl ether		5000			7005-72-3
4-Nitrobiphenyl			x		92-93-3
5-Nitro-o-anisidine			x		99-59-2
Acenaphthene		100			83-32-9
Acenaphthylene		5000			208-96-8
Acetaldehyde, trichloro-		5000		U034	75-87-6
Acetaldehyde		1000	x	U001	75-07-0
Acetamide-N-(4-ethoxyphenyl)-		100		U187	62-44-2
Acetamide,N-(aminothioxomethyl)-		1000		P002	591-08-2
Acetamide,N-9H-fluoren-2-yl-		1	x	U005	53-96-3
Acetamide			x		60-35-5
Acetic acid, ethyl ester		5000		U112	141-78-6
Acetic acid, lead salt		5000#		U144	301-04-2

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Acetic acid, thallium(I) salt		100		U214	563-68-8
Acetic acid		5000			64-19-7
Acetic anhydride		5000			108-24-7
Acetone cyanohydrin	1,000	10		P069	75-86-5
Acetone thiosemicarbazide	1,000/10,000				1752-30-3
Acetone		5000	x	U002	67-64-1
Acetonitrile		5000	x	U003	75-05-8
Acetophenone		5000		U004	98-86-2
Acetyl bromide		5000			506-97-7
Acetyl chloride		5000		U006	75-36-5
Acrolein	500	1	x	P003	107-02-8
Acrylamide	1,000/10,000	5000	x	U007	79-06-1
Acrylic acid		5000	x		79-10-7
Acrylonitrile	10,000	100	x	U009	107-13-1
Acrylyl chloride	100				814-68-6
Adipic acid		5000			124-04-09
Adiponitrile	1,000				111-69-3
Alanine,3-[p-bis(2-chloroethyl)amino]phenyl-,L-		1		U150	148-32-3
Aldicarb	100/10,000	1		P070	116-06-3
Aldrin	500/10,000	1	x	P004	309-00-2
Allyl alcohol	1,000	100		P005	107-18-6
Allyl chloride		1000	x		107-05-1
Allylamine	500				107-11-9
alpha-Endosulfan		1			959-98-8
alpha-BHC		10			319-84-6
alpha,alpha-Dimethylbenzylhydroperoxide		10	x	U096	80-15-9
alpha,alpha-Dimethyl phenethylamine		5000		P046	122-09-8
Aluminum (fume or dust)			x		7429-90-5
Aluminum oxide (fibrous forms)			x		1344-28-1
Aluminum phosphide	500	100		P006	20859-73-8
Aluminum sulfate		5000			10043-01-3
Aminopterin	500/10,000				54-62-6
Amiton oxalate	100/10,000				3734-97-2
Amiton	500				78-53-5
Amitrole		10		U011	61-82-5
Ammonia	500	100	x		7664-41-7
Ammonium acetate		5000			631-61-8
Ammonium benzoate		5000			1863-63-4
Ammonium bicarbonate		5000			1066-33-7
Ammonium bichromate		10			7789-09-5
Ammonium bifluoride		100			1341-49-7
Ammonium bisulfite		5000			10192-30-0
Ammonium carbamate		5000			1111-78-0
Ammonium chloride		5000			506-87-6
Ammonium chloropla-	10,000*				12125-02-9

Chemical Name	302	CERCLA	313	RCRA	CAS No.
tinate					
Ammonium chromate		10			7788-98-9
Ammonium citrate,dibasic		5000			3012-65-5
Ammonium fluoborate		5000			13826-83-0
Ammonium fluoride		100			12125-01-8
Ammonium hydroxide		1000			1336-21-6
Ammonium nitrate (solution)			x		6484-52-2
Ammonium oxalate		5000			5972-73-6
Ammonium oxalate		5000			6009-70-7
Ammonium oxalate		5000			14258-49-2
Ammonium picrate		10		P009	131-74-8
Ammonium silicofluoride		1000			16919-19-0
Ammonium sulfamate		5000			7773-06-0
Ammonium sulfate (solution)			x		7783-20-2
Ammonium sulfide		100			12135-76-1
Ammonium sulfite		5000			10196-04-0
Ammonium tartrate		5000			14307-43-8
Ammonium tartrate		5000			3164-29-2
Ammonium thiocyanate		5000			1762-95-4
Ammonium thiosulfate		5000			7783-18-8
Ammonium vanadate		1000		P119	7803-55-6
Amphetamine	1000				300-62-9
Amyl acetate		5000			628-63-7
Analine,2,4,6-trimethyl-	500				88-05-1
Aniline	1000	5000	x	U012	62-53-3
Anthracene		5000	x		120-12-7
Antimony pentachloride		1000			7647-18-9
Antimony pentafluoride	500				7783-70-2
Antimony potassium tartrate		100			28300-74-5
Antimony tribromide		1000			7789-61-9
Antimony trichloride		1000			10025-91-9
Antimony trifluoride		1000			7783-56-4
Antimony trioxide		1000			1309-64-4
Antimony		5000	x		7440-36-0
Antimycin A	1,000/10,000				1397-94-0
Antu	500/10,000	100		P072	86-88-4
Aroclor 1016		1			12674-11-2
Aroclor 1221		1			11104-28-2
Aroclor 1232		1			11141-16-5
Aroclor 1242		1			53469-21-9
Aroclor 1248		1			12672-29-6
Aroclor 1254		1			11097-69-1
Aroclor 1260		1			11096-82-5
Arsenic acid		1		P010	1327-52-2
Arsenic acid		1		P010	7778-39-4
Arsenic disulfide		1			1303-32-8
Arsenic pentoxide	100/10,000	1		P011	1303-28-2
Arsenic trisulfide		1			1303-33-9

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Arsenic		1	x		7440-38-2
Arsenous oxide	100/10,000	1		P012	1327-53-3
Arsenous trichloride	500	1			7784-34-1
Arsine, diethyl-		1		P038	692-42-2
Arsine	100				7784-42-1
Asbestos		1	x		1132-21-4
Azaserine		1		U015	115-02-6
Azinophos-methyl	10/10,000				86-50-0
Azinophos-ethyl	100/10,000				2642-71-9
Barium and compounds			x		7440-39-3
Barium cyanide		10		P013	542-62-1
Benzal chloride	500	5000	x	U017	98-87-3
Benzamide			x		55-21-0
Benzenamine,2methyl, hydrochloride		100	x	U222	636-21-5
Benzenamine,2-methyl, 5-nitro-		100		U181	99-55-8
Benzenamine,3-(trifluoro-methyl)-	500				98-16-8
Benzenamine,1,4'-methylenebis-2-chloro		10	x	U158	101-14-4
Benzenamine,4-chloro-2-methyl-hydrochloride		100		U049	3165-93-3
Benx'zenamine-4-chloro		1000		P024	106-47-8
Benzenamine,4-nitro-		5000		P077	100-01-6
Benzenamine,NN-dimeth-yl-4-phenylazo		10	x	U093	60-11-7
Benzene,1,2,4,5-tetrachloro-		5000		U207	95-94-3
Benzene,1,2-dichloro		100	x	U070	95-50-1
Benzene,1,2-methylene-dioxy-4-allyl-		100	x	U203	94-59-7
Benzene-1,2-methylene-dioxy-4-propenyl-		100		U141	120-58-1
Benzene,1,2-methylene-dioxy-4-propyl-		10		U090	94-58-6
Benzene,1,3,5-trinitro-		10		U234	99-35-4
Benzene,1,3-dichloro		100	x	U071	541-73-1
Benzene,1,4-dichloro		100	x	U072	106-46-7
Benzene,1-(chloro-methyl)-4-nitro-	500/10,000				100-14-1
Benzene,1-bromo-4-phenoxy-		100		U030	101-55-3
BEnzene,1-methyl-2,2-dinitro-		10	x	U105	121-14-2
Benzene,1-methyl-2,6-dinitro-		100	x	U106	606-20-2
Benzene,1-methylethyl-		5000	x	U055	98-82-8
Benzene,2,4-diisocy-anatomethyl		100		U223	26471-62-5
Benzene,chloro-		100	x	U037	108-90-7

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Benzene,dimethyl-		1000	x	U239	1330-20-7
Benzene,hexachloro-		10	x	U127	118-74-1
Benzene,hexahydro-		1000	x	U056	110-82-7
Benzene,m-dimethyl-		1000	x		108-38-3
Benzene,methyl-		1000	x	U220	108-88-3
Benzene,o-dimethyl-		1000	x		95-47-6
Benzene,p-dimethyl-		1000	x		106-42-3
Benzene,pentachloro-		10		U183	608-93-5
Benzene,pentachloronitro-		100	x	U185	82-68-8
Benzenearsonic acid	10/10,000				
Benzenesulfonyl chloride	10,000*	100		U020	98-09-9
Benzene		10	x	U019	71-43-2
Benzidine		1	x	U021	92-87-5
Benzimidazole,4,5-di-chloro-2-(trifluoromethyl)	500/10,000				3615-21-2
Benzoic acid		5000			65-85-0
Benzo[b]fluoranthene		1			205-99-2
Benzonitrile		5000			100-47-0
Benzotrichloride	100	10	x	U023	98-07-7
Benzoyl chloride		1000	x		98-88-4
Benzoyl peroxide			x		94-36-0
Benzo[a]pyrene		1		U022	50-32-8
Benzo[ghi]perylene		5000			191-24-2
Benzo[jk]fluorene		100		U120	206-44-0
Benzo[k]fluoranthene		5000			207-08-9
Benzyl chloride	500	100	x	P028	100-44-7
Benzyl cyanide	500				140-29-4
Benz[a]anthracene		10		U018	56-55-3
Benz[c]acridine		100		U016	225-51-4
Benz[j]aceanthrylene,1,2-dihydro-3-methyl-		10		U157	56-49-5
Beryllium chloride		1			7787-47-5
Beryllium fluoride		1			7787-49-7
Beryllium nitrate		1			13597-99-4
Beryllium nitrate		1			7787-55-5
Beryllium		10	x	P015	7440-41-7
beta-Endosyulfan		1			33213-65-9
beta-BHC		1			319-85-7
beta-Chloronaphthalene		5000		U047	91-58-7
Bicyclo[2.2.1]heptane-2-carbonitrile,5-chloro-6-(((methyla	500/10,000				15271-41-7
Biphenyl			x		92-52-4
Bis(dimethylthiocarbmyol) disulfide		10		U244	137-26-8
Bis(2-chloroethoxy) methane		1000		U024	111-91-1
Bis(2-chloroisopropyl) ether		1000	x	U027	108-60-1
Bis(2-ethylhexyl)adipate			x		103-23-1
Bis(chloromethyl)ketone	10/10,000				534-07-6

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Bitoscanate	500/10,000				4044-65-9
Boron trichloride	500				10294-34-5
Boron trifluoride compound with methyl ether (1:1)	1,000				353-42-4
Boron trifluoride	500				7637-07-2
Bromadiolone	100/10,000				18772-56-7
Bromine	500				7726-95-6
Bromoacetone		1000		P017	598-31-2
Bromoform		100	x	U225	75-25-2
Brucine		100		P018	357-57-3
Butadiene	10,000*		x		
Butanoic acid,4-[bis(2-chloroethyl)amino] benzene-		10		U035	305-03-3
Butyl benzyl Phthalate		100	x		85-68-7
Butyl acetate		5000			123-86-4
Butyl acrylate			x		141-32-2
Butyl isovalerate	10,000*				109-19-3
Butyl vinyl ether	10,000*				111-34-2
Butylamine		1000			
Butyraldehyde			x		123-72-8
Butyric acid		5000			107-92-6
CI Acid Blue 9,diammonium salt			x		2650-18-2
CI Acid Blue 9,disodium salt			x		3844-45-9
CI Acid Green 3			x		4680-78-8
CI Basic Green 1	10,000*		x		633-03-4
CI Basic Green 4			x		569-64-2
CI Basic Red 1			x		989-38-8
CI Direct Black 38			x		1937-37-7
CI Direct Blue 6			x		2602-46-2
CI Direct Brown 95			x		16071-86-6
CI Disperse Yellow 3			x		2832-40-8
CI Food Red 15			x		81-88-9
CI Food Red 5			x		3761-53-3
CI Solvent Orange 7			x		3118-97-6
CI Solvent Yellow 14			x		824-07-0
CI Solvent Yellow 34 (Auramine)		100	x	U014	492-80-8
CI Solvent Yellow 3			x		97-56-3
CI Vat Yellow 4			x		128-66-5
Cacodylic acid		1		U136	75-60-5
Cadmium acetate		10			543-90-8
Cadmium bromide		10			7789-42-6
Cadmium chloride		10			10108-64-2
Cadmium oxide	100/10,000				1306-19-0
Cadmium stearate	1,000/10,000				2223-93-0
Cadmium		10	x		7440-43-9
Calcium arsenate	500/10,000	1			7778-44-1
Calcium arsenite		1			52740-16-6

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Calcium carbide		10			75-20-7
Calcium chromate		10		U032	13765-19-0
Calcium cyanamide			x		156-62-7
Calcium cyanide		10		P021	592-01-8
Calcium dodecylbenzene sulfonate		1000			26264-06-2
Calcium hypochlorite		10			7778-54-3
Cantharidin	100/10,000				56-25-7
Captan		10	x		133-06-2
Carbachol chloride	500/10,000				51-83-2
Carbamic acid, ethyl ester		100	x	U238	51-79-6
Carbamic acid,methyl-nitroso-,ethyl ester		1		U178	615-53-2
Carbamic acid, methyl-o-(((2,4-dimethyl-1,3- dithiolan-2-y)	100/10,000				26419-73-8
Carbamide,N-ethyl-N-nitroso-		1	x	U176	759-73-9
Carbamide,N-methyl-N-nitroso		1	x	U177	684-93-5
Carbamide,thio-		10	x	U219	62-56-6
Carbamimidoselenoic acid		1000		P103	630-10-4
Carbamoyl chloride, dimethyl-		1	x	U097	79-44-7
Carbaryl		100	x		63-25-2
Carbofuran	10/10,000	10			1563-66-2
Carbon disulfide	10,000	100	x	P022	75-15-0
Carbon oxyfluoride		1000		U033	353-50-4
Carbon tetrachloride		10	x	U211	56-23-5
Carbonyl sulfide			x		463-58-1
Carbophenothion	500				786-19-6
Carvone	10,000*				2244-16-8
Catechol			x		120-80-9
Chloramben			x		133-90-4
Chlordane	1,000	1	x	U036	57-74-9
Chlorfenvinfos	500				470-90-6
Chlorinated fluorocarbon (Freon 113)			x		76-13-1
Chlorine cyanide		10		P033	506-77-4
Chlorine dioxide			x		10049-04-4
Chlorine	100	10	x		7782-50-5
Chlormephos	500				24934-91-6
Chlormequat chloride	100/10,000				999-81-5
Chlornaphazine		100		U026	494-03-1
Chloroacetaldehyde	10,000*	1000		P023	107-20-0
Chloroacetic acid	100/10,000		x		79-11-8
Chlorodibromomethane		100			124-48-1
Chloroethane		100	x		75-00-3
Chloroethanol	500				107-07-3
Chloroethyl chloroformate	1,000				627-11-2
Chloroform	10,000	10	x	U044	67-66-3
Chloromethyl ether	100	1#	x	P016	542-88-1

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Chloromethyl methyl ether	100	10	x	U046	107-30-2
Chlorophacinone	100/10,000				3691-35-8
Chloroprene			x		126-99-8
Chlorothalonil			x		1897-45-6
Chloroxuron	500/10,000				1982-47-4
Chlorpyrifos		1			2921-88-2
Chlorsulfonic acid		1000			7790-94-5
Chlorthiophos	500				21923-23-9
Chromic acetate		1000			1066-30-4
Chromic acid		10			11115-74-5
Chromic acid		10			7738-94-5
Chromic chloride	1/10,000				10025-73-7
Chromic sulfate		1000			10101-53-8
Chromium		5000	x		7440-47-3
Chromous chloride		1000			10049-05-5
Cobalt carbonyl	10/10,000				10210-68-1
Cobalt,((2,2'-1,2-ethanediylbis (nitrilomethylidyne))bis(6)	100/10,000				62207-76-5
Cobaltous bromide		1000			7789-43-7
Cobaltous formate		1000			544-18-3
Cobaltous sulfamate		1000			14017-41-5
Cobalt	10,000*		x		7440-50-8
Colchicine	10/10,000				64-86-8
Copper cyanide		10		P029	544-92-3
Copper		5000	x		7440-50-8
Coumafuryl	10,000*				117-52-2
Coumaphos	100/10,000	10			56-72-4
Coumatetralyl	500/10,000				5836-29-3
Creosote		1		U051	8001-58-9
Cresol(s)		1000	x	U052	1319-77-3
Cresol,o-	1,000/10,000	1000	x	U052	95-48-7
Crimidine	100/10,000				535-89-7
Crotonaldehyde,(E)-	1,000	100		U053	123-73-9
Crotonaldehyde	1,000	100		U053	4170-30-3
Cupferron			x		135-20-6
Cupric acetate		100			142-71-2
Cupric chloride		10			7447-39-4
Cupric nitrate		100			3251-23-8
Cupric oxalate		100			5893-66-3
Cupric sulfate ammoniated		100			10380-29-7
Cupric sulfate		10			7758-98-7
Cupric tartrate		100			815-82-7
Cyanides (soluble cyanide salts		10	x	P030	57-12-5
Cyanogen bromide	500/10,000	1000		U246	506-68-3
Cyanogen iodide	1,000/10,000				506-78-5
Cyanogen		100		P031	460-19-5
Cyanophos	1,000				2636-26-2
Cyanuric fluoride	100				675-14-9
Cyclohexanone		5000		U057	108-94-1

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Cycloheximide	100/10,000				66-81-9
Cyclohexylamine	10,000				108-91-8
Cyclopentane	10,000*				287-92-3
Cyclophosphamide		10		U058	50-18-0
D-Glucopyranose,2-deoxy-2-(3-methyl-3-nitrosoureido)-		1		U206	18883-66-4
Daunomycin		10		U059	20830-81-3
DDD		1		U060	72-54-8
DDE		1			72-55-9
DDT		1		U061	50-29-3
Decaborane(14)	500/10,000				17702-41-9
Decabromodiphenyl oxide			x		1163-19-5
delta-BHC		1			319-86-8
Demeton-S-methyl	500				919-86-8
Demeton	500				8065-48-3
Di-n-propylnitrosamine		10	x	U111	621-64-7
Dialifos	100/10,000				10311-84-9
Diallate		100	x	U062	2303-16-4
Diaminotoluene		10	x	U221	95-80-7
Diaminotoluene		10	x	U221	25376-45-8
Diaminotoluene		10		U221	823-40-5
Diaminotoluene		10			496-72-0
Diazinon		1			5333-41-5
Diazinon		1			333-41-5
Diazomethane			x		334-88-3
Dibenzofuran			x		132-64-9
Dibenz[a,h] anthracene		1		U063	53-70-3
Diborane	100				19287-45-7
Dibutyl phthalate		10	x	U069	84-74-2
Dicamba		1000			1918-00-9
Dichlone		1			117-80-6
Dichlorobenzalkonium chloride	10,000*				8023-53-8
Dichlorobenzene (mixed)		100	x		25321-22-6
Dichloroethyl ether	10,000	10	x	U025	111-44-4
Dichloromethyl-phenylsilane	1,000				149-74-6
Dichloropropane-Dichloropropene (mixture		100			8003-19-8
Dichloropropane		1000			26638-19-7
Dichloropropene		100			26952-23-8
Dichlorobromomethane		5000	x		75-27-4
Dichlorodifluoromethane		5000		U075	75-71-8
Dichlorvos	1,000	10	x		62-73-7
Dicholobenil		100			1194-65-6
Dicrotophos	100				141-66-2
Dieldrin		1		P037	60-57-1
Diepoxybutane	500	10	x	U085	1464-53-5
Diethanolamine			x		111-42-2

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Diethyl chlorophosphate	500				814-49-3
Diethyl sulfate			x		64-67-5
Diethyl-p-nitrophenyl phosphate		100		P041	311-45-5
Diethyl-p-phenylenediamine	10,000*				93-05-0
Diethylamine		100			109-89-7
Diethylcarbamazine citrate	100/10,000				1642-54-2
Diethylstilbestrol		1		U089	56-53-1
Digitoxin	100/10,000				71-63-6
Diglycidyl ether	1,000				2238-07-5
Digoxin	10/10,000				20830-75-5
Dimefox	500				115-26-4
Dimethoate	500/10,000	10		P044	60-51-5
Dimethyl phosphorochloridothioate	500				2524-03-0
Dimethyl phthalate		5000	x	U102	131-11-3
Dimethyl sulfate	500	100	x	U103	77-78-1
Dimethyl sulfide	100				75-18-3
Dimethyl-p-phenylenediamine	10/10,000				99-98-9
Dimethylamine		1000		U092	124-40-3
Dimethylhydrazine	1,000	10	x	U098	57-14-7
Dimethyldichlorosilane	500				75-78-5
Dimetilan	500/10,000				644-64-4
Dinitrobenzene (mixed)		100			25154-54-5
Dinitrocresol	10/10,000	10	x	P047	534-52-1
Dinitrophenol		10			25550-58-7
Dinitrotoluene		10			25321-14-6
Dinoseb	100/10,000	1000		P020	88-85-7
Dinoterb	500/10,000				1420-07-1
Dioctyl phthalate		5000	x	U107	117-84-0
Dioxathion	500				78-34-2
Dioxolane	10,000*				646-06-0
Diphacinone	10/10,000				82-66-6
Diphosphoramide, octamethyl-	100	100		P085	152-16-9
Dipropylamine		5000		U110	142-84-7
Diquat		1000			85-00-7
Diquat		1000			2764-72-9
Disulfoton	500	1		P039	298-04-4
Dithiazinine iodide	500/10,000				514-73-8
Dithiobiuret	100/10,000	100		P049	541-53-7
Diuron		100			330-54-1
Dodecylbenzenesulfonic acid		1000			27176-87-0
Emetine,dihyrochloride	1/10,000				316-42-7
Endosulfan sulfate		1			1031-07-8
Endosulfan	10/10,000	1		P050	115-29-7
Endothall		1000		P088	145-73-3
Endothion	500/10,000				2778-04-3

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Endrin aldehyde		1			7421-93-4
Endrin	500/10,000	1		P051	72-20-8
Epichlorohydrin	1,000	100	x	U041	106-89-8
EPN	100/10,000				2104-64-5
Ergocalciferol	1,000/10,000				50-14-6
Ergotamine tartrate	500/10,000				379-79-3
Ethanamine,N-ethyl-N-nitroso-		1	x	U174	55-18-5
Ethane,1,1,1,2-tetrachloro-		1		U208	630-20-6
Ethane,1,1,1,2,2,2-hexachloro		100	x	U131	67-72-1
Ethane,1,1,1-trichloro-2,2-bis9p-methoxyphenyl)-		1	x	U247	72-43-5
Ethane,1,1,2,2-tetrachloro-		100	x	U209	79-34-5
Ethane,1,1,2-trichloro		100	x	U227	79-00-5
Ethane,1,1'-oxybis-		100		U117	60-29-7
Ethane,1,2-dibromo-		1	x	U067	106-93-4
Ethanesulfonyl chloride, 2-chloro-	500				1622-32-8
Ethanethioamide		10	x	U218	62-55-5
Ethanol,1,2-dichloro-acetate	1,000				10140-87-1
Ethanol,2,2'-(nitroso imino) bis-		1		U173	1116-54-7
Ethenamine,N-methyl-N-nitroso-		5000	x	P084	4549-40-0
Ethene,1,1,2,2-tetrachloro		100	x	U210	127-18-4
Ethene,chloro-		10	x	U043	75-01-4
Ethion	1,000	10			563-12-2
Ethoprophos	1,000				13194-48-4
Ethyl4,4'dichlorobenzilate		10	x	U038	510-15-6
Ethyl acrylate		1000	x	U113	140-88-5
Athyl chloroformate			x		541-41-3
Ethyl methacrylate		1000		U118	97-63-2
Ethyl methanesulfonate		1		U119	62-50-0
Ethyl thiocyanate	10,000				542-90-5
Ethylbenzene		1000	x		100-41-4
Ethylbis(2-chloroethyl)amine	500				538-07-8
Ethylene fluorohydrin	10				371-62-0
Ethylene glycol			x		107-21-1
Ethylene oxide	1,000	10	x	U115	75-21-8
Ethylenediamine tetra-acetic acid (EDTA)		5000			60-00-4
Ethylenediamine	10,000	5000			107-15-3
Ethyleneimine	500	1	x	P054	151-56-4
Ethylenethiourea		10	x	U116	96-54-7
Ethylene			x		74-85-1

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Ethylmercuric phosphate	10,000*				2235-25-8
Famphur		1000		P097	52-85-7
Fenamiphos	10/10,000				22224-92-6
Fenitrothion	500				122-14-5
Fensulfothion	500				115-90-2
Ferric ammonium citrate		1000			1185-57-5
Ferric ammonium oxalate		1000			2944-67-4
Ferric ammonium oxalate		1000			55488-87-4
Ferric chloride		1000			7705-08-0
Ferric dextran		5000"		U139	9004-66-4
Ferric fluoride		100			7783-50-8
Ferric nitrate		1000			10421-48-4
Ferric sulfate		1000			10028-22-5
Ferrous ammonium sulfate		1000			10045-89-3
Ferrous chloride		100			7758-94-3
Ferrous sulfate		1000			7720-78-7
Ferrous sulfate		1000			7782-63-0
Florouracil	500/10,000				51-21-8
Fluenetil	100/10,000				4301-50-2
Fluometuron			x		2164-17-2
Fluoracetamide	100/10,000	100		P057	640-19-7
Fluorene		5000			86-73-7
Fluorine	500	10		P056	7782-41-4
Fluoroacetic acid	10/10,000				144-49-0
Fluoroacetyl chloride	10				359-06-8
Fonofos	500				944-22-9
Formaldehyde cyanohydrin	1,000				107-16-4
Formaldehyde	500	100	x	U122	50-00-0
Formetanate hydrochloride	500/10,000				23422-53-9
Formic acid		5000		U123	64-18-6
Formothion	100				2540-82-1
Formparanate	100/10,000				17702-57-7
Fosthietan	500				21548-32-3
Fuberidazole	100/10,000				3878-19-1
Fulminic acid, mercury(II) salt		10		P065	628-86-4
Fumaric acid		5000			110-17-8
Furan, tetrahydro-		1000		U213	109-99-9
Furan	500	100		U124	110-00-9
Gallium trichloride	500/10,000				13450-90-3
Glycidylaldehyde		10		U126	765-33-4
Guanidine,N-nitroso-N methyl-N'-nitro		10		U163	70-25-7
Heptachlor epoxide		1			1024-57-3
Heptachlor		1	x	P059	76-44-8
Hexachloro-1,3-butadiene		1	x	U128	87-68-3
Hexachloronaphthalene	10,000*		x		1335-87-1
Hexachlorophene		100		U132	70-30-4
Hexachloropropene		1000		U234	1888-71-7
Hexachlorocyclopentadiene	100	10	x	U130	77-47-4
Hexaethyl tetraphosphate		100		P062	757-58-4

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Hexamethylenediamine, N,N'-dibutyl-	500				4835-11-4
Hexamethylphosphoramide			x		680-31-9
Hydrazine sulfate			x		10034-93-2
Hydrazine	1,000	1	x	U133	302-01-2
Hydrochloric acid (Hydrogen chloride (gas only))***	500	5000	x		7647-01-0
Hydrocyanic acid	100	10	x	P063	74-90-8
Hydrogen fluoride	100	100	x	U134	7664-39-3
Hydrogen perioxide	1,000				7722-84-1
Hydrogen selenide	10				7783-07-5
Hydrogen sulfide	500	100		U135	7783-06-4
Hydroquinone	500/10,000		x		123-31-9
Indeno(1,2,3-cd)pyrene		100		U137	193-39-5
Indomethacin	10,000*				53-86-1
Iridium tetrachloride	10,000*				10025-97-5
Iron, pentacarbonyl-	100				13463-40-06
iso-Amyl acetate		5000			123-92-2
iso-Butyl acetate		5000			110-19-0
iso-Butylamine		1000			78-81-9
iso-Butyric acid		5000			79-31-2
Isobenzan	100/10,000				297-78-9
Isobutyl alcohol		5000		U140	78-83-1
Isobutyraldehyde			x		78-84-2
Isobutyronitrile	1,000				78-82-0
Isocyanic acid,3,4-dichlorophenyl ester	500/10,000				102-36-3
Isodrin	100/10,000	1		P060	465-73-6
Isofluorphate	100	100		P043	55-91-4
Isophorone diisocyanate	100				4098-71-9
Isophorone		5000			78-59-1
Isoprene		100			78-79-5
Isopropanolamine dodecylbenzene sulfonate		1000			42504-46-1
Isopropyl alcohol (mfg-strong acid processes)			x		67-63-0
Isopropyl chloroformate	1,000				108-23-6
Isopropyl formate	500				625-55-8
Isopropylmethylpyrazolyl dimethylcarbamate	500				119-38-0
Kelthane		10	x		115-32-2
Kepone		1		U142	143-50-0
Lactonitrile	1,000				78-97-7
Lasiocarpine		10		U143	303-34-4
lead arsenate		1			10102-48-4
Lead arsenate		1			7645-25-2
Lead arsenate		1			7784-40-9
Lead chloride		100			7758-95-4
Lead Fluoborate		100			13814-96-5
Lead fluoride		100			7783-46-2

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Lead iodide		100			10101-63-0
Lead nitrate		100			10099-74-8
Lead phosphate		1#		U145	7446-27-7
Lead stearate		5000#			1072-35-1
Lead stearate		5000			52652-59-2
Lead stearate		5000			7428-48-0
Lead stearate		5000			56189-09-4
Lead subacetate		100		U146	1335-32-6
Lead sulfate		100			15739-80-7
Lead sulfate		100			7446-14-2
Lead sulfide		5000#			1314-87-0
Lead thiocyanate		100			592-87-0
Lead		1	x		7439-92-1
Leptophos	500/10,000				21609-90-5
Lewisite	10				541-25-3
Lindane	1,000/10,000	1	x	U129	58-89-9
Lithium chromate		10			14307-35-8
Lithium hydride	100				7580-67-8
m-Cresol		1000	x	U052	108-39-4
m-Dinitrobenzene		100			99-65-0
m-Nitrophenol		100			554-84-7
m-Nitrotoluene		1000			99-65-0
Malathion		100			121-75-5
Maleic acid		5000			110-16-7
Malononitrile	500/10,000	1000		U149	109-77-3
Maneb			x		12427-38-2
Manganese and compounds			x		7439-96-5
Manganese, tricarbonyl methylcyclopentadienyl	100				12108-13-3
Mechlorethamine	10		x		51-75-2
Mephosfolan	500				950-10-7
Mercuric acetate	500/10,000				1600-27-7
Mercuric chloride	500/10,000				7487-94-7
Mercuric cyanide		1			592-04-1
Mercuric nitrate		10			10045-94-0
Mercuric oxide	500/10,000				21908-53-2
Mercuric sulfate		10			7783-35-9
Mercuric thiocyanate		10			592-85-8
Mercurous nitrate		10			7782-86-7
Mercurous nitrate		10			10415-75-5
Mercury		1	x	U151	7439-97-6
Mesitylene	10,000*				108-67-8
Methacrolein diacetate	1,000				10476-95-6
Methacrylic anhydride	500				760-93-0
Methacryloyl chloride	100				920-46-7
Methacryloyloxyethyl isocyanate	100				30674-80-7
Methacrylonitrile	500	1000		U152	126-98-7
Methamidophos	100/10,000				10265-92-6
Methane,chloro		100	x	U045	74-87-3
Methane,dibromo-		1000	x	U068	74-95-3

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Methane,dichloro-		1000	x	U080	75-09-2
Methane,iodo-		100	x	U138	74-88-4
Methane,trichlorofluoro-		5000		U121	75-69-4
Methanesulfonyl fluoride	1,000				558-25-8
Methanol		5000	x	U154	67-56-1
Methapyrilene		5000		U155	91-80-5
Methidathion	500/10,000				950-37-8
Methiocarb	500/10,000	10			2032-65-7
Methomyl	500/10,000	100		P066	16752-77-5
Methoxyethylmercuric acetate	500/10,000				151-38-2
Methyl2-chloroacrylate	500				80-63-7
Methyl acrylate			x		96-33-3
Methyl bromide	1,000	1000	x	U029	74-83-9
Methyl chloroformate (Methylchlorocarbonate)	500	1000		U156	79-22-1
Methyl chloroform		1000	x	U226	71-55-6
Methyl disulfide	100				624-92-0
methyl isobutyl ketone		5000	x	U161	108-10-1
Methyl isocyanate	500	1#	x	P064	624-83-9
Methyl isothiocyanate	500				556-61-1
Methyl mercaptan	500	100		U153	74-93-1
Methyl methacrylate		1000	x	U162	80-62-6
Methyl phenkapton	500				3735-23-7
Methyl phosphonic dichloride	100				676-97-1
Methyl tert-butyl ether			x		1634-04-4
Methyl thiocyanate	10,000				556-64-9
Methyl vinyl ketone	10				78-94-4
Methylene-bis-(phenylisocyanate)(MBI)			x		101-68-8
Methylhydrazine	500	10	x	P068	60-34-4
Methylmercuric dicyanamide	500/10,000				502-39-6
Methylthiouracil		10		U164	56-04-2
Methyltrichlorosilane	500				75-79-6
Metolcarb	100/10,000				1129-41-5
Mevinphos	500	10			7786-34-7
Mexacarbate	500/10,000	1000			315-18-4
Michler's ketone			x		90-94-8
Mitomycin C	500/10,000	10		U010	50-07-7
Molybdenum trioxide			x		1313-27-5
Monocrotophos	10/10,000				6923-22-4
Monoethylamine		100			75-04-7
Monomethylamine		100			74-89-5
Muscimol	10,000	1000		P007	2763-96-4
Mustard gas	500		x		505-60-2
N,N'-Dimethyleniline			x		121-69-7
N,N'-Diethylhydrazine		10		U086	1615-80-1
N-Nitrosomorpholine			x		59-89-2
N-Nitrosonornicotine			x		16543-55-8

Chemical Name	302	CERCLA	313	RCRA	CAS No.
N-Nitrosopiperidine		10	x	U179	100-75-4
N-Nitrosopyrrolidine		1		U180	930-55-2
N-Nitrosodiphenylamine		100	x		86-30-6
Naled		10			300-76-5
Naphthalene		100	x	U165	91-20-3
Naphthenic acid		100			1338-24-5
Nickel ammonium sulfate		100			15699-18-0
Nickel carbonyl	1	10		P073	13463-39-3
Nickel chloride		10			37211-05-5
Nickel chloride		10			7718-54-9
Nickel cyanide		10		P074	557-19-7
Nickel hydroxide		100			12054-48-7
Nickel nitrate		1000			14216-75-2
Nickel sulfate		100			7786-81-4
Nickel	10,000*	100	x		7440-02-0
Nicotine sulfate	100/10,000				65-30-5
Nicotine	100	100		P075	54-11-5
Nitric acid	1,000	1000	x		7697-37-2
Nitric oxide	100	10		P076	10102-43-9
Nitrilotriacetic acid			x		139-13-9
Nitrobenzene	10,000	1000	x	U169	98-95-3
Nitrocyclohexane	500				1122-60-7
Nitrofen			x		1836-75-5
Nitrogen dioxide	100	10		P078	10102-44-0
Nitrogen dioxide		10		P078	10544-72-6
Nitroglycerine		10	x	P081	55-63-0
Nitrophenol (mixed)		100			25154-55-6
Nitrosodimethylamine	1,000	10	x	P082	62-75-9
Nitrotoluene		1000			1321-12-6
Norbormide	100/10,000				991-42-4
O,O-Diethyl S-methyl dithiophosphate		5000		U087	3288-58-2
o-Anisidine hydrochloride			x		134-29-2
o-Anisidine			x		90-04-0
o-Dinitrobenzene		100			528-29-0
c-Nitrophenol		100	x		88-75-5
o-Nitrotoluene		1000			88-72-2
o-Toluidine		100	x		95-53-4
Octachloronaphthalene			x		2234-13-1
Orotic acid	10,000*				65-86-1
Osmium tetroxide	10,000*	1000	x	P087	20816-12-0
Ouabain	100/10,000				630-60-4
Oxamyl	100/10,000				23135-22-0
Oxetane,3,3-bis(chloromethyl)-	500				78-71-7
Oxydisulfoton	500				2497-07-6
Ozone	100				10028-15-6
p-Anisidine			x		104-94-9
p-Benzoquinone		10	x	U197	106-51-4
p-Cresidine			x		120-71-8
p-Cresol		1000	x	U052	106-44-5

Chemical Name	302	CERCLA	313	RCRA	CAS No.
p-Dinitrobenzene		100			100-25-4
p-Nitrophenol		100	x	U170	100-02-7
p-Nitrosodiphenylamine			x		156-10-5
p-Nitrotoluene		1000			99-99-0
p-Phenylenediamine			x		106-50-3
Paraformaldehyde		1000			30525-89-4
Paraldehyde		1000			123-63-7
Paraquat methosulfate	10/10,000				2074-50-2
Paraquat	10/10,000				1910-42-5
Parathion-methyl	100/10,000	100		P071	298-00-0
parathion	100	10	x	P089	56-38-2
Paris green (Cuprie acetoarsenite)	500/10,000	1			12002-03-8
Pentaborane	500				19624-22-7
Pentachloroethane	10,000*	10		U184	76-01-7
Pentachlorophenol	10,000*	10	x	U242	87-86-5
Pentadecyclamine	100/10,000				2570-26-5
Peracetic acid	500		x		79-121-0
Perchloromethylmercaptan	500	100		P118	594-42-3
Phenanthrene		5000			85-01-8
Phenol,2,2'-thiobis (4,6-dichloro-	100/10,000				97-18-7
Phenol,2,2'-thiobis (4-chloro-6-methyl	100/10,000				4418-66-0
Phenol,2,3,4,5-tetrachloro		10		U212	58-90-2
Phenol,2,4,5-trichloro		10	x	U230	95-95-4
Phenol,3-(1-methylethyl), methylcarbamate	500/10,000				64-00-6
Phenol,2,4,6-trichloro		10	x	U231	88-06-2
Phenol	500/10,000	1000	x	U188	108-95-2
Phenoxarsine,10,10'-oxydi-	500/10,000				58-36-6
Phenyl dichloroarsine	500	1		P036	696-28-6
Phenylhydrazine hydro-chloride	1,000/10,000				59-88-1
Phenylmercury acetate	500/10,000	100		P092	62-38-4
Phenylsilatrane	100/10,000				2097-19-0
Phenylthiourea	100/10,000	100		P093	103-85-5
Phorate	10	10		P094	298-02-2
Phosacetim	100/10,000				4104-14-7
Phosfolan	100/10,000				947-02-4
Phosgene	10	10	x	P095	75-44-5
Phosmet	10/10,000				732-11-6
Phosphamidon	100				13171-21-6
Phosphine	500	100		P096	7803-51-2
Phosphonothioic acid methyl-O-(4-nitropho-nyl)O-phenyl ester	500				2665-30-7
Phosphonothioic acid, methyl-O-ethyl-O-(4-(methylthio)phen	500				2703-13-1
Phosphonothioic acid,	100				50782-69-9

Chemical Name	302	CERCLA	313	RCRA	CAS No.
methyl-,s-(20-(bis(1-methylethyl)amino					
Phosphoric acid, dimethyl 4-(methylthio)phenyl ester	500				3254-63-5
Phosphoric acid		5000	x		7664-38-2
Phosphorothioic acid,O,O-dimethyl-S-(2-methylthio)ethyl est	500				2587-90-8
Phosphorus oxychloride	500	1000			10025-87-3
Phosporus pentachloride	500				10026-13-8
Phosphorus pentasulfide		100		U189	1314-80-3
Phosphorus pentoxide	10				1314-56-3
Phosphorus trichloride	1,000	1000			7719-12-2
Phosphorus	100	1	x		7723-14-0
Physostigmine	100/10,000				57-47-6
Phylloquinone	10,000*				84-80-0
Physostigmine, salicylate (1:1)	100/10,000				57-64-7
Picric acid			x		88-89-1
Picrotoxin	500/10,000				124-87-8
Piperidine	1,000				110-89-4
Piprotal	100/10,000				5281-13-0
Pirimifos-ethyl	1,000				23505-41-1
Platinous chloride	10,000*				10025-65-7
Platinum tetrachloride	10,000*				13454-96-1
Polychlorinated biphenyls (PCBs)		1	x		1336-36-3
Potassium arsenate		1			7784-41-0
Potassium arsenite	500/10,000	1			10124-50-2
Potassium bichromate		10			7778-50-9
Potassium chromate		10			7789-00-6
Potassium cyanide	100	10		P098	151-50-8
Potassium hydroxide		1000			1310-58-3
Potassium permanganate		100			7722-64-7
Potassium silver cyanide	500	1		P099	506-61-6
Promecarb	500/10,000				2631-37-0
Propargite		10			2312-35-8
Propargyl alcohol		1000		P102	107-19-7
Propargyl bromide	10				106-96-7
Propiolactone,beta-	500		x		57-57-8
Propionaldehyde			x		123-38-6
Propionic acid		5000			79-09-4
Propionic acid,2-(2,4,5-trichlorophenoxy)-		100		U233	93-72-1
Propionic anhydride		5000			123-62-6
Propionitrile,3-chloro-	1000	1000		P027	542-76-7
Propionitrile	500	10		P101	107-12-0
Propiophenone,4'-amino-	100/10,000				70-69-9
Propoxur			x		114-26-1
Propyl chloroformate	500				109-61-5

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Propylene (Propene)			x		115-07-1
Propylene glycol,allyl ether	10,000*				11331-17-5
Propylene oxide	10,000	100	x		75-56-9
Propyleneimine	10,000	1	x	P067	75-55-8
Prothoate	100/10,000				2275-18-5
Pseudocumene	10,000*		x		95-63-6
Pyrene	1,000/10,000	5000			129-00-0
Pyrethrins		1			121-21-1
Pyrethrins		1			121-29-9
Pyrethrins		1			8003-34-7
Pyridine,2-methyl-5-vinyl-	500				140-76-1
Pyridine,4-amino-	500/10,000	1000		P008	504-24-5
Pyridine,4-nitro-1-oxide	500/10,000				1124-33-0
Pyridine		1000	x	U196	110-86-1
Pyriminil	100/10,000				53558-25-1
Quinoline		5000	x		91-22-5
Reserpine		5000		U200	50-55-5
Rhodium trichloride	10,000*				10049-07-7
Salcomine	500/10,000				14167-18-1
Sarin	10				107-44-8
sec-Amyl acetate		5000			626-38-0
sec-Butyl acetate		5000			105-46-4
sec-Butyl alcohol			x		78-92-2
sec-Butylamine		1000			13952-84-6
sec-Butylamine		1000			513-49-5
Selenium dioxide		10		U204	7446-08-4
Selenium disulfide		10		U205	7448-56-4
Selenium oxychloride	500				7791-23-3
Selenium		100	x		7782-49-2
Selenous acid	1,000/10,000	10		U204	7783-00-8
Semicarbazide hydro-chloride	1,000/10,000				563-41-7
Silane,(4-aminobutyl) diethoxymethyl-	1,000				3037-72-7
Silver cyanide		1		P104	506-64-9
Silver nitrate		1			7761-88-8
Silver		1000	x		7440-22-4
Sodium anthraquinone-1-sulfonate	10,000*				128-56-3
Sodium arsenate	1,000/10,000	1			7631-89-2
Sodium arsenite	500/10,000	1			7784-46-5
Sodium azide (Na(N3))	500	1000		P105	26628-22-8
Sodium bichromate		10			10588-01-9
Sodium bifluoride		100			1333-83-1
Sodium bisulfite		5000			7631-90-5
Sodium cacodylate	100/10,000				124-65-2
Sodium chromate		10			7775-11-3
Sodium cyanide (Na(CN))	100	10		P106	143-33-9
Sodium dodecylbenzene sulfonate		1000			25155-30-0

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Sodium fluoride		1000			7681-49-4
Sodium fluoroacetate	10/10,000	10		P058	62-74-8
Sodium hydrosulfide		5000			16721-80-5
Sodium hydroxide		1000	x		1310-73-2
Sodium hypochlorite		100			10022-70-5
Sodium hypochlorite		100			7681-52-9
Sodium methylate		1000			124-41-4
Sodium nitrite		100			7632-00-0
Sodium pentachloro-phenate	100/10,000				131-52-2
Sodium phosphate,dibasic		5000			10039-32-4
Sodium phosphate,dibasic		5000			10140-65-5
Sodium phosphate,dibasic		5000			7558-79-4
Sodium phosphate,tribasic		5000			10101-89-0
Sodium phosphate,tribasic		5000			10124-56-8
Sodium phosphate,tribasic		5000			10361-89-4
Sodium phosphate,tribasic		5000			7601-54-9
Sodium phosphate,tribasic		5000			7758-29-4
Sodium phosphate,tribasic		5000			7785-84-4
Sodium selenate	100/10,000				13410-01-0
Sodium selenite	100/10,000	100			10102-18-8
Sodium selenite		100			7782-82-3
Sodium sulfate(solution)			x		7757-82-6
Sodium tellurite	500/10,000				10102-20-2
Sodium		10			7440-23-5
Strannane,acetoxy-triphenyl-	500/10,000				900-95-8
Strontium chromate		10			7789-06-2
Strontium sulfide		100		P107	1314-96-1
Strychnine, sulfate	100/10,000				60-41-3
Strychnine	100/10,000	10		P108	57-24-9
Styrene oxide			x		96-09-3
Styrene		1000	x		100-42-5
Sulfotep	500	100		P109	3689-24-5
Sulfoxide,3-chloropropyl octyl	500				3569-57-1
Sulfur dioxide	500				7446-09-5
Sulfur monochloride		1000			12771-08-3
Sulfur tetrafluoride	100				7783-60-0
Sulfur trioxide	100				7446-11-9
Sulfuric acid	1,000	1000	x		7664-93-9
Sulfuric acid		1000			8014-95-7
Tabun	10				77-81-6
Tellurium hexafluoride	100				7783-80-4
Tellurium	500/10,000				13494-80-9
Tepp	100	10		P111	107-49-3
Terbufos	100				13071-79-9
tert-Amyl acetate		5000			625-16-1
tert-Butyl acetate		5000			540-88-5
tert-Butyl alcohol			x		75-65-0
tert-Butylamine		1000			75-64-9

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Tetrachlorvinphos			x		961-11-5
Tetraethyllead	100	10		P110	78-00-2
Tetraethyltin	100				597-64-8
Tetramethyl Lead	100				75-74-1
Tetranitromethane	500	10		P112	509-14-8
Thallic oxide	10,000*	100		P113	1314-32-5
Thallium sulfate	100/10,000	100		P115	10031-59-1
Thallium(I)nitrate		100		U217	10102-45-1
Thallium(I)selenide		1000		P114	12039-52-0
Thallium		1000	x		7440-28-0
Thallous carbonate	100/10,000	100		U215	6533-73-9
Thallous chloride	100/10,000	100		U216	7791-73-9
Thallous malonate	100/10,000				2757-18-8
Thallous sulfate	100/10,000	100		P115	7446-18-6
Thiocarbazide	1,000/10,000				2231-57-4
Thiocyanic acid,2-(benzothiazolylthio) methyl ester	10,000*				21564-17-0
Thiofanox	100/10,000	100		P045	39196-18-4
Thiometon	10,000*				640-15-3
Thionazin	500	100		P040	297-97-2
Thiophenol	500	100		P014	108-98-5
Thiosemicarbazide	100/10,000	100		P116	79-19-6
Thiourea,(2-chlorophenyl)-	100/10,000	100		P026	5344-82-1
Thiourea,(2-methylphenyl)-	500/10,000				614-78-8
Thorium dioxide			x		1314-20-1
Titanium dioxide			x		13463-67-7
Titanium tetrachloride	100		x		7550-45-0
Toluene2,4-diisocyanate	500	100	x		584-84-9
Toluene2,6-diisocyanate	100	100	x		91-08-7
Toxaphene(Campheclor)	500/10,000	1	x	P123	8001-35-2
Trans1,1-dichlorobutene	500				110-57-6
Triamiphos	500/10,000				1031-47-6
Triaziquone			x		68-76-8
Triazofos	500				24017-47-8
Trichloro(chloromethyl) silane	100				1558-25-4
Trichloro(dichlorophenyl) silane	500				27137-85-5
Trichloroacetyl chloride	500				76-02-8
Trichloroethylene		100	x	U228	79-01-6
Trichloronate	500				327-98-0
Trichlorophenol		10			25167-82-2
Trichlorophenylsilane	500				98-13-5
Trichlorophon	10,000*	100	x		52-68-6
Trichloroethylsilane	500				115-21-9
Triethanolamine dodecylbenzene sulfonate		1000			27323-41-7
Triethoxysilane	500				998-30-1
Triethylamine		5000			121-44-8

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Trifluralin			x		1582-09-8
Trimethylamine		100			75-50-3
Trimethylchlorosilane	1,000				75-77-4
Trimethylolpropane phosphite	100/10,000				824-11-3
Trimethyltin chloride	500/10,000				1066-45-1
Triphenyltin chloride	500/10,000				639-58-7
Tris(2-chloroethyl)amine	100				555-77-1
Trypan blue		10		U236	72-57-1
Uracil,5-[bis(2-chloroethyl)amino]-		10		U237	66-75-1
Uranyl acetate		100''			541-09-3
Uranyl nitrate		100''			10102-06-4
Uranyl nitrate		100''			36478-76-9
Valinomycin	1,000/10,000				2001-95-8
Vanadium(fume or dust)			x		7440-62-2
Vanadium pentoxide	100/10,000	1000		P120	1314-62-1
Vanadyl sulfate		1000			27774-13-6
Vinyl acetate monomer	1,000	5000	x		108-05-4
Vinyl bromide			x		593-60-2
Vinylnorbornene	10,000*				3048-64-4
Warfarin sodium	100/10,000				129-06-6
Warfarin	500/10,000	100		P001	81-81-2
Xylenol		1000			1300-71-6
Xylylene dichloride	100/10,000				28347-13-9
Zinc acetate		1000			557-34-6
Zinc ammonium chloride		1000			52628-25-8
Zinc ammonium chloride		1000			14639-97-5
Zinc ammonium chloride		1000			14639-98-6
Zinc borate		1000			1332-07-6
Zinc bromide		1000			7699-45-8
Zinc carbonate		1000			3486-35-9
Zinc chloride		1000			7646-85-7
Zinc cyanide		10		P121	557-21-1
Zinc fluoride		1000			7783-49-5
Zinc formate		1000			557-41-5
Zinc hydrosulfite		1000			7779-86-4
Zinc nitrate		1000			7779-88-6
Zinc phenolsulfonate		5000			127-82-2
Zinc phosphide	500	100		P122	1314-84-7
Zinc silicofluoride		5000			16871-71-9
Zinc sulfate		1000			7733-02-0
Zinc,dichloro(4,4-dimethyl-5(((methylamino)carbonyl)oxy)i	100/10,000				58270-08-9
Zinc		1000	x		7440-66-6
Zineb			x		12122-67-7
Zirconium nitrate		5000			13746-89-9
Zirconium potassium fluoride		1000			16923-95-8
Zirconium sulfate		5000			14644-61-2

Chemical Name	302	CERCLA	313	RCRA	CAS No.
Zirconium tetrachloride		5000			10026-11-6

INSTALLATION:	COMPLIANCE CATEGORY: CERCLA/SARA USA ECAS	DATE:	REVIEWER(S):

STATUS NA C RMA	REVIEWER COMMENTS:

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (5) Fire Department (6) Director of Logistics (DOL) (13) Engineering, Plans, Training, Mobilization, and Security (DPTMSEC) (21) Public Affairs Office (PAO)

Section 8

TOXIC SUBSTANCES CONTROL ACT (TSCA)

SECTION 8

TOXIC SUBSTANCES CONTROL ACT (TSCA)

A. Applicability of this Protocol

This protocol applies to all Army installations. Currently this section contains protocols for polychlorinated biphenyls (PCBs). PCBs are regulated on the Federal level by the United States Environmental Protection Agency (USEPA), though some states have also promulgated regulations. Specific state regulations are not included in this protocol.

The TSCA protocol is used to determine the compliance status of the management activities associated with: PCBs and in-service and out-of-service PCB Items. While asbestos in schools is also regulated under TSCA, those requirements are found in the section titled Asbestos Abatement.

B. Federal Legislation

(NOTE: Additional programs may be added as other specific areas are regulated.)

- **PCBs**

- The Toxic Substances Control Act (TSCA) of 1976 [PL 94-469, 15 USC 260] required the USEPA to regulate and control harmful chemicals and toxic substances in commercial use. Congress enacted TSCA to reduce unreasonable risks from chemicals to human health and the environment. Section 6 of the TSCA addresses the regulation of Polychlorinated Biphenyls (PCBs). The Federal regulations for PCBs are contained in 40 CFR 761, *PCB Regulations*.

These regulations include specific requirements for most uses of PCBs. The uses most likely to be present at Army installations are in the following systems or applications:

-transformers
-capacitators
-heat transfer systems
-hydraulic systems
-electromagnets
-switches and voltage regulators
-circuit breakers, reclosers, and cables.

- 40 CFR 761 contains the regulations to control the use, storage, and disposal of PCBs and PCB Items. Part 761 provides definitions and categorizes PCBs in three concentration ranges: concentrations less than 50 parts per million (ppm), concentrations between 50 and 500 ppm, and concentrations greater than 500 ppm.

- TSCA specifies that all agencies of the Federal government must fully comply with its requirements. However, Section 22, *National Defense Waiver*, states that USEPA, upon request of the President, may grant a waiver to a facility if it is in the interest of national defense.

  The protocol details the management requirements for PCB Transformers and PCB Large, High- and Low-Voltage Capacitors, as these electrical equipment are the most prevalent on Army installations. General requirements are provided in this review protocol for the other uses identified above so the evaluator can summarize the compliance status of these systems.

- Executive Order (EO) 12088, *Federal Compliance with Pollution Standards*, of 13 October 1978 requires Federally owned and operated facilities to comply with all Federal, state, and local environmental regulations. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities it funds meet Federal, state, and local environmental requirements or to correct situations that are not in compliance with such regulations. Additionally, the Executive Order requires each agency to ensure that sufficient funds for environmental compliance are included in the agency budget.

C. State/Local Requirements

- **PCBs**

Some states have agreements with the USEPA to administer the Federal regulations. According to the general structure of Federal regulatory programs, any state regulations must adopt the Federal regulations as a minimum set of requirements. In some cases, state regulations have been developed to regulate PCBs more stringently than the Federal program. State PCB regulations may provide additional regulatory requirements beyond the Federal program to address a specific concern or activity sensitive in that state. State regulations may supersede the Federal regulations in areas including the following:

- PCBs may be regulated as a hazardous waste.

- PCBs may be regulated to a lower concentration. For example, regulated PCBs in one state are defined to be materials and fluids that contain PCBs at a concentration greater than 7 ppm.

- Shipments of PCBs may require manifest documents.

- Analyses may be required to quantify the PCB concentration in all PCB Items.

- Additional inspections of select PCB Items and specific disposal requirements for PCBs and PCB Items may also be required.

- Generators of PCBs and PCB Items may be required to obtain disposal permits.

D. DoD Regulations

- None.

E. U.S. Army Regulations

- **PCBs**

- Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*, Chapter 5, paragraph 6, *Polychlorinated Biphenyls*, mandates Army compliance with TSCA and other applicable Federal statutes. It also outlines a recordkeeping system for PCBs and PCB-related Items.

F. Key Compliance Requirements

- **PCBs**

- The Federal PCB regulations allow PCB Equipment (Transformers and Capacitors) that are in service to remain in service. While in service, they must be labeled, inspected, and any leaks detected must be corrected. Once taken out of service, PCB Equipment can be stored for disposal for 1 year in a specially designed storage area. PCB fluids must be disposed of by incineration in a specially licensed incinerator and PCB Equipment (without the fluid) must be disposed of in a specially licensed landfill.

G. Responsibility for Compliance

- **PCBs**

- Directorate Engineering and Housing (DEH) through the Exterior Electrical Shop, or the Environmental Coordinator, is responsible for identifying, inspecting, marking (labeling), and properly servicing PCB Electrical Equipment (Transformers and Capacitors).

- Environmental Coordinator is responsible for ensuring that out-of-service items are located in a licensed and technically adequate PCB storage facility. Normally, such facilities are located at a DRMO and the DRMO is responsible for storage, disposal transportation, and contracting for disposal.

H. Key Compliance Definitions

These definitions were obtained from Army, DoD, and compliance regulations sited previously.

- *Active Waste Disposal Site* - any disposal site other than an inactive site.

- *Annual Document Log* - the detailed information maintained at the facility on the PCB waste handling at the facility.

- *Capacitor* - a device for accumulating and holding a charge of electricity and consisting of conducting surfaces separated by a dielectric. Types of capacitors are as follows:

  1) "Small Capacitor" - a capacitor that contains less than 1.36 kg (3 lb) of dielectric fluid.

  2) "Large, High-Voltage Capacitor" - a capacitor that contains 1.36 kg (3 lb) or more of dielectric fluid and operates at 2,000 volts (a.c. or d.c.) or above.

  3) "Large, Low-voltage Capacitor" - a capacitor that contains 1.36 kg (3 lb) or more of dielectric fluid and operates below 2,000 volts (a.c. or d.c.).

- *Certificate of Deposit* - the document the owner or operator of a disposal facility prepares each time he accepts a shipment of manifested PCB waste.

- *Chemical Waste Landfill* - a landfill at which protection against risk of injury to health or the environment from migration of PCBs to land, water, or the atmosphere is provided from PCBs and PCB Items deposited therein by locating, engineering, and operating the landfill as required.

- *Commercial Storer of PCB Waste* - the owner or operator of each facility subject to the PCB storage facility standards of 40 CFR 761.65, and who engages in storage activities involving PCB waste generated by others, or PCB waste that was removed while servicing the equipment owned by others and brokered for disposal. The receipt of a fee or any other form of compensation for services is not necessary to qualify as a commercial storer of PCB waste. It is sufficient under this definition that the facility stores PCB waste generated by others or the facility removed the PCB waste while servicing equipment owned by others. If a facility's storage of PCB waste at no time exceeds 500 gallons of PCBs, the owner or operator is not required to seek approval as a commercial storer of PCB waste.

- *Cost* - the amount of funds required to put in place the necessary environmental protection measures, irrespective of the appropriation chargeable.

- *Demolition* - the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations.

- *Disposal* - to intentionally or accidentally discard, throw away, or otherwise complete or terminate the useful life of PCBs and PCB Items.

- *Emergency Renovation Operation* - a renovation operation that was not planned but results from a sudden, unexpected event. This term includes operations necessitated by nonroutine failures of equipment.

- *Emergency Situations* - for continuing use of a PCB Transformer exists when:

  1) neither a non-PCB Transformer nor a non-PCB Contaminated Transformer is currently in storage for reuse or readily available within 24 hours for installation, or

  2) immediate replacement is necessary to continue service for power users.

- *Facility* - any institutional, commercial, or industrial structure, installation, or building (excluding apartment buildings having no more than four dwelling units).

- *Facility Component* - any pipe, duct, boiler, tank, reactor, turbine, or furnace at or in a facility; or any structural member of a facility.

- *Good Management Practice (GMP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *In or Near Commercial Buildings* - within the interior of, on the roof of, attached to the exterior wall of, in the parking area serving, or within 30 meters of a nonindustrial, nonsubstation building.

- *Inactive Waste Disposal Site* - any disposal site or portion of it where additional asbestos-containing waste material cannot be deposited and where the surface is not disturbed by vehicular traffic.

- *Industrial Building* - a building directly used in manufacturing or technically productive enterprises.

- *Leak or Leaking* - any instance in which a PCB article, PCB container, or PCB Equipment has any PCBs on any portion of its external surface.

- *Lowest Living Area (LLA)* - is defined as follows:

  1. For structures without subsurface areas, the LLA is the ground floor.

  2. For structures with subsurface areas, the LLA is defined as the lowest area in that structure that has a finished, hard surface floor (for example, concrete or tiled) that is or could be used. A dirt breezeway is not an LLA, but an unfinished basement with a concrete floor is, regardless of what the current occupants are using the area for.

- *Mark* - the descriptive name, instructions, cautions, or other information applied to PCBs and PCB Items, or other objects subject to these regulations.

- *Marking* - the marking of PCB Items and PCB storage areas and transport vehicles by means of applying a legible mark by painting, fixation of an adhesive label, or by any other method that meets the requirements of these regulations.

- *Mineral Oil PCB Transformers* - any transformer originally designed to contain mineral oil as the dielectric fluid and which has been tested and found to contain 500 ppm or greater PCBs.

- *Non-PCB Transformers* - any transformer that contains less than 50 ppm PCB except that any transformer that has been converted from a PCB Transformer or a PCB-contaminated transformer cannot be classified as a non-PCB Transformer until reclassification has occurred in accordance with the requirements of 40 CFR 761.30 (a)(2)(v).

- *Outside Air* - the air outside buildings and structures.

- *PicoCurie (pCi)* - quantity of radioactive material producing 2.22 nuclear transformations/minute.

- *PCB Annual Document Log* - the detailed information maintained at the facility on the PCB waste handling at the facility.

- *PCB Annual Report* - the written document submitted each year by each disposer and commercial storer of PCB waste to the appropriate USEPA Regional Administrator. The annual report is a brief summary of the information included in the annual document log.

- *PCB Article* -any manufactured article, other than a PCB Container, that contain PCBs and whose surface(s) has been in direct contact with PCB. This includes capacitors, transformers, electric motors, pumps, and pipes.

- *PCB Article Container* - any package, can, bottle, bag, barrel, drum, tank, or other device used to contain PCB articles or PCB Equipment, and whose surface(s) has not been in direct contact with PCBs.

- *PCB Container* - any package, can, bottle, bag, barrel, drum, tank, or other device that contains PCBs or PCB Articles and whose surface(s) has been in direct contact with PCBs.

- *PCB-Contaminated Electrical Equipment* - any electrical equipment including, but not limited to, transformers, capacitors, circuit breakers, reclosers, voltage regulators, switches, electromagnets, and cable, that contain 50 ppm or greater PCB, but less than 500 ppm PCB.

- *PCB Equipment* - any manufactured item, other than a PCB Container or a PCB Article Container, which contains a PCB Article or other PCB Equipment, and includes microwave ovens, electronic equipment, and fluorescent light ballasts and fixtures.

- *PCB Item* - any PCB Article, PCB Article Container, PCB Container, or PCB Equipment, that deliberately or unintentionally contains or has as a part of it any PCB or PCBs at a concentration of 50 ppm or greater.

- *PCB Transformer* - any transformer that contains 500 ppm PCB or greater.

LEVELS OF PCB ppm

less than 50 ppm	Non-PCB Transformer
50 ppm - 499 ppm	PCB-Contaminated Electrical Equipment
500 ppm or greater	PCB Transformer

- *Posing an Exposure Risk to Food or Feed* - being in any location where human food or animal feed products could be exposed to PCBs released from a PCB item.

- *Removal Response* - an immediate action taken over the short-term to address a release or threatened release of a hazardous substance that poses a significant threat to public health or the environment.

- *Retrofill* - to remove PCB or PCB contaminated dielectric fluid and to replace it with either PCB, PCB contaminated, or non-PCB dielectric fluid.

- *Rupture of a PCB Transformer* - a violent or nonviolent break in the integrity of a PCB Transformer caused by an overtemperature and/or overpressure condition that results in the release of PCBs.

TOXIC SUBSTANCES CONTROL ACT (TSCA)

GUIDANCE FOR WORKSHEET USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
PCBs:		
All installations with PCBs	8-1 through 8-5	(1)(2)(4)(21)(25)
PCB Transformers documentation	8-6 through 8-8	(1)(2)(9)(23)
PCB Transformers	8-9 through 8-15	(1)(2)(9)(23)
PCB spills/leaks	8-16	(1)(2)(9)(23)(25)
Heat transfer or hydraulic systems containing PCBs	8-17	(1)(2)(25)
Electromagnets, capacitors, switches, or voltage regulators	8-18 through 8-20	(1)(2)(25)

(a)CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
(2) Environmental Coordinator (EC)
(4) Safety and Health Officer
(5) Fire Department
(9) Chief of Operations and Maintenance (O&M)
(21) Public Affairs Office (PAO)
(23) Defense and Reutilization Marketing Office (DRMO)
(25) Utilities Division (Exterior Electric Shop)
(28) School Principal

TOXIC SUBSTANCES CONTROL ACT

GUIDANCE FOR WORKSHEET USERS
(Continued)

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
Pigments containing PCBs or PCBs in research or microscopy	8-21	(1)(2)
Storage of PCBs and PCB Items	8-22 through 8-26	(1)(2)(9)(23)(25)
Transporting PCBs	8-27 and 8-28	(1)(2)(9)(23)(25)
Disposal of PCBs or PCB Items	8-29 through 8-37	(1)(2)(9)(23)(25)
PCB fluids	8-38	(1)(9)(23)(25)

(a)CONTACT/LOCATION CODE:

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TOXIC SUBSTANCES CONTROL ACT

Records to Review:

- Inspection, storage, maintenance, and disposal records for PCBs/PCB Items
- PCB Equipment inventory and sampling results
- Correspondence with regulatory agencies concerning PCB noncompliance situations
- Annual reports

Physical Features to Inspect:

- PCB storage areas
- Equipment, fluids, and other items used or stored at the facility containing PCBs

People to Interview:

- Directorate of Engineering and Housing (DEH)
- Environmental Coordinator (EC)
- Safety and Health Officer
- Fire Department
- Chief of Operations and Maintenance (O&M)
- Public Affairs Office (PAO)
- Defense and Reutilization Marketing Office (DRMO)
- Utilities Division (Exterior Electric Shop)
- School Principal

COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
8-1. Determine actions or changes since previous review of PCB management.	Check if facility changes relative to PCB Equipment have occurred since previous review which would affect scope of review. (1)
...	...
8-2. The installation should maintain current and effective regulations on PCB management.	Determine if copies of the following are maintained on the installations: (1)(2) - 40 CFR 761, *PCB Regulations*. - 40 CFR 268, *Land Disposal Restriction*. - 40 CFR 372, *Toxic Chemical Release Reporting*. - AR 200-1, *Environmental Protection and Enhancement*. - Spill Prevention Control and Countermeasure Plan (SPCC). - Installation Spill Cleanup Plan (ISCP). - Copies of any state regulations on PCB use and disposal if applicable.
... ...	... ...
8-3. Installations are required to abide by state and local regulations (AR 200-1, para 1-39(a)(3)).	Verify that the installation is abiding by state and local requirements. (1) Verify that the installation is operating according to permits issued by the state or local agencies. (1)(2) NOTE: Issues which are typically regulated by state and local agencies include: (1)(2) - definitions of PCB-Contaminated - storage, labeling, and disposal requirements.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
8-4. Certain equipment that contains PCBs must be marked with an M_L marking (40 CFR 761.40; 45, Subpart C). (NOTE: Marking Format Large PCB Mark (M_L) letters and striping, on a white or yellow background, sufficiently durable to equal or exceed the life of the PCB Article. The size shall be 15.25 cm (6 in.) on each side. If the article is too small to accommodate this size, a smaller label (M_S) may be used.)	Inspect equipment containing PCBs and verify that they are marked with an M_L marking easily read by any person inspecting or servicing the equipment (See Appendix 8-1 for a sample of the marking): (1)(2)(25) - PCB Transformers - PCB Large, High-Voltage Capacitors - equipment containing a PCB Transformer or a PCB Large, High-Voltage Capacitor must be marked at time of removal - PCB Large, Low-Voltage Capacitors at time of removal - electric motors, hydraulic systems, heat transfer systems, and PCB containers containing PCBs at a concentration of 50 ppm to 500 ppm - PCB Article Containers containing any of the above items - areas used to store PCBs and PCB Items for disposal - vehicles used to transport PCB Containers for disposal containing more than 45 kilograms (99.4 lb) of liquid PCBs in concentrations of 50 ppm to 500 ppm, or with one or more PCB Transformers shall be marked on each end and side - protected locations such as power poles, structures, or fenced areas at which one or more PCB Large, High-Voltage Capacitors are installed - vault door, machinery room door, fence, hallway or means of access other than grates and manhole covers, to a PCB Transformer. The mark shall be easily read by fireman fighting a fire involving such PCB Transformer.
...	...
8-5. Generators, transporters, and disposers of PCB waste are required to have an USEPA identification number (40 CFR 761.202 - .205; Subpart K). (NOTE: Some facilities are exempt from the notification requirement and do not have a specified PCB storage area as regulated by 40 CFR 761.65 and just temporarily store before they transport for disposal.)	Determine if the facility is a generator, transporter, or disposer of PCB waste. (1)(2)(4) Verify that facilities which generate PCB waste have an USEPA identification number before processing, storing, dispensing, transporting, or offering for transport PCB waste. (1)(2) Verify that facilities which transport or disposed of PCB waste have an USEPA identification number. (1)(2) If facility must file, check that Form 7710-53, *Notification of PCB Waste Activity*, was filed with USEPA by April 4, 1990 and a USEPA identification number was obtained. (1)(2)(4)

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

RECORDS
 	
8-6. A written annual document log must be prepared by July 1 of each calendar year, covering the previous year for all installations that use or store at any time at least 45 kg (99.4 lb of PCBs contained in PCB Containers, PCB Transformers of 50 ppm, or one or more PCB Large, High- or Low-Voltage Capacitors (40 CFR 761.180(a), Subpart J; and AR 200-1, para. 5-6b).
	Verify that the annual document log and annual records (manifests certificates of disposal) are kept for at least 5 years after the facility stops using or storing PCBs and PCB items in the listed quantities. (1)(2)
	
	Review the written annual document log for the following: (1)(2)
	
	- identification of facility
	- calendar year covered
	- manifest number for every manifest generated
	- total number (by type) of PCB Articles, PCB Article Containers, and PCB Containers placed into storage for disposal or disposed of during the calendar year
	- total weight placed into storage for disposal or disposed of during the calendar year of:
	  - PCBs in PCB Articles
	  - contents of PCB Article Container
	  - contents of PCB Containers
	  - bulk PCB Waste
	- a list of PCBs and PCB Items remaining in-service at the end of the calendar year. The total weight of any PCBs and PCB Items in containers including identification of container contents and the total number of PCB Transformers, PCB Large, High- and Low-Voltage Capacitors, and the total weight of PCBs in PCB Transformers
	- a record of each telephone call or other form of verification to confirm the receipt of PCB Waste transported by independent transport.
	
	Verify that the annual document log contains the following for each manifest, for unmanifested waste, and for any PCBs or PCB Items received from or shipped from another facility owned or operated by the generator: (1)(2)(25)
	
	- date removed from service for disposal (first date material placed in PCB Container)
	- date placed into transport for off-site storage/disposal
	- date of disposal (if known)
	- weight of PCB Wastes
	  - total - bulk PCB Wastes
	  - in each article -PCB Transformers or Capacitors
	  - total in each container -PCB Containers
	  - total weight of contents and of the PCB Article (in kilograms) in each PCB Article Container
	- serial number or other unique identification number (except for bulk wastes)
	- description of the contents for PCB Containers and Article Containers.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
8-6. (continued)	Review the annual record and determine if the following information is provided: (1)(2)(23) - all signed manifests generated or received at the facility during the calendar year - all certificates of disposal that have been generated or received during the calendar year.
...	...
8-7. Owners and operators of PCB chemical waste landfills shall keep records on water analysis and operational records, including burial coordinates, for 20 years after disposal has ceased (40 CFR 761.180(d); Subpart J).	Verify that proper records are being kept for the required 20 years. (1)(2)
...	...
8-8. Storage and disposal facilities for PCBs shall maintain specific records for 3 years (40 CFR 761.180(f); Subpart J).	Verify that installations which store or dispose of PCB's collect and maintain the following records for three years: - all documents and correspondence and data that have been provided by any State or local government - all documents, correspondence, and data provided to the State or local governments by the installation - any applications and related correspondence concerning wastewater discharge permits, solid waste permits, building permits, or other permits and authorizations.
...	...
TRANSFORMERS	
8-9. PCB Transformers with PCBs of any concentration that are in use or in storage for reuse shall not pose an exposure risk to food and feed (40 CFR 761.30 (a)(1)).	Review PCB inventory for any PCB Transformers on the installation, in use or in storage for reuse, that pose an exposure risk to food and feed. (1)(2)
...	...

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
8-10. PCB Transformers are subject to certain registration requirements (40 CFR 761.30 (a)(1)(vi)).	Verify that all PCB Transformers, including those in storage for reuse, are registered with post fire department, or the fire department with jurisdiction, with the following information: (1)(2)(5)(9) - physical location of PCB Transformer(s) - principle constituent of dielectric fluid (*i.e.*, PCBs, mineral oil, silicone oil, etc.) - name and telephone number of contact person knowledgeable of PCB Transformer(s).
...	...

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
8-11. PCB Transformers at any concentration in use in or near commercial buildings are subject to certain requirements (40 CFR 761.30(a)(1)(ii-v,vii); Subpart B).	Review PCB inventory for any transformers located in or near commercial buildings. (1)(2) Verify procedure/policy exists prohibiting installation of PCB Transformers which have been placed into storage for reuse or which have been removed from another location. (1)(2)(9) Verify that there are no network PCB Transformers with higher secondary voltages (equal to or greater than 430 volts, including 480/277 volt systems) in or near commercial buildings. (1)(2) Determine where any of the following PCB Transformers are in use in or near commercial buildings or located in sidewalk vaults and if plan exists to equip such PCB Transformers with electrical protection to avoid transformer failure that would result in release of PCBs: (1)(2) - Radial PCB Transformers and lower secondary voltage network PCB Transformers (voltage <480 volts) - Radial PCB Transformers with higher secondary voltages (> or = 480 volts including 480/277 volt system). Determine if lower secondary voltage network PCB Transformers which have not been electrically protected are registered with the USEPA regional administrator and plans are being made to remove them from service by October 1, 1993. (1)(2) Verify that all radial PCB Transformers with higher secondary voltages (voltage > or = 480, including 480/277 systems) in or near commercial buildings are equipped with the following protection to avoid transformer ruptures caused by sustained low current faults: (1)(2)(25) - pressure and temperature sensors to detect sustained low current faults - disconnect equipment to ensure complete de-energization of the transformer in the event of a sensed abnormal condition caused by a sustained low current fault. The disconnect equipment may be configured to operate automatically or manually but deenergization must occur within 1 minute of the receipt of a signal indicating a low current fault. Automatic equipment must be capable of being operated manually. If PCB Transformers are in use in or near commercial buildings, confirm that they have been registered with the DEH and the following information provided: (1)(9) - specific location of PCB Transformer(s) - principal constituent of dielectric fluid (i.e., PCBs, mineral oil, silicone oil, etc.) - type of transformer.
...	...

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
8-12. PCB transformers are required to be properly services (40 CFR 761.30(a)(2); Subpart B).	Interview persons performing transformer servicing and determine what servicing activities are properly conducted as follows: (1)(2)(9)(25) - transformers classified as PCB-contaminated electrical equipment are only serviced with dielectric fluid containing greater than 500 ppm PCB. - the transformer coil is not removed during servicing - PCBs removed during servicing are captured and are either reused or disposed of properly - the PCB's from a PCB transformer are not mixed with or added to dielectric fluid from PCB-contaminated electrical equipment. - dielectric fluids containing less than 500 ppm that are mixed with fluids containing 500 ppm or greater are not used as dielectric fluid in any transformers classified as PCB-contaminated electrical equipment. NOTE: PCB transformers may be serviced with dielectric fluid at any concentration.
...	...
8-13. Inspections must be performed once every 3 months for all in-service PCB Transformers (greater than 500 ppm PCB) (40 CFR 761.30 (a)(1)(ix,xiii,xiv), Subpart B).	Review inspection records to verify that applicable transformers are inspected at least once every 3 months. (1)(2)(9) Determine whether any PCB Transformers have been leaking. (1)(2) If any leaking transformers have been discovered, verify that proper reporting procedures have been followed. (1)(2)(9)(25) Confirm that the following information is recorded for each PCB Transformer inspection: (2)(23) - location of transformer - dates of each visual inspection - date when any leak was discovered - name of person conducting inspection - location and estimate of the dielectric fluid quantity for any leaks - data and description of any cleanup, containment, or repair performed - results of any daily inspections for transformers with uncorrected active leaks. (NOTE: Reduced visual inspection of at least once every 12 months is allowed for PCB Transformers with impervious, undrained secondary containment capacity of 100 percent of dielectric fluid and for PCB Transformers tested and found to contain less than 60,000 ppm PCBs.) (NOTE: Increased visual inspection of once a week is required for any PCB Transformer is use or stored for reuse which poses an exposure risk to food or feed.)
...	...

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
8-14. PCB Transformers found to be leaking during an inspection must be repaired or replaced to eliminate the source of the leak (40 CFR 761.30(a)(1)(x), Subpart B).	Determine if cleanup and/or containment of released PCBs has been initiated within 48 hours of its detection or as soon as possible. (1)(2)(9) Verify that leaking PCB Transformers are inspected daily. (9) Determine if plans exist to repair or replace transformers to eliminate the source of the leak. (23)
...	...
8-15. When a PCB Transformer is involved in a fire, the installation shall immediately report the incident to the National Response Center (NRC) (40 CFR 761.30(a)(!)(xi), Subpart B).	Determine if any PCB Transformers have been involved in any incident where sufficient heat and/or pressure was generated to result in the violent or nonviolent rupture of a PCB Transformer and the release of PCBs. (1)(2) Verify that the NRC was notified and the following measures were taken: (1)(2) - floor drains were blocked - water runoff was contained.
...	...
PCB SPILLS	
8-16. Spills of PCB liquids at concentrations of 50 ppm or greater shall be cleaned up in accordance with established PCB Spill Cleanup policy (40 CFR 761.120 - .135). (NOTE: Spills of 1 lb or more PCBs by weight have additional requirements prescribed in 40 CFR 761.)	Verify that spills directly into surface water, drinking water, sewers, grazing lands, and gardens were immediately reported and measures taken to minimize further environmental contamination and were decontaminated in accordance with site-specific requirements. (1)(2)(23) Review spill cleanup records to ensure that all PCB spills occurring after 4 May 1987 have been cleaned up to the following standards: (2)(9)(25) - surface cleaned to 10 micrograms per 100 cm^2 - contaminated soil and surface buffer removed and backfilled with clean soil containing less than 1 ppm PCBs.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
PCB ITEMS	
8-17. PCBs may be used in heat transfer and hydraulic systems in a manner other than a totally enclosed manner at concentrations less than 50 ppm if specific requirements are met (40 CFR 761.30(d-e)).	Determine if testing has been conducted to demonstrate that heat transfer or hydraulic systems, that formerly contained PCBs at a concentration greater than 50 ppm, now contain less than 50 ppm PCBs. (1)(2)(25) Verify that no fluid containing greater than 50 ppm PCB is added to heat transfer or hydraulic systems. (1)(2)(25) Verify that results from analyses, which are performed to demonstrate presence of less than 50 ppm PCB, are retained for confirmation for at least 5 years. (1)(2)(25) Confirm that heat transfer or hydraulic systems are free from leaks of dielectric PCBs. (1)(2)(25)
...	...
8-18. Electromagnets, switches, and voltage regulators may contain PCBs at any concentrations if certain requirements are met (40 CFR 761.30(h), Subpart B).	Verify that no electromagnets on the installation that contain greater than 500 ppm PCB and pose an exposure risk to food or feed. (2)(25) Confirm that electromagnets that contain greater than 500 ppm PCB are inspected at least weekly to determine if they are leaking. (2)(25) Verify that electromagnets, switches, and voltage regulators, that contain greater than 500 ppm PCB, are not rebuilt and no removal or reworking of that internal components is done during servicing. (2)(25) Confirm that electromagnets, switches, and voltage regulators which contain between 50 and 500 ppm PCB (PCB Contaminated Electrical Equipment) are only serviced with dielectric fluid which that less than 500 ppm PCB. (2)(25) Verify that PCBs removed or captured are either reused as dielectric fluid or disposed of properly. (2)(25) Verify that dielectric fluid containing a mixture of fluids with less than 500 ppm PCBs are not used as dielectric fluid in any electrical equipment. (2)(25)
...	...
8-19. Capacitors may contain PCBs at any concentration subject to certain requirements (40 CFR 761.30(l), Subpart B).	Verify that all PCB Large, High- and Low-Voltage Capacitors that pose an exposure risk to food and feed have been removed. (1)(2)(9) Confirm that all PCB Large, High- and Low-Voltage Capacitors are in use only in restricted-access electrical substations, or in a contained and restricted-access indoor area. (1)(2)(25) Verify that Capacitors have been free from leaks of dielectrical PCBs. (1)(2)(25)
...	...

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
8-20. Circuit breakers, reclosers, and cable may contain PCBs at any concentration for remainder of their useful lives subject to certain conditions. (40 CFR 761.30(m), Subpart B).	Verify that any Circuit Breakers, Reclosers, and Cables used at the installation are serviced using only dielectric fluid which contains less than 50 ppm PCB and have been free from leaks. (1)(2)(23)

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
PCBs IN RESEARCH	
8-21. Use of pigments containing PCBs in research or microscopy or in miscellaneous items are subject to certain conditions (40 CFR 761.30 (g),(h),(j),(k)).	Confirm that pigments used on installation contain PCBs in concentrations less than 50 ppm. (1)(2) Confirm that pigments are handled in enclosed conditions. (1)(2)
...	...
PCB STORAGE	
8-22. PCBs and PCB Items at concentrations greater than 50 ppm that are to be stored before disposal must be stored in a facility that will assure the containment of PCBs (40 CFR 761.6(a-b) and 65 (c)(8-a)).	Inspect the PCB storage area and verify that the following provisions are present: (1)(2)(23) - the roof and walls of the building in which the PCBs are stored must be constructed so as to exclude rainfall from contacting PCBs and PCB items - a 6-in. tall containment curb circumscribing the entire area in which any PCBs or PCB Items are stored. Such curbing shall effectively provide containment for twice the internal volume of the largest PCB Article or 25 percent of the total internal volume of all PCB Articles or Containers stored, whichever is greater - drains, valves, floor drains, expansion joints, sewer lines or other openings that would allow liquids to flow from the curbed area, must not be present - floors and curbing shall be constructed of continuous, smooth, and impervious material - location is not below a 100-year flood water elevation. Verify that PCB Articles or PCB Containers are removed from storage and disposed of within one year from the date they were placed in storage. (1)(2)(9)
...	...
8-23. PCB Items may also be stored in other areas that do not comply with the storage area requirements when such storage is for a period of less than 30 days and when any such PCB items are marked with the date of removal from service (40 CFR 761.65(c)(i), Subpart D).	Inspect area used as a 30-day storage area and verify that only the following items are stored and are properly marked. (2)(9)(23) - non-leaking PCB Articles and PCB Equipment - leaking PCB Articles and PCB Equipment placed in a non-leaking PCB Container which contains sufficient sorbent material to absorb liquid contained on the PCB Article or equipment - PCB Containers in which nonliquid PCBs have been placed - PCB Containers in which liquid PCBs at a concentration between 50-500 ppm have been placed and Containers marked to indicate less than 500 ppm PCB. Confirm that area has been included in the installation Spill, Prevention, Control, and Countermeasure (SPCC) Plan, and Installation Spill Cleanup Plan (ISCP). (1)(2)(9)

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
8-24. Nonleaking and structurally undamaged PCB Large, High-Voltage Capacitors and PCB Contaminated Electric Equipment that have not been drained of freeflowing dielectric fluid may be stored on pallets next to a storage area that complies with the storage area requirements (40 CFR 761.65(c)(2), Subpart D).	Determine that available unfilled storage space in the storage area is is equal to at least 10 percent of the volume of capacitors and electrical equipment stored outside. (2)(9)(23)(25) Confirm that capacitors and equipment stored outside the storage facility are on pallets and inspected at least weekly. (2)(9)(23)
...	...
8-25. Specific operational procedures are required at PCB storage areas (40 CFR 761.65(c)(4), Subpart D).	Verify that the following practices are conducted at any areas where PCBs or PCB Items are stored: (2)(9)(23) - movable equipment used for handling PCBs and PCB Items that directly contact PCBs is not removed from storage area unless decontaminated - inspections for leaks of all PCB Articles and PCB Containers in storage are done at least once every 30-days - any leaked PCBs are immediately cleaned up and any spill absorbent material properly disposed - PCB Articles and Containers are marked with the date when placed into storage - PCB Articles and PCB Containers are positioned so that they can be located by the date they were placed into storage - containers in which PCBs are accumulated have a record that includes quantity and date of each batch.
...	...
8-26. Containers used for the storage of PCBs must comply with the shipping container specification of the Department Of Transportation (DOT) (40 CFR 761.65(c)(6-7), Subpart D).	Inspect PCB storage area for containers. (2)(9) Verify that DOT specifications are on drums/containers. Typical specifications are 5, 5B, 17C. (2)(9)(23) (NOTE: Containers larger than those specified in DOT Specs 5, 5B, or 17C may be used for nonliquid PCBs when such containers will provide as much protection against leaking and exposure to the environment as the DOT specified containers.) Verify that containers used for storage of liquid PCBs are containers without removable heads. (2)(9)(25)

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
TRANSPORTATION	
8-27. A generator who offers a PCB waste for transport for commercial off-site storage or off-site disposal must prepare a manifest (40 CFR 761.207 - 210). (NOTE: This applies to PCB wastes as defined in 40 CFR 761.3, and that contain greater than 50 ppm PCB.)	Check that a manifest has been prepared when needed and that it contains: (Use USEPA Form 8700-22). (1)(2)(o) - the identity of PCB Waste, the earliest date of removal from service for disposal and the weight in kilograms of the waste for bulk load of PCBs, and - the unique identifying number of each PCB Article Container, the date of removal from service, type of waste, and the weight of PCB waste contained. Check that sufficient copies are prepared to supply the generator, the initial transporter, each subsequent transporter, and the owner or operator of the disposal facility with one legible copy each for their records, and one additional copy to be signed and returned to the generaior by the owner or operator of the disposal facility. (2)(23)(25) Check that the generator maintains a copy of the signed manifest for at least 3 years after receipt of waste by the initial transporter. (2)(25)
...	...
8-28. If the generator does not receive a signed copy of the manifest within 35 days of the date the waste was accepted by the initial transporter, the generator should immediately contact the transporter and/or owner or operator of the designated facility to determine the status of the PCB Waste (40 CFR 761.215(a)(b))..	Verify that a procedure is in place so that if the generator does not receive a copy within 45 days of the date the waste was accepted by the initial transporter, an Exception Report was filed with the USEPA containing the following information: (1)(2)(9)(25) - a legible copy of the manifest for which the generator does not have confirmation of delivery - a cover letter signed by the generator or his authorized representative explaining the efforts taken to locate the PCB Waste and the results of those efforts.
...	...

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
DISPOSAL	
8-29. For each shipment of manifested PCB waste that a disposal facility accepts, the owner or operator of the disposal facility must prepare a Certificate of Disposal (40 CFR 761.218).	Check that a Certificate of Disposal has been prepared containing the following information: (1)(2)(9) - the identity of the disposal facility: by name, address, and USEPA identification number - the identity of the PCB Waste affected by the Certificate including reference to the manifest number for the shipment - a certification as defined in 40 CFR 761.3. Check that a copy of the Certificate was: (2)(23)(25) - sent to the generator identified on the manifest within 30 days of the date that disposal of the PCB Waste was completed - retained at the facility with the annual report.
...	...

8-30. PCB contaminated fluids other than mineral oil dielectric fluid of concentrations greater than 50 ppm but less than 500 ppm shall be disposed of properly (40 CFR 761.60(a)(3)).	Determine whether any PCB fluids meeting these criteria were processed for disposal in the last year. (23)(25)
	Verify that disposal was done at: (23)(25)
	- a USEPA-approved incinerator
	- a USEPA-approved chemical waste landfill
	- a high efficiency boiler, if:
	  - the boiler is rated at a minimum of 50 MBtu/hr
	  - the boiler uses natural gas or oil.
	Verify that such PCB fluids were disposed of by an approved method at a properly licensed facility. (23)

...	...
8-31. Rags, soils, and other debris contaminated with PCBs at concentrations greater than 50 ppm must be disposed of in a PCB incinerator or in a chemical waste landfill (40 CFR 761.60(a)(4), Subpart D).	Determine if any contaminated soil or debris has been disposed of, and verify that disposal was conducted at a properly licensed facility. (23)(25)

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
8-32. PCB Transformers shall be disposed of in either a USEPA approved incinerator or a chemical waste landfill (40 CFR 761.60(b)(1), Subpart D).	Determine if the PCB Transformers are being disposed of at a USEPA-approved incinerator or a chemical waste landfill. (1)(2)(9) Verify that if disposal is being done at a chemical waste landfill the transformer is drained of all free-flowing liquids, filled with solvent, allowed to stand for at least 18 hours, and than drained thoroughly. (1)(2)(9)
...	...
8-33. PCB Capacitors must be disposed of in accordance with certain facility regulations (40 CFR 761.60(b)(2), Subpart D).	Verify that disposal of PCB Capacitors was done accordingly: (1)(2)(23) - PCB Small Capacitors (< 3 lb of PCBs) disposed of in a solid waste landfill - PCB Large, High- or Low-Voltage Capacitors (> 3 lb of PCBs) containing more than 500 ppm incinerated in a USEPA approved incinerator. (NOTE: The large, high, or low-voltage capacitors may be disposed of in a chemical waste landfill upon approval of the USEPA.) Check capacitors in storage to ensure that they are placed in DOT containers with absorbent material. (2)(23)(25)
...	...
8-34. PCB hydraulic machines containing PCBs at concentrations greater than 50 ppm may be disposed of as municipal solid waste if specific conditions are met (40 CFR 761.60(b)(3), Subpart D).	Verify that the machines are drained of all free-flowing liquid. (1)(2))(9) Verify that if the machine contained PCB liquid of 1000 ppm PCB or greater, it is flushed prior to disposal with a solvent containing less than 50 ppm PCB. (1)(2)(9)
...	...
8-35. PCB contaminated electrical equipment, except capacitors, shall be disposed of by draining off the free-flowing liquid (40 CFR 761.60(b)(4), Subpart D).	Verify that the free-flowing liquid is drained from electrical equipment prior to disposal. (1)(2)(9)
...	...

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
8-36. PCB Articles shall be disposed of properly (40 CFR 761.60(b)(5), Subpart D).	Verify that PCB Articles with concentrations at 500 ppm or greater are disposed of in either: (1)(2)(9) - a USEPA-approved incinerator - a chemical waste landfill if all free-flowing liquids have been removed. Verify that PCB Articles with PCB concentration between 50 and 500 ppm are drained of all free-flowing liquid. (1)(2)(9)
...	...
8-37. PCB Containers shall be disposed of properly (40 CFR 761.60(c), Subpart D).	Verify that PCB Containers with concentrations of 500 ppm or > is disposed of in one of the following ways: (1)(2)(9) - in a USEPA-approved incinerator - in a chemical waste landfill if first the container is drained of any liquid PCBs. Verify that PCB Containers used to contain only PCBs at concentrations less than 500 ppm are drained of PCB liquid prior to disposal as municipal solid waste. (1)(2)(9)
...	...

8-38. PCB contaminated fluids other than mineral oil dielectric fluid of concentrations greater than 50 ppm but less than 500 ppm shall be disposed of properly (40 CFR 761.60(a)(3)).	Determine whether any PCB fluids meeting these criteria were processed for disposal in the last year. (23)(25)
	Verify that disposal was done at: (23)(25)
	- a USEPA-approved incinerator
	- a USEPA-approved chemical waste landfill
	- a high efficiency boiler, if:
	  - the boiler is rated at a minimum of 50 MBtu/hr
	  - the boiler uses natural gas or oil.
	Verify that such PCB fluids were disposed of by an approved method at a properly licensed facility. (23)

...	...

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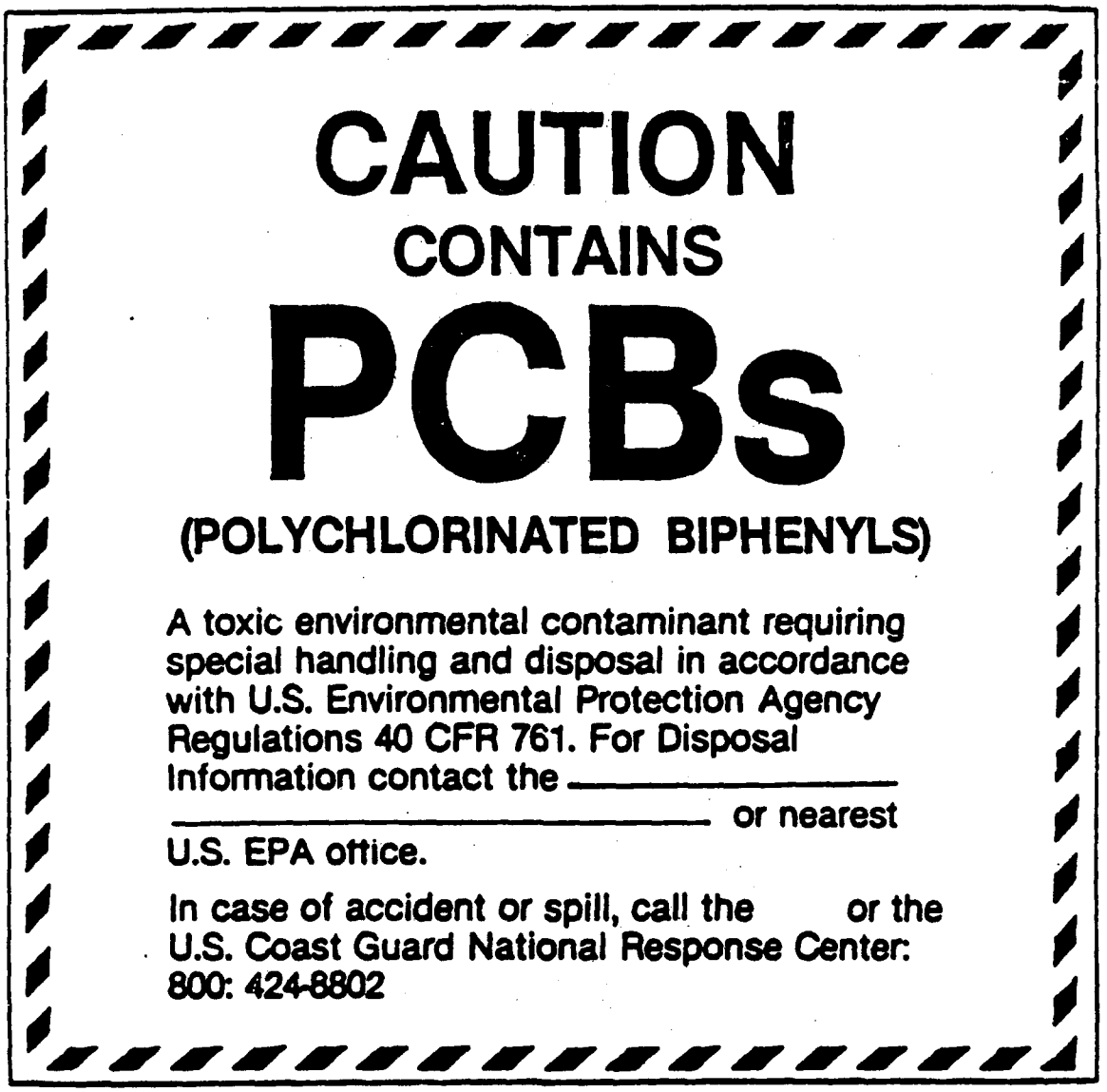
Appendix 8-1

PCB Label Format



Appendix 8 - 2

DIELECTRIC FLUID TREND NAMES AND MANUFACTURERS

1. U.S. Manufactured Dielectrics:

Name	Manufacturer
Aroclor	Monsanto
Aroclor B	Mallory
Sbestol	American Corporation
Askarel Hevi-Duty	Hevi-Duty Corporation
Askarel *	Ferranti-Packard,Ltd.
Askarel	Universal Mfg. Co.
Chlorextol	Allis-Chalmers
Chlorinol	Sparagoe Electric
Chlorphen	Jard Company
Diaclor	Sangamo Electric
Dykanol	Cornell Dubilier
Elemex	McGraw Edison
Eucarel	Electric Utilities Co.
Hyvol	Aerovox
Inerteen	Westinghouse Electric
No-Flamol	Wagner Electric
Pyranol	General Electric
Saf-T-Kuhl	Kuhlman Electric

* Generic name used for insulating liquids in capacitors and transformers.

2. Foreign Manufactured Dielectrics:

Name	Manufacturer
Clophen	Bayer (Germany)
Fenclo	Caffaro (Italy)
Kennechlor	Mitsubishi (Japan)
Phenoclor	Prodelec (France)
DK	Caffaro (Italy)
Pyralene	Prodelec (France)
Solvol	USSR
Santotherm	Mitsubishi (Japan)

3. Transformers that list other dielectrics or do not bear a manufacturer's identification or service plate on the transformer: if the transformer contains any of the dielectrics (commonly referred to as askarels), it is to be certified as a PCB transformer containing in excess of 500 ppm PCB and no laboratory testing is necessary.

INSTALLATION:	COMPLIANCE CATEGORY: TOXIC SUBSTANCES CONTROL ACT USA ECAS	DATE:	REVIEWER(S):

STATUS NA C RMA	REVIEWER COMMENTS:

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (4) Safety and Health Officer (5) Fire Department (9) Chief of Operations and Maintenance (O&M) (21) Public Affairs Office (PAO) (23) Defense and Reutilization Marketing Office (DRMO) (25) Utilities Division (Exterior Electric Shop) (28) School Principal

Section 9

FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT (FIFRA)

SECTION 9

FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT

A. Applicability of this Protocol

This protocol applies to any Army facility that uses, stores or handles pesticides. Pesticides are regulated on the Federal level, on the state level, and by specific DoD and U.S. Army regulations. This protocol integrates the requirements of these regulations into a single document that normally will apply to any facility that handles pesticides.

Although specific state regulations are not included in this protocol, all major areas that are typically regulated on the state level are included here in a generic manner.

Much of the guidance for pest management involves Operation and Maintenance (O&M) procedures. This protocol combines O&M guidance and compliance matters. It is used to determine the compliance status of operations, facilities, and equipment used to store and apply pest control chemicals. The protocol addresses the adequacy of facilities, operating procedures, personnel qualifications, and reporting of pesticide use.

B. Federal Legislation

- The Federal Insecticide, Fungicide, and Rodenticide Act as amended (P.L. 92-516; 7 U.S.C. 136 et seq.) (FIFRA). Under FIFRA, the United States Environmental Protection Agency (USEPA) is responsible for the registration of new pesticides and for their reregistration to ensure that, when used according to label directions, they will not present any unreasonable risks to human health or the environment. FIFRA regulations apply to persons who manufacture, market, formulate, distribute, use, or dispose of pesticides and pesticide containers.

- 29 CFR 1910, *OSHA Safety and Health Standards*. These Occupational Safety and Health standards govern storage and handling of flammable and combustible liquids. Even though not considered strictly as environmental regulations, they are included in this protocol because they play a part in the pest management process.

- 40 CFR Chapter 1, Subchapter E, *Pesticide Programs*. Regulations pertaining to management of pesticides are contained in 40 CFR 152-186. 40 CFR 162 (later revised to include 40 CFR 156) contains the definitions, labeling requirements, and other classification information. 40 CFR 165 contains regulations

for the storage, disposal, and overall management of pesticides and pesticide containers. 40 CFR 171 addresses the certification of persons who apply restricted use pesticides.

- 40 CFR 165, *Regulations for the Acceptance of Certain Pesticides and Recommended Procedures for the Disposal and Storage of Pesticides and Pesticide Containers*. The majority of the Federal regulatory requirements contained in the worksheet for this section have been developed from 40 CFR 165 as this part provides the facility and operating requirements for the storage and application of pest management chemicals. The regulations in 40 CFR 165 that address the disposal of pesticides and pesticide containers apply to all pesticides. Pesticide containers registered for home or garden use are exempt from these regulations if they are securely wrapped in several layers of paper and disposed of singly in a municipal solid waste facility. The recommended procedures and criteria for the storage of pesticides and pesticide containers provided in 40 CFR 165 apply to facilities that store pesticides classified as toxic or moderately toxic, and bear the signal words DANGER, POISON, or WARNING, or the skull and crossbones symbol. Pesticides registered under an experimental use permit should also be stored and managed in accordance with 40 CFR 165.

- 40 CFR 171, *Certification of Pesticide Applicators*. These regulations outline the categories and standards for the certification of commercial and private applicators of restricted use pesticides as well as requirements for the submission and approval of state plans for certification. Competence in the use and handling of restricted use pesticides is determined on the basis of written exams covering the general standards applicable to all categories of pesticide applicators as well as additional standards for each category for which the applicator is seeking certification.

C. State/Local Requirements

State pesticide regulatory programs are to be at least as stringent as FIFRA. State and local programs typically contain regulations tailored to an industry or activity that is prevalent or particularly sensitive in a state. State and local pesticide regulations in many cases provide more stringent standards or specifically identify a requirement that may be qualitatively regulated under the Federal program.

State and local pesticide programs generally include regulations addressing the following topics:

- restrictions or requirements for the sale, distribution, or use of selected pesticides

- disposal requirements for excess pesticides and pesticide wastes such as pesticide containers
- restrictions on the control of specific animal or insect species
- specifications for bulk pesticide storage tanks, storage facilities
- operational requirements for selected application methods
- recordkeeping and applicator certification requirements.

D. DoD Regulations

- DoD Directive 4150.7, *Pest Management Program*, sets forth the policy, responsibilities, and procedures for pest management programs. This directive establishes the DoD policy of maintaining safe, efficient, and environmentally sound integrated pest management programs to prevent or control pests that may adversely affect health or damage structures, material, or property. The DoD Plan for the Certification of Pesticide Applicators stipulates the certification of U.S. Army Reserve military and civilian pest managers.

- DoD 4160.21-M, *Defense Utilization and Disposal Manual*, in Chapter 9, *Hazardous Property Management*, sets out guidance for the handling, processing, and disposing of hazardous property in accordance with applicable environmental, safety, and other laws and regulations.

E. U.S. Army Regulations

- Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*, prescribes responsibilities, policies, and procedures to preserve, protect, and restore the quality of the environment.

- Army Regulation (AR) 420-76, *Pest Management*, provides policies, standards, and procedures for pest control activities at U.S. Army-controlled facilities. It sets minimum levels of pest management operations in real property maintenance activities (RPMA) and states that these operations are to be compatible with national environmental protection mandates.

F. Key Compliance Requirements

- Certification - A specific number of certified pesticide applicators must be present at each facility according to the productive man-years stipulated by the pest control needs of the facility (DoD 4150.7; Appendix 9-1). Certification must be obtained for specific facility pest management activities (40 CFR 171.3).

- Storage, Mixing, and Personnel Facilities - Facilities are required to provide some separation for select components of the pest management shop. Pesticides shall be stored separate from other operations and where food is located, stored, prepared, or served. Facilities shall provide areas for mixing, equipment storage, decontamination, and personnel amenities as well as systems for spill containment, ventilation, personnel safety, entry control, and run-off retention (40 CFR 165).

G. Responsibility for Compliance

- Directorate of Engineering and Housing will prepare a pest management plan, supervise and direct pest management operations, conduct preventive maintenance and surveillance inspections, ensure that operating personnel are adequately trained, maintain supplies of pesticides and related equipment, and assure that all pest management operations are done safely. In addition, the Facilities Engineer will decide which activities should be contracted out, perform all recordkeeping and reporting requirements of AR 420-76, notify heads of nonappropriated funds activities that restricted and controlled pesticides must be applied by under supervision of certified personnel, and cooperate with medical authority.

- Preventive Medicine will survey pest population involved in health of the command and report the results to the facilities engineer; conduct the installation pesticide monitoring program; obtain timely identification and susceptibility of pests to pesticides as necessary and report to the facilities engineer; establish health and personnel safety criteria for pesticide operation; provide certification training; and assist the MACOM pest management consultant in conducting an on-site installation pest management program review.

- Installation Pest Management Coordinator will be a pest management supervisor or professional pest management personnel, and will develop and monitor the installation pest management annual work plan, and coordinate with activities conducting pest surveillance or applying pesticides to ensure that all applicable information is reported per AR 420-76.

H. Key Compliance Definitions

These definitions were obtained from Federal, DoD, and U.S. Army regulations previously cited in this protocol.

- *Acute* LD_{50} - means a statistically derived estimate of the concentration of a substance that would cause 50 percent mortality to the test population under specified conditions.

- *Agricultural Commodity* - any plant, or part thereof, or animal, or animal product, produced by a person (including farmers, ranchers, vineyardists, plant propagators, Christmas tree growers, aquaculturists, floriculturists, orchardists, foresters, or other comparable persons) primarily for sale, consumption, propagation, or other use by man or animals.

- *Caution* - the human hazard signal word required on the front panel of a pesticide container determined by the Toxicity Category of the pesticide. All pesticide products meeting the criteria of Toxicity Category III or IV must bear on the front panel the signal word "Caution" (see definition of Toxicity Category).

- *Commercial Applicator* - a certified applicator, other than a private applicator, who uses or supervises the use of any pesticide, for any purp se, on any property, or performs other pest control related activities.

- *Danger* - the human hazard signal word required on the front panel of a pesticide container determined by the Toxicity Category of the pesticide. All pesticide products meeting the criteria of Toxicity Category I must bear on the front panel the signal word "Danger" (see definition of Toxicity Category).

- *Fumigant* - any pesticide which by itself or in combination with any other substance emits or liberates a gas, gases, fumes, or vapors, and which gas, gases, fumes, or vapors when liberated and used will destroy, control, or mitigate a pest, and is usually lethal, poisonous, noxious, or dangerous to human life.

- *Good Management Practice (GMP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *Imminent Hazard* - a situation that exists when the continued use of a pesticide during the time required for cancellation proceedings would be likely to result in unreasonable adverse effects on the environment or will involve unreasonable hazard to the survival of a species declared endangered by the Secretary of the Interior under P. L. 91-135.

- *MSDS (Material Safety Data Sheets)* - a form that contains identification, handling, and hazard disclosure information on over 75,000 chemical substances that require documentation by chemical manufacturers under the Hazard Communication and Labeling Standard of the OSHA. For each chemical, the MSDS provides substance identification, including chemical name, trade names, and molecular formula; manufacturer's or importer's name, address, and telephone number; physical data, including description, boiling and melting points, specific gravity, evaporation rate, and solubility in water; fire and explosion data, including flash point, upper and lower ignition limits, and fire-fighting techniques; toxicity and health effects, including first aid and antidotes; reactivity, including incompatibilities (i.e., explosive reaction with hydrogen

peroxide), decomposition, and polymerization; handling, storage, or disposal conditions to avoid; and spill and leak procedures, including requirements for protective equipment.

- *Pesticide* - any substance or mixture of substances, including biological control agents, that prevent, destroy, repel, or mitigate pests; also any substance or mixture of substances used as a plant regulator, defoliant, or disinfectant; and is further categorized into the following:

  - "Excess pesticides" means all pesticides that cannot be legally sold pursuant to the Act or that are to be discarded.

  - "Organic pesticides" means carbon-containing substances used as pesticides, excluding metallo-organic compounds.

  - "Inorganic pesticides" means noncarbon-containing substances used as pesticides.

  - "Metallo-organic pesticides" means a class of organic pesticides containing one or more metal or metalloid atoms in the structure.

- *Pesticide Product* - means a pesticide in the particular form (including composition, packaging, and labeling) in which the pesticide is, or is intended to be, distributed or sold. This includes any physical apparatus used to deliver or apply the pesticide if distributed or sold with the pesticide.

- *Pest Management Personnel (PMP)* - military officers commissioned in the Medical Services or DoD civilian personnel with college degrees in biological or agricultural sciences who are in a current assignment that includes pest management responsibilities exercised regularly. DoD civilian employees shall also meet appropriate Office of Personnel Management qualification Standards.

- *Private Applicator* - a certified applicator who uses or supervises the use of any pesticide which is classified for restricted use for purposes of producing any agriculture commodity on property owned or rented by him or his employer or (if applied without compensation other than trading of personal services between producers of agricultural commodities) on the property of another person.

- *Restricted Use Pesticides* - pesticides designated for restricted use under the provisions of Section 3 (d)(1)(c) of FIFRA. These pesticides are only to be used by certified applicators or by persons working under their supervision (40 CFR 162.30). Restricted use pesticides are identified on the label.

- *Toxicity Category* - required warnings and precautionary statements are based on the Toxicity Category of the pesticide. The category is assigned on the basis of the highest hazard shown in the table listed in 40 CFR 162.10.

- *Warning* - the human hazard signal word required on the front panel of a pesticide container determined by the Toxicity Category of the pesticide. All pesticide products meeting the criteria of Toxicity Category II shall bear on the front panel the signal word "Warning" (see 40 CFR 162.10 for listing of indicators necessary to meet specific criteria of toxicity categories).

FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT

GUIDANCE FOR WORKSHEET USERS

	REFER TO WORKSHEET ITEMS	CONTACT THESE PERSONS OR GROUPS: (a)
All facilities	9-1 through 9-3	(2)(16)(17)(22)(33)
If facility is not responsible for pesticide application	9-4	(17)(33)
If facility personnel engage in application of pesticides	9-5 through 9-16	(2)(3)(16)(17)(33)
If facility stores, mixes, or prepares pesticides	9-17 through 9-20	(16)(17)(33)
If facility stores, mixes, or prepares pesticides that bear "warning" or higher toxicity symbols	9-21 through 9-30	(5)(17)(33)
If facility disposes of pesticide wastes	9-31 through 9-33	(17)(33)

(a) CONTACT/LOCATION CODE:

(2) Environmental Coordinator (EC)
(3) Preventive Medicine Officer
(5) Fire Department
(16) Building and Grounds Division (DEH)
(17) Entomology Shop (DEH)
(22) Staff Judge Advocate
(33) Golf Course Pesticide Shop

FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT

Records to Review:

- Records of pesticides purchased by the facility (purchase orders, inventory)
- Pesticide application records
- Description of the facility's pest control program
- Installation pest management plan
- Certification status of pesticide applicators
- Pesticide disposal manifests
- Any emergency exemption granted to the Federal agency by the USEPA
- Contracts for pest management
- Recent ventilation rating for pesticide fume hood and pesticide mixing/storage rooms
- Staffing requirements for pest management program

Physical Features to Inspect:

- Personnel protection equipment
- Pesticide application equipment
- Pesticide storage areas, including storage containers
- Military unit storage/supply areas
- DEH/DOL supply and storage areas
- Field sanitation training sites

People to Interview:

- Environmental Coordinator (EC)
- Preventive Medicine Officer
- Fire Department
- Building and Grounds Division (DEH)
- Entomology Shop (DEH)
- Staff Judge Advocate
- Golf Course Pesticide Shop
- Pest Management Program Coordinator/Officer
- DEH/DOL supply and storage areas
- Military Unit Supply Officer
- Supply and Storage Officer (DOL)

COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
9-1. Determine actions or changes since previous review of the pest management program.	Review previous report and determine the status of noncompliance issues identified. (2) (NOTE: The term "PESTICIDE" refers to insecticides, rodenticides, herbicides, and other pest control chemicals.)
...	...
9-2. Current copies of all relevant Federal, DoD, U.S. Army and state/local regulations and guidance should be maintained (GMP).	Verify whether copies of the following regulations are kept at the installation: (2)(16)(17)(22) - 29 CFR 1910, *Occupational Safety and Health Standards.* - 40 CFR 152, *Pesticide Registration and Classification Procedures.* - 40 CFR 162, *State Registration of Pesticide Products.* - 40 CFR 165, *Regulations for the Acceptance of Certain Pesticides and Recommend Procedures for the Disposal and Storage of pesticides and pesticide containers.* - 40 CFR 166, *Exemption of Federal and State Agencies for use of pesticides Under Emergency Conditions.* - 40 CFR 171, *Certification of Pesticide Applicators.* - DoD Directive 4150.7, *Pest Management Program.* - DoD 4160.21-M, *Hazardous Property Management.* - AR 200-1, *Environmental Protection and Enhancement.* - AR 420-76, *Pest Management.* - TIM No.14, *Protective Equipment for Pest Control Personnel.* - TIM No.15, *Pesticide Spill Prevention and Management.* - TIM No.16, *Pesticide Fires: Prevention, Control and Clean-up.* - TIM No.17, *Pest Control Facilities.* - TIM No.21, *Pesticide Disposal Guide for Pest Control Shops.* - State pesticide regulations.
...	...
9-3. Installations are required to abide by state and local regulations (AR 200-1; Ch. 1; Section III; par. 1-39(a)(3)).	Verify that the installation is abiding by state and local requirements. (1) Verify that the installation is operating according to permits issued by the state or local agencies. (1)(2) NOTE: Issues that are typically regulated by state and local agencies include: (1)(2) - certification of applicators - restricted use pesticides - application procedures.
...	...

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COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
9-4. The installation must have a Pest Management Coordinator (AR 420-76, para. 2-4e).	Determine whether a person has been designated to coordinate ALL INSTALLATION pest management activities. (2) - Check whether this person is responsible for preparation of the pest management plan and the collection of the information necessary to prepare the DD Form 1532. - Check whether this person oversees performance of pest control contracts.
...	...
9-5. Each Army installation must have a comprehensive Installation Pest Management Plan (IPMP) (AR 420-76, para. 2-5a, 2-31, 3-2a).	Determine whether an IPMP has been prepared. (2)(17) Verify whether all installation activities and satellite sites that perform pest control have been included in the IPMP. (2) - Land Management Section - Forestry Section - Fish and Wildlife Section - Golf Course Grounds Maintenance - Grounds Section - Contract Pest Control - Greenhouses - Airfield Management - Clubs. Verify whether the IPMP has been reviewed and approved by the appropriate MACOM Pest Management Consultant (PMC). (2) Verify whether the pest management plan has been updated during the past year. (2)
...	...
9-6. The IPMP must contain, as a minimum, the requirements presented in Appendix C of AR 420-76 (AR 420-76, para. 3-2b).	Determine whether the IPMP contains a pest control worksheet for each pest control function. (2) Verify whether each pest control worksheet contains: (2) - Objectives of control - Surveillance on which control is based - Control operations to be performed - Precautions to be taken in sensitive areas - Special health and safety measures required. Determine whether the IPMP emphasizes integrated pest management procedures rather than spray schedules. (2)
...	...

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COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
9-7. DD Form 1532, Pest Management Report, must be submitted monthly (AR 420-76, para. 4-4c[1][3][4]a).	Determine whether the DD Form 1532, which reports pest control operations and pesticide use, is prepared monthly. (2)(17) Verify whether the DD Form 1532 includes ALL installation pest control operations. (2)(17) Verify whether the DD Form 1532 records surveillance time (engineer and PVNTMED). (2)(17) Determine whether a copy of DD Form 1532 is sent to: (2)(17) - MACOM PMC - Installation PVNTMED Officer - USAEHA
...	...
9-8. Contracts for installation pest control services must be reviewed and approved by the appropriate MACOM PMC prior to advertisement for bid (AR 420-76, para. 3-12c and d, 4-3a and c, 3-4k).	Determine whether contracts for pest control services have been approved (preferably in writing) by the MACOM PMC. (2)(17) Verify whether contract pest control services are monitored by a DoD trained and certified Quality Assurance Evaluation (QAE). (2)(17) Verify whether contractor employees are certified (DoD certification is not required) to apply pesticides. (2)(17)
...	...
9-9. A self-help pest control program must be available for use by housing occupants to control minor infestations of household pests (AR 420-76, para. 2-3m, 3-13,4-4b, and Appendix G).	Determine whether a self-help pest control program has been established. (2)(17) Determine whether housing occupants are required to make a self-help pest control effort before services from the installation pest control services are scheduled. (2)(17) Determine whether the pesticides being distributed by self-help have been approved by the MACOM PMC. (2)(17) Determine whether records are being maintained of pest control supplies issued and are provided to the pest management coordinator once a month to be included on the DD Form 1532. (2)(17)
...	...

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COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
9-10. The impact of the installation pest management program must be addressed in the installation EA or EIS (AR 40-574, AR 200-2, para. 5-3a, AR 420-76, para. 3-10).	Determine whether the current installation EA or EIS addresses pest management operations. (2) Verify whether EAs are on file for pest management operations that: (2) - use a restricted use pesticide - may have the potential to contaminate surface or ground water - are more than 259 contiguous hectares (640 acres) treated - may affect endangered, threatened, or protected species or their habitat. Verify whether an EA and validation statement have been prepared in accordance with AR 40-574 before the aerial dispersal of pesticides. (2) If the installation does not have a current EA or EIS, check that the environmental impacts of pest management operations are being addressed as part of IPMP. (2)
PESTICIDE APPLICATION	
...	...
9-11. Application of pesticides must be conducted by a trained and certified pesticide applicator; or by a person acting under the direct supervision of a certified applicator (AR 420-76, para. 3-1, 40 CFR 171).	Determine whether government pesticide applicators are DoD trained and certified. (2)(17) Determine whether contract pesticide applicators are state certified. (2)(17) Determine whether all certifications are current. (2)(17) Determine whether the pesticide applicators are certified in appropriate categories for the types of pest control being conducted. (2)(17) Determine whether restricted-use or state-limited-use pesticides are applied only by a certified pesticide applicator. (2)(17)
...	...
9-12. All government pest control personnel must be participating in a medical surveillance program (40 CFR 165.10[e][2][vi] and AR 40-5, para. 10-16).	Determine whether all government pesticide applicators are participating in a medical surveillance program. (2)(3)(17) (NOTE: Contract pesticide applicators should be in a medical surveillance program provided by their employer.) Verify whether the medical surveillance consists of, at a minimum: (2)(3)(17) - annual physical - periodic blood cholinesterase tests.
...	...

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COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
9-13. Personal protective equipment and clothing must be provided, at employer (Army or contractor) expense (AR 11-34, para. 3-5b(2), AR 385-32, para. 4a, AR 420-76, para. 4-1c(2), 29 CFR 1910.132(a), 133(a)(1), 134(a)(1), 141(e), 40 CFR 165.10(f)(2), TB MED 501, 502, 506, TM 5-632, para. 6.2.3.2).	Determine whether adequate personal protective clothing and equipment is provided. (2)(17) - daily change of protective clothing - solvent resistant gloves, aprons, boots, splash protective eyewear - hearing protection equipment - respirators. Determine whether laundering of protective clothing is provided by the installation (or employer). (2)(17) Determine whether protective clothing and equipment is stored separate from chemical areas. (2)(17) Determine whether appropriate/approved respirators are being used when handling and applying pesticides. (2)(17) - Verify that respirator cartridge/canisters are changed at appropriate intervals. - Verify that a log of respirator cartridge/canister use is maintained. - Verify that periodic fit testing of respirators is conducted.
...	...
9-14. Copies of material safety data sheets for hazardous chemicals at a given work site will be readily accessible to employees (29 CFR 1910.1200[e]).	Determine whether material safety data sheets are available for review by employees upon request. (2)(17) Verify whether employees have received training designed to inform them of the hazards of chemicals they use. (2)(17)
...	...
9-15. Vehicles used for pesticide applications must be dedicated to pest control operations (AR 420-76, paragraph 4-1e(1) 29 CFR 1910.151(c), TB MED 506, para. 5e, and Appendix F).	Determine whether vehicles used during pest control operations are single purpose. (17)(33) Determine whether pest control vehicles have separate cab and cargo compartments. (17)(33) Determine whether lockable storage is provided on the vehicles. (17)(33) Determine whether spill cleanup kits are placed on vehicles. (17)(33) Determine whether a portable eye wash is available for use on vehicles at remote application sites. (17)(33)
...	...

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COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
9-16. Pesticides offered for sale in Commissaries and Post Exchange must be registered by the USEPA and displayed, stored, and handled appropriately (FIFRA, Section 12a[1][A]; AR 40-5, para. 10-4f and Appendix D; MIL-STD-903B; 40 CFR 165.10[e] and [f]; ESM 40-11; AAFES Retail Planner). ...	Determine whether the pesticides offered for sale are registered by USEPA. (2)(17)(33) Determine whether the pesticides offered for sale are registered for general use. (2)(17)(33) (NOTE: Pesticide products labeled "For Professional Use Only," "Restricted Use," "Use by Pesticide Applicator" or similarly restricted, will not be sold.) Determine whether the pesticides are displayed and arranged to avoid contamination of foods or food service supplies. (2)(17)(33) Determine whether pesticides are stored in the warehouse segregated from all food products. (2)(17)(33) Determine whether materials are available for cleanup of pesticide spills. (2)(17)(33) Determine whether personnel are familiar with cleanup procedures. (2)(17)(33) Determine whether sales personnel are instructed to bag pesticides separately from foodstuffs or clothing. (2)(17)(33) ...

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COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
STORE, MIX, OR PREPARE PESTICIDES	
9-17. The pesticide storage and mixing facilities must be located at a site that limits the hazard to the environment and personnel during normal operations or in case of fire or pesticide spill (40 CFR 165.10[c] and AR 420-76, para. 4-1b[1]).	Determine whether the pesticide storage and mixing facility is: (17)(33) - located to prevent contamination of a water system by runoff or percolation - located where flooding is unlikely - isolated from congested areas - a single purpose building.
...	...
9-18. The pesticide storage and mixing facility should be included in the installation Spill Prevention Control and Countermeasures Plan (SPCCP) (AR 200-1, para. 8-6 and 8-7).	Determine whether the SPCCP identifies the pesticide storage facility and addresses measures to prevent or minimize impact of a pesticide spill at the facility. (2)(17) Determine whether the SPCCP includes an inventory of pesticides stored in the pesticide storage facility. (2)(17)
...	...
9-19. Stored pesticides should be addressed in the Installation Spill Contingency Plan (ISCP) (AR 200-1, para. 8-9 and 8-10).	Determine whether the ISCP addresses procedures and techniques used to contain and clean up a pesticide spill at the pesticide storage facility. (2)(17)
...	...
9-20. Installation emergency services must be notified of the hazards of pesticides being stored on the installation (AR 420-76, para. 4-1f).	Determine whether the installation's emergency services (such as the medical facility, fire department, and military police) have been notified, in writing, of the potential hazards of a spill or fire involving stored pesticides. (2)(5) Verify whether this notification includes: (2)(5) - precautions and actions to be taken in the event of poisoning, spill, or fire involving pesticides - inventory of stored pesticides, updated at least annually or when changes in pesticides usage occur. Determine whether prefire planning has been conducted in accordance with TIM No. 16. (2)(5)
...	...

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COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
9-21. The pesticide storage facility must be designed with regard to the hazardous nature of pesticides (40 CFR 165.10 and AR 420-76, para. 4-1b[1]).	Determine whether pesticides are stored under dry conditions to prevent damage to containers or stored pesticides. (17)(33) Verify whether adequate fire protection is provided for stored pesticides. (17)(33) Verify whether the floor of the pesticide storage area is designed with a 4-inch high curb to contain spills. (17)(33) Determine whether the floor is sealed or in good condition (e.g., no cracks). (17)(33) Verify whether floor drains are absent or closed. (17)(33) Verify whether the pesticide storage facility is secured to prevent unauthorized entry. (17)(33) Determine whether warning signs are posted to advise of the hazardous contents. (17)(33) Verify that signs posted outside include: (17)(33) - DANGER, POISON, PESTICIDE STORAGE - the types of pesticides stored - NFPA hazard signal - emergency telephone numbers Verify whether signs posted inside include: (17)(33) - warning to wash hands prior to smoking and eating after handling pesticides - NO SMOKING - emergency telephone numbers - signs requiring use of protective equipment. Determine whether the temperature of the pesticide storage facility is maintained between 40^{o} F and 100^{o} F to prevent deterioration. (17)(33) Determine whether the storage area is separate from administrative or other areas where personnel work for prolonged periods to avoid exposure to pesticide vapors. (17)(33)
...	...

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COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
9-22. A pesticide storage area must be well ventilated (40 CFR 165.10[c]).	Determine whether the storage area is ventilated by a system providing at least 6 air changes per hour. (17)(33) (NOTE: This ventilation need only operate when the storage area is occupied and should be started at least 5 minutes before entry.) Determine whether the switch for the ventilation system is located outside the pesticide storage area. (17)(33) Verify whether the installation PVNTMED Service evaluated the ventilation system to determine the air changes. (17)(33) Verify whether 100 percent outdoor air is used in forced air heating and cooling systems. (17)(33)
...	...
9-23. Pesticide containers must be stored using procedures that promote safe storage and handling (AR 420-76, para. 4-1b).	Determine whether an inventory of stored pesticides is being maintained continuously. (17)(33) Verify whether insecticides and herbicides are stored separately with at least a 4-foot aisle between them to prevent cross-contamination. (17)(33) Verify whether pesticides are stored in original containers, removed from shipping cartons, and have the label visible. (17)(33) Determine whether pesticide containers are stored off the floor, in an upright position, and with access aisles to allow inspection. (17)(33) Verify whether containers are checked regularly for corrosion and leaks. (17)(33) Verify whether drip pans are placed under the spigots of bulk storage containers. (17)(33) Determine whether all shelves and pallets are made of nonabsorbent materials. (17)(33)
...	...
9-24. A pesticide spill cleanup kit must be strategically located where pesticides are stored and mixed (40 CFR 165.10[d][2] and AR 420-76, para. 4-1e[1]).	Determine whether a pesticide spill cleanup kit is available to clean up and detoxify spills in the pesticide storage facility. (17)(33)
...	...

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COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
9-25. Suitable facilities for emergency decontamination must be available within the pesticide storage facility for immediate emergency use (29 CFR 1910.151[c] and 40 CFR 165.10[c][4]).	Determine whether emergency shower and eye wash are present in the pesticide storage facility. (17)(33)
...	...
9-26. The pesticide mixing area must be designed with regard to the hazardous nature of pesticides (40 CFR 165.10 and AR 420-76, para. 4-1b[1]).	Determine whether the floor is designed to contain a pesticide spill. (17)(33) Verify whether floor drains are absent in the mixing area. (17)(33) Verify whether all water sources used for pesticide mixing have backflow prevention devices. (17)(33) Determine whether the sink has a sign posted which reads "DO NOT DISCHARGE PESTICIDE OR PESTICIDE SOLUTIONS INTO THE SINK." (17)(33) Verify whether safety procedures are available (posted) in the mixing area. (17)(33) Determine whether signs posted in mixing area include: (17)(33) - warning to wash hands prior to smoking and eating after handling pesticides - NO SMOKING - emergency telephone numbers - signs requiring use of protective equipment.
...	...
9-27. The mixing area workbench and sink must be enclosed with a hood to contain, capture, and exhaust vapors during mixing operations (29 CFR 1910.106).	Determine whether the work surface used for pesticide mixing is provided with adequate local exhaust ventilation providing 100 fpm in the breathing zone. (17)(33) Determine if the PVNTMED Service evaluated the operation of the hood to determine flow rate. (1)(2)(5)(11)(12)(17) Determine whether the installation PVNTMED Service evaluated the operation of the hood to determine its flow rate. (17)(33)

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COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
9-28. A change room must be provided for pest control personnel to change into protective clothing (29 CFR 1910.141[e]).	Determine whether the pest control facility has a change room. (17)(33) Verify whether adequate personnel locker space is provided (one to contain clean protective clothing and personnel clothing and another for contaminated clothing). (17)(33) Determine whether a hot water shower is available for personnel to use at the end of the duty day. (17)(33) Determine whether toilet facilities are available. (17)(33)
...	...
9-29. A pesticide-free clean area should be available for an office/break room and storage of protective equipment (AR 420-76, para. 4-1b[1]).	Determine whether a pesticide- free office/break room is available for use by pest control personnel that is separated from chemical areas of the pest control facility. (17)(33) Determine whether an area is available to store personal protective equipment (such as respirator cartridges) that is not exposed to pesticide vapors. (17)(33)
...	...
9-30. Areas where outdoor mixing of pesticides is conducted must be designed with regard to the hazardous nature of pesticides (AR 420-76, para. 4-1b[1]).	Determine whether the outdoor mixing area has: (17)(33) - a concrete pad with curbing to contain any pesticide spills - closeable drain - a wind screen - a frost free elevated water fill pipe for large equipment. Verify whether appropriate safety equipment, such as an eye wash and deluge shower, is available at or near the site. (17)(33) Determine whether all water sources used for mixing pesticides have backflow prevention devices. (17)(33)

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COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
DISPOSAL	
9-31. Disposal must be initiated for all excess pesticides (AR 420-76, para. 4-2).	Determine whether efforts have been made to transfer or exchange excess serviceable pesticides. Verify whether reports have been made to: (16)(17)(33) - MACOM PMC - USAEHA Pesticide Hotline. (NOTE: The best method for disposal of excess pesticides, if not restricted by a suspension or cancellation notice by USEPA, is to use them in accordance with label directions.) Determine whether paper work to turn in excess serviceable pesticides (that cannot be used) and unserviceable pesticides has been submitted to the installation DRMO. (2)(16)(17)(33) (NOTE: Pesticides awaiting disposal must be stored in accordance with 40 CFR 165.10. Therefore, DRMO may or may not take physical custody of the pesticides.)
...	...
9-32. Excess spray and rinse water must be disposed in a manner that does not constitute open dumping (40 CFR 165.7[b], 40 CFR 165.9[d], and AR 420-76, para. 4-2).	Determine whether specific procedures are in effect to limit excess finished spray: (17)(33) - proper calculation - mixing only the amount of chemical required for each job. Verify whether excess finished spray is: (17)(33) - used in accordance with label directions, or - disposed of as a pesticide related waste. Determine whether container and equipment rinse water is: (17)(33) - saved for use as diluent in a subsequent spray operation, or - disposed of as a pesticide related waste.
...	...
9-33. Empty pesticide containers must be disposed in a manner that does not constitute open dumping (40 CFR 165.7[b], 40 CFR 165.9[b], and AR 420-76, para. 4-2d).	Determine whether empty pesticide containers are: - triple rinsed - rendered unusable (crushed and punctured) - disposed of in an approved landfill - recycled in accordance with label instructions or approved recycling plan.
...	...

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Appendix 9 - 1

Requirements for Installation Pest Management Program

Pest Control Recognized Requirements Man-Hours*	Minimum No. of Certified Full-time Pesticide Applicators Required	Installation Pest Management Plan	On-Site Program Review
Less than 0.25	None unless restricted use pesticides are used or unusally sensitive environmental conditions exist, including endangered species	Individual plan not required; included in supporting installation plan	Requirements established by MACOM PMC
0.25 to 0.49	One	Same as above	Same as above
0.50 to 1.49	One	Individual pest management plans required	Annual or biennial
1.50 to 3.99	Two	Same as above	Same as above
4.00 or More	50 percent of the pest management workforce	Same as above	Same as above

* Multiply the total productive man-years required for the pest management program by a factor of 1.19 to determine the recognized requirement. This factor includes essential time allowance for annual and sick leave, on-the-job training, formal training, mandatory attendance at lectures on safety, security, and fire prevention, and required medical examination.

INSTALLATION:	COMPLIANCE CATEGORY: FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT USA ECAS	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (5) Fire Department (16) Building and Grounds Division (DEH) (17) Entomology Shop (DEH) (22) Staff Judge Advocate (33) Golf Course Pesticide Shop

Section 10

NATIONAL HISTORIC PRESERVATION ACT (NHPA)

AND

CULTURAL RESOURCES

SECTION 10

NATIONAL HISTORIC PRESERVATION ACT (NHPA) AND CULTURAL RESOURCES

A. Applicability of this Protocol

This protocol applies to all Army installations with improved, semi-improved and unimproved grounds. Plans and programs for protection and management of cultural resources, which include historic and prehistoric properties, are included in this protocol.

This protocol integrates the requirements of all Federal, state, and local laws and regulations into a single document that applies to all installations with potential for historical or culturally significant sites.

B. Federal Regulations

- Antiquities Act of 1906 (Public Law 59-209; 16 USC 431-433) provides for the protection of historic and prehistoric ruins and objects of antiquity on Federal lands, and authorizes scientific investigation of antiquities on Federal lands, subject to permits and other regulatory requirements. Paleontological resources are covered by this Act. 43 CFR 3 implements the Antiquities Act of 1906.

- Historic Sites Act of 1935 (Public Law 74-292; 16 USC 470-470w-6) authorizes the designation of national historic sites and landmarks, authorizes interagency efforts to preserve historic resources, and establishes a maximum fine of $500 for violations of the Act. Implementing regulations are 36 CFR 62 and 65 - *National Historic Landmarks* and 36 CFR 68 - *Standards for Historic Preservation.*

- National Historic Preservation Act of 1966, as amended (Public Law 89-665; 16 USC 470-470w-6) establishes historic preservation as a national policy and defines it as the protection, rehabilitation, restoration, and reconstruction of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, or engineering. Amendments of 1980 establish guidelines for nationally significant properties, curation of artifacts, and data documentation of historic properties, and preservation of Federally owned historic sites; require designation of a Federal Historic Preservation Officer in each Federal agency; authorize the inclusion of historic preservation costs in project planning costs; and authorize the withholding of sensitive data on historic properties when necessary. Section 106 provides direction for Federal agencies for

undertakings that affect properties listed, or eligible for listing, on the National Register and is implemented by regulations (36 CFR 800) issued by the Advisory Council. Section 110 requires Federal agencies to locate, inventory, and nominate all properties that may qualify for the National Register. Applicable regulations are 36 CFR 60, *National Register of Historic Places*, 36 CFR 63, *Determination for Eligibility for Inclusion in the National Register of Historic Places*, and 36 CFR 800, *Protection of Historic Properties (Advisory Council on Historic Preservation)*. 36 CFR 78 provides a waiver of responsibility for Federal agencies of the requirements of the National Historic Preservation Act of 1966 in the event of a major natural disaster or imminent threat to national security.

- National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190; 42 USC 4321-4347) states the policy of the Federal government to preserve important historic, cultural, and natural aspects of our national heritage and requires consideration of environmental concerns during project planning and execution. This act requires Federal agencies to prepare an Environmental Impact Statement (EIS) for every major Federal action that affects the quality of the human environment, including both natural and cultural resources. It is implemented by regulations issued by the Council on Environmental Quality (40 CFR Parts 1500-08) which are incorporated into AR 200-2, *Environmental Effects of Army Actions*. (See NEPA, Section 12 of this manual, for regulations pertaining to the EIS process.)

- Executive Order 11593, *Protection and Enhancement of the Cultural Environment*, May 13, 1971 (reprinted as a note at 16 USC 470) directs Federal agencies to provide leadership in preserving, restoring, and maintaining the historic and cultural environment of the Nation; to ensure the preservation of cultural resources; to locate, inventory, and nominate to the National Register all properties under their control that meet the criteria for nomination; and to ensure that cultural resources are not inadvertently damaged, destroyed, or transferred before the completion of inventories and evaluation for the National Register.

- Archaeological and Historic Preservation Act of 1974 (Public Law 93-291; 16 USC 469-469c) directs Federal agencies to notify the Secretary of the Interior when they find that any Federal construction project or Federally licensed activity or program may cause irreparable loss or destruction of significant scientific, prehistoric, historical, or archaeological data. It also provides for funding historical and archaeological protection for such projects.

- Public Buildings Cooperative Use Act of 1976 (Public Law 94-541; 40 USC 490, 601a, 606, 611, and 612a) encourages adaptive reuse of historical buildings as administrative facilities for Federal agencies or activities.

- American Indian Religious Freedom Act of 1978 (Public Law 95-341; 42 USC 1996) states the policy of the United States to protect and preserve for American Indians their inherent rights of freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and native Hawaiians. These rights include, but are not limited to, access to sites, use and possession of sacred objects, and the freedom to worship through ceremony and traditional rites.

- Native American Graves Protection and Repatriation Act (P.L. 101-601), requires Federal agencies to establish procedures for identifying Native American groups associated with cultural items on Federal lands, to inventory human remains and associated funerary objects in Federal possession, and to return such items upon request to the affiliated groups. The law also requires that any discoveries of cultural items covered by the Act shall be reported to the head of the Federal entity who shall notify the appropriate Native American tribe or organization and cease activity in the area of the discovery for at least 30 days.

- Archaeological Resources Protection Act (ARPA) of 1979 (Public Law 96-95; 16 USC 470aa-11) prohibits the removal, sale, receipt, and interstate transportation of archaeological resources obtained illegally (without permits) from public or Indian lands and authorizes agency permit procedures for investigations of archaeological resources on public lands under the agency's control. Public Law 100-555 amends ARPA by addition of Section 14, which states that the Secretaries of the Interior, Agriculture, and Defense (and their respective employees and agents) shall develop plans for surveying the lands under their control to determine the nature and extent of archaeological resources and prepare a schedule for surveying those lands that are likely to contain the most scientifically valuable archaeological resources and develop documents for reporting suspected violations of ARPA. The protection of Archaeological Resources, and Uniform Regulations 18 CFR 1312, 32 CFR 229, 36 CFR 296, and 43 CFR 7, implement the Archaeological Resources Protection Act (ARPA).

C. State/Local Requirements

Army policy is to cooperate with the states to the maximum extent possible.

- The State Historic Preservation Officer (SHPO) is largely responsible for implementation of the National Historic Preservation Act. The SHPO is a consulting party to Federal undertakings reviewed in accordance with the National Historic Preservation Act. The SHPO must be provided an opportunity to comment on all installation undertakings that may have an effect on significant historic properties.

In all cases, the most stringent regulations should be followed.

D. DoD Regulations

- DoD Directive 4710.1, *Archaeological and Historic Resources Management*, 21 June 1984, provides policy, prescribes procedures, and assigns responsibilities for the management of archaeological and historic resources located in and on waters and lands under DoD control. It establishes the policy that DoD components will integrate the archaeological and historical preservation requirements of applicable laws with the planning and management of activities under DoD control.

E. U.S. Army Regulations

- Army Regulation (AR) 420-40, *Historic Preservation*, provides policy and regulatory guidance on historic preservation. It establishes the Army's goals to protect buildings, structures, sites, and objects of historical, architectural, archaeological, or cultural value located on Army-controlled property, as required by NHPA, ARPA, and other laws. It contains definitions of pertinent terms, and descriptions of compliance procedures.

F. Key Compliance Requirements

- Historic Preservation - Army installations are required to protect, restore, and maintain culturally significant properties and to locate, inventory, and nominate to the Secretary of the Interior all properties under their ownership or control that appear to qualify for listing on the National Register of Historic Places. They must consider effects of their actions on eligible properties and consult with the SHPO and Advisory Council. Installations with such properties must also develop a historic preservation plan that ensures compliance with these responsibilities.

- Archaeological Resources - Army installations must protect all archaeological resources. No archaeological resource on Federal land, including arrowheads, pottery, dwellings, and other artifacts, can be removed, excavated, damaged, or disturbed without an archaeological permit.

- Native American Rights - Army installations must recognize the rights of Native Americans to have access to sites and objects of religious significance and to practice traditional religious ceremonies and rites. Native American groups

also have the right to the return of cultural items found on Federal property, or maintained by Federal agencies. They also must be notified in the event of any discoveries of such cultural items.

G. Responsibility for Compliance

- Installation Commander is responsible for funding historic preservation programs through the Command Operating Budget (COB).

- Directorate Engineering and Housing (DEH) is responsible for supervising, controlling, and managing installation historic preservation programs.

- Installation Historic Preservation Officer (IHPO) is responsible for implementing the historic preservation program, training installation personnel, and locating, inventorying, and evaluating installation cultural resources. IHPO negotiates Memoranda of Agreement with State Historical Preservation Officer, which contain detailed descriptions ("programmatics") of specific preservation actions, and ensures that all provisions of the agreement are met.

H. Key Compliances

These definitions were obtained from regulations cited previously in this protocol.

- *Action* - all activities, undertakings, or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. Examples include, but are not limited to:

  (a) actions intended to conserve listed species or their habitat
  (b) the promulgation of regulations
  (c) the granting of licenses, contracts, leases, easements, rights-of-way, permits, or
  (d) grants-in-aid
  (e) actions directly or indirectly causing modifications to the land, water, or air.

- *Action Area* - all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.

- *Adverse Effect* - changes that diminish those attributes of a property that qualify it for the National Register of Historic Places.

- *Advisory Council on Historic Preservation (ACHP) (Advisory Council)* - the Council established by Title II of the National Historic Preservation Act to advise the President and Congress, to encourage private and public interest in historic preservation, and to comment on Federal agency action under Section 106 of the National Historic Preservation Act.

- *Archeological Interest* - capable of providing scientific or humanistic understandings of past human behavior, cultural adaptation, and related topics through the application of scientific or scholarly techniques.

- *Archaeological Permit* - a legal authorization required by the Archaeological Resources Protection Act to conduct an archaeological survey or investigation that involves surface collecting or subsurface testing on Federal land. (Army contracts for archaeological work that meet the requirements of the Archaeological Resources Protection Act can serve in lieu of permits under the Act.)

- *Archaeological Resource* - any material remains of human life or activities which are at least 100 years of age, and which are of archeological interest.

- *Area of Potential Effect* - the geographical area or area within which an undertaking may cause changes in the character or use of historic properties.

- *Assessment of Effect* - a process to determine whether an undertaking may affect in any way the qualities of a property that make it eligible for the National Register. The assessment is made by the installation commander in consultation with the SHPO. Also, see *Determination of Effect* below.

- *Building* - a structure created to shelter any form of human activity, such as a house, barn, church, hotel, or similar structure. Building may refer to a historically related complex such as a courthouse and jail, or a house and barn.

- *Consultation* - a process initiated by the installation commander wherein the commander confers with the SHPO to seek ways to reduce or avoid adverse effects on historic properties. The Advisory Council and certain interested persons may participate as consulting parties.

- *Determination of Effect* - the process whereby actions or undertakings are assessed for their potential effect on cultural resources. These effects should always be determined in consultation with relevant authorities (e.g., the SHPO), and the cultural values of the community that ascribes cultural significance to a resource should always be considered. With respect to historic properties, the ACHP Criteria of Effect and Adverse Effect (36 CFR 800.9) must be applied, in consultation with the SHPO.

- *Determination of Eligibility* - a process to determine if a property is eligible for listing on the National Register of Historic Places. Ten- or 45-day determinations may be rendered so that project and program decisions may proceed quickly. If a property is determined eligible, it is treated as if it were on the National Register, pending completion of the nomination procedure.

- *District* - a geographically definable area, urban or rural, that possesses a significant concentration, linkage or continuity of sites, structures, buildings, or objects united by past events or aesthetically by plan or physical development. A district may also compromise individual elements separated geographically but linked by association or history.

- *Effect* - any condition of a project or undertaking that may cause any change in the quality of the historical, architectural, archaeological, or cultural character of a property that qualifies for the National Register. An undertaking is considered to have an effect when any aspect of the undertaking changes the integrity of location, design, setting, materials, workmanship, feeling, or association of the property that contributes to its significance according to the National Register criteria. Direct effects are caused by the undertaking and occur at the place and time of the undertaking. Indirect effects are those caused by the undertaking that are later in time or further removed in distance, but are still reasonably foreseeable.

- *Endangered Property* - a historic property which is or is about to be subjected to a major impact that will destroy or seriously damage the qualities of significance that make it eligible for National Historic Landmark or National Register of Historic Places designation.

- *Federal Historic Preservation Officer* - the person who is responsible for coordinating the agency's activities under the National Historic Preservation Act and Executive Order 11593, including nominating properties under the agency's ownership or control to the National Register.

- *Historic Preservation* - identification, evaluation, documentation, curation, acquisition, protection, rehabilitation, restoration, management, stabilization, maintenance, recording, and reconstruction of cultural resources, and any combination of the foregoing.

- *Historic Property or Resource* - physical remains of any prehistoric or historic district, site, building, structure, or object significant in American history, architecture, archaeology, engineering, or culture and included on, or eligible for, the National Register. The term includes artifacts, records, and remains that are related to such a district, site, building, structure, or object.

- *Indian Lands* - lands of Indian tribes, or Indian individuals, which are either held in trust by the United States or subject to a restriction against alienation imposed by the United States, except for subsurface interests not owned or controlled by an Indian tribe or Indian individual.

- *Inventory* - to determine the location of cultural resources that may have National, state, or local significance.

- *Landmark* - a National Historic Landmark and a district, site, building, structure, or object, in public or private ownership, judged by the Secretary to possess national significance in American history, archaeology, architecture, engineering, and culture, and so designated by him.

- *Material Remains* - physical evidence of human habitation, occupation, use, or activity, including the site, location, or context in which such evidence is situated. The following classes of materials remains, if they are at least 100 years old, will be considered archeological resources:

  (a) surface or subsurface structures, shelters, facilities, or features
  (b) surface or subsurface artifact concentrations or scatters
  (c) whole or fragmentary tools, implements, containers, weapons and weapon projectiles, clothing, and ornaments
  (d) by-products, waste products, or debris resulting from manufacture or use of human-made or natural materials
  (e) organic waste
  (f) human remains
  (g) rock carvings, rock paintings, and intaglios and other works of artistic or symbolic representation
  (h) rockshelters and caves or portions thereof containing material remains
  (i) all portions of shipwrecks or
  (j) any portion or piece of any of the foregoing.

- *MOA (Memorandum of Agreements)* - the documentation of mutually agreed to statements of facts, intentions, procedures, and parameters for future actions and matters of coordination.

- *MOU (Memorandum of Understanding)* - Memorandums of Understanding are used for the documentation of mutually agreed parameters within which interservice, interdepartmental/agency and/or intraservice support agreements will be developed.

- *Mitigation* - lessening of the adverse effects an undertaking may cause to properties on, or eligible for, the National Register. Mitigation can include:

  (a) limiting the magnitude of the action

(b) repairing, rehabilitating, or restoring the effected property
(c) recovering and recording data from cultural properties that may be destroyed or substantially altered
(d) avoiding the effect altogether by not taking an action, or part of an action, or by relocating the action
(e) reducing or eliminating the effect over time by preservation and maintenance operations during the life of the action
(f) compensating for effect by providing substitute resources or environments.

- *National Historic Landmarks Program* - the program which identifies, designates, recognizes, lists, and monitors National Historic Landmarks conducted by the Secretary through the National Park Service.

- *National Register of Historic Places (National Register)* - the listing of districts, sites, buildings, structures, and objects of national, state, or local significance in American history, architecture, archaeology, or culture that is maintained by the Secretary of the Interior (Keeper of the Register).

- *Preservation* - the act or process of applying measures to sustain the existing form, integrity, and material of a building or structure, and the existing form and vegetative cover of a site. It may include initial stabilization work where necessary, as well as ongoing maintenance of the historic building materials.

- *Property* - a site, building, object, structure, or a collection of such items that forms a district.

- *Protection* - the act or process of applying measures designed to affect the physical condition of a property by defending or guarding it from deterioration, loss, attack or alteration, or to cover or shield the property from danger or injury. In the case of buildings and structures, such treatment is generally temporary and anticipates future historic preservation treatment; in the case of archaeological sites, the protective measure may be temporary or permanent.

- *Reconstruction* - the act or process of reproducing by new construction the exact form and detail of a vanished building, structure, or object, or a part thereof, as it appeared at a specific time.

- *Rehabilitation* - the act or process of returning a property to a state of utility to repair or alteration that makes possible an efficient contemporary use while preserving those portions or features of the property that are significant to its historical, architectural. and cultural values.

- *Restoration* - the act or process of accurately recovering the form and details of property and its setting as it appeared at a particular period of time by means of the removal of later work or by the replacement of missing earlier work.

- *Section 106 Consultation* - a compliance procedure in which an agency requests the comments of the SHPO and/or the Advisory Council on Historic Preservation when an undertaking may affect a property on, or eligible for, the National Register.

- *Significant* - having a characteristic that makes a property eligible for listing on the National Register.

- *State Historic Preservation Officer (SHPO)* - the official, appointed pursuant to USC 470a(b)(1), who is responsible for administering the National Historic Preservation Act within a state or jurisdiction.

- *Undertaking* - any project, activity, or program that can result in changes in the character or use of cultural resources, if any such resources are located in the area of potential effects or otherwise subject to effect by the action.

NATIONAL HISTORIC PRESERVATION ACT (NHPA)
AND
CULTURAL RESOURCES

GUIDANCE FOR WORKSHEET USERS

	REFER TO WORKSHEET ITEMS	CONTACT THESE PERSONS OR GROUPS(a)
All installations	10-1 through 10-9	(1)(2)(12)(21)(26)
Installations with archeological sites	10-10	(1)(2)(12)(21)(26)
Installations with historic properties	10-11	(1)(2)(21)(26)
Installations with Native American graves or artifacts	10-12	(1)(2)

(a) **CONTACT/LOCATION CODE:**

(1) Directorate Engineering and Housing/Installation Historic Preservation Officer (DEH)
(2) Environmental Coordinator (EC)
(12) Director of Plans, Training, Mobilization, and Security (DPTMSEC)
(21) Public Affairs Office (PAO)
(26) Master Planner (DEH)

NATIONAL HISTORIC PRESERVATION ACT (NHPA)
AND
CULTURAL RESOURCES

Records to Review:

- For construction (including maintenance, demolition, rehabilitation, etc.) activities: documentation of finding of no adverse effect, finding of adverse effect, or Memorandum of Agreement with the SHPO, or requests for comment when there is no agreement on historic properties.
- Installation Master Plan
- Historic Preservation Plan
- Nominations to National Register
- Correspondence with SHPO for consensus determinations of eligibility; determinations of no effect, effect, no adverse effect, and adverse effect.
- Standing Operating Procedures for ensuring compliance
- Memoranda of Agreement and Programmatic Memoranda
- ARPA permits
- Curation inventories and bailment agreements
- Archaeological site forms and maps
- NEPA mitigation plans
- Cultural resources reports, contracts, and scopes of work

Physical Features to Inspect:

- Sites of historic, archaeological, or Native American interest (designation, protection, and interpretation)
- Repositories of archaeological records and collections
- Buildings and structures of potential historical significance (National, state, or local)

People to Interview:

- Directorate of Engineering and Housing (DEH)
- Installation Historic Preservation Officer (IHPO)
- Environmental Coordinator/ Officer (EC)
- Director of Plans, Training, Mobilization, and Security (DPTMSEC)
- Public Affairs Office (PAO)
- Staff Judge Advocate
- Master Planner
- Museum Curator
- Historian

COMPLIANCE CATEGORY: NATIONAL HISTORIC PRESERVATION ACT AND CULTURAL RESOURCES USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
10-1. Determine actions or changes since previous review.	Check copy of previous review to determine whether noncompliance issues have been resolved. (1)(2)
...	...
10-2. Installation should maintain a current file of applicable Federal, DoD, U.S. Army, and state/local regulations for cultural resources management.	Determine if the following documents are maintained and kept current at the installation: (1)(2)(22) - 32 CFR 229, *Protection of Archaeological Resources; Uniform Regulations.* - 36 CFR 60, *National Register of Historic Places.* - 36 CFR 63, *Determinations of Eligibility for Inclusion in the National Register of Historic Places.* - 36 CFR 65, *National Historic Landmarks Program.* - 36 CFR 68, *The Secretary of the Interior's Standards for Historic Preservation Projects.* - 36 CFR 800, *Protection of Historic and Cultural Properties.* - 40 CFR 1500-1508, *National Environmental Policy Act.* - 43 CFR 3, *Preservation of American Antiquities.* - AR 200-2, *Environmental Effects of Army Actions.* - AR 420-40, *Historic Preservation.* - AR 870-20, *Museums and Historical Artifacts.* - TM 5-801-1, *Historic Preservation; Administrative Procedures.* - TM 5-801-2, *Historic Preservation; Maintenance Procedures.* - TM 5-803-1, *Installation Master Planning.* - State Regulations.
...	...
10-3. Installations are required to abide by State and local regulations (AR 200-1; Chapt. 1; Section III; para 1-39(a)(3)).	Verify that the installation is abiding by state and local requirements. (1)(2) Verify that the installation is operating according to permits issued by the state or local agencies. (1)(2) NOTE: Issues which are typically regulated by state and local agencies include: (1)(2) - designation of state historic sites.
...	...

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COMPLIANCE CATEGORY: NATIONAL HISTORIC PRESERVATION ACT AND CULTURAL RESOURCES USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
10-4. All Federal Agencies must establish a program to locate, inventory, and nominate to the Secretary of the Interior all properties under the agency's ownership or control that appear to qualify for inclusion on the National Register of Historic Places (36 CFR 60.9, 16 USC 470-470w-6).	Determine whether the installation has: (2) - assigned responsibility for recognizing and maintaining cultural resources - done an inventory and evaluation of all known cultural resources, or has a schedule for completing one - identified the likelihood (based on scientific study) of the presence of other significant cultural resources - described the installation's strategies for maintaining cultural resources and the methods used for compliance with this regulation - clearly identified the impacts on cultural resources of ongoing mission functions and the resolutions to those impacts.
...	...

10-5. Installation should have a Historic Preservation Plan consistent with national policy of preserving cultural resources (36 CFR 800 and AR 420-40).	Confirm that a Historic Preservation Plan has been or is being prepared with the following components: (1)(2)
	- overview
	- initial inventory
	  - identification of documented properties
	  - establishment of historic context
	  - identification of missing data
	- inventory process to locate missing data
	  - missing data goals
	  - field survey methods
	  - prioritizing investigation topics
	- protection strategies
	- management plan
	  - goals
	  - objectives and milestones
	  - requirements: funding, projects, manpower.
	
	Verify that projects are identified in DD 1383. (1)(2)
	
	Determine whether the SHPO has actually reviewed and commented on the plan. (1)(2)

...	...
10-6. The State Historic Preservation Officer (SHPO) is responsible for ensuring implementation of the National Historic Preservation Act of 1966 and administration of the National Register program within the state or territory (36 CFR 800).	Verify that SHPO and the staff have been consulted during all cultural resources planning including: (1)(2) - identification of historic properties - research design - applying criteria of National Register - requesting a determination of eligibility from the Keeper of the National Register - consultation with Advisory Council on Historic Preservation (ACHP) - determination of effect.

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COMPLIANCE CATEGORY: NATIONAL HISTORIC PRESERVATION ACT AND CULTURAL RESOURCES USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
10-7. If a Historic Preservation Plan is not in effect, the installation must identify all cultural resources (a Section 106 Review) before beginning any undertaking that can result in changes in the character or the use of significant or potentially significant cultural properties (16 USC 470-470w-6). (NOTE: undertakings that do not require an EIS or environmental assessment under NEPA are still subject to Section 106 if they have the potential to affect cultural properties.)	Determine whether the installation is involved in any actions that may constitute an undertaking (construction, repair, demolition, renovation, restoration, rehabilitation, etc; also, training, timber harvesting, installation of utilities, and other land disturbing activities). (2)(26) Confirm that the installation determines the area of potential effects for every undertaking. (1)(2) Verify that all sources of information regarding the area of potential effect are routinely consulted (state/local government, SHPO, the National Register of Historic Places, etc.). (1)(2) Determine whether the installation has made a good faith effort to locate and collect data on all potential cultural properties to evaluate their eligibility for the National Register of Historic Places (e.g., surveys). (1)(2) Confirm that the installation has assessed each proposed undertaking's effect on cultural properties to determine if the criteria of effect or adverse effect apply. (1)(2) Determine whether the installation has consulted the SHPO or the National Advisory Council on Historic Preservation about the determination of effect. (1)(2) Determine whether an MOA (Memorandum of Agreement) was drafted and review a copy for compliance. (1)(2)
...	...
10-8. As a good management practice the Historic Preservation Officer should have a Memorandum of Agreement pertaining to cultural resources management and should be involved with master planning (AR 420-40).	Examine Memorandum of Agreement to see progress is being reviewed and milestones met. (1)(2)(26) Verify that Historic Preservation Officer attends Master Planning Board meetings to ensure coordination of historic preservation planning and projects with master planning and that EA and EIS documentation is appropriately prepared. (1)(2)(26)
...	...
10-9. Personnel should be designated and trained for the responsibilities of cultural resources management (AR 200-2 and AR 420-40).	Verify that staffing optimizes professionally trained personnel for technical guidance in planning and executing a Historic Preservation Plan such as: (1) - archaeologist - historical architect - architectural historian - historian - preservation expert.
...	...

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COMPLIANCE CATEGORY: NATIONAL HISTORIC PRESERVATION ACT AND CULTURAL RESOURCES USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

10-10. The Army is responsible for archeological resources located on properties under its control (AR 200-2 and AR 420-40).	Verify that an inventory has been made of archeological sites by appropriate means and verify that all sites that appear eligible have been nominated to the National Register. (1)(2)(12)(21)(26)
	
	Assess treatment of archeological sites, including: (1)(2)
	
	- identify percentage of area surveyed
	- potentially significant sites identified
	- avoidance of significant sites
	- physical protection
	- protection of a statistical valid sample of different classes of significant sites
	- monitoring of protection measures
	- data recovery before destruction.
	
	Verify that the following are provided: (1)(2)(21)
	
	- findings are made public knowledge at local museum or historical society
	- qualified archeologist
	  - training
	  - attendance at professional meetings
	- storage facilities, including records and reports
	- necessary resources.
	
	Verify that all archeological field investigations are monitored. (1)12)
	
	Verify bailment agreement exists if any materials have been transferred to local museums, universities, or equivalent off-post facilities. (1)(2)(12)
	
	Verify that measures are taken to enforce laws protecting archeological sites. (1)(2)(12)(21)

...	...

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COMPLIANCE CATEGORY: NATIONAL HISTORIC PRESERVATION ACT AND CULTURAL RESOURCES USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

10-11. All historic buildings should be protected and conserved to mitigate natural deterioration and eliminate negligence and improper repair (AR 420-40, TM 5 801-1 and TM 5 801-2).	Examine inventory of historic buildings and verify all buildings that appear eligible have been nominated to the National Register. (1)(2)(21)(26)
	
	Verify that the following are provided: (1)
	
	- findings are made public at local museum or historical society
	- qualified historic preservation expertise
	  - training
	  - attendance at professional meetings
	- facilities
	- resources.
	
	If adaptive use has been found, verify that historic structures are properly maintained. (1)(2)
	
	Determine if significant physical characteristics are retained in the integrity and authenticity of the structural form during repairs. (1)(26)
	
	Examine documentation to raise level of appreciation of installation's historic buildings and structures. (2)
	
	Verify that measures are taken to enforce laws protecting historic properties. (1)(2)(12)(21)

...	...

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COMPLIANCE CATEGORY: NATIONAL HISTORIC PRESERVATION ACT AND CULTURAL RESOURCES USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
10-12. Native American graves and artifacts are protected under Federal law. Army installations are required to take measures to identify them, protect them, and cooperate with Native American groups in returning them to their rightful owners (Native American Graves Protection and Repatriation Act [P.L. 101-601]).	Confirm that if Native American human remains, funerary objects, or other cultural items are discovered on the installation, that the Secretary of the Army is notified through command channels, and that all activities in the area of the discovery are ceased for 30 days after notification has been certified. (1)(2) Determine whether or not the installation museum has possession or control over holdings or collections of Native American human remains and associated funerary objects. If so, confirm that an inventory of such items is being prepared, and that it: (2) - includes information on the geographical origin and cultural information of the items - is completed in consultation with tribal government and Native Hawaiian organization officials and traditional religious leaders - is scheduled for completion no later than November 16, 1995 - is made available for review at all times and stages of completion to the reviewing Committee established by the Secretary of the Interior. Verify that the installation museum supplies, upon request by an Indian tribe or Native Hawaiian organization, additional available documentation in the form of a summary of existing museum records, including inventories and catalogues, for the limited purpose of determining the geographical origin, cultural affiliation, and basic facts surrounding acquisition and accession of Native American or Native Hawaiian human remains and associated funerary objects. (2) Verify that if a determination of cultural affiliation of any particular Native American human remains or associated funerary objects is made, that the affected Native American group is notified within 6 months of the completion of the inventory. Each notice shall contain information which: (2) - identifies each Native American human remains or associated funerary objects and the circumstances surrounding its acquisition - lists the human remains or associated funerary objects that are clearly identifiable as to tribal origin - lists the Native American human remains and associated funerary objects that are not clearly identifiable as to cultural affiliation, but which are likely to be affiliated with the Native American group.

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COMPLIANCE CATEGORY: NATIONAL HISTORIC PRESERVATION ACT AND CULTURAL RESOURCES USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
10-12. (continued)	Determine whether or not the installation museum has possession or control over unassociated funerary objects, sacred objects, or objects of cultural patrimony. If so, confirm that a written summary of such objects is prepared which contains: (2) - a description of the scope of the collection - kinds of objects included in the collection - reference to geographical origin of the objects - description of the means and time period of acquisition - cultural affiliation of the object. Confirm that completion of the summary is scheduled for no later than November 16, 1993, and is followed by consultation with tribal officials and traditional religious leaders. (1)(2)(12)(21)
...	...

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INSTALLATION:	COMPLIANCE CATEGORY: NATIONAL HISTORIC PRESERVATION ACT AND CULTURAL RESOURCES USA ECAS	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

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Section 11

ENDANGERED SPECIES ACT (ESA)

AND

NATURAL RESOURCES

SECTION 11

ENDANGERED SPECIES ACT (ESA) AND NATURAL RESOURCES

A. Applicability of this Protocol

This protocol applies to all Army installations with improved, semi-improved and unimproved grounds. Plans and programs for protection, enhancement, and management of natural resources such as plants and wildlife, and their habitats, are included in this protocol.

B. Federal Legislation

- The Endangered Species Act of 1973, Public Law 93-205, as amended, requires the Army to carry out programs to protect and conserve Federally listed endangered and threatened plants and wildlife. Such programs must be developed and carried out with consultation and assistance from the Departments of Interior and Commerce and the proper state agencies. All Army actions authorized, funded, or carried out must not jeopardize the continued existence of endangered or threatened plants and wildlife, nor result in the destruction or adverse modification of critical habitat. Any Army action that may affect Federally listed species or their critical habitats requires consultation with the U.S. Fish and Wildlife Service (USFWS). 50 CFR 402 and 50 CFR 17 interpret and implement the Endangered Species Act.

- The Sikes Act (16 USC 670a-670f) addresses fish and wildlife conservation and requires installations to execute cooperative plans with the USFWS and state for managing fish and wildlife. It allows installations to charge fees for hunting and fishing permits, and requires that they be used for fish and wildlife conservation on the installation.

- The Fish and Wildlife Conservation Act of 1980 (Public Law 96-366; 16 USC 2901 et seq) promotes state programs for the purpose of conserving, restoring, or otherwise benefiting nongame fish and wildlife, their habitats, and their uses.

- Public Law 86-337 (10 U.S.C. 2671) requires that all hunting, fishing, and trapping on military installations be in accordance with the fish and game laws of the state in which it is located, and that appropriate state licenses for these activities on the installation be obtained.

- 10 USC 2665 provides for sales of forest products on Army installations. Funds generated by these sales are used to reimburse the forest management expenses,

pay state entitlements (40 percent of installation net proceeds go to state for county roads and schools). The Army-wide net reserve at the end of the fiscal year, after states' entitlements are paid, goes to the DoD Natural Resources Reserve Account from which it is dispersed, DoD-wide, to cover otherwise unfunded forestry expenses and natural resource projects.

- The Wild and Scenic Rivers Act of 1968 (30 CFR 297) prohibits the use of Federal funds for activities that would have an adverse affect on those characteristics that caused a river to be classified as wild, scenic, or recreational.

- The Farmland Protection Policy Act of 1981 (7 CFR 658) minimizes the extent to which Federal programs contribute to the unnecessary conversion of farmland to nonagricultural use. Installation lands, when suitable and available, may be leased for cropland or grazing. 10 USC 2667 provides for the use of the funds generated by these leases for the administrative costs of the leases, as well as the financing of multiple-use land management programs at the installation.

- Executive Orders 11988, *Floodplain Management*, and 11990, *Protection of Wetlands*, address the actions Federal agencies must take to
  (a) identify and protect wetlands and floodplains,
  (b) minimize the risk of flood loss and destruction of wetlands, and
  (c) preserve and enhance the natural and beneficial values of both floodplains and wetlands.

- National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190; 42 USC 4321-4347) states the policy of the Federal government to preserve important historic, cultural, and natural aspects of our national heritage and requires consideration of environmental concerns during project planning and execution. This act requires Federal agencies to prepare an Environmental Impact Statement (EIS) for every major Federal action that affects the quality of the human environment, including both natural and cultural resources. It is implemented by regulations issued by the Council on Environmental Quality (CEQ) (40 CFR Parts 1500-08) which are incorporated into AR 200-2, *Environmental Effects of Army Actions*. (See *Environmental Program Management*, Section 16 of this manual, for regulations pertaining to the EIS process.)

C. State/Local Requirements

Army policy is to cooperate with the states to the maximum extent possible.

States develop regulations and good management practices (GMPs) for the protection of surface waters and prevention of nonpoint source pollution. These GMPs primarily apply to agricultural and silvicultural (forestry) activities, but

are also to be followed whenever any activity may affect surface waters or contribute to nonpoint source pollution. Army management plans address these GMPs.

States establish regulations governing hunting and fishing activities. These regulations must be followed on Army installations. Special regulations for these activities on installations may be developed in cooperation with the state wildlife management agency.

The Fish and Wildlife Conservation Act gives implementing authority to the state.

D. DoD Regulations

- DoD Directive 4700.4, *Natural Resources--Conservation and Management*, 29 January 89, prescribes DoD policies and establishes an integrated program for multiple-use management of the renewable natural resources on DoD lands. It directs installations to protect, conserve, and manage the watersheds and natural landscapes, the soil, the forest and timber growth, the fish and wildlife, and endangered species as vital elements of the Army mission. It further stipulates that the natural resources will be used and cared for in the combination best serving the present and future needs of the United States and its people.

- DoD Instruction 7310.5, *Accounting for Production and Sale of Forest Products*, 25 January 1988, provides policy on DoD forestry accounting procedures.

E. U.S. Army Regulations

- Army Regulation (AR) 420-74, *Natural Resources--Land, Forest, and Wildlife Management*, provides Army policy for managing natural resources and attaining the goal of ensuring that Army actions are not likely to jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of the critical habitat of such species.

F. Key Compliance Requirements

- Management Plans - Army installations which have land and water areas that possess, or are capable of producing, natural resources will develop a program for restoring, improving, developing, and conserving natural resources. They will develop natural resource management plans for land (soil and water), grazing and cropland, forest, fish and wildlife, and outdoor recreation, where there are resources to manage. The plan is in parts (Part 1: General; Part 2: Land

Management and Grounds Maintenance Plan; Part 3: Forest Management; Part 4: Fish and Wildlife Management; and Part 5: Outdoor Recreation) as required.

- Cooperative Agreements - Installations will maintain liaison with agencies through cooperative agreements. These agreements assist in developing and implementing well-coordinated, multiple-use natural resources programs.

- Cooperative Plans - Agreement of state and U.S. Fish and Wildlife Service on Part 4 of Plans.

- Endangered and Threatened Species - Army installations must carry out programs to conserve endangered and threatened species and, in consultation with the USFWS, must ensure that their actions do not jeopardize the continued existence of such species or destroy or adversely modify critical habitat.

- Natural Resources Report; Defense Environmental Management Information System - Army installations are required by the Sikes Act (16 U.S.C. 670) to prepare an annual report on their natural resources activities. It includes information on all natural resources activities, including outdoor recreation, forestry, and fish and wildlife conservation.

- Wetlands and Floodplains - Army installations must identify all floodplains and wetlands in the installation land management plan and ensure the plan provides for protecting and managing these areas.

G. Responsibility for Compliance

- Department of Engineering and Housing (DEH) is responsible for funding, supervising, controlling, and managing installation natural resources, including plant and animal species.

- Natural Resources Manager is responsible for preparing management plans and cooperative agreements, budgets, and the annual natural resources report. The natural resources manager also implements and controls all activities in furtherance of natural resources management. On installations without a full-time Natural Resources Manager, these duties would normally be assigned to the environmental coordinator or community planner.

H. Key Compliance Definitions

These definitions were obtained from regulations cited previously in this protocol.

- *Action* - means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. Examples include, but are not limited to:
  (a) actions intended to conserve listed species or their habitat
  (b) the promulgation of regulations
  (c) the granting of licenses, contracts, leases, easements, rights-of-way, permits
  (d) grants-in-aid
  (e) actions directly or indirectly causing modifications to the land, water, or air.

- *Action Area* - means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.

- *Adverse Affect* - changes that diminish those attributes of a property that qualify it for the National Register of Historic Places.

- *Conservation* - wise management and use of natural resources to provide the best public benefits for present and future generations.

- *Destruction or Adverse Modification* - means a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical.

- *District* - a geographically definable area, urban or rural, that possesses a significant concentration, linkage, or continuity of sites, structures, buildings, or objects united by past events or aesthetically by plan or physical development. A district may also compromise individual elements separated geographically but linked by association or history.

- *Fish and Wildlife Cooperative Plan* - the component of the Natural Resources Management Plan (Part 4) that describes how fish and wildlife resources at an installation will be managed and that has the agreement of the installation commander, U.S. Fish and Wildlife Service, and appropriate state agency.

- *Floodplain* - the 100-year floodplain is the lowland area adjoining inland and coastal waters, including flood prone areas of offshore islands, that would be inundated by the base (100-year) flood. The critical actions (or 500-year) floodplain is the area that would be inundated by a 500-year flood.

- *Good Management Practice (GMP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *Jeopardize the Continued Existence of* - means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the genetic diversity, reproduction, numbers, or distribution of that species.

- *MOA (Memorandum of Agreements)* - the documentation of mutually agreed upon statements of facts, intentions, procedures, and parameters for future actions and matters of coordination.

- *MOU (Memorandum of Understanding)* - Memorandums of Understanding are used to document mutually agreed upon parameters within which interservice, interdepartmental/agency, and/or intraservice support agreements will be developed.

- *Multiple-Use* - the integrated, coordinated, and compatible use of various natural resources to derive the best benefit while perpetuating and protecting those resources.

- *Natural Resources Management* - action taken to manipulate, alter, or manage environmental, human, and natural resources in harmony with each other to meet present and future needs.

- *Negligible Impact* - an impact that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.

- *Nonpoint Source Pollution* - a diffuse source of water pollution that does not discharge through a pipe, such as runoff from construction activities and agricultural, silvicultural (forestry), and urban areas.

- *Sustained Yield* - production of renewable natural resources at a level where the productive capacity of the resource is not reduced. Sustained yield management provides an annual or periodic yield and perpetuation of the managed resource.

- *Wetlands* - areas that possess three essential characteristics: (1) hydrophytic vegetation; (2) hydric soils; and (3) wetland hydrology.

ENDANGERED SPECIES ACT (ESA) AND NATURAL RESOURCES

GUIDANCE FOR WORKSHEET USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
Natural Resources	11-1 through 11-6	(1)(2)(9)(12)(15)
Landscape Development	11-5	(1)(2)(9)(12)
Personnel and Training	11-7	(1)(2)(12)
Outdoor Recreation Resources	11-8	(1)(2)(15)(31)
Forest Management	11-9	(1)(2)(15)
Endangered Species	11-10 and 11-11	(1)(2)
Land Management	11-12 and 11-13	(1)(2)(12)(15)
All installations	11-14 through 11-16	(1)(2)(9)(12)(15)(31)

(a) CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
(2) Environmental Coordinator (EC)
(9) Chief of Operations and Maintenance (O&M)
(12) Director of Plans, Training, Mobilization, and Security (DPTMSEC)
(15) Land Management Officer (DEH)
(31) Directorate of Personnel and Community Activities (DPCA)

ENDANGERED SPECIES ACT (ESA) AND NATURAL RESOURCES

Records to Review:

- Environmental Review Documents
- Installation Master Plan
- Natural Resources Management Plan (Parts 1 through 5, as appropriate)
- Fish and Wildlife Cooperative Plan, and consultations
- Fish and Wildlife Cooperative Agreement
- Outdoor Recreation Plan
- Outdoor Recreation Cooperative Agreement
- Grounds Maintenance Contracts
- Agricultural and Grazing Lease Contracts, and Land Use Plans
- Natural Resources Annual Work Plans and Approvals
- Budget Documents (DD 1383 report, Facilities Engineers Annual Work Plan)
- Natural Resources Report, or equivalent
- GOCO Contract
- GOCO Maintenance Plan

Physical Features to Inspect:

- Construction sites (erosion control, runoff, sedimentation, and landscaping)
- Facilities constructed in the past 2 years (erosion and landscaping)
- Wildlife containment areas (condition and management)
- Wildlife habitat and land and water resources (condition and management)
- Equipment that could damage wildlife, its habitat, or land and water resources (use and control)
- Military Training areas (condition)
- Ordnance storage and disposal areas (condition)
- Forest management areas (condition and management)
- Agricultural and grazing lease areas (condition and management)
- Storm water drainage areas and improvements (condition)
- Erosion sites (condition and erosion)

People to Interview:

- Directorate of Engineering and Housing (DEH)
- Environmental Coordinator (EC)
- Chief of Operations and Maintenance (O&M)
- Director of Plans, Training, Mobilization, and Security (DPTMSEC)
- Land Management Officer (DEH)
- Directorate of Personnel and Community Activities (DPCA)

COMPLIANCE CATEGORY: ENDANGERED SPECIES ACT (ESA) AND NATURAL RESOURCES USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
11-1. Determine actions or changes since previous review.	Examine copy of previous review to determine whether noncompliance issues have been resolved. (1)(2)
...	...
11-2. Installation should maintain a current file of applicable Federal, DoD, U.S. Army, and state/ local regulations for natural resources management.	Verify that the following documents are maintained and kept current at the installations. (1)(2)(15) - DoD Instruction 4700.4, *Natural Resources--Conservation and Management.* - DoD Directive 5100.50, *Protection and Enhancement of Environmental Quality.* - DoD Directive 7310.5, *Accounting for Production and Sale of Forest Products.* - AR 200-2, *Environmental Effects of Army Actions.* - AR 215-2, *Management and Operations of Army Morale, Welfare, and Recreation Programs and Nonappropriated Funds Instrumentalities.* - AR 420-74, *Natural Resources -- Land, Forest, and Wildlife Management.* - EO 11988, *Floodplain Management.* - EO 11990, *Protection of Wetlands.* - TM 5-630, *Ground Maintenance and Land Management.* - TM 5-631, *Natural Resources -- Forest Management.* - TM 5-633, *Natural Resources -- Fish and Wildlife Management.* - TM 5-635, *Natural Resources -- Outdoor Recreation and Cultural Values.* - TM 5-803-12, *Planning of Outdoor Recreation Areas.*
...	...
11-3. Installations are required to abide by state and local regulations (AR 200-1; para. 1-39(a)(3)).	Verify that the installation is abiding by state and local requirements. (1)(2)(9) Verify that the installation is operating according to permits issued by the state or local agencies. (1)(2)(9) NOTE: Issues which are typically regulated by state and local agencies include: - endangered and threatened species lists - hunting and trapping restrictions.
...	...
11-4. Installation records on natural resource management activities should be developed and maintained annually (AR 420-74).	Verify that records are maintained on a yearly basis for the installation's land management activities. (1)(2)(15) Check installation records on hunting and fishing fees collected. (1)(2)

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COMPLIANCE CATEGORY: ENDANGERED SPECIES ACT (ESA) AND NATURAL RESOURCES USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
11-5. Grounds should be maintained to meet designated use and assure harmony with natural landscape (AR 420-74, Chap. 3, and TM 5-630).	Verify that turf areas are maintained with a permanent vegetative cover of desirable plants. (1)(9) Verify that improved grounds are maintained in accordance with (IAW) Parts 1 and 2 of the Natural Resources Management Plan. (9) Verify that landscape planting, pruning, cultivation, and other maintenance is done according to requirements. (1)(9)
...	...
11-6. Army objectives to protect and improve environmental quality include esthetic and real estate values (AR 420-74, Chap. 1).	Examine any recent major construction projects for any of the following protective measures that are applicable: (1)(2)(9)(12) - restriction on building new access roads - restriction on refueling sites - restriction on equipment maintenance activities - restoration or reseeding of temporary roads, borrow sites, and storage yards.
...	...
11-7. Installation should have a Natural Resources Plan consistent with national policy on conservation, management, and restoration of land and renewable natural resources (AR 420-74).	Verify that Natural Resources Plan has appropriate sections of the following: (1)(2) - general - land management and grounds maintenance - forest management - fish and wildlife management - outdoor recreation. Verify currency of plans (prepared or updated within the previous 5 years). (1)(2) Assess adequacy of Fish and Wildlife Cooperative Plan. (1) Verify that all major initiatives in plan have environmental documentation consistent with NEPA and CEQ requirements. (1)(2)
...	...

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COMPLIANCE CATEGORY: ENDANGERED SPECIES ACT (ESA) AND NATURAL RESOURCES USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
11-8. Personnel should be designated and trained for environmental responsibilities (AR 200-2, AR 420-74).	Verify that staffing optimizes professionally trained personnel necessary for technical guidance in planning and executing Natural Resources Program such as: (1)(2)(12) - agronomist - forester - wildlife manager - landscape architect - soil conservationist - agricultural engineer - horticulturist. Verify that a person is specifically designated as Natural Resource Manager. (1) Verify that Environmental Coordinator responsible for NEPA compliance has received appropriate training in NEPA requirements. (1)(2) Determine if periodic and comprehensive technical instruction and training of personnel is provided. (1)
...	...
11-9. Installations with recreation resources will be actively involved in developing a Cooperative Plan Agreement for Outdoor Recreation (AR 215-2, and AR 420-74).	Examine Outdoor Recreation Program for the following: (1)(2)(15)(31) - maintenance responsibilities - evaluations for off-road vehicles - fish and wildlife resources - installation potential to support community recreation needs.
...	...

11-10. Effective forest management should provide for the sustained production of timber and related natural resources values (AR 420-74).	Examine forest management plan for the following: (1)(2)(15)
	
	- economic evaluation
	- volume inventories are made and kept current
	- small volume (including firewood) sales are in accordance with regulations
	- harvesting and treatment
	  - sustain yield
	  - improve training areas
	  - improve watersheds
	  - improve wildlife habitat
	  - complement natural beauty values along scenic corridors.

...	...

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COMPLIANCE CATEGORY: ENDANGERED SPECIES ACT (ESA) AND NATURAL RESOURCES USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
11-11. All installations with endangered and threatened species must carry out programs for their conservation (50 CFR 402 and AR 420-74).	Verify that consultations have been held with USFWS and state conservation agency. (1)(2) Check records of USFWS consultations/opinions received and verify that measures have been initiated to maintain threatened and endangered species. (1)(2) Verify that if a jeopardy biological opinion has been given, that action has been taken to comply with USFWS requirements. (1)(2)
...	...
11-12. Emphasis should be placed on the maintenance and restoration of habitat favorable to the production of indigenous fish and wildlife (AR 420-74).	Review fish and wildlife plan addressing the management of all locally harvested species and based upon the following: (1)(2) - inventory of fish and game species - inventory of endangered, threatened, and other special interest plant or animal species - survey of nongame wildlife other than endangered species. Determine that fishing, hunting and trapping are authorized and controlled in conformance with Federal and state laws, local regulations, and approved management plans. (1)(2) Review approval documents from proper authorities if any exotic species were introduced. (1)(2) Review monitoring and population management for staying within carrying capacity of installation land. (1)(2)

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COMPLIANCE CATEGORY: ENDANGERED SPECIES ACT (ESA) AND NATURAL RESOURCES USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
11-13. Land management operations should be consistent with modern conservation and land use principles (AR 420-74).	Verify that Parts 1 and 2 of the Natural Resources Management Plan addresses the following: (1)(2)(15) - soils of entire installation have been professionally mapped - systematic procedure to locate tracts which could be used for agricultural outleasing or other resource sales programs - dust and erosion control - fire protection - weed control. Examine leases, easements, and other special uses and interview natural resource manager to determine compatible uses and periodic inspections for land involved, including: (1)(2)(15) - condition of agriculture, grazing, and timber (or other resources) sale areas leased - compliance with lease provisions, environmental recreation, and good professional practice.
...	...
11-14. A protective vegetative cover or other measures will be used to control dust and erosion damage to land (AR 420-74).	Verify that Land Management Plan addresses, in detail, erosion problems on training and maneuver areas and proposes remedial actions. (1)(2)(12)(15) Verify installation has been surveyed to locate areas where bare soil is exposed and current or potential erosion obvious. (1)(2) Confirm that remedial actions have been initiated. (1)(2)
...	...
11-15. Installation should have a mitigation and monitoring plan (GMP).	Review mitigation and monitoring plan for environmental compliance. (1)(2)(9)(12) Confirm that procedures have been developed to involve the public in several stages of the NEPA process. (1)(2)(9) Confirm that projects have been developed to cause the least amount of environmental damage. (1)(2)(9)
...	...

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COMPLIANCE CATEGORY: ENDANGERED SPECIES ACT (ESA) AND NATURAL RESOURCES USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
11-16. Mission requirements should avoid or minimize adverse effects to the land (AR 420-74).	Verify that the person responsible for NEPA compliance regularly attends the Installation Master Planning Board meetings. (1)(2)(15)(31) Verify that NEPA documents are reviewed by the Natural Resource Manager. (1)(2)(15) NOTE: For awareness of CEQ regulations requiring rigorous exploration of all reasonable alternatives to posed actions that require environmental documentation (refer to Section 12, *National Environmental Policy Act*, of this manual for further information on NEPA requirements and procedures). Verify that military training, construction, and undertakings are planned to avoid or minimize adverse effects on historic properties. (1)(2)
...	...

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INSTALLATION:	COMPLIANCE CATEGORY: ENDANGERED SPECIES ACT (ESA) AND NATURAL RESOURCES USA ECAS	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (9) Chief of Operations and Maintenance (O&M) (12) Director of Plans, Training, Mobilization, and Security (DPTMSEC) (15) Land Management Officer (DEH) (31) Directorate of Personnel and Community Activities (DPCA)

Section 12

NATIONAL ENVIRONMENTAL POLICY ACT

SECTION 12

NATIONAL ENVIRONMENTAL POLICY ACT

A. Applicability of this Protocol

This protocol applies to all Army facilities. It contains procedures and regulations designed to protect and enhance the Nation's environmental resources by incorporating environmental analysis into Army planning and decision-making. These procedures and regulations are derived from the National Environmental Policy Act (NEPA) of 1969 and contained in the Council on Environmental Quality's (CEQ) *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*, Department of Defense Directive 6050.1 (*Environmental Effects in the United States of DoD Actions*), AR 200-1 (*Environmental Protection and Enhancement*) and AR 200-2 (*Environmental Effects of Army Actions*).

Specific state regulations are not included in this protocol.

B. Federal Legislation

- **National Environmental Policy Act (NEPA)**

The National Environmental Policy Act of 1969 (42 USC 4321 et seq., as amended) establishes policy, sets goals, and provides means for carrying out the policy of using all practicable means to promote the general welfare through the Army's considered and intelligent use of the environment. Specifically, NEPA requires Federal agencies to incorporate into their planning and decision-making processes an analysis of the effects (if any) certain proposed actions would have on the environment and the possibilities for mitigating or avoiding completely any adverse environmental effects. To ensure that the proper attention to, and regard for, the environment is undertaken, NEPA contains certain "action-forcing" provisions contained in section 102(2). These provisions include: utilization of systematic and interdisciplinary approaches to environmental issues to ensure that natural and social science methods and considerations are given the same attention as economic and technological considerations; development of methods to quantify and evaluate environmental amenities and values in order to properly compare environmental factors with economic and technological factors when making decisions, and; preparation of an extensive environmental evaluation or "environmental impact statement" for certain Federal actions involving substantial impacts on the environment. This document, the Environmental Impact Statement (EIS), applies to "major Federal

actions significantly affecting the quality of the human environment." It includes the production and analysis of environmental documentation concerning: the environmental effect of the proposed Federal action; any adverse environmental effects that cannot be avoided should the proposal be implemented; alternatives to the proposed action; the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity; and any irreversible and irretrievable commitments of resources that would be involved in the proposed action should it be implemented. The Act also empowers the CEQ to develop procedures Federal agencies must follow in implementing the spirit and letter of the Act.

- **Council on Environmental Quality Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act**

  These environmental regulations are promulgated by the CEQ (contained in 40 CFR 1500-1508) and are designed to direct Federal agencies to follow certain requirements to fulfill the mandate of environmental protection set out in NEPA. These regulations: direct Federal agencies to apply the NEPA process early in the agency's planning and decisionmaking processes; describe when and how agencies are to prepare environmental assessments, impact statements, and related environmental documentation; detail the procedures to be used in eliciting and analyzing comments concerning proposed actions that have the potential of affecting the environment; set out procedures for resolving inter-agency disputes; detail procedures for agency decisionmaking; describe other requirements contained in NEPA; and contain a glossary of relevant NEPA and CEQ terms.

- Executive Order (EO) 12088, *Federal Compliance with Pollution Standards*, of 13 October 1978 requires Federally owned and operated facilities to comply with all Federal, state, and local environmental regulations. It makes the head of each executive agency responsible for ensuring that the agencies, facilities, programs, and activities it funds meet Federal, state, and local environmental requirements or to correct situations that are not in compliance with such regulations. This is to be done in cooperation with the United States Environmental Protection Agency (USEPA) and state, interstate, and local agencies. In addition, the Executive Order requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget and that an annual plan for the control of environmental pollution containing any necessary improvements in the design, construction, management, operation, and maintenance of Federal facilities and activities is prepared. Exemptions from applicable pollution control standards are very limited and can only be had if the President determines that such exemption is necessary either in the interest of national security, or in the paramount interest of the United States.

C. State/Local Requirements

- Reviewers need to inquire about any state or local requirements under the NEPA process.

D. DoD Regulations

- DoD Directive 6050.1 *Environmental Effects in the United States of DoD Actions*, implements the CEQ regulations and provides policy and procedures enabling DoD officials to be informed of, and take into account environmental considerations during the decisionmaking stage of possible major DoD actions in the United States. Specifically, the DoD is charged with ensuring that, consistent with its mission for providing for the national defense: practical means and measures are used to protect, restore, and enhance the quality of the environment; adverse environmental consequences are avoided or minimized; the widest range of beneficial uses of the environment without degradations, risk to health and and safety, or other undesirable consequences are achieved; important historic, cultural, and natural resources are preserved; a balance between resource use and development with the carrying capacity of the ecosystem involved is achieved; the quality of renewable resources is enhanced; and efforts are made to achieve the maximum level of recycling of depletable resources.

E. U.S. Army Regulations

- Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*, identifies and lists Department of the Army responsibilities, policies, and procedures to preserve, protect, and restore the quality of the environment. This document and AR 200-2, *Environmental Effects of Army Actions*, together establish Army environmental policy.

  AR 200-1 contains several citations to NEPA. Section 6-5 outlines environmental documentation requirements and procedures mandated by NEPA and set out in NEPA and AR 200-2 to address environmental issues other than those covered by USEPA/state in the Resource Conservation and Recovery Acy (RCRA) permitting process. Section 6-9(a) requires preparation of supporting environmental documents pursuant to NEPA and other laws and regulations for the plans for disposing of chemical warfare agents. Section 9-7(c) requires that all on-the-ground work to carry out the National Contingency Plan (NCP)/RCRA requirements and the IRP (Installation Restoration Program) and FUDS (Formerly Used Defense Sites) projects be conducted per NEPA. In addition, depending on the project and its potential for environmental impact, preparation of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)/Superfund Amendments and Reauthorization Acts

(SARA) support documents will adhere to the environmental documentation requirements in NEPA. Section 10-1(a)(2) cites NEPA as one of the several laws to be used in the asbestos management program. Section 12-2(b) sets out matters to be discussed in the NEPA review of alternative methods. Section 12-5(c) requires the Army proponent in real property transfers and other transactions to ensure that an EBS or PAS (Environmental Baseline Study or, more recently, Preliminary Assessment Screening) is performed.

- Army Regulation (AR) 200-2, *Environmental Effects of Army Actions*, establishes policy, procedures, and responsibilities for assessing the environmental effects of Army actions. It implements the following items: the Council on Environmental Quality's NEPA regulations, EO 12114, *Environmental Effects Abroad of Major Federal Actions* and DoD Directive 6050.1. The NEPA process is developed in this regulation. AR 200-2 states that for the NEPA process to be effective, it must be integrated with other Army project planning at the earliest possible time. This will ensure that Army planning and decisionmaking reflects environmental values; the goals of safeguarding the environment and minimizing adverse environmental effects are achieved; and delays and potential conflicts later in the decisionmaking and implementing processes are avoided. The regulation contains information concerning actions that require environmental evaluation; environmental review categories; determining appropriate environmental documentation; integrating environmental reviews concurrently with other Army planning and decisionmaking actions; identifying mitigation measures and monitoring systems; listing categorical exclusions; describing the environmental assessment and environmental impact statement procedures; and describes the method of obtaining public involvement in the environmental decisionmaking process.

F. Key Compliance Requirements

- AR 200-2 applies to all installations that have proposed actions. It requires installations to perform various environmental surveys and assessments whenever an action is contemplated that could have an effect on the environment.

G. Responsibility for Compliance

Installation, activity, and unit commanders (ICs) will:

- monitor proposed actions and programs within their commands
- task the appropriate component with preparation of environmental assessments (EAs) and environmental impact statements (EISs) and development of public involvement

- assure that appropriate environmental documentation is prepared and forwarded to the proponent

- initiate the preparation of necessary environmental documentation and assess the environmental consequences of proposed programs and projects

- coordinate appropriate environmental documents and public affairs initiatives with Headquarters Department of the Army (HQDA) agencies and the Army Environmental Coordinator

- assist in the review of environmental documents prepared by DoD and other Army or Federal agencies, as requested.

H. Key Compliance Definitions

These definitions were obtained from Army, DoD, and compliance regulations cited previously.

- *Categorical Exclusions (CXs)* - those actions which do not individually or cumulatively have a significant effect on the human environment and for which, therefore, neither an EA nor an EIS is required.

- *Draft Environmental Impact Statement (DEIS)* - a document prepared after the scoping process has been completed. The DEIS is prepared in accordance with the scope decided upon in the scoping process. It is then circulated for comment.

- *Environmental Assessment (EA)* - refers to a concise public document prepared by the installation in order to evaluate a proposed action and its potential effects on the environment. In general, it serves to:

  - briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement, or a finding of no significant impact
  - aid an agency's compliance with the Act when no environmental impact statement is necessary
  - facilitate preparation of a statement when one is necessary.

  The EA shall include brief discussions of the need for the proposal, or alternatives, and of the environmental effects of the proposed actions and alternatives, and a listing of the agencies and persons consulted.

- *Environmental Baseline Study (EBS)* - pre-1991 document surveying various environmental issues. Specifically, it is a comprehensive evaluation of the existing installation and environmental conditions, particularly regarding hazards and contamination, conducted on proposed real property transactions (Army-controlled or not) and Army-controlled property for which an operating contract, facility contract, or third-party contract is being considered. Its purpose is to determine the Army's potential liabilities associated with the environmental condition of the proposed property transaction; thus allowing the proponent to intelligently decide whether to continue with the action.

- *Environmental Impact Statement (EIS)* - a detailed written statement required by NEPA that evaluates the effect of any proposed Federal action on the natural, historic, and cultural environment. It is designed to ensure that NEPA policies and goals are incorporated early into Federal programs, and that the project receives a full, fair, and public discussion.

- *Environmental Planning Guide (Optional)* - a document prepared before or at the outset of a major program concept exploration. Its use is optional but encouraged. A concise document intended for use by the program planners and designers, it provides guidelines and supporting rationale by which planners and designers could prevent, avoid, or minimize adverse environmental effect through environmentally sensitive design and planning. It can be made to be a requirement of contractors.

- *Environmental Planning Record (Optional)* - this is an optional but recommended document that records the progress and a process of environmental considerations throughout a given program's development. It may be a journal with periodic entries, a file of memoranda, trip reports, and so forth. It is designed to be a visible track record of how environmental factors have actually been considered and incorporated throughout the planning process. It can be made a requirement of contractors.

- *Environmental Monitoring Report(Optional)* - an optional but recommended report prepared at one or more point after program or action execution. Its purpose is to determine the accuracy of impact predictions, and it can serve as the basis for adjustments in mitigation programs and to adjust impact predictions in future projects.

- *Final Environmental Impact Statement (FEIS)* - this document is the result of the analysis of comments concerning the DEIS. Comments are to be received from: designated Federal, state, and local agencies; any agency that has requested copies of impact statements; and the public (including interested or affected persons and organizations).

- *Finding of No Significant Impact (FNSI)* - a document that briefly presents the reasons why an action, not otherwise excluded, does not need an EIS. A FNSI includes a summary of the conclusions of the EA and notes any environmental documents related to it. If the EA is attached to the FNSI, the FNSI need not repeat any of the EA's discussion, but may incorporate it by reference. It is always signed by the decisionmaker.

- *Life Cycle Environmental Document (LCED)* - a programmatic assessment addressing the known and reasonably foreseeable environmental impacts of a proposed item/system during all phases of development, production, use, and disposal. It may be in the form of an EA or an EIS, and must be supplemented to address additional significant environmental impacts as conditions change. It is most frequently used within the materiel research, development, and acquisition community.

- *Notice Of Intent (NOI)* - a notice that an EIS will be prepared and considered. It should contain:

  (a) a description of the proposed action and possible alternatives
  (b) the proposed scoping process and schedule
  (c) the name and address of the person who can give more information.

- *Preliminary Assessment Screening (PAS)* - a new, less inclusive version of the EBS.

- *Preliminary Draft Environmental Impact Statement (PDEIS)* - a document containing information obtained and decisions made during the scoping process.

- *Record of Environmental Consideration (REC)* - a document that describes the proposed action and anticipated timeframe, identifies the proponent, and explains why further environmental analysis and documentation is not required. It is a signed statement to be submitted with project documentation. Furthermore, it is used when the proposed action is exempt from the requirements of NEPA, or has been adequately assessed in existing documents and determined not to be environmentally significant. It is also used to document the use of those CXs that require such records.

- *Records of Decision (ROD)* - this document is required after completion of an EIS. Generally, it is to: state what the decision was; identify all alternatives considered and specifying which alternative was environmentally preferable; and state whether all practicable means to avoid or minimize environmental harm from the selected alternative have been adopted and if not, why not. In addition, it states the monitoring and mitigation program adopted (if needed). It may also discuss preferences among alternatives based on nonenvironmental

factors (economic and technological). The ROD is not considered an environmental document since the decision considers these other, non-environmental factors in addition to environmental factors.

- *Scoping* - this process occurs when the planning for an Army project or action indicates a need for the preparation of an EIS. Scoping determines the scope of issues to be addressed in the EIS and identifies the significant issues related to the proposed action. The parties identify the range of actions, alternatives, and impacts to consider in the EIS.

NATIONAL ENVIRONMENTAL POLICY ACT

GUIDANCE FOR WORKSHEET USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
All installations	12-1 through 12-5	(1)(2)(10)(21)(22)(26)
Installations that have produced environmental documentation	12-6	(2)
Installations that have documentation for categorical exclusions (CX)	12-7	(2)
Installations that have certain activities in the Master Plan requiring preparation of an environmental assessment (EA)	12-8 and 12-9	(1)(2)(22)(26)
Installations that have prepared environmental assessments (EAs)	12-10 through 12-14	(1)(2)(22)
Installations that have prepared an environmental impact statement (EIS)	12-15 through 12-17	(1)(2)(21)
Installations that have developed mitigation measures	12-18 and 12-19	(2)(22)

(a)CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
(2) Environmental Coordinator (EC)
(10) Range Control (DPTMSEC)
(21) Public Affairs Office (PAO)
(22) Staff Judge Advocate
(26) Installation Master Planner

NATIONAL ENVIRONMENTAL POLICY ACT

Records to Review:

- Record of Environmental Consideration (REC)
- Record of Decision (ROD)
- Environmental Baseline Study (EBS) or Preliminary Assessment Study (PAS)
- Environmental Assessment (EA)
- Finding of No Significant Impact (FNSI)
- Notice of Intent (NOI)
- Scoping plans and conclusions
- Environmental Impact Statement (EIS) (including Preliminary Draft EIS, Draft EIS, Final EIS)
- Environmental agreements
- 1383 report
- News releases
- Troop Construction Projects
- Off-Post Actions (i.e., training, leases, maneuvers)

People to Interview:

- Directorate of Engineering and Housing (DEH)
- Environmental Coordinator (EC)
- Range Control (DPTMSEC)
- Public Affairs Office (PAO)
- Staff Judge Advocate (SJA)
- Installation Master Planner (DEH)

COMPLIANCE CATEGORY: NATIONAL ENVIRONMENTAL POLICY ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
DOCUMENTATION	
12-1. Determine action or changes since previous audit/review.	Copy of previous audit/review to determine whether noncompliance issues have been resolved. (1)(2)
...	...
12-2. The installation should have copies of all relevant Federal, DoD, Army, and state/local regulations concerning the National Environmental Policy Act (NEPA).	Determine whether copies of the following regulations and publications are maintained and kept current at the installation: (1) - 40 CFR 1500, *Regulations for the Implementation of the National Environmental Policy Act.* - AR 200-2, *Environmental Effects of Army Actions* (32 CFR 651). - NOTE: Changes to AR 200-2 published as 32 CFR 651 or AR 200-2 change.
...	...
NEPA INTEGRATION	
12-3. The installation must perform a number of activities in the implementation of NEPA (AR 200-2 para. 1-4(k)).	Verify that the installation: (1)(2) - monitors proposed actions and programs within its command - tasks the appropriate component with environmental review and preparation of EAs and EISs where appropriate, and development of public involvement activities - assures that appropriate environmental documentation is prepared and forwarded to the appropriate proponent - initiates the preparation of necessary environmental documentation and assesses the environmental consequences of proposed programs and projects - coordinates appropriate environmental documents and public affairs initiatives with MACOM, HQDA agencies, and the Army Environmental Coordinator - assists in the review of environmental documents prepared by DoD and other Army or Federal agencies, as requested. - ensures that environmental documentation is completed early in the decisionmaking process and concurrently with any operations, technical, economic, or other analyses or feasibility studies.
...	...

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COMPLIANCE CATEGORY: NATIONAL ENVIRONMENTAL POLICY ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
12-4. All offices, units, or activities must follow NEPA procedures when initiating Army actions (AR 200-2).	Determine that offices, units, and activities on or off the installation perform the following NEPA procedures when initiating Army actions: (1)(2)(10)(21)(22) - Consult with Environmental Coordinator (EC) and either prepare or participate in preparing environmental documents during all phases of the NEPA process. - Provide a complete description of the proposed action and alternatives (DOPAA) and other pertinent information. - Identify key decision points and assist in making sure that the NEPA process is properly phased so that environmental documents are available to the decisionmaker. - Ensure Public Affairs Officers is advised of proposed action. Verify that Staff Judge Advocate: (1)(2) - advises on legal questions, including the legal sufficiency of environmental documents - advises during the scoping process of issues that should be addressed in EISs - makes sure that all matters that cause or are likely to cause substantial public controversy or litigation, are referred promptly through channels to Office of the Judge Advocate General (OTJAG), Environmental Law Division. Verify that Public Affairs Officer: - advises EC and action proponents on public affairs implications, including reviewing environmental documents for public affairs sufficiency - advises during the scoping process of issues that should be addressed in EISs - conducts public meetings for scoping or Draft EIS reviews, if any are necessary. Verify that Safety Office/Industrial Hygienist/Preventive Medicine /MEDDAC: (1)(2) - provides technical assistance in the areas of occupational health and safety standards, effects, and monitoring capabilities. Verify that Environmental Coordinator (EC): (1)(2) - advises action proponents on compliance with NEPA and AR 200-2 - provides technical assistance in the areas of environmental standards, effects, monitoring, mitigation, and permit, consulting, and public review requirements. Verify that Directorate of Engineering and Housing (DEH): (1)(2) - provides technical assistance in areas of environmental standards, effects, and monitoring capabilities.

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COMPLIANCE CATEGORY: NATIONAL ENVIRONMENTAL POLICY ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
12-5. Army units are required to integrate environmental review concurrently with other planning and decision-making actions (AR 200-2).	Verify that installation organizations have developed some method to ensure they consult with EC to determine environmental review and documentation requirements for actions they plan or perform. (2)(10)(26) Verify that action proponents have documented compliance with environmental review requirements for actions they plan or perform. (2) Verify that EC has access to installation and tenant planning processes via attendance at Master Planning Board meetings, Range Control schedules, or other means suitable to the particular installation and its mission (GMP). (2)
...	...
12-6. Records must be maintained in certain circumstances (AR 200-2).	Determine that record copies of installation RECs, EAs, NOIs, Draft and Final EISs, and RODs are maintained. Determine that LCEDs prepared elsewhere are included as part of EA/EIS packages for items or systems being developed, tested, produced, or fielded at the installation. Assure that mitigation/monitoring records are maintained and kept current. (2)
...	...
CATEGORICAL EXCLUSION (CX)	
12-7. Categorical Exclusions (CXs) may apply to proposed actions, exempting them from further environmental assessment (AR 200-2).	Verify that record copies of RECs are available for any projects in which a CX was used and a REC is required. (2) Determine if EC has a method to determine whether any 'extraordinary circumstances' do occur during performance of actions which were categorically excluded and, if so, at what level are later actions of the same type evaluated. (2)

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COMPLIANCE CATEGORY: NATIONAL ENVIRONMENTAL POLICY ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ENVIRONMENTAL ASSESSMENT (EA) **12-8.** Certain actions require the preparation of an EA (AR 200-2).	Verify that an EA is prepared for the following actions listed in the Installation Master Plan: (1)(2)(26) - special training or test activity not included in the annual installation training cycle - military construction, including off-post construction - installation pesticide, fungicide, herbicide, insecticide, and rodenticide use programs - changes to established installation land use - proposed changes in doctrine or policy that may have a potential environmental impact - repair or alteration projects affecting historically significant structures, archaeological sites, or places on, or meeting the criteria for nomination to, the National Register of Historic Places - acquisition, or alteration of a laboratory that will use hazardous chemicals, drugs, or biological or radioactive materials - actions that could potentially cause soil erosion, affect prime or unique farmland, wetlands, floodplains, coastal zones, wilderness areas, aquifers, or other water supplies, or wild and scenic rivers - new weapon systems development and acquisition, in all phases - development of installation master plan - development of natural resource management plans - proposals that may lead to the excessing of Army real property - actions that take place in, or adversely affect, wildlife refuges - proposals for energy conservation through forest harvest - field activities on land not controlled by the military - any action with local or regional effects on energy availability - an activity that affects species on or proposed for the U.S. Fish and Wildlife Service list of Threatened or Endangered Species, or state equivalents - production of hazardous or toxic materials - installation restoration projects - operations and maintenance/Army National Guard projects (to include USAR activities) that will affect environmental quality - site specific deployment of life cycle systems meeting the threshold criteria for requiring an EA - special field training exercises or test activities off Army or DoD property that extend into national airspace (45 meters above ground level) - changes to established airspace use that affects the environment or socioeconomic systems, or creates a hazard to nonparticipants - any other action with the potential for cumulative impact or a violation of environmental laws, regulations, or standards affecting culturally or ecologically sensitive areas.

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COMPLIANCE CATEGORY: NATIONAL ENVIRONMENTAL POLICY ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
12-8. (continued)	Verify that EC has records on: (2) - location of culturally or ecologically sensitive areas, on or off post, in areas that may be affected by installation or tenant missions - presence or absence of historically significant structures, archaeological sites, or places on, or meeting the criteria for nomination to, the National Register of Historic Places - locations of high soil erosion potential, prime or unique farmland, wetlands, floodplains, coastal zones, wilderness areas, aquifers or other water supplies, or wild or scenic rivers - presence of wildlife refuges - endangered or threatened species or their critical habitat, species under consideration for listing as endangered or threatened, or state-listed protected species - current or known future areas where mission facilities or operation extend into national airspace (45 meters above ground level or higher) - current or know future areas where mission operations take place off-post (including in national airspace) - current or known future uses of hazardous or toxic materials or radioactive substances. Verify that installation proponents have been notified of the types of actions they plan or perform which may be likely to require EAs, and that they may be required to perform or fund mitigations committed to in such EAs.(2) Verify that offices responsible for performing mitigation to which the installation has committed in an EA/FNSI, but that did not participate in EA/FNSI development, have been notified of such commitments and are performing or have performed the mitigations.(2)
...	...
12-9. EAs determine the extent of environmental impacts of a project and decide whether or not those impacts are significant and must meet certain requirements (AR 200-2).	Determine that EAs contain the following information: (1)(2)(22) - purpose and need for the proposed action - description of the proposed action - the alternatives considered, including "no action" - affected environment (baseline conditions) - environmental consequences of the proposed action, and the alternatives - listing of agencies and persons consulted - the conclusion, or finding, on whether the environmental impacts are significant.
...	...

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COMPLIANCE CATEGORY: NATIONAL ENVIRONMENTAL POLICY ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
FINDING OF NO SIGNIFICANT IMPACT (FNSI) AND NOTICE OF INTENT (NOI)	
12-10. All Environmental Assessments must prompt either the preparing of a Finding of No Significant Impact (FNSI), or a Notice of Intent (NOI) to file an Environmental Impact Statement (EIS) (AR 200-2).	Determine whether all EAs for projects (that have not been cancelled or delayed) are accompanied by a FNSI or have been followed by a NOI. (1)(2)(22)
...	...
12-11. FNSIs describe why an action does not have significant effect on the human environment, why an EIS is not necessary, and that it must meet certain requirements (40 CFR 1508.13; AR 200-2).	Determine that FNSIs include the following information: (1)(2) - the name of the action - a brief description of the action (including any alternatives considered) - a short discussion of anticipated environmental effects - the facts and conclusions that have led to the FNSI - a deadline and point of contact (POC) for further information or receipt of public comments.
...	...
12-12. The EA, the FNSI, and all other appropriate planning documents will be provided to the appropriate decisionmaker for review and consideration. The signature page for the EA and the FNSI package will be signed by the appropriate decisionmaker to indicate his or her review and approval (AR 200-2).	Verify the decisionmaker(s) for the proposed action has (have) signed and approved both the EA and the FNSI, or a complete package including the EA plus FNSI. (1)(2)
...	...

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COMPLIANCE CATEGORY: NATIONAL ENVIRONMENTAL POLICY ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
12-13. The FNSI will be made available to the public prior to initiation of the proposed action, unless excluded on a security basis. FNSIs of national interest should be submitted with the proposed press release through command channels to the Deputy Assistant Secretary of the Army (Environment, Safety, and Occupational Health) [DASA (ESOH)] for approval and publication in the Federal Register (FR). Local publication will not precede FR publication (AR 200-2).	Verify that classified actions are reviewed for environmental impacts and NEPA documentation compliance, and separable nonclassified environmental reviews are processed routinely, including FNSI public notice, in accordance with AR 200-2. (1)(2)(22) Verify that FNSIs of national interest are submitted, with EA and proposed press release, through the project proponent's command channels for transmittal at HQDA level from the ARSTAF proponent to DASA (ESOH) for FR publication. Verify that local publication did not/does not precede FR publication. (1)(2)
...	...
12-14. For actions of local or regional interest, the FNSI will be publicized in accordance with 40 CFR 1506.6(b) and paragraph 2-6b(2) of AR 200-2. Distribution of the FNSI (30 days prior to initiation of the proposed action) should include any agencies, organizations, and individuals who have expressed interest in the project and others whom the proponent and preparer deem appropriate (AR 200-2).	Verify that FNSIs are publicized in accordance with appropriate methods of 40 CFR 1506.6(b) [in Appendix E of AR 200-2] at least 30 days prior to final decision and action initiation, whenever the proposed action is of national concern, is unprecedented, or normally requires an EIS. (2)(22) Verify that MACOM approval has been obtained and documented for public comment periods of less than 30 days when it would jeopardize the project, provide no public benefit, and is not of national concern, unprecedented, or does not normally require an EIS. Verify that public comment was provided for at least 15 days prior to initiation of action. (2) Verify that EC maintains record copy of NOIs, scoping plans and conclusions, Draft and Final EISs, and RODs as long as the covered action(s) is/are pending or ongoing and as long as the EIS contains information that be useable in future installation project NEPA compliance. (2) Verify that the installation 1383 report includes "Ongoing Mission EIS" if the EC uses or intends to use such a document to reduce NEPA documentation requirements at the installation (and, if such a document is already available, it has not been updated in more than 5 years and installation missions or environmental conditions have changed since it was prepared). (2)
...	...

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COMPLIANCE CATEGORY: NATIONAL ENVIRONMENTAL POLICY ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ENVIRONMENTAL IMPACT STATEMENT (EIS)	
12-15. A proponent of an action must produce an EIS if certain conditions exist due to a proposed action (40 CFR 1502.4; AR 200-2).	Verify that installation proponents have been notified of the types of actions they plan or perform that might require an EIS. (2) Verify that EC reviews all RECs and all EA/FNSI packages for actions that will be performed at the installation and advises local legal, and if necessary, command environmental channels if projects that may have significant impact (in his or her professional judgement) appear to be at risk of proceeding without an EIS. (In other words, in cases where the EC does not concur with a proponent decisionmaker's or an installation commander's conclusion that impacts will not be significant.) (2) For currently-proposed action requiring an EIS, verify that installation proponents, or installation representatives for proponents at higher levels, participate actively in the EIS process, and, at a minimum: (2) - notify EC, public affairs office, and legal office as soon as any preliminary decision to prepare an EIS is made without prior preparation of an EA - prepare draft descriptions of the proposed action and alternatives - attend in-house scoping meetings and any public meetings during scoping or draft EIS public review periods - participate in determination of mitigation measures to be adopted and performed under various alternatives - forward NOIs, proposed press releases, preliminary draft EIS, Draft and Final EISs, and draft RODs through their own command channels for review and approval at higher levels.
...	...
12-16. If an EIS must be prepared, the installation must follow the directions in AR 200-2, Chapter 6, for preparing and processing an EIS (32 CFR 650; 40 CFR 1502, 1503, 1505, and 1506; AR 200-2, Chapter 6).	See Appendix 12-1 for EIS procedures. (1)(2)
...	...
12-17. Sufficient time must be allowed for public review and comment in EIS process (AR 200-2).	Verify that news releases publicizing the actions are made within the appropriate time-frame for the following: (1)(21) - not less than 45 days for public comment on Draft EISs - not less than 15 days for public availability of Draft EISs prior to any public meeting or hearing on the Draft EIS - not less than 90 days total for public availability of the Draft EIS and Final EIS prior to any decision on the proposed action.

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COMPLIANCE CATEGORY: NATIONAL ENVIRONMENTAL POLICY ACT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
MITIGATION MEASURES	
12-18. The proponent or other appropriate agency will implement mitigation and other conditions established in the EA or EIS or during its review, and committed as part of the FNSI or the ROD (AR 200-2).	Verify the following: (2) - funds have been committed to perform commitments made in FNSI or ROD and that mitigations adopted in EAs/EISs are actually being performed, or, if not, that EAs/EISs are revised and reissued for public comment to reflect the difference - if necessary, pending or ongoing actions are delayed to accommodate decisionmaker, EC, and legal review and renotification of the public.
...	...
12-19. Legal documents implementing the action (contracts, permits, grants, etc.), will specify mitigation measures to be performed (AR 200-2).	Review legal documents supporting the action and verify mitigations are included as appropriate, to include contractor penalties in suitable circumstances. (2)(22)
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (10) Range Control (DPTMSEC) (21) Public Affairs Officer (PAO) (22) Staff Judge Advocate (26) Installation Master Planner

Appendix 12-1

Environmental Impact Statement Procedures Checklist

Environmental Impact Statements (EISs) are required under the provisions of the National Environmental Policy Act (NEPA) of 1969, implemented in 40 CFR 1500-1508. A wide variety of actions may require the filing of an EIS (see protocols of this section for a listing).

Reviewers should ensure that the following steps are followed in the EIS process:

(NOTE: For EISs in progress at the time of the ECAS review, make the following determinations and verifications only up to the stage of development that has been reached by the EIS to date.)

1. Determine that a notice of intent (NOI) of the proposed action is published in the Federal Register and made available to the media in the areas potentially affected by the proposed action.

- Verify that copies of the NOI and a proposed press release have been forwarded through MACOM to the HQDA proponent for coordination prior to publication.

2. After the NOI has been published, verify that "scoping" procedures have begun, to determine the relative significance of issues and to what depth they must be addressed in the EIS.

3. Verify that a preliminary draft is prepared from the "scoping" procedure with the following format:

a. Cover sheet: title of submitting agency; title of proposed action; location of proposed action; name, address, and phone number of contact for further information; designation of the statement as a draft, final, draft supplement, or final supplement; a one paragraph abstract of the statement, and the date by which comments must be received.

b. Summary: must adequately summarize the statement, stressing major conclusions, areas of controversy, and issues to be resolved (not more than 15 pages).

c. Purpose and need: briefly specifying the underlying purpose and need to which the installation is responding in proposing the alternatives including the proposed action.

d. Alternatives including the proposed action: explore and objectively evaluate all reasonable alternatives; identify preferred alternative and explain reasoning.

e. Affected environment: description of the area(s) to be affected or created by the alternatives under consideration.

f. Environmental consequences: discussion of direct effects and their significance, indirect effects and their significance, possible conflicts between the proposed action and the objectives of NEPA, and environmental effects of alternatives.

g. List of preparers: names and qualifications of persons primarily responsible for preparing the EIS or background papers.

h. Appendix: material prepared in coordination with the EIS, normally analytic and relevant to discussions being made.

4. Verify that the preliminary draft is edited and distributed in the following manner:

a. Fifteen copies of the preliminary draft environmental impact statement (PDEIS) are sent through MACOM to HQDA proponent for distribution.

b. The PDEIS is returned to the preparer for revision as required and printing of the draft EIS (DEIS) for filing.

c. Copies of the DEIS are distributed among the proper Federal agencies and printed in the Federal Register.

d. A public review period is allowed to provide for public and specialist objections and comments:

(1). Not less than 45 days for public comment on DEISs;

(2). Not less than 15 days for public availability of DEISs prior to any public hearing on the DEIS;

(3). Not less than 90 days total for public availability of the DEIS and Final Environmental Impact Statement (FEIS) prior to any decision on the proposed action.

e. Responses to comments must be incorporated in the final EIS (FEIS) by either modifying the text or providing a written explanation in the comment section.

5. Verify that a final EIS is prepared from this last preliminary draft EIS, and that mitigation and implementation are begun.

6. Verify that organizations which will perform or arrange mitigations committed in the *EIS* or *ROD*, but did not participate in EIS development, have been notified of their mitigation responsibilities and are prepared to or have already arranged for mitigations to be performed.

7. If an action was rescinded or changed such that the action will be assessed in another NEPA document, verify that a notice was placed in the Federal Register and all interested persons are notified of the disposition of the action.

INSTALLATION:	COMPLIANCE CATEGORY: NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) USA ECAS	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (10) Range Control (DPTMSEC) (21) Public Affairs Officer (PAO) (22) Staff Judge Advocate (26) Installation Master Planner

Section 13

ASBESTOS MANAGEMENT PROGRAM

SECTION 13

ASBESTOS MANAGEMENT PROGRAM

A. Applicability of this Protocol

This protocol applies to all Army installations. Currently this section contains protocols for asbestos. Asbestos is regulated on the Federal level by the United States Environmental Protection Agency (USEPA), though in some cases states have also promulgated regulations. The Asbestos Management protocol is written in response to the Federal regulations applicable to the conduct of activities involving asbestos management.

Specific state regulations are not included in this protocol. However, an outline of the typical contents of such regulations is provided.

The Asbestos Abatement protocol is used to determine the compliance status of the management activities associated with asbestos on the installation and in schools, and its removal from buildings and ultimate disposal.

B. Federal Legislation

- National Emissions Standards for Hazardous Air Pollutants (NESHAPs) were developed for air pollutants for which no ambient air quality standards are applicable and which may result in an increase of mortality or serious irreversible illness. Asbestos is one of the air pollutants for which standards define emission limits, monitoring requirements, worker practice standards, restrictions on material use, disposal, and reporting requirements.

- *OSHA's Safety and Health Standards*, specified in 29 CFR 1910, address occupational exposure and acceptable levels of exposure to asbestos, tremolite, anthophyllite, and actinolite in general industry and construction. Because these regulations are not considered environmental regulations, they are not included in this protocol.

- Requirements pertaining to asbestos are included in regulations promulgated pursuant to the Clean Air Act (CAA) and the Toxic Substance Control Act (TSCA). CAA Amendments of 1970 required the USEPA to develop NESHAP. CAA also established standards for asbestos emissions during renovation and demolition projects. In 1971, the USEPA listed asbestos as a hazardous air pollutant and established emission standards for asbestos in 40 CFR 61, Subpart M, *National Emissions Standards for Hazardous Air Pollutants*, for the following areas:

- manufacturing
- fabrication
- spray application
- waste packaging
- labeling
- disposal.

- The Asbestos Hazard Emergency Response Act (AHERA) [PL 99-519 USC] amended TSCA in 1986 to include regulations that require local education agencies to inspect their school buildings for materials containing asbestos, develop asbestos management plans, and implement response actions in a timely fashion. Regulations under AHERA for schools are contained in 40 CFR 763, Subpart E, *Asbestos*. Regulations governing asbestos abatement projects and employees who take part in asbestos removal are in 40 CFR 763, Subpart G.

- The Hazardous Materials Transportation Act was amended in 1978 to regulate the transport of asbestos materials. The regulations are contained in 49 CFR 172-177. In particular, 49 CFR 177, *Transportation of Hazardous Waste*, requires that asbestos be loaded, handled, and unloaded in a manner that will minimize occupational exposure to airborne asbestos. Asbestos wastes transported for disposal at a landfill or other disposal facility must meet all applicable requirements.

- Executive Order (EO) 12088, *Federal Compliance with Pollution Standards*, of 13 October 1978 requires Federally owned and operated facilities to comply with all Federal, state, and local environmental regulations. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities it funds meet Federal, state, and local environmental requirements or to correct situations that are not in compliance with such regulations. In addition, the Executive Order requires each agency to ensure that sufficient funds for environmental compliance are included in the agency budget.

C. State/Local Requirements

Many state and local governments have enacted standards more stringent than the Federal requirements. If the installation is engaging in asbestos removal or disposal, contact the appropriate state and local agencies.

In all cases, the most stringent regulations should be followed.

D. DoD Regulations

- None.

E. U.S. Army Regulations

- Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*, Chapter 10, *Asbestos Management Program*, prescribes policy and procedures for managing asbestos and asbestos-containing materials (ACM) and wastes. It requires compliance with all applicable Federal, state, and local regulations.

F. Key Compliance Requirements

- NESHAP regulation, apply to existing and new stationary sources. The regulations are based on health effects and a strong reliance on technological capabilities. Army installations involved in the demolition or renovation of buildings that contain asbestos are likely to be affected by these regulations. USEPA and state notification must be given if renovation or demolition is planned. Installations involved in these activities must regulate the emissions that are caused by the removal of friable asbestos. Once the asbestos has been removed, it must be disposed of in accordance with the Clean Air Act and the Hazardous Materials Transportation Act. The asbestos waste products must be disposed of in leakproof containers with proper hazard labeling. Installations that operate primary and secondary schools must test friable materials for asbestos content and document these results.

G. Responsibility for Compliance

- Directorate of Engineering and Housing (DEH) establishes an installation asbestos management team and appoints an asbestos management control officer or team leader. The DEH will also maintain records of asbestos survey results and plans and updates the records as changes occur. Additionally, DEH will maintain records for 30 years after the last incidence pf employee exposure to asbestos. See protocol, Chapter 13, Item 13-5, for guidance on plan preparation.

- Asbestos Management Team prepares the Asbestos Management Plan which contains documentation on all asbestos management efforts and the mechanism for oversight of the program. The team, as a minimum, consists of representatives from DEH, Environmental Office, Preventive Medicine, Safety Office, Civilian Personnel Office (CPO), Staff Judge Advocate (SJA), and Public Affairs Office (PAO).

H. Key Compliance Definitions

These definitions were obtained from Army, DoD, and compliance regulations cited previously.

- *Active Waste Disposal Site* - any disposal site other than an inactive site.

- *Adequately Wet* - sufficiently mix or penetrate with liquid to prevent the release of particulates.

- *Administrative Record* - all documents that have a legal bearing on the remedial action. The record is required for every response action, is used for judicial review, and forms the basis for the selection of response actions at Third-Party sites.

- *Applicable or Relevant and Appropriate Requirements (ARARs)* - Federal and state laws that must be considered when a remedial action is being chosen.

- *Asbestos* - substances comprised of or derived from actinolite, amosite, anthophyllite, chrysotile, crocidolite, or tremolite.

- *Asbestos-Containing Waste Materials* - any waste that contains commercial asbestos and is generated by a source subject to the provisions of 40 CFR Subpart M. This term also includes asbestos waste from control devices, friable asbestos waste material, and bags or containers that previously contained commercial asbestos. As applied to demolition and renovation operations, this term also includes regulated asbestos-containing material waste and materials contaminated with asbestos.

- *Asbestos Waste from Control Devices* - any waste material that contains asbestos and is collected by a pollution control device.

- *Category I Nonfriable Asbestos-Containing Material (ACM)* - asbestos-containing packings, gaskets, resistant floor covering, and asphalt roofing products containing more than one percent asbestos.

- *Category II Nonfriable ACM* - any material excluding Category I nonfriable ACM, containing more than one percent asbestos that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

- *Cost* - the amount of funds required to put in place the necessary environmental protection measures, irrespective of the appropriation chargeable.

- *Demolition* - the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations, or the intention al burning of any facility.

- *Emergency Renovation Operation* - a renovation operation that was not planned but results from a sudden, unexpected event. This term includes operations necessitated by nonroutine failures of equipment.

- *Facility* - any institutional, commercial, or industrial structure, installation, or building (excluding apartment buildings having no more than four dwelling units), and any active or inactive waste disposal site.

- *Facility Component* - any pipe, duct, boiler, tank, reactor, turbine, or furnace at or in a facility; or any part of a facility.

- *Friable Asbestos Material* - any material that contains more than 1 percent asbestos by weight that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

- *Good Management Practice* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *In or Near Commercial Buildings* - within the interior of, on the roof of, attached to the exterior wall of, in the parking area serving, or within 30 meters of a nonindustrial, nonsubstation building.

- *Inactive Waste Disposal Site* - any disposal site or portion of it where additional asbestos-containing waste material has not been deposited within the past year.

- *Industrial Building* - a building directly used in manufacturing or technically productive enterprises.

- *Outside Air* - the air outside buildings and structures.

- *Particulate Asbestos Material* - finely divided particles of asbestos material.

- *Removal Response* - an immediate action taken over the short-term to address a release or threatened release of a hazardous substance that poses a significant threat to public health or the environment.

- *Regulated Asbestos-Containing Material (RACM)* -includes friable asbestos material; Category I Nonfriable asbestos containing material that has become friable; Category I nonfriable asbestos containing material that has been sub-

jected to sanding, grinding, cutting, or abrading; and Category II nonfriable asbestos containing material that has a high probability of becoming crumbled, crushed, or pulverized.

- *Remove* - to take out regulated asbestos-containing materials from any facility.

- *Renovation* - altering, in any way, one or more facility components. Operations in which load-supporting structural members are wrecked or taken out are excluded.

- *Strip* - to take off RACM from any part of a facility or a facility component.

- *Structural Member* - any load-supporting member of a facility, such as beams and load-supporting walls; or any nonload-supporting member, such as ceilings and nonload-supporting walls.

ASBESTOS MANAGEMENT PROGRAM

GUIDANCE FOR WORKSHEET USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
Asbestos:		
All installations with asbestos	13-1 through 13-7	(1)(2)(3)(6)(9)
Personnel safety	13-8 through 13-10	(1)(2)(3)(9)
Demolitions or renovations of a structure containing friable asbestos	13-11 through 13-20	(1)(2)(3)(6)(9)
Installation disposal of asbestos	13-21 through 13-25	(1)(2)(6)(9)
DoD-owned primary or secondary schools	13-26	(1)(2)(9)

(a)CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
(2) Environmental Coordinator (EC)
(3) Preventive Medicine Officer
(6) Director of Logistics (DOL)
(9) Chief of Operations and Maintenance (O&M)

ASBESTOS MANAGEMENT PROGRAM

Records to Review:

- Installation asbestos management plan and operating plan
- Notifications to regulators concerning asbestos disposal
- Records of on-site disposal and transportation, and off-site disposal of asbestos
- Regulatory inspection reports
- Documentation of asbestos sampling and analytical results
- Documentation of preventative measure or action
- Results of air sampling at the conclusion of response action
- Records of asbestos training program
- List of buildings insulated with asbestos or housing asbestos-containing materials
- Record of demolition or renovation projects completed in the past 5 years that involve friable asbestos
- Decision documents / records of decision
- Administrative Record

Physical Features to Inspect:

- Pipe, spray-on, duct, and troweled cementitious insulation and boiler lagging
- Ceiling and floor tiles
- Asbestos insulation in equipment (exhaust systems, generators, vehicles, aircraft, etc.)
- Maintenance shops (brake shoes, clutch plates)

People to Interview:

- Directorate of Engineering and Housing (DEH)
- Environmental Coordinator (EC)
- Preventive Medicine Officer
- Director of Logistics (DOL)
- Chief of Operations and Maintenance (O&M)
- Staff Judge Advocate (SJA)
- Troop Self-Help Projects
- DEH Shop Work

COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
13-1. Determine actions or changes since previous review of asbestos management.	Obtain a copy of previous report and determine if noncompliance issues have been resolved. (1)(2)
...	...
13-2. Copies of all relevant Federal, DoD, U.S. Army, and state/local regulations on asbestos management should be maintained at the installation.	Determine whether copies of the following regulations are maintained and kept current at the installation: (1)(2) - 29 CFR 1926.58, *OSHA Asbestos Standard for the Construction Industry*. - 40 CFR 61, Subpart M, *USEPA National Emission Standards for Asbestos*. - 40 CFR 763, *Asbestos-Containing Materials in Schools*. - 49 CFR 172-177, *Transportation of Hazardous Materials*. - AR 200-1, *Environmental Protection and Enhancement*. - AR 200-2, *Environmental Effects of Army Actions*. - AR 385-10, *The Army Safety Program*. - AR 405-90, *Disposal of Real Estate*. - TB MED 502, *Occupational and Environmental Health: Respiratory Protection Program*. - TB MED 513, *Occupational and Environmental Health Guidelines for the Evaluation and Control of Asbestos Exposure*. (NOTE: OSHA regulations designed to protect workers handling asbestos (29 CFR 1910) are not in this protocol.)
...	...
13-3. Installations are required to abide by state and local regulations (AR 200-1, para. 1-39a(3)).	Verify that the installation is abiding by state and local requirements. (1) Verify that the installation is operating according to permits issued by the state or local agencies. (1)(2) NOTE: Issues that are typically regulated by state and local agencies include: (1)(2) - certification of individuals sampling and/or working with asbestos - renovation and demolition procedures - handling and disposal procedures.
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (6) Director of Logistics (DOL) (9) Chief of Operations and Maintenance (O&M)

COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
13-4. Installations must complete a survey of all structures by 23 May 1991 (AR 200-1, para. 10-2j, para. 10-3b(1-3).	Verify that survey was completed by 23 May 1991. (1)(2)(9) Confirm that the survey(s) was completed by accredited personnel who meet the inspector training requirements of AHERA (Asbestos Hazard Emergency Response Act), and applicable Federal, state, and local requirements. (1)(2) Verify that personnel were supervised by a qualified industrial hygienist or other qualified environmental professional who meets the requirements of "competent person" as specified in 29 CFR 1926.58(b). (1)(2) Determine if the survey is prioritized as follows: (1)(2) - buildings in aging or deteriorated condition that present significant exposure potential - structures that are occupied or likely to be occupied - structures to be repaired, altered, or demolished - DA-controlled schools or child development centers - hospitals - residential housing. Verify that annual follow-up inspections are being done by accredited personnel to identify and report damage and deterioration of asbestos. (1)(2)(9)
...	...
13-5. Installations are required to prepare, coordinate, and execute an Installation Asbestos Management Plan (AR 200-1, para. 10-3). (NOTE: Asbestos Management Plans may be incorporated into existing environmental management documents.)	Verify that an Installation Asbestos Management Plan has been prepared. (1)(2)(6)(9) Examine a copy of the plan for the following information: (1)(2) - a complete list of operations and maintenance schedules, design plans, and specifications that identify structures scheduled for repair, alteration, and demolition - an installation-wide survey of all structures to determine the location, extent, and condition of all asbestos - documentation of the presence, extent, and condition of asbestos and assessment criteria - an assessment for each occurrence of asbestos of the potential for environmental release and risks to human health and the environment that was done by personnel meeting the management planner training requirements of AHERA and other applicable Federal, state, and local requirements - preparation, coordination, and immediate implementation of abatement plans to minimize potential for asbestos exposure for each area where it exists - preparation, coordination and immediate implementation of a special Operations and Maintenance (O&M) plan for each occurrence of asbestos to monitor the condition of asbestos and minimize releases and human exposure - provision for worker education/training programs - an environmental impact analysis of the Installation Asbestos Management Plan (as required by AR 200-2).

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COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
13-6. Asbestos-related actions that have potential to generate fugitive asbestos emissions must be environmentally assessed as specified in AR 200-2 (AR 200-1, para. 10-4d).	Verify that the installation's asbestos management plans and asbestos-related actions that could produce fugitive asbestos emissions are environmentally assessed as specified in AR 200-2. (1)(2)(3)(6)(9) Confirm that the results of the assessment are published throughout the affected geographic area. (1)(2)
...	...
13-7. Installations are required to identify in detail and validate the existence, extent, and condition of all asbestos, friable and nonfriable, in all structures prior to renovation, demolition, or excessing (AR 200-1, para. 10-2k).	Confirm that the installation has identified and verified the existence of both friable and nonfriable asbestos on all DA controlled structures prior to renovation, demolition, or excessing. (1)(2)(9) Verify that the EC is aware of renovation, demolition, and excessing occurring on the installation (GMP). (1)(2)(9) Verify that employees, visitors, and contractors are notified of any asbestos-related health hazard. (1)(2)(9)
...	...
PERSONNEL SAFETY	
13-8. Installations are required to provide personnel working with asbestos with proper education and training and to provide the necessary protective equipment (AR 200-1, para 10-2f, para. 10-2i, para. 10-2q).	Verify that workers are provided with appropriate training and personal protective equipment as specified in AR 385-10, TB MED 502, 29 CFR 1910.1001, and 29 CFR 1926.59. (1)(2)(3) Verify that a procedure exists to notify individuals occupationally exposed to asbestos. (1)(2)(3)
...	...
13-9. Employees working with asbestos are required to have physical examinations (TB MED 513).	Confirm that all employees working with asbestos are given physical examinations as required by TB MED 513: (2)(3) - before beginning work with asbestos - annually while employed - at termination of employment.
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (6) Director of Logistics (DOL) (9) Chief of Operations and Maintenance (O&M)

COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
13-10. When air cleaning is used as a method for controlling emissions of asbestos to the outside air, the fabric filter collection systems are required to meet specific standards unless alternative equipment is authorized for use by the USEPA (40 CFR 61.154, Subpart M).	Verify that fabric filter collection systems meet the following requirements: (1)(2)(9) - the device is operated at a pressure drop of no more than .995 kilopascals (4 inches water gage), as measured across the filter fabric - airflow permeability does not exceed 9 $m^3/min/m^2$ (30 cu ft/min/sq ft) for woven fabrics or 11 $m^3/min/m^2$ (35 cu ft/min/sq ft) for felted fabrics - the felted fabric weighs at least 475 m^2 (14 oz/sq yd) and is at least 1.6 millimeters (1/16 in.) thick throughout - the use of synthetic fabrics containing fill yarn other than that which is spun is avoided.
...	...
RENOVATION AND DEMOLITION: NOTIFICATION	
13-11. Installations that demolish facilities containing at least 80 linear meters (260 linear ft) of RACM on pipes, or at least 15 m^2 (160 sq ft) of RACM on other facility components or at least 1 m^2 off facility components, and installations renovating structures and stripping or removing at least 80 linear meters (260 linear ft) of RACM on pipes, or at least 15 m^2 (160 sq ft) of friable asbestos on other facility components and at least 1 m^2 off facility components must meet certain notification requirements (40 CFR 61.145(a)(1,3), 145(b), Subpart M).	Determine whether USEPA has been provided with written notice of intent to demolish or renovate at least 10 days before demolition begins and as early as possible before renovation begins. (1)(2) Examine written notice for the following information: (1) - name and address of installation - description of facility being renovated or demolished (size, age, prior use) - estimates of approximate amount (linear ft or surface area) of asbestos present in the facility - location of the facility - scheduled start and completion dates of renovation or demolition - nature of planned demolition or renovation methods to be used - procedures for asbestos emissions control - name and location of waste disposal site where asbestos will be disposed) - whether or not it is a revised notification - after November 20, 1991, certification that at least one trained person will supervise. (NOTE: Installations are also required to submit notifications following these guidelines for facilities being demolished under an order of a state or local governmental agency because the facility is structurally unsound and in danger of imminent collapse.)
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (6) Director of Logistics (DOL) (9) Chief of Operations and Maintenance (O&M)

COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
13-12. Installations demolishing a facility with RACM of less than 80 linear meters on pipes and less than 15 m^2 on other facility components and less than 1 m^2 off facility components shall submit notification of demolition (40 CFR 61.145(a)(2), 145(b), Subpart M).	Verify that a written notice of intent to demolish has been submitted to the Administrator at least 10 days before demolition and includes: (1)(2) - the name and address of owner and operator - description of the facility being demolished including the size, age, and prior use - estimate of the approximate amount of friable asbestos present - location of the facility - schedule - procedures to be used.
...	...
RENOVATION AND DEMOLITION	

13-13. Installations that demolish facilities which contain at least 80 linear meters (260 linear ft) of RACM on pipes, or at least 15 m^2 (160 sq ft) of RACM on other facility components and installations renovating structures and stripping or removing at least 80 linear meters (260 linear ft) of friable asbestos on pipes, or at least 15 m^2 (160 sq ft) of friable asbestos on other facility components or 1 m^2 or more off facility component must meet certain emission control requirements (40 CFR 61.145(a)(1-3), 145(c), Subpart M).	Inspect facility during demolition or renovation operations for procedures to prevent emissions of particulate asbestos to outside air. (9)
	Verify that all RACM are removed from facilities being demolished or renovated before any wrecking or dismantling unless: (1)(9)
	- the friable asbestos is on a facility component that is encased in concrete or other similar material, or
	- the friable asbestos materials are adequately wetted whenever exposed during demolition.
	Verify that when a facility component that contains or is covered or coated with RACM is being taken out of the facility in units or sections: (1)(9)
	- they are adequately wetted when RACM are exposed during cutting and disjointing operations, and
	- the units or sections are carefully lowered to ground level.
	Verify that RACM is adequately wetted when it is being stripped from facility components while it remains in place in the facility except in renovation operation where wetting would unavoidably damage equipment and the installation: (1)(9)
	- request a determination from the Administrator as to whether unavoidable damage would occur and supply Administrator with the information needed to make the decision, and
	- uses one of the following emission control methods
	  - a local exhaust ventilation and collection system
	  - a glove bag system
	  - leaktight wrapping to contain all RACM.

...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (6) Director of Logistics (DOL) (9) Chief of Operations and Maintenance (O&M)

COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
13-14. Emissions from facility components that have been taken out in units or in sections from facilities being demolished under state or local orders or facilities being demolished or renovated with at least 80 linear meters (260 linear ft) of RACM on pipes, or at least 15 m^2 (160 sq ft) of RACM on other facility components or at least 1 m^2 off facility component must be controlled (40 CFR 61.145(c)(4), Subpart M).	Verify that facility components are either stripped or contained in leaktight wrappings. (1)(9) Inspect facility components removed from facility as units or in sections for stripping to observe that: (1)(9) - RACM is adequately wet during stripping operations - a local exhaust ventilation and collection system designed and operated to capture emissions is in use - the exhaust system exhibits no visible emissions to outside air. Verify that when wetting operations are stopped because of the temperature, a record of the temperature is made and kept on file for 2 years. (1)(9)
...	...
13-15. Large facility components covered with RACM shall be properly handled (40 CFR 61.145(c)(5), Subpart M).	Verify that the components: (1)(9) - is removed, transported, stored, disposed of, or reused without disturbing the RACM - the component is encaged in leaktight wrapping and labelled.
...	...
13-16. Emissions from RACM that has been removed or stripped from facilities being demolished under state or local orders or facilities being demolished or renovated with at least 80 linear meters (260 linear ft) of RACM on pipes, or at least 15 m^2 (160 sq ft) of RACM on other facility components or 1 m^2 or greater off facility components must be controlled (40 CFR 61.145(c)(6), Subpart M).	Inspect asbestos materials that have been removed or stripped to see that: (1)(2)(9) - materials are adequately wet, and remain wet until collected for disposal - materials are carefully lowered to the ground or lower floor (not dropped or thrown) - materials not removed as units or in sections are transported to the ground via dust-tight chutes or containers if they are removed more than 50 ft above ground level.
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (6) Director of Logistics (DOL) (9) Chief of Operations and Maintenance (O&M)

COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
13-17. When the temperature at the point of wetting is below 0°C and facilities are being demolished under state or local orders or facilities with at least 80 linear meters (260 linear ft) of RACM on pipes, or at least 15 m^2 (160 sq ft) of RACM other facility components or at least 1 m^2 off facility components are being demolished or renovated only the specific wetting requirements apply (40 CFR 61.145(c)(7), Subpart M).	Verify that in these circumstances the wetting requirements in the previous questions are followed and remove facility components coated or covered with friable asbestos materials as units or in sections to the maximum extent possible. (1)(2)(9) NOTE: RACM exposed during cutting or disjoining does not have to be wetted nor does RACM being stripped from a component remaining in place.
...	...
13-18. Facilities being demolished under state or local governmental agency orders shall have the portion of the facility containing friable asbestos adequately wetted during the wrecking operation (40 CFR 61.145(c)(9), Subpart M).	Verify that in facilities being demolished under state or local governmental agency orders the portion of the facility that contains friable asbestos materials is adequately wetted during the wrecking operation. (1)(2)(9)

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (6) Director of Logistics (DOL) (9) Chief of Operations and Maintenance (O&M)

COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
13-19. When a facility is demolished by intentional burning, all RACM, including Category I and II nonfriable ACM must be removed (40 CFR 61.145(c)(10)).	Verify that complex removal is done before burning. (1)(6)
...	...
13-20. As of November 20, 1991, no RACM shall be stripped, removed, or otherwise handled or distributed unless at least one on-site representative trained in asbestos removal is present (40 CFR 61.145 (c)(8)).	Verify that trained person is present. (1)(6) Verify that the individual receives refresher training every 2 years. (1)(6)
...	...
DISPOSAL	
13-21. Asbestos-containing waste materials are required to be disposed of properly (40 CFR 61.150(a-b), Subpart M). (NOTE: These requirements do not apply to Categories I or II nonfriable ACM that did not become crumbled, pulverized, or reduced to powder.)	Verify that no visible emissions are discharged to the outside air during the collection, processing, packaging, transporting, or depositing of asbestos-containing waste material, or that the facility uses one of the following methods: (1)(2)(9) - the asbestos containing waste is adequately wetted - the asbestos containing waste is processed into nonfriable forms - an alternative method approved by the USEPA. Verify that if the waste is wetted: (1)(9) - asbestos waste from control devices is mixed with water to form a slurry and the other materials are adequately wetted - no visible emissions are discharged or air cleaning is used to control the emissions - the wetted materials are sealed in leaktight containers while wet and labeled with the phrase "CAUTION, Contains Asbestos - Avoid Opening or Breaking Container, Breathing Asbestos is Hazardous to Your Health" or a label approved by OSHA - materials that don't fit in containers are put into leaktight wrapping. Verify that the waste generator deposits all asbestos-containing materials as soon as practical at one of the following: (1)(2) - a properly operated waste disposal site - a USEPA approved site that converts RACM and asbestos-containing waste material intro asbestos-free material.

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COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
13-22. Asbestos-containing waste must be properly transported (40 CFR 61.150 (c-e)).	Verify that vehicles used to transport asbestos-containing waste material are marked indicating an asbestos dust hazard. (1)(6) Verify that for all asbestos-containing material transported off the facility, waste shipment records are maintained for at least 2 years and a copy is provided to the waste disposal site. (1)(6) Verify that a procedure is in place to notify the local, state, or USEPA regional office if a copy of the waste shipment record is not returned to the waste generator within 45 days after the waste was accepted by the initial transporter. (1)(6)
...	...
13-23. Active waste disposal sites where asbestos-containing material is being disposed are required to meet specific standards (40 CFR 51.154 (a-e, i-j), Subpart M).	Determine if the installation is operating a landfill where asbestos is being disposed.(1) Verify that there are no visible emissions from active asbestos-containing waste disposal sites, or that: (1)(2)(9) - at the end of each operating day, or once in a 24-hour period, the waste material is covered with either at least 15 cm (6 in.) of compacted nonasbestos-containing material, or - a resinous or petroleum based dust suppression agent is applied, waste crankcase oil is not suitable for this purpose - an alternative method of control approved by the USEPA is used. Verify that unless a natural barrier exists deterring access by the general public that either the waste is properly covered by nonasbestos-containing material daily or proper warning signs and fences are installed and maintained as follows: (1)(2)(9) - warning signs are displayed at all entrances at intervals of 100 meters (330 ft) or less along property line of the site or the perimeter of the section of the site where asbestos-containing materials are disposed and state that the site contains asbestos and warns against creating dust - the area is adequately fenced. Verify that a copy of waste shipment records are maintained for 2 years. (1)(6) Verify that until closure, a record is kept of the location, depth, and area of asbestos-containing waste on a map or diagram of the disposal area. (1)(6) Verify that upon closure, the administration receives a copy of all records. (1)(6) Verify that a procedure is in place to notify the administration in at least 45 days prior to excavating or disturbing deposited asbestos-containing waste material. (1)(6)

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COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
13-24. Inactive waste disposal sites are required to meet specific standards (40 CFR 61.154 (f-h) and 40 CFR 61.151, Subpart M).	Verify that inactive waste disposal sites meet one of the following: (1)(6) - no visible emissions are discharged - asbestos-containing waste material is covered with at least 15 cm (6 in.) of compacted nonasbestos-containing material, and a vegetation cover is grown and maintained. (In desert areas where vegetation is difficult to maintain at least 8 cm (3 in.) additional of well-graded nonasbestos-containing crushed rock may be used instead.) - cover the asbestos-containing waste material with at least 60 cm (2 ft) of nonasbestos-containing material and maintain the cover to prevent exposure. Verify that unless a natural barrier exists, warning signs and a fence are installed to deter public access. (1)(6) Verify that warning signs are displayed at all entrances and at intervals of 100 m (328 ft) or less and are easily read indicating the area is an asbestos waste disposal site. (1)(6) Verify that a procedure is in place to notify the administrator in writing at least 45 days prior to excavating or disturbing any asbestos-contaminated waste material at an inactive waste disposal site. (1)(2)
...	...
13-25. Real property that contains asbestos-containing material must be disposed of properly (AR 200-1, para. 10-2n, para. 10-2o).	Verify that all excess real property containing asbestos is disposed of in accordance with AR 405-90. (1)(2)(9)
...	...
ASBESTOS IN SCHOOLS	
13-26. Installations with primary or secondary schools or child development centers must adhere to the Asbestos-in-Schools rule (AR 200-1, para. 10-2e, and 40 CFR 763.80-99, Subpart E).	Determine whether friable materials have been sampled and analyzed for asbestos and findings documented. (1)(2)(9) Verify that all school employees and organized parent groups or parents have been informed of the location of friable ACM (asbestos-containing materials). (1)(2)(9) Confirm that each custodial worker has a copy of the USEPA publication, *A Guide for Reducing Asbestos Exposure*. (1)(2)(9)
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (6) Director of Logistics (DOL) (9) Chief of Operations and Maintenance (O&M)

INSTALLATION:	COMPLIANCE CATEGORY: ASBESTOS MANAGEMENT PROGRAM USA ECAS	DATE:	REVIEWER(S):

STATUS NA C RMA	REVIEWER COMMENTS:

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (6) Director of Logistics (DOL) (9) Chief of Operations and Maintenance (O&M)

Section 14

NOISE ABATEMENT

Section 14

NOISE ABATEMENT

A. Applicability of this Protocol

This protocol applies to all Army installations that have aircraft operations (including airfields), ranges, military operating areas (MOAs), military training routes (MTRs), or other aircraft and small arms training noise generating activities that could affect the environment. This protocol presents review action items that correspond to mechanisms for planning operations with consideration for noise. Noise effects are addressed by Installation Comprehensive Planning (ICP), the Installation Compatible Use Zone Program (ICUZ), and state and local noise zoning and land-use controls.

B. Federal Legislation

The Noise Control Act of 1972 established that Federal Agencies, when engaged in an activity resulting in the emission of noise, should comply with Federal, state, interstate, and local requirements respecting control and abatement of environmental noise to the same extent as private entities. Even though the primary operational interest of this legislation as well as the Aviation Safety and Noise Abatement Act is directed to aircraft and airports, the principles involved are applicable to other activities that produce sufficient noise to result in incompatible land uses in the surrounding community.

The Noise Control Act exempts the following items from product environmental noise requirements:

- military weapons or equipment designed for combat use
- rockets or equipment designed for research, experimental, or developmental work for the National Aeronautics and Space Administration
- other machinery or equipment designed for use in experimental work done by or for the Federal government.

C. State/Local Regulations

State, regional, and local governmental agencies have noise control and land use regulations that have the potential to affect the mission capability of Army

installations, especially when they provide controls in areas producing and /or affected by Army noise. As a general rule, states tend to treat environmental noise as a source-specific pollutant whose emissions will be controlled by the locally affected community.

Individual state and local governments may regulate the following activities:

- Airfields
- Weapon, rocket, missile firing ranges
- Small-arms training
- Vehicles
- Power-generating equipment
- Demolition and explosive-disposal sites
- Industrial activities.

D. DoD Regulations

- DoD Instruction 4165.57, *Air Installation Compatible Use Zones*, sets forth policy on achieving compatible use of public and private lands in the vicinity of military airfields. DoD air installations are required to develop, implement, and maintain an Air Installation Compatible Use Zones (AICUZ) program with desirable restrictions on land use to assure compatibility with the installation's mission.

E. U.S. Army Regulations

- AR 200-1, Chapter 7, *Environmental Noise Abatement Program*, outlines the requirements for compliance with Federal laws and regulations on the control and abatement of environmental noise. These requirements include assessment of the impact of noise produced by proposed Army actions and maintenance of an active Installation Compatible Use Zone (ICUZ) program.

- DA Memorandum from Director of the Army Staff, 14 July 1987, Subject: Installation Compatible Use Zone (ICUZ) Program Implementation.

F. Key Compliance Requirements

- ICUZ Noise Contour Maps - up-to-date noise zone maps for the installation's current and long range peacetime capabilities are completed.

- ICUZ Study - Initial and follow-up ICUZ studies have been conducted.

- ICUZ Coordination - Explained and provided technical assistance to local, regional, and state planning agencies.

- Noise Mitigation - Identified noise sources that create impact and mitigated when possible.

- ICUZ Committee -Established an ICUZ committee.

- Operational Data - Maintaining a log of range and aircraft operational data.

- ICUZ Point of Contact - Designated an installation single point of contact for noise complaints.

G. Responsibility for Compliance

- ICUZ Committee - Each installation shall have an ICUZ committee. Membership should include as a minimum, representatives from the installation commander; environmental management; master planning; Public Affairs Office (PAO); Staff Judge Advocate (SJA); and plans, operations, and training (range control and airfield operations). The ICUZ committee shall be responsible for reviewing complaints; investigating and recommending mitigative actions; coordinating with the public as necessary; assessing installation activities for potential noise impacts; monitoring land development plans, programs, and projects in areas adjacent to the installation; and reviewing development of on-post facilities. (NOTE: The functions of the ICUZ committee may be incorporated into the Environmental Quality Control Committee (EQCC); see Section 16 of this manual for information on the EQCC.)

H. Key Compliance Definitions

These definitions were obtained from DoD, Federal, and U.S. Army regulations cited previously.

- *A-weighted Sound Level* - this is a quantity, in decibels (dB), read from a sound level meter with A-weighting circuitry. A-weighting frequency network of the sound level meter deemphasizes the lower frequency portion of the noise spectrum to approximate the human ear's response to the noise. This A-weighting frequency response is specified by an American National Standards Institute (ANSI) standard. Thus, A-weighting of the frequency content of the noise signal has been found to have an excellent correlation with the human subjective judgement of annoyance of the noise. The sound pressure levels measured using the A-weighting network are expressed in dBA.

- *C-weighted Sound Level* - this is a quantity, in decibels, read from a sound level meter with C-weighting circuitry. To assess the additional annoyance caused by low frequency vibration of structures, the C-weighting network is used to evaluate the impulsive noise from all weapons larger than small arms. This weighting is also specified by ANSI standard. The sound pressure levels measured using the C-weighting network are expressed as dBC.

- *dBA* - sound level in decibels, measured using the A-weighting network of a sound level meter.

- *dBC* - a sound level in decibels, measured using the C-weighting network of a sound level meter.

- *Decibel (dB)* - sound is measured in decibels. The zero on the decibel scale is based on the lowest sound level that a healthy, unimpaired human ear can hear. Decibels are not linear, but representative points on a sharply rising (exponential) curve.

- *Environmental Noise* - noise sources that interfere with desired activities, or cause annoyance. These desired activities include, but are not limited to, sleep, recreation, and speech. Environmental noise also is the outdoor noise environment consisting of the noise, including ambient noise, from all sources that extends beyond the workplace. The noise environment of the workplace is not considered environmental noise.

- *Installation Compatible Use Zone (ICUZ) Program* - the primary strategy for protecting an installation's mission from the problems of noise and land use incompatibility.

- ICUZ Coordination - Explained and provided technical assistance to local, regional, and state planning agencies.

- Noise Mitigation - Identified noise sources that create impact and mitigated when possible.

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- *Installation Compatible Use Zone (ICUZ) Program* - the primary strategy for protecting an installation's mission from the problems of noise and land use incompatibility.

NOISE ABATEMENT

GUIDANCE FOR WORKSHEET USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
All installations	14-1 and 14-2	(1)(11)(21)
ICUZ	14-3 through 14-5	(1)(11)(21)
Land use	14-6	(1)(11)(21)
Helicopter noise ranges	14-7	(1)(11)
On-site monitoring	14-8 and 14-11	(1)(10)(11)(21)

(a) CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
(10) Range Control (DPTMSEC)
(11) Aviation Commander (DPTMSEC)
(21) Public Affairs Office (PAO)

NOISE ABATEMENT

Records to Review:

- Facility Master Plan Document
- Complaint log from local community and followup documentation
- Contour maps (if applicable)
- ICUZ committee charter
- ICUZ reports and studies
- ICUZ committee meeting minutes
- ICUZ committee membership list

Physical Features to Inspect:

- Power generating equipment
- Emergency generators
- Test tracks
- Industrial facilities
- Ranges
- Airfields/Heliports/Helipads
- Areas of noise/land use conflict
- Vehicle motor parks
- Rock quarry operations

People to Interview:

- Directorate of Engineering and Housing (DEH)
- Range Control (DPTMSEC)
- Aviation Commander (DPTMSEC)
- Public Affairs Office (PAO)
- Master Planner
- Judge Advocate General
- Surgeon's Office Representative

COMPLIANCE CATEGORY: NOISE ABATEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
14-1. Determine actions or changes since previous review of Noise Management.	Review copy of previous report and determine if noncompliance issues have been resolved. (1)
...	...
14-2. Copies of all relevant Federal regulations, DoD and U.S. Army directives and guidance documents on noise management should be maintained at the installation.	Determine whether copies of following documents are maintained and kept current at the installation: (1)(11) - AR 95-1, *Army Aviation: Flight Regulations.* - AR 200-1, *Environmental Protection and Enhancement.* - AR 200-2, *Environmental Effects of Army Actions.* - AR 210-70, *Intergovernmental Coordination of DoD Federal Development Program and Activities.* - DoD Instruction 4165.57, *Air Installation Compatible Use Zones.* - DoD Instruction 5100.5, *Protection and Enhancement of Environmental Quality.* - DA memorandum from Director of Army Staff, *Installation Compatible Use Noise Zone Program Implementation*, 20 January, 1983. - DA memorandum from Director of Army Staff, *Installation Compatible Use Noise Zone Program Implementation*, 14 July, 1987. - TM 5-803-2, *Planning in the Noise Environment.*
...	...
14-3. Installations are required to abide by State and local regulations (AR 200-1; Chapt. 1; Section III; para 1-39(a)(3)).	Verify that the installation is abiding by state and local requirements. (1) Verify that the installation is operating according to permits issued by the state or local agencies. (1) NOTE: Issues which are typically regulated by state and local agencies include:. (1) - motor vehicle noise - construction noise - community impact.
...	...

(1) Directorate of Engineering and Housing (DEH) (10) Range Control (DPTMSEC) (11) Aviation Commander (DPTMSEC) (21) Public Affairs Office (PAO)

COMPLIANCE CATEGORY: NOISE ABATEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

14-4. Installations are required to conduct and ICUZ Study to identify and control noise (AR 200-1, para 7-2d and para. 7-5a).
 	
(NOTE: Installations without significant noise sources, such as ranges, airfields, or industrial operations, are exempt from this requirement and must prepare a single page ICUZ statement of negligible impact (AR 200-1, para. 7-5g, h(3)).)
	Verify that an initial Installation Compatible Use Zone Program (ICUZ) study was completed. (1)(11)(21)
	
	Examine the installation's ICUZ study to confirm that it includes the following minimum components: (1)(11)(21)
	
	- noise zone maps (up-to-date) of the installation's existing and future noise environment
	- A-weighted day-night sound levels for transportation related noise
	- C-weighted day-night sound levels for large amplitude impulsive noise
	- at a minimum, the zones I, II, and III are shown
	- analysis of land use compatibility problems and solutions to include:
	  - identification of existing incompatible land uses within zones II and III
	  - identification of possible incompatible land uses within zones II and III
	  - identification of desirable land uses within zones II and III
	- ICUZ public involvement plan
	- review of installation master plans to ensure that existing and future facility siting is consistent with the noise environment
	- identification of noise sources that create impact; investigation of possible mitigations; programming of resources to reduce noise impacts.
	
	Verify that the ICUZ study is being updated at least every 5 years, or whenever significant noise producing operations change. (1)(10)(11)

(1) Directorate of Engineering and Housing (DEH) (10) Range Control (DPTMSEC) (11) Aviation Commander (DPTMSEC) (21) Public Affairs Office (PAO)

COMPLIANCE CATEGORY: NOISE ABATEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
14-5. Each installation is required to establish an ICUZ committee (AR 200-1, para. 7-1b and para. 7-5b).	Verify that an ICUZ committee has been developed that includes representatives from the following: (1)(11) - installation commander - environmental manager - master planning - public affairs - staff judge advocate - range control and airfield operations. Confirm that the ICUZ committee: (1)(11) - meets at least semi-annually - reviews the ICUZ study annually - reviews noise complaints - investigates and recommends mitigative action - assesses installation for possible noise impacts - monitors land development plans and projects in area adjacent to installation - reviews development of on-post facilities - coordinates with the public (as appropriate) - coordinates with public officials regarding off-post development bordering the installation. (NOTE: Installations may be exempt from this requirement if functions of ICUZ committee are incorporated into Environmental Quality Control Committee as outlined in AR 200-1, para. 12-13.)
...	...
14-6. Installations should adequately address existing and potential land use conflicts (GMP).	Tour areas adjacent to installation boundaries and verify land use compatibility. (1)(10)(11) Look for signs that existing compatible land uses could change (e.g., installation of infrastructure). (1)(11) (NOTE: A recommendation for further study will usually be appropriate since noise measurements usually will not be available to the evaluator.)
...	...

(1) Directorate of Engineering and Housing (DEH) (10) Range Control (DPTMSEC) (11) Aviation Commander (DPTMSEC) (21) Public Affairs Office (PAO)

COMPLIANCE CATEGORY: NOISE ABATEMENT USA ECAS	
REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
14-7. Assessment of helicopter noise must include a distance factor and specific factor to account for the special character of helicopter noise (AR 200-1, para. 7-5c(2)).	Verify that the following dB factors are included in the assessment of helicopter noise on the installation: (1)(11) Slant distance(m) Factor(dB) 0-200 7 200-300 5 300-400 3 400-500 1 500 + 0 Verify that if helicopters or other impulse noise sources that have frequency energy sufficient to rattle windows or other building elements are present at the installation, that two sets of noise zone maps are developed, one with and one without the penalty factors listed above that will illustrate areas where rattle-proofing techniques should be used as a mitigative technique in existing facilities and new construction. (1)(11)
...	...
14-8. Installations must attempt to minimize environmental noise (AR 200-1, para. 7-2e).	Determine whether or not noise levels are being reduced using: (1)(10)(11) - noise reduction engineering - administrative and operational controls - appropriate siting and design of facilities and ranges - development and procurement of weapons systems and other military combat equipment that produce less noise - procurements of commercially manufactured products that produce less noise - appropriate land use controls including: - - assisting in the development of protective off-post land use planning. - - assisting in the development of protective off-post structural requirements to mitigate noise impacts. - - controlling land use through easements. - - developing protective on-post land-use planning. - - developing protective on-post structural requirements to mitigate noise impacts.
...	...
14-9. On-site monitoring is required if zone III extends off the installation or a significant noise controversy exists (AR 200-1, para 7-5(d)).	Verify that monitoring has been or is being performed. (1)(11)(21)
...	...

(1) Directorate of Engineering and Housing (DEH) (10) Range Control (DPTMSEC) (11) Aviation Commander (DPTMSEC) (21) Public Affairs Office (PAO)

COMPLIANCE CATEGORY: NOISE ABATEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
14-10. Installations are required to maintain operational data on noise producing activities (AR 200-1, para. 7-5f).	Verify that noise operational data required to develop noise contour maps are being maintained including: (1)(10)(11) - For impulsive noise (25 mm or greater) - - location of firing points - - location of target areas - - location of demolition areas - - number of rounds fired at each firing point by type and time of day - - propellant charge to each target - For aircraft noise - - flight track location - - altitude of aircraft along flight track - - number of operations along each flight track by type of aircraft and time of day - For small arms noise - - location of range - - location of firing points - - direction of firing - - type of small arm/weapon fired Verify that operational data covers one year.
...	...
14-11. Installations must institute a noise complaint procedure (AR 200-1, para. 7-3).	Verify that a noise complaint procedure has been instituted that ensures the following: (1)(10)(11)(21) - a designated office exists to receive noise complaints 24 hours/day - a log is maintained of all noise complaints - complaints are investigated without delay - copies of complaints are routed to the office responsible for the type of activity that resulted in the noise complaint - verify that noise-generating activity responds to all complaints and a followup is completed by identifying the cause of the noise and any action taken to correct the deficiency - Public Affairs Office is provided with a copy of the response. Confirm that ICUZ committee is provided with a copy of the complaint and followup. (1)(11)

(1) Directorate of Engineering and Housing (DEH) (10) Range Control (DPTMSEC) (11) Aviation Commander (DPTMSEC) (21) Public Affairs Office (PAO)

Appendix 14-1

Noise Zones in Noise Zone Maps

ICUZ Zone	Percent Population Highly Annoyed	A-weighted Day-Night Sound Level ADNL (dB)	C-weighted Day-Night Sound Level CDNL (dB)
I	<15	<65	<62
II	15 - 39	65 - 75	62 - 70
III	>39	>75	>70

Appendix 14-2

Calculation of dB Factor to be Added to Helicopter Sound Exposure Levels

Slant Distance (m)	Factor (dB)
0-200	7
200-300	5
300-400	3
400-500	1
500 and longer	0

INSTALLATION:	COMPLIANCE CATEGORY: NOISE ABATEMENT USA ECAS	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(1) Directorate of Engineering and Housing (DEH) (10) Range Control (DPTMSEC) (11) Aviation Commander (DPTMSEC) (21) Public Affairs Office (PAO)

Section 15

RADON PROGRAM

SECTION 15

RADON PROGRAM

A. Applicability of this Protocol

This protocol applies to all Army installations. Currently this section contains protocols for radon gas. Radon Program protocols are written in response to the Federal regulations that are applicable to the conduct of activities involving these programs.

Specific state regulations are not included in this protocol. However, an outline of the typical contents of such regulations is provided.

The Radon Program protocol is used to determine the compliance status of the management activities associated with the Army Radon Reduction Program (ARRP).

B. Federal Legislation

- No legal standards currently regulate radon in residential housing; however, the United States Environmental Protection Agency (USEPA) recommends mitigation actions be taken when the average annual radon concentration in the building exceeds 4 picoCuries per liter of air (4pCi/l). There is no absolute *danger level.*

- Executive Order (EO) 12088, *Federal Compliance with Pollution Standards*, of 13 October 1978 requires Federally owned and operated facilities to comply with all Federal, state, and local environmental regulations. It makes the head of each executive agency responsible for ensuring that the agencies, facilities, programs, and activities it funds meet Federal, state, and local environmental requirements or to correct situations that are not in compliance with such regulations. In addition, the Executive Order requires each agency to ensure that sufficient funds for environmental compliance are included in the agency budget.

C. State/Local Requirements

State and local governments may enact radon control standards.

D. DoD Regulations

- None.

E. U.S. Army Regulations

- Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*, Chapter 11, *Army Radon Reduction Program* (ARRP), describes policy and procedures for assessing indoor levels of radon and mitigating radon in structures where the levels are elevated. The program is decentralized; that is, each installation is responsible for funding, executing, documenting, and managing the radon monitoring and mitigation efforts based on ARRP.

F. Key Compliance Requirements

ARRP applies to all major Army installations. The program is designed to assess radon levels on a priority basis using the following priority list in family housing, administrative buildings (offices), dormitories, child care facilities, temporary lodging facilities, etc. Detailed assessments will be accomplished at the installations where initial screening results identify a radon problem. Following mitigation, post mitigation assessments are conducted to ensure the effectiveness of the mitigation actions. Mitigation actions are prioritized using the table below:

Priority 1: Day care centers, hospitals, schools, and living areas (that is, quarters, unaccompanied personnel housing, and billets).
Priority 2: Areas having 24-hour operations, such as operations centers and training and research, development, test, and evaluating (RDTE) facilities.
Priority 3: All other routinely occupied structures.

MITIGATION TIME FRAME
(AR 200-1, Chapter 11-3, Table 11-1)

Radon Level (pCi/L)	Mitigate:
Greater than 200[1]	1 month or move the occupants
200-20[1]	6 months
20-8[2]	1-4 years[3]
8-4[2]	5 years
4 or less[1]	No action required

[1]Determine by 90-day screen or a 1-year measurement in the case of Priority 2 and 3 structures.
[2]Annual average determined by 1-year measurement. Screening measurements in this range will not be used as the basis for initiating mitigation actions.
[3]Depending on the level of the measurement.

G. Responsibility for Compliance

- Army Corps of Engineers is responsible for review of radon assessments and implementation of radon mitigation activities in accordance with Army ARRP.

H. Key Compliance Definitions

These definitions were obtained from Army, DoD, and compliance regulations sited previously.

- *Army Radon Reduction Program (AARP)* - a programs whose objectives include the identification of structures owned and leased by the Army (CONUS AND OCONUS) that have indoor radon levels greater then 4 picoCuries per liter (pCi/l) of air and the modifications of those buildings found with excess levels of radon.

- *Administrative Record* - consists of all documents that have a legal bearing on the remedial action. It is required for every response action, is used for judicial review, and forms the basis for the selection of response actions at Third-Party sites.

- *Applicable or Relevant and Appropriate Requirements (ARARs)* - Federal and state laws that must be considered, when a remedial action is being chosen.

- *Cost* - the amount of funds required for putting in place the necessary environmental protection measures, irrespective of the appropriation chargeable.

- *Facility* - any institutional, commercial, or industrial structure, installation, or building (excluding apartment buildings having no more than four dwelling units).

- *Good Management Practice (GMP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *In or Near Commercial Buildings* - within the interior of, on the roof of, attached to the exterior wall of, in the parking area serving, or within 30 meters of a nonindustrial, nonsubstation building.

- *Industrial Building* - a building directly used in manufacturing or technically productive enterprises.

- *Lowest Living Area (LLA)* - is defined as follows:
  1. For structures without subsurface areas, the LLA is the ground floor.

2. For structures with subsurface areas, the LLA is defined as the lowest area in that structure that has a finished, hard surface floor (for example, concrete or tiled) that is or could be used. A dirt breezeway is not an LLA, but an unfinished basement with a concrete floor is, regardless of what the current occupants are using the area for.

- *Outside Air* - the air outside buildings and structures.

- *PicoCurie (pCi)* - quantity of radioactive material producing 2.22 nuclear transformations/minute.

- *Radon-222* - a naturally occurring, inert, radioactive gas that is formed from the radioactive decay of uranium.

RADON PROGRAM

GUIDANCE FOR WORKSHEET USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
Radon:		
All installations	15-1 through 15-13	(1)(2)(4)

(a)CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
(2) Environmental Coordinator (EC)
(4) Safety and Health Officer

RADON PROGRAM

Records to Review:

- Annual reports
- Inventory sheets for detector placement

People to Interview:

- Directorate of Engineering and Housing (DEH)
- Environmental Coordinator (EC)
- Safety and Health Officer

COMPLIANCE CATEGORY: RADON PROGRAM USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
15-1. Determine actions or changes since last review of radon gas management.	Obtain copy of previous review report and determine if noncompliance issues have been resolved. (1)(2)(4) Determine facility changes relative to radon gas monitoring that have occurred since previous review and would affect the scope of the current review. (1)(2)(4)
...	...
15-2. The installation should maintain and keep current regulations regarding radon gas management.	Determine if copies of the following are available at the installation: (1)(2)(4) - AR 200-1, Chapter 11, *Army Radon Reduction Program.*
...	...
15-3. All Army installations are required to perform radon measurement according to a prescribed prioritized schedule in order to identify Army structures with radon levels above 4 pCi/l with emphasis on identifying Priority I structures with levels greater then 20 pCi/l (AR 200-1, para 11-2a(3), 11-4).	Verify that scheduled radon measurement has been performed as follows: (1)(2) - Priority 1: day care centers, hospitals, schools, and living areas - Priority 2: areas having 24-hour operations, such as operations centers, and training and research, development, test, and evaluation (RDTE) facilities - Priority 3: all other routinely occupied structures. (NOTE: Priority 2 and 3 structures will be measured for radon depending on the results of the initial phase measurements for Priority 1 structures.) (NOTE: Leased buildings will be measured for radon, although remedial action is the responsibility of the owner.) Confirm that all initial radon measurement has been completed by the 4th quarter of fiscal year 1991 (FY91). (1)(2) Verify that records are prepared and maintained of all radon measurement results. (1)(2)
...	...
15-4. Initial phase measurement of Priority 1 structures is required to be done according to specific standards (AR 200-1, para 11-5a).	Determine if all Priority 1 buildings at the installation have had an initial screening that met the following requirements: (1)(2) - radon detectors were in place for 90 days - detectors were placed in the lowest living area - radon detection was performed when buildings were closed (usually during winter or summer when windows and doors are shut due to heating or cooling).
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (4) Safety and Health Officer

COMPLIANCE CATEGORY: RADON PROGRAM USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
15-5. Long term measurement (LTM) for radon is required for Priority 2 and 3 structures if the results initial phase measurement of Priority 1 structures indicated radon concentrations greater then 4 pCi/l (AR 200-1, para 11-5b(2)).	Confirm that long term measurement is performed, based on the following: (1)(2)(4) - Determine if any Priority 1 structures on the installation had a radon level of greater than 4 pCi/l. (1)(2)(4) Verify that if any Priority 1 structures on the installation had radon measurements of greater than 4 pCi /l, then long term measurement for radon is performed on all Priority 2 and 3 structures
...	...
15-6. When Priority 1 structures have radon levels of less than 4 pCi/l, but the conditions suggest that some Priority 2 and 3 structures may have higher levels, long term measurements for radon levels will be done (AR 200-1, para 11-5b(2)).	Verify that if all Priority 1 structures have <= 4 pCi /l, but the conditions suggest that some Priority 2 and 3 structures may have levels higher than 4 pCi /l radon, long term measurements for radon is done in Priority 2 and 3 structures. (1)(2)(4)
...	...
15-7. Long term measurements for radon are required to be done according to specific methodology (AR 200-1, para 11-5b(1)).	Verify that long term measurement (as required) uses alpha track-type radon detectors for a one year period under normal living conditions to establish an annual radon concentration. (1)(2)(4)
...	...
15-8. Long-term measurement of Priority 1 structures where the initial radon level measurement was above 4 and less than 20 pCi/l is required (AR 200-1, para 11-5b(3), 11-6a).	Determine whether priority 1 buildings with an initial level of indoor radon of >=4 pCi/l but <=20 pCi/l have undergone long term measurement as follows prior to mitigation: (1)(2) - single family structures: one detector in the lowest living area; if LLA is a basement, a second detector on the first floor - multiple family structures: one detector in LLA; if LLA is common open area, one detector for every 2000 sq feet of area in LLA and one per apartment in floor above basement - office buildings and warehouses: one detector for every 2000 sq feet in the LLA.
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (4) Safety and Health Officer

COMPLIANCE CATEGORY: RADON PROGRAM USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
15-9. Installations are required to perform mitigation of structures required by measured results (AR 200-1, Table 11-1).	Confirm that the schedule for mitigation is complied with as follows (See APPENDIX 15-1): (1)(2)(4) - buildings with indoor radon level of >=4 pCi/l but <=20 pCi/l have been mitigated according to the following schedule, based on the 12-month long term measurement results for the buildings: - 4 pCi/l or less - no action taken - 4 - 8 pCi/l - mitigation completed within 5 years - 8 - 20 pCi/l - mitigation completed within 1-4 years, depending on the level of the measurement - buildings with initial or long term radon measurement levels that are >= 20 pCi/l have been mitigated according to the following schedule: - 20 - 200 pCi/l - remedial action completed within 6 months - greater than 200 pCi/l - remedial action completed within 30 days. If remedial action cannot reduce radon levels within 30 days, occupants must be relocated.
...	...
15-10. Installations are required to perform post-mitigation measurement to confirm and document effectiveness of mitigation (AR 200-1, para 11-5c).	Confirm that the following procedures are followed for structures with >= 20 pCi /l radon: (1)(2)(4) - use charcoal canister-type detectors to provide rapid results (within days) - make measurement under closed-house/worst-case conditions to initially verify mitigation effectiveness - once levels are below established standards using rapid monitoring techniques, verify mitigation efficacy using long term (1 year) measurement with alpha track-type detectors. (NOTE: for structures >200 pCi /l before mitigation, occupants may be returned to quarters based on acceptable levels from rapid monitoring.) Confirm that the following post-mitigation procedures are followed for structures with <20 >= 8 pCi /l: (1)(2) - detectors that provide results within 90 days or sooner for worst-case, closed-house conditions are used - once radon levels are below established standards using the above method, verification of mitigation will be assessed using long term (1 year) measurements. (NOTE: Structures with <8 >4 pCi /l may use detectors that provide results in 90 - 180 days under worst-case, closed-house conditions for verification.)
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (4) Safety and Health Officer

COMPLIANCE CATEGORY: RADON PROGRAM USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
15-11. Installations are required to take steps to keep radon levels at or below 4 pCi/l (AR 200-1, para 11-1b(2)).	Determine whether installation has modified owned structures so that levels are kept at or below 4 pCi/l. (1)(2)(4) Inspect new construction to determine that: - preventive measures have been incorporated to reduce radon migration - radon level is being measured.
...	...

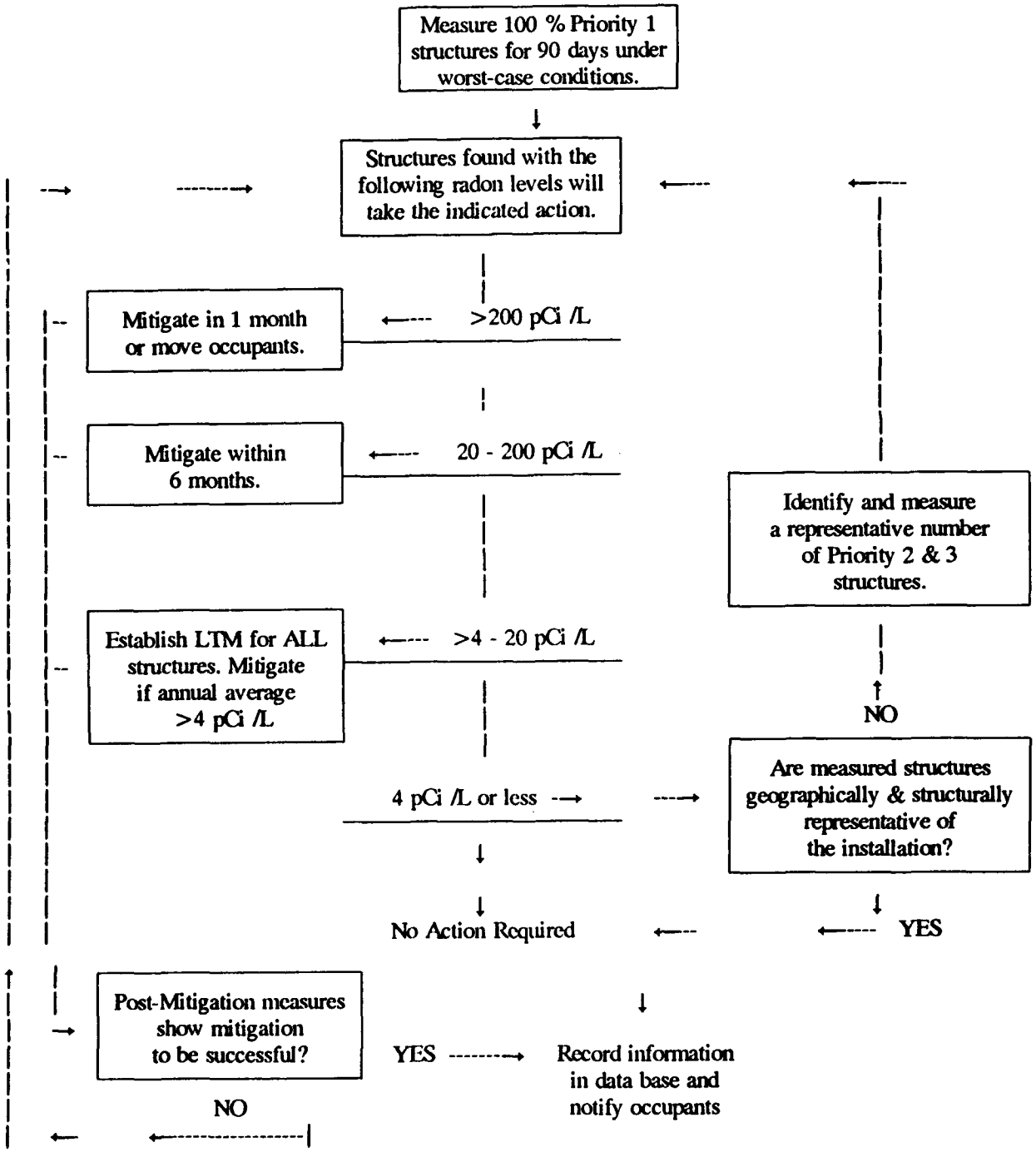
15-12. Annual reports must be prepared and submitted (AR 200-1, para 11-2b(1)).	Obtain a copy of the annual report and review it for the following: (1)(2)
	
	- number of structures at the installation
	- number of structures measured for radon
	- number of buildings with radon measurements
	  - greater than 200 pCi/l
	  - 20 - 200 pCi/l
	  - 8 - 20 pCi/l
	  - 4 - 8 pCi/l
	  - equal to or less than 4 pCi/l
	- number of buildings mitigated
	- highest level of radon recorded at installation.
	
	Confirm that at the end of each fiscal year the annual report is submitted to MACOM. (1)(2)

...	...
15-13. Installations are required to maintain or have access to a database that will permanently capture all the information derived from the assessment and mitigation of radon (AR 200-1, para 11-2b(1)).	Verify that installation maintains or has access to a database. (1)(2)(4) Confirm that all radon information is contained in a database. (1)(2)(4)
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (4) Safety and Health Officer

Appendix 15-1

SCHEMATIC FLOW CHART OF THE ACTIONS REQUIRED BY THE ARMY RADON REDUCTION PROGRAM



INSTALLATION:	COMPLIANCE CATEGORY: RADON PROGRAM USA ECAS	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (4) Safety and Health Officer

Section 16

ENVIRONMENTAL PROGRAM MANAGEMENT

SECTION 16

ENVIRONMENTAL PROGRAM MANAGEMENT

A. Applicability of this Protocol

This protocol applies to all Army facilities. Currently, this section contains protocols for environmental program management activities, including the A-106 Pollution Abatement Plan. (This document is more widely known as the RCS 1383 Report.) The Environmental Program Management protocol is written in response to the Federal, DoD, and Army regulations applicable to the conduct of activities involving these programs. This section is designed to evaluate and examine the interaction within the Environmental Office, and the Directorate of Engineering and Housing (DEH), interface with other Directorates/Installation Activities, and relationships with the applicable MACOM.

Specific state regulations are not included in this protocol.

B. Federal Legislation

This section contains policy for management of the environmental programs described in previous sections. The controlling legislation for the various management activities is referenced in the appropriate sections. Only the A-106 Pollution Abatement Plan is included here.

- A-106 Pollution Abatement Plan / RCS 1383 Report

  Office of Management and Budget (OMB) Circular A-106 implements the requirement in Executive Order (EO) 12088, *Federal Compliance with Pollution Standards*, for assuring that Federal agencies, facilities, programs, and activities meet Federal, state, and local environmental requirements or to correct situations that are not in compliance with such regulations. Army regulations for implementing the A-106 / RCS 1383 report are set forth in 32 CFR 650, Subpart J.

- Executive Order (EO) 12088, *Federal Compliance with Pollution Standards*, of 13 October 1978 requires Federally owned and operated facilities to comply with all Federal, state, and local environmental regulations. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities it funds meet Federal, state, and local environmental requirements or to correct situations that are not in compliance with such

regulations. In addition, the Executive Order requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

C. State / Local Requirements

- A-106 Pollution Abatement Plan / RCS 1383 Report
- There are no state- or local-specific requirements.

D. DoD Regulations

- None.

E. U.S. Army Regulations

- Army Regulation (AR) 200-1, *Environmental Protection and Enhancement* , and AR 200-2, *Environmental Effects of Army Actions*, together establish Army environmental policy. AR 200-1, includes requirements for environmental compliance, auditing, reports, the establishment of Environmental Quality Control Councils (EQCCs) and Technical Review Committees (TRCs), making environmental agreements, and regulations on property transactions and construction sites.

- AR 200-2, *Environmental Effects of Army Actions*, incorporates the requirements of the National Environmental Policy Act (NEPA) (40 CFR 1500-1508), and Department of Defense Directive (DoD) 6050.1, *Environmental Effects in the United States of DoD Actions*. Provisions for NEPA compliance are included in Section 12 of this manual.

- AR 200-1, *Environmental Protection and Enhancement*, briefly outlines the A-106 procedure. The U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), in coordination with the Army Environmental Office, sends detailed technical guidance to the Major Army Commands (MACOMs) for the collection and processing of information required for the report. This includes a listing of pollutant categories, for which A-106 / RCS 1383 reports should be filed. Installation commanders are responsible for ensuring that their A-106 / RCS 1383 reports are prepared jointly by the installation's engineering and environmental staffs and resource managers, in consultation with United States Environmental Protection Agency (USEPA).

F. Key Compliance Requirements

- A-106 Pollution Abatement Program / RCS 1383 Report

The A-106 / RCS 1383 report is required for all Army installations.

G. Responsibility for Compliance

- Installation (ICs), activity, and unit commanders will:

Be actively involved and maintain awareness of environmental programs, activities, critical issues, Notices of Violation (NOVs), 1381 submissions, Command Operating Budget (COB) environmental entries and of results and updates of the Environmental Compliance Assessment System (ECAS) reports (assessment report and corrective action management plan).

Ensure other Directorates, tenant activities and unit commanders cooperate with the DEH on environmental responsibilities.

Conduct initial and follow-up ECAS assessments (ECAS program).

- Directorate of Engineering and Housing (DEH) will:

Prepare and provide input into the Annual Work Plan (AWP), COB, and other budgetary documents.

Prepare the A-106/RCS 1383 report.

Prepare the 1485 Defense Environmental Management Information System (DEMIS) report.

Provide Notices of Violations from regulatory agencies to respective MACOM.

- Public Affairs Office (PAO) will:

Establish the necessary support to DEH and interface with public, to include maintaining the Public Affairs Plan.

- Safety Office will:

Provide required support for management of hazardous materials (i.e, worker protection guidance, inspection assistance).

- Preventive Medicine Office will:

  Provide required respiratory and protective support, conducting and maintaining baseline medical surveys.

  Provide Quality Assurance/Quality Control (QA/QC) on management of pathological wastes.

- Director of Logistics (DOL) will:

  Be responsible for compliance and QA/QC on the Used Solvent Elimination (USE) Program, POL management (new and used materials), hazardous materials tracking to include Material Safety Data Sheets (MSDS), and environmental controls/oversight of maintenance, transportation, and ammunition storage activities.

- Civilian Personnel Office (CPO) will:

  Provide personnel active support regarding classification, recruitment, and placement.

- Director of Resource Management (DRM) will:

  Provide support and guidance to manpower survey/Schedule X activity in establishing and maintaining required staffing.

H. Key Compliance Definitions

These definitions were obtained from Army, DoD, and compliance regulations cited previously.

- *Active Waste Disposal Site* - any disposal site other than an inactive site.

- *Administrative Record* - consists of all documents that have a legal bearing on the remedial action. It is required for every response action, is used for judicial review, and forms the basis for the selection of response actions at Third-Party sites.

- *Applicable or Relevant and Appropriate Requirements (ARARs)* - Federal and state laws which must be considered when a remedial action is being chosen.

- *Class I* - includes projects required to meet the provisions of assigned compliance agreement or consent order; projects required to correct deficiencies found on an EPA or State inspection; other projects needed to come into compliance when statutory/regulatory deadlines have passed.

- *Class II* - includes those projects needed to meet future compliance deadlines for which planning must have already started.

- *Class III* - includes all other projects which while important are not related to imminent compliance requirements.

- *Compliance Status* - a four letter code identifying the current compliance status of the pollution source for which a project is being funded.
  - CMPA: Required to meet conditions of a signed Federal Facility Compliance Agreement, Consent Order or equivalent state or local enforcement action. Project Assessment value: HIGH.
  - INOV: Required to meet deficiencies found on inspection by regulatory authority or cited in a Notice of Violation (NOV) or equivalent. Project Assessment value: HIGH.
  - ESDP: Does not meet established standard and compliance deadline has passed. Project Assessment value: HIGH.
  - ESDF: Does not meet established standard and compliance deadline is in the future.
  - PSDF: Does not meet pending standard and compliance deadline is in the future.
  - ESRO: Meets established standard but needs replacement due to need for obsolescence.
  - ESRE: Meets established standard but needs replacement due to need for expansion.
  - ESDL: Meets established standard but needs to demonstrate leadership.
  - OTHR: Other. Projects which don't fit any of the above categories.

  The Environment Assessment shall include brief discussions of the need for the proposal, or alternatives, and of the environmental impacts of the proposed actions and alternatives, and a listing of the agencies and persons consulted.

- *Cost* - the amount of funds required to put in place the necessary environmental protection measures, irrespective of the appropriation chargeable.

- *Decision Document* - a means of recording significant decisions in the Installation Restoration Program (IRP). Steps or stages that merit a Decision Document include: selecting a remedial action; initiating long-term monitoring; initiating a removal action; closing out a site; and reactivating a site. Decision Documents may be used for both National Priority List (NPL) and non-NPL sites.

- *Defense Environmental Restoration Account (DERA)* - the DoD funding program for the IRP.

- *Demolition* - the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations.

- *Emergency Renovation Operation* - a renovation operation that was not planned but results from a sudden, unexpected event. This term includes operations necessitated by nonroutine failures of equipment.

- *Endangered Assessment* - a study conducted as a supplement to a remedial investigation to determine the nature and extent of contamination at a site and the risks posed to public health and/or the environment. An endangered assessment is conducted when legal action is pending to require potentially responsible parties to perform or pay for the site cleanup.

- *Environmental Assessment (EA)* - refers to a concise public document prepared by the installation to evaluate the proposed action and its potential effects on the environment. In general, it serves to:

  -briefly provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement, or a finding of no significant impact
  -aid an agency's compliance with the Act when no environmental impact statement is necessary
  -facilitate preparation of a statement when one is necessary.

  The Environment Assessment shall include brief discussions of the need for the proposal, or alternatives, and of the environmental impacts of the proposed actions and alternatives, and a listing of the agencies and persons consulted.

- *Environmental Impact Statement (EIS)* - a detailed, written statement required by NEPA for major Federal actions with significant environmental effects.

- *Feasibility Study* - within the IRP (or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)), the means for development, evaluation, selection, and description of remedial action alternatives.

- *Finding of No Significant Impact (FNSI)* - a document that briefly presents the reasons why an action, not otherwise excluded, does not need an EIS.

- *Good Management Practice (GMP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *Life Cycle Environmental Document (LCED)* - a programmatic assessment addressing the known and reasonably foreseeable environmental impacts of a proposed item/system during all phases of development, production, use, and disposal.

- *National Priorities List (NPL)* - the list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial response.

- *Notice of Intent (NOI)* - a notice that an EIS will be prepared and considered. It should contain:
  (a) a description of the proposed action and possible alternatives
  (b) the proposed scoping process and schedule
  (c) the name and address of the person who can give more information.

- *Practicable* - capable of being used in accordance with applicable specifications, available at a reasonable price and within a reasonable time-frame, and with the maintenance of a satisfactory level of competition.

- *Preliminary Assessment* - the process of collecting and reviewing available information about a known or suspected hazardous waste site or release. The Army, USEPA, or states use this information to determine if the site requires further study.

- *Procuring Agency* - all Federal agencies, or any state agency, or agency of a political subdivision of a state, that is using appropriated Federal funds for such procurement, or any person contracting with any such agency with respect to work performed under such a contract.

- *Records of Decision (ROD)* - a public document that explains which cleanup alternative(s) will be used at National Priorities List sites. The Record of Deci sion is based on information and technical analysis generated during the remedial investigation / feasibility study and consideration of public comments and community concerns.

- *Remedial Action (RA)* - the actual construction or implementation phase that follows the remedial design of the selected cleanup alternative at a site.

- *Remedial Action Plan (RAP)* - the process of selecting and describing remedial actions; also the report documenting that process.

- *Remedial Design (RD)* - an engineering phase that follows the Record of Decision when technical drawings and specifications are developed for the subsequent remedial action at a site.

- *Remedial Investigation (RI)* - the IRP- or CERCLA-related process to determine the nature and extent of the problem posed by a release or threatened release.

- *Remedial Project Manager (RPM)* - the Army official responsible for overseeing remedial responses at IRP sites in accordance with the National Contingency Plan, Section E, and Army policies.

- *Remedial Response* - a long-term action that stops or substantially reduces a release or threatened release of a hazardous substance that is serious, but does not pose an immediate threat to public health and/or the environment.

- *Removal Response* - an immediate action taken over the short-term to address a release or threatened release of a hazardous substance poses a significant threat to public health or the environment.

- *Renovation* - altering in any way one or more facility components. Operations in which load-supporting structural members are wrecked or taken out are excluded.

- *Risk Assessment* - an evaluation performed as part of the remedial investigation to assess conditions at a site and determine the risk posed to public health and/or the environment.

- *Site Close-out* - may occur during several different stages of the cleanup process, depending on the particular site and its circumstances. Regardless of the stage during which close-out occurs, the process could be accompanied by appropriate documentation.

- *Site Inspection* - a technical phase that follows a preliminary assessment designed to collect more extensive information on a hazardous waste site. The information is used to score the site with the Hazard Ranking System to determine whether response action is needed.

- *Structural Member* - any load-supporting member of a facility, such as beams and load-supporting walls; or any nonload-supporting member, such as ceilings and nonload-supporting walls.

- *Third Party Site* - a non-Army site (landfill, recycling facility) to which the Army is alleged to have contributed hazardous wastes directly or through a contractor.

ENVIRONMENTAL PROGRAM MANAGEMENT

GUIDANCE FOR WORKSHEET USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
Documentation	16-1 and 16-2	(1)(2)(32)
All installations	16-3 through 16-10 16-20	(1)(2)(21)(22)(27)(31)(32)
Installations that procure goods	16-11	(1)(2)
Installations that enter environmental agreements	16-12	(1)(2)(22)
Installations that file A-106 / RCS 1383 reports	16-13 through 16-16	(1)(2)(21)
Installations that engage in construction	16-17	(1)
Installations that engage in real property transactions	16-18 and 16-19	(1)(2)(21)
Installations that maintain good rapport with supporting MACOM	16-20	(1)(2)

(a)CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
(2) Environmental Coordinator (EC)
(21) Public Affairs Office (PAO)
(22) Staff Judge Advocate (SJA)
(27) Inspector General (IG)
(31) Directorate of Personnel and Community Activities (DPCA)
(32) Directorate of Resource Management (DRM)

ENVIRONMENTAL PROGRAM MANAGEMENT

Records to Review:

- Record of previous environmental compliance assessments
- Environmental agreements
- A-106 pollution abatement plan / RCS 1383 reports
- Preliminary Assessment Screening (PAS)
- NOVs submitted
- 1485/DEMIS Report
- Annual Work Plan (Environmental Impact)
- Command Operating Budget (COB)
- Unfinanced Requirements Report (UFR)
- 1485/DEMIS Report/ACTS
- Spill logs

People to Interview:

- Directorate of Engineering and Housing (DEH)
- Environmental Coordinator (EC)
- Public Affairs Office (PAO)
- Staff Judge Advocate (SJA)
- Inspector General (IG)
- Directorate of Personnel and Community Activities (DPCA))
- Director of Resource Management (DRM)

COMPLIANCE CATEGORY: ENVIRONMENTAL PROGRAM MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
DOCUMENTATION	
16-1. Determine actions or changes since previous audit/review.	Copy of previous audit/review to determine whether noncompliance issues have been resolved. (1)(2)(22)
...	...
16-2. Copies of all relevant Federal, DoD, Army, and state/local regulations should be maintained at the installation.	Verify that copies of the following regulations are maintained on the installation: (1)(2) - 32 CFR 650, *Environmental Quality.* - 32 CFR 651, *Environmental Effects of Army Actions.* - 40 CFR 1500-1508, *Regulations for the Implementation of the National Environmental Policy Act.* - DoD Directive 5100.50, *Protection and Enhancement of Environmental Quality.* - DoD Directive 6050.1, *Environmental Effects in the United States of DoD Actions.* - AR 200-1, *Environmental Protection and Enhancement.* - AR 200-2, *Environmental Effects of Army Actions.* - AR 415-15, *Military Construction, Army (MCA) Program Development.* - AR 420-40, *Historic Preservation.* - AR 420-47, *Solid Waste Management.* - AR 420-74, *Natural Resources: Land, Forest and Wildlife Management.* - EO 12088, *Federal Compliance with Pollution Standards.*
...	...
ENVIRONMENTAL MANAGEMENT	
16-3. Installations are required to abide by state and local regulations (AR 200-1 para 1-39(a)(3)).	Verify that the installation is abiding by state and local requirements as appropriate. Issues which are typically regulated by state and local agencies include: (1)(2)(22)(32) - procurement of goods (recycled material content) - notification of Notices of Violation (NOVs) - environmental agreements.
...	...
16-4. Each installation is required to request sufficient funding to perform the required environmental compliance activities (EO 12088, AR 200-1).	Verify that adequate Schedule Xs are prepared and submitted to DRM/DPTMSEC (Force Development) to obtain necessary staffing to support environmental program requirements. (1)(2)(31) Verify that adequate job descriptions are prepared and submitted to Civilian Personnel Office for classification and recruitment to obtain required personnel staffing and supporting grades. (1)(2)(31)
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (21) Public Affairs Office (PAO) (22) Staff Judge Advocate (SJA) (27) Inspector General (IG) (31) Directorate of Personnel and Community Activities (DPCA) (32) Directorate of Resource Management (DRM)

COMPLIANCE CATEGORY: ENVIRONMENTAL PROGRAM MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
16-5. Each installation will have an Environmental Quality Control Committee (EQCC)(AR 200-1).	Verify that the installation has an EQCC, and that it is comprised of the following persons: (1)(2)(21) - installation or community commander, or a designated representative, who will serve as chairperson - Director of Engineering and Housing (DEH), who will act as the executive secretary - the environmental officer - the director of each major staff section of the installation or community; - representatives from the following offices or functions: - preventive medicine -safety - surety -internal control - resource management -supply - DRMO -DOL - PAO -DPCA - AAFES -Inspector General - DPTMSEC -Tenant unit commanders (Aviation, Range Control) - Agency -Activity commanders sponsor commanders - Satellite -Subcommunity commanders - MUSARC representatives - and any others deemed appropriate by the installation commander (i.e., ARNG, USAR -- MATES, UTES, CSMS, SMA, etc.). Verify that the EQCC meets monthly, or as often as considered necessary by the chairperson. (1)(2)
...	...
16-6. Installation personnel involved in environmental affairs should receive the necessary training (GMP).	Check with Environmental Officer to determine what training is being conducted. Types of personnel who should receive training, and kinds of training include: (2)(31) - environmental staff members - command staff - specialist certification training - respirator training - troops (garrison units, AT - USAR / ARNG). Verify that troop units incorporate environmental training in the routine training plans (active garrison units and those at USARCs). (2)
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (21) Public Affairs Office (PAO) (22) Staff Judge Advocate (SJA) (27) Inspector General (IG) (31) Directorate of Personnel and Community Activities (DPCA) (32) Directorate of Resource Management (DRM)

COMPLIANCE CATEGORY: ENVIRONMENTAL PROGRAM MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
16-7. Environmental compliance information must be incorporated into the Defense Environmental Management Information System (DEMIS).	Verify that DEMIS is regularly updated. (2) Verify that submission suspenses are being met. (2)
...	...
16-8. Environmental compliance assessments will be undertaken in accordance with Army regulation (AR 200-1).	Verify that the installation authorizes an external assessment not less frequently than once every 4 years. (1)(2) Verify that the installation develops a corrective action plan to correct the deficiencies identified in the external audit, and that the plan is updated annually (See Appendix 16-1). (1)(2) Verify that the installation performs an internal assessment at the midpoint between external audits. Internal audits will be conducted per this manual. (NOTE: Internal audits may be in-house or contracted to outside personnel.) (1)(2)(22)
...	...
16-9. Noncompliance and violations must be reported to proper offices (AR 200-1).	Verify that the commander of any installation, activity, or unit who receives notice of noncompliance or violation. or is or will be unable to comply with applicable regulations, notifies their MACOM immediately, by telephone. (1)(21)(22)
...	...
16-10. The Inspector General (IG), and the Internal Control Section of DRM should be proactively involved in environmental affairs (GMP).	Determine that Environmental Coordinator / Officer is familiar with IG and Internal Control Section environmental activities. (2)(27)(32)
...	...

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COMPLIANCE CATEGORY: ENVIRONMENTAL PROGRAM MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
PROCUREMENT OF GOODS	
16-11. Certain procured products must be made from recovered solid waste (RCRA Section 6002, 40 CFR 248-253).	Verify that procurement officer is aware of USEPA guidelines, and maintains a current set of the guidelines. (1)(2) Verify that purchases of an item (or of functionally equivalent items) that exceed $10,000 within a fiscal year, and for which USEPA has issued guidelines, are made in accordance with those guidelines. (1)(2) (NOTE: Alternate guidelines may be developed to ensure compliance, but some guidelines must be established and followed for the items USEPA covers under this Act.)
...	...
ENVIRONMENTAL AGREEMENTS	
16-12. Environmental agreements will be prepared according to regulation (AR 200-1).	Verify that draft environmental agreements contain: (2)(22) - procedures for schedule modification and dispute resolution - provisions for reimbursement to state governments for oversight expenditures in relation to the Army activity subject to the agreement - language prescribed by DA for agreements relating to CERCLA, and prepared for installations included on or proposed for inclusion on the NPL under CERCLA. Verify that draft agreements are forwarded through MACOM to HQDA (DAJA-EL) WASH DC 20310-2210, for review and coordination. It must be accompanied by: (1)(2) - a brief description of the problem, the proposed action, and the parties to the agreement - a map delineating the location of each site addressed in the agreement - a funding plan that would ensure that the compliance schedule could be met. Verify that public review and comment is provided for according to the requirements of NEPA, CERCLA, or other relevant Federal/state laws, where applicable. (1)(2)
...	...

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COMPLIANCE CATEGORY: ENVIRONMENTAL PROGRAM MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
A-106 POLLUTION ABATEMENT PLAN AND RCS 1383 REPORT	
16-13. Determine actions or changes since previous review of the A-106 Pollution Abatement Plan / RCS 1383 Report.	Obtain a copy of previous report and determine if noncompliance issues have been resolved. (1)(2)
...	...
16-14. The installation should have copies of all relevant Federal, DoD, and Army regulations on the A-106 Pollution Abatement Plan / RCS 1383 Report.	Determine whether copies of the following regulations and publications are maintained and kept current at the installation: (1)(2) - 32 CFR 650, Subpart *IRCS 1383: Environmental Pollution Prevention, Control, and Abatement Report*. - AR 200-1, *Environmental Protection and Enhancement*.
...	...
16-15. The A-106 / RCS 1383 report process must be incorporated into the Army planning, programming, and budgeting system (AR 200-1 Sec. 12-11(b)).	Obtain a copy of the previous year's A-106 / RCS 1383 report. (1)(21) Determine if the installation A-106 / RCS 1383 report reflects installation environmental requirements. (1)(21) Ensure that 1383 exhibits are properly classified in accordance with 1383 guidance. (1)(21)
...	...
16-16. Semiannual reports must be prepared at the installation or activity level (AR 200-1 Sec. 12-11(b)).	Determine that the installation prepares the report in a timely fashion. (1) Verify that this report includes the following: (1) - information as of quarterly submission dates to MACOMs - exhibits for each project or activity on an installation in each of the pollutant categories listed in Appendix 16-2 of this manual - environmental resource requirements to be integrated with the RPMA Annual Work Plan, Backlog of Maintenance and Repair (BMAR), and Unfinanced Requirements Report (URR) IAW AR 420-10.
...	...

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (21) Public Affairs Office (PAO) (22) Staff Judge Advocate (SJA) (27) Inspector General (IG) (31) Directorate of Personnel and Community Activities (DPCA) (32) Directorate of Resource Management (DRM)

COMPLIANCE CATEGORY: ENVIRONMENTAL PROGRAM MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
CONSTRUCTION	
16-17. Environmental surveys will be conducted before the selection of construction sites (AR 200-1 Sec. 12-5).	Verify that surveys are conducted in accordance with AR 415-15 before site selection. (1)
...	...
REAL PROPERTY TRANSACTIONS	
16-18. A comprehensive inventory and evaluation of existing environmental conditions will be conducted on all real property before any transaction (AR 200-1 Sec. 12-5).	Verify that a Preliminary Assessment Screening (PAS) is prepared for all real property transfers and other transactions. The PAS will consider: (1)(2) - areas of cultural, historical, or archaeological significance - threatened or endangered species - environmentally sensitive areas - DoD, DA, Federal, regional, state, and local environmental regulatory compliance - any permit, permit discontinuance or closure requirements - properties or structures with known or potential environmental contamination (asbestos, radon, unexploded ordnance, hazardous or toxic materials/substances/wastes) - existing land use plans, IRP reports, and other environmental documentation. Verify that the PAS is reviewed for adequacy by the Army office that reviews associated REC, EA, or EIS. (1)(2) Verify that if the PAS discloses a release, or suspected release of contaminants, U.S. Army Toxic and Hazardous Materials Agency is notified for consideration under the National Contingency Plan (NCP). (1)(2) (NOTE: Non-Army parties will be requested to perform the PAS for transactions that they have initiated.) (NOTE: If the transaction qualifies for a categorical exclusion (CX), a separate PAS will be prepared before the record of environmental consideration, and will be included in the REC for review.)
...	...
16-19. Proper notification of the contract of sale and associated covenants is the responsibility of the Army proponent (AR 200-1 Sec. 12-5).	Verify that the proponent provides notice to the disposal agency, or other Federal agency if the transaction is subject to a transfer agreement, of the contract of sale and covenants as required by AR 200-1. (1)
...	...

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COMPLIANCE CATEGORY: ENVIRONMENTAL PROGRAM MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
16-20. As a Good Management Practice, the Environmental Officer should maintain good rapport with the supporting MACOM Environmental Office, and provide environmental support to respective US Army Reserve Control (USARCs), Area Maintenance Support Activities (AMSAs), Major US Army Reserve Commands (MUSARCs), Army Reserve Commands (ARCOMs), and Weekend Training sites (WETs) (GMP). ...	Determine that the EO has a good working relationship with respective MACOM EO. (1)(2) - EO should consult with the MACOM EO on such matters as: - spill reporting - NOV reporting - information updates - funding requirements. - MACOM in turn should provide necessary environmental support, guidance and resources to the installation. Determine that the EO at the installation provides the necessary environmental support to the satellite facilities (USARCs, AMSAs, ARCOMs, WET sites) on: (1)(2) - training - permits - UST program - used oil collection - used solvent collection - hazardous waste/hazardous material support - DRMO contract support - spill support/notification - environmental project programming. ...

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Appendix 16-1

Definitions of EPA Class and Compliance Status of Projects

CLASS I

Project Assessment = HIGH
Compliance Status: CMPA, INOV, ESDP
EPA Class Number 1

Projects required to meet the provisions of assigned compliance agreement or consent order; project required to correct deficiencies found on an EPA or state inspection; other projects needed to come into compliance when statutory/regulatory deadlines have passed.

CLASS II

Compliance Status: ESDF, PSDF
EPA Class Number 2

Project needed to meet future compliance deadlines for which planning must have already started.

CLASS III

Compliance Status: ESRO, ESRE, ESDL, OTHR
EPA Class Number 3

All other projects which, while important, are not related to imminent compliance requirements.

Appendix 16-2

Pollutant Categories for the A-106 Pollution Abatement Plan/RCS 1383 Report

Media	Law/Regulation	Pollutant Category	Code
1	CAA	National Ambient Air Quality Standards	
		- Point Source Control	NAQP
		- State Implementation Plan Requirements	SIPS
		Pollution Prevention	POLP
		Waste Minimization	WMIN
		National Emission Standards for Hazardous Pollutants	HEHP
		Control of Toxic Air Pollutants	CTAP
		Control of Volatile Organic Compounds (VOCs)	CVOC
		Asbestos	ASBS
		Radon	RADN
		Training	TRNG
2	CWA	Point Source Control (Sec 402)	PSCS
		Waste Minimization	WMIN
		Pollution Prevention	POLP
		Pre-Treatment	PTRQ
		Toxic Water Pollutants (Sec 304)	TWPS
		Estuaries	ESTU
		Waste Water Treatment	WWTR
		Spill Prevention, Control and Countermeasures Plan	SPCC
		Storm Water Point Source	SWPS
		Wetlands (Sec 404)	WLND
		Non-Point Source	NPSS
3	SDWA	Training	TRNG
		Primary Drinking Water Standards	PDWS
		Waste Minimization	WMIN
		Pollution Prevention	POLP
		Secondary Drinking Water Standards	SDWS
		Lead in Drinking Water	PBDW
		Sole Source Aquifer	SSAQ
		Wellhead Protection	WLHP
		Training	TRNG
4	RCRA-C	Hazardous Waste Storage and Disposal	HAZD
		Waste Minimization	WMIN
		Pollution Prevention	POLP
		Generator Requirements	GENR
		Permit Application and Modification	PRMT
		Transporter Requirements	TRAN
		Closure Plans (Sec 6008)	CPLN
		Corrective Action (Sec 3004 u & v)	CORA
		Training	TRNG

Appendix 16-2 (continued)

Media	Law/Regulation	Pollutant Category	Code
5	RCRA-D	Permit Application and Modification	PRMT
		Groundwater Monitoring Installation	GWMI
		Landfills	SUBD
		Pollution Prevention	POLP
		Solid Waste Management Plans	SWMP
		Recycling Programs	RCYP
		Training	TRNG
6	RCRA-I	Groundwater Monitoring Installation	GWMI
		Underground Storage Tanks	USTS
		Pollution Prevention	POLP
		Corrective Action (Sec 3004 u & v)	CORA
		Training	TRNG
7	CERCLA/SARA	Removal Action	RMVA
		Waste Minimization	WMIN
		Pollution Prevention	POLP
		Preliminary Assessment/Site Investigation	PASI
		Listing Site Investigation	LISI
		Remedial Investigation	RINV
		Feasibility Study	FEAS
		Remedial Design	REMD
		Remidal Action	REMA
		Training	TRNG
8	TSCA	Storage and Disposal of PCBs	PCBS
		Waste Minimization	WMIN
		Pollution Prevention	POLP
		Training	TRNG
9	FIFRA	Pesticide Storage, Application and Disposal	PSAD
		Waste Minimization	WMIN
		Pollution Prevention	POLP
		Training	TRNG
10	NHPA	Archeological Surveys	ARCH
		Historic Preservation Surveys	HIST
		Training	TRNG
11	ESA	Endangered Species Surveys	ENDG
12	NEPA	Preparation of EIS/EA on Specific Projects	EAIS
		Mitigation Measures Required Through Record of Decision	MITM
		Training	TRNG
13	Asbestos Management Program	Asbestos	ASBS
		Training	TRNG
14	Noise Abatement	Noise Control Planning	NPLN
		Pollution Prevention	POLP
		Construction	NCON
		Training	TRNG
15	Radon Program	Radon	RADN
		Training	TRNG
16	Environmental Program Management		
17	Hazardous Materials Management		

INSTALLATION:	COMPLIANCE CATEGORY: ENVIRONMENTAL PROGRAM MANAGEMENT USA ECAS	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (21) Public Affairs Office (PAO) (22) Staff Judge Advocate (SJA) (27) Inspector General (IG) (31) Directorate of Personnel and Community Activities (DPCA) (32) Directorate of Resource Management (DRM)

Section 17

HAZARDOUS MATERIALS MANAGEMENT

SECTION 17

HAZARDOUS MATERIALS MANAGEMENT

A. Applicability of this Protocol

This protocol applies to implementing requirements associated with the management of hazardous materials. Most Army installations handle many chemicals and substances that may be considered hazardous if not handled, stored, or used properly. A complete list of chemicals used at Army installations is too lengthy to include in this protocol. Chemicals that have hazardous properties, i.e., toxic chemicals, flammable substances, reactive substances, and corrosive materials are routinely used at Army installations.

This protocol primarily addresses the proper storage and handling of chemicals and the spill contingency and response requirements related to hazardous materials. Oil, pesticides, and asbestos are hazardous materials that require special management practices at Army installations, and are addressed in separate protocols. Radioactive substances and the general category of hazardous wastes also are not included in this protocol. This protocol does not focus on individual hazardous chemicals or substances used at Army installations. It deals with the generic requirements and good management practices (GMPs) associated with minimizing effects on the environment due to spills or releases of hazardous materials due to improper storage and handling. Most sections of this protocol will be applicable to most Army installations.

B. Federal Legislation

- The U.S. Environmental Protection Agency National Oil and Hazardous Substances Pollution Contingency Plan under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, 40 CFR 300, also known as the National Contingency Plan (NCP), provides the framework for implementing response actions in accordance with the statutory requirements of CERCLA and the spill provisions of the Clean Water Act.

- The Hazardous Materials Transportation Act, which is administered by the U.S. Department of Transportation (DOT), regulates the shipping, marking, labeling, placarding, and recordkeeping requirements for hazardous materials listed in 49 CFR 172.101. Since most Army installations are not shippers of hazardous materials, but use commercial transportation firms for this purpose, the require-

ments of these DOT regulations may not be applicable. However, those Army installations that do ship hazardous materials either by vehicle or by aircraft do have responsibilities for compliance with the DOT regulations.

- USEPA also regulates some special hazardous materials under the Toxic Substances Control Act (TSCA), particularly polychlorinated biphenyls (PCBs) (40 CFR 761) and asbestos (40 CFR 763). These materials are covered in separate protocols, however, and will not be discussed here (see Sections 8 and 13 of this manual).

- Occupations Safety and Health Administration's (OSHA's) Safety and Health Standards are specified in 29 CFR 1910, and govern storage and handling of flammable and combustible liquids. Even though not considered strictly as environmental regulations, they are included in this protocol because they are considered to be an integral part of a total program for hazardous materials management.

- USEPA regulates underground storage tanks used to contain petroleum a other hazardous materials as a result of 1984 amendments to the Resource Conservation and Recovery Act. The underground storage tank regulations are contained in 40 CFR 280 (See Section 6, RCRA, Subtitle I, for information on Underground Storage Tank).

- The National Fire Code, the Flammable and Combustible Liquids Code NFPA 30, prohibits the storage of Class I and Class II liquids in plastic containers in general-purpose warehousing.

- Executive Order (EO) 12088, *Federal Compliance with Pollution Standards*, of 13 October 1978 requires Federally owned and operated facilities to comply with all Federal, state, and local environmental regulations. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities it funds meet Federal, state, and local environmental requirements or to correct situations that are not in compliance with such regulations. In addition, the Executive Order requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.

C. State/Local Requirements

Hazardous materials are not usually regulated on the state level. However, local agencies (county/ city fire departments) will normally require flammable/ combustible materials to meet certain storage requirements. Usually,

these local ordinances will follow the National Fire Protection Association (NFPA) Fire Protection Guide on Hazardous Materials (Pamphlets 325A, 325M, 49, 491F and 704M).

D. DoD Regulations

- Department of Defense (DoD) 4145.19-R-1, Chapter 5, Section 4, *Hazardous Commodities*, provides overall guidance for storage and handling of various types of hazardous commodities at Army installations. It functions as implementing guidance of the DoD for the OSHA 29 CFR 1910 regulations noted above.

- DoD Instruction 6050.5, *Hazardous Material Information System*, authorizes the Publication of DoD Instruction 6050.5-M, *Hazardous Material Information System Procedures*, which describes the procedures for collection, maintenance, and dissemination of hazardous material data.

E. U.S. Army Regulations

- Army Regulation (AR) 200-1, *Environmental Protection and Enhancement*, Chapter 5, *Hazardous Material Management Program*, implements the Army program to minimize hazards to public health and damage to the environment. It provides guidance for the management of hazardous materials including storage and disposal.

F. Key Compliance Requirements

- Hazardous Materials Transportation - Army installations that ship hazardous materials off-post must comply with regulations regarding packaging and labeling. Depending on the type of hazardous materials transportation activity at the installation, certain sections of 49 CFR 171-173, *Transportation of Hazardous Waste*, will apply.

- Hazardous Substance Release Reporting - Army installations are required to notify USEPA and appropriate state agencies when a release of a reportable quantity of a hazardous substance occurs. *Release* includes any discharge, spill, or leak to air, water, or land, as stipulated in 40 CFR 302.

- Storage and Handling of Hazardous Materials - Army installations that store or handle hazardous materials, such as flammable/ combustible materials, acids,

caustics, compressed gases, oxidizers, etc., are required to comply with facility storage requirements and operational procedures as stipulated in DoD 4145.19-R-1. Effective 1 Sep 90, Class I and Class II liquids in plastic containers may not be stored in general-purpose buildings.

G. Responsibility for Compliance

- Director of Logistics (DOL) has primary responsibility to receive, store, and issue all hazardous commodities. DOL reviews all items that have a potential health hazard and determines if an issue exception code should be assigned to the item before being placed in storage. The receipt of hazardous materials with the proper documentation and shipping papers is also the responsibility of DOL. The proper maintenance and operation of flammable/ combustible materials storage facilities, acid storage facilities and compressed gas storage facilities is also the responsibility of DOL. DOL ensures all hazardous materials are properly labeled.

- Medical Department Activity (MEDDAC)/ Medical Center (MEDCEN) is responsible for reviewing the issue exception codes for hazardous materials assigned by DOL, and approving or disapproving the recommendations.

- Directorate of Engineering and Housing (DEH) is responsible for the storage and handling of all hazardous materials in properly designed facilities. DEH is also responsible for reporting releases of reportable quantities of hazardous substances to USEPA and appropriate state authorities.

- Installation Fire Department provides support in emergency response, spill events, exercises, and fire protection activities. In addition, the department is responsible for making periodic fire safety inspections of flammable/ combustible storage and handling areas on the installation.

- Safety Officer is responsible for conducting work place safety evaluations and inspections of the handling and storage of hazardous materials. The Safety Officer provides the appropriate manager with a report of findings and recommended corrective actions. The Safety Officer is also responsible for ensuring the prompt and accurate investigation of any hazardous material mishaps that result in injury or property damage.

H. Key Compliance Definitions

- *Approved* - listed or approved by Underwriter's Laboratories, Inc., Factory Mutual Engineering Corporation, The Bureau of Mines, National Institute of Occupational Safety and Hea\, The American National Standards Institute,

The National Fire Protection Association, or other nationally recognized agencies that list, approve, test, or develop specifications for equipment to meet fire protection, health, or safety requirements.

- *Basement* - any portion of a building that is below ground level.

- *Boiling Point* - the temperature at which a liquid starts to boil when at atmospheric pressure (14.7 pounds per square inch absolute (psia), as determined by ASTM test D-86-72).

- *Closed Container* - a container sealed with a lid or other closing device to prevent liquid and/ or vapor from escaping at atmospheric temperatures and pressures.

- *Combustible Liquid* - a liquid having a flashpoint at or above 100 ^{o}F (37.8 ^{o}C). Combustible liquids are categorized as Class II or Class III liquids and are further subdivided as follows:

    1) Class II liquids are those having a flashpoint at or above 100 ^{o}F (37.8 ^{o}C), and below 140 ^{o}F (60 ^{o}C).

    2) Class IIIA liquids are those having flashpoints at or above 140 ^{o}F (60 ^{o}C), and below 200 ^{o}F (93.4 ^{o}C).

    3) Class IIIB liquids are those having flashpoints at or above 200 ^{o}F (93.4 ^{o}C).

- *Flammable Aerosol* - an aerosol that is required to be labeled "Flammable" under the Federal Hazardous Substance Labeling Act (15 USC 1261). These aerosols are considered Class IA liquids.

- *Flammable Liquid* - a liquid with a flashpoint below 100 ^{o}F (37.8 ^{o}C) with a vapor pressure not exceeding 40 psia at 100^{o} F (37.8 ^{o}C). Flammable liquids are categorized as Class 1 liquids, and are further subdivided as follows:

    1) Class 1A are those that have a flashpoint below 73 ^{o}F (22.8 ^{o}C) and boiling point below 100 ^{o}F (37.8 ^{o}C).

    2) Class 1B are those that have flashpoints below 73 ^{o}F (22.8 ^{o}C) and boiling points at or above 100 ^{o}F (37.8 ^{o}C).

    3) Class 1C are those that have flashpoints at or above 73 ^{o}F (22.8 ^{o}C) and boiling point below 100 ^{o}F (37.8 ^{o}C).

- *Flashpoint* - the minimum temperature at which a liquid gives off vapor in sufficient concentration to form an ignitable mixture with air near the surface of the liquid. Flashpoints are established using several standard closed cup test methods.

- *Good Management Practice (GMP)* - a practice that, although not mandated by law, is encouraged to promote safe operating procedures.

- *Liquid* - any material with a fluidity greater than that of 300 penetration asphalt when tested in accordance with ASTM Test D-5-73. When not otherwise identified, the term "liquid" will include both flammable and combustible liquid.

- *Material Safety Data Sheet (MSDS)* - written or printed material that contains information on hazardous chemicals such as common name, physical hazards, and health hazards, and is prepared in accordance with 29 CFR 1910.1200. These must be maintained and accessible at the installation.

- *Portable Tank* - a closed container having a liquid capacity over 60 gallons and not intended for permanent installation.

- *Pressure Vessel* - a storage tank or container designed to operate at pressures above 15 pounds per square inch gauge (PSIG).

- *Safety Can* - an approved flammable liquid container having a spring-closing lid, spout cover, and other features designed to safely relieve internal pressure and to provide safe storage for the liquid.

- *Storage Refrigerator for Flammables* - a unit designed or modified so that the storage compartment, to include the door, and door frame, meets the requirements for Class 1, Division 1 locations as described in NFPA 70.

- *Unstable Reactive Liquid* - a liquid that will vigorously polymerize, decompose, condense, or become self-reactive under conditions of shock, pressure, temperature, or combinations thereof.

HAZARDOUS MATERIALS MANAGEMENT

GUIDANCE FOR WORKSHEET USERS

	REFER TO WORKSHEET ITEMS:	CONTACT THESE PERSONS OR GROUPS:(a)
All installations	17-1 through 17-8	(1)(2)(6)(7)(8)(9)
If the installation stores flammable/ combustible liquids	17-9 through 17-18	(1)(2)(6)(7)(8)
If the installation maintains bulk storage of compressed gases or acids	17-19 through 17-21	(1)(2)(3)(6)(7)
If the installation transports hazardous materials	17-22 through 17-25	(1)(2)(6)(9)

(a)CONTACT/LOCATION CODE:

(1) Directorate of Engineering and Housing (DEH)
(2) Environmental Coordinator (EC)
(3) Preventive Medicine Officer
(6) Director of Logistics (DOL)
(7) Fuels Management Officer (DOL/DEH)
(8) Transportation/Maintenance Officer (DOL)
(9) Chief of Operations and Maintenance (O&M)

HAZARDOUS MATERIALS MANAGEMENT

Records to Review:

- Spill Control and Contingency Plan
- Spill Reports
- Hazardous Material Inventory
- MSDS Inventory Records
- MSDS Training Records
- MSDS Shipping Documents
- MSDS Placarding of Materials

Physical Features to Inspect:

- Hazardous Material Storage Areas (DOL - Supply, Shops)
- Shop Activities
- Flammable Storage Cabinets
- Shipping and Receiving Areas
- Supply and Storage Shops (DEH, DOL)
- Self Service Supply Center (DOL)
- Military Unit Supply/Storage Areas
- Print/Reproduction Shop

People to Interview:

- Directorate of Engineering and Housing (DEH)
- Environmental Coordinator (EC)
- Preventive Medicine Officer
- Director of Logistics (DOL)
- Fuels Management Officer (DOL/DEH)
- Transportation/Maintenance Officer (DOL)
- Chief of Operations and Maintenance (O&M)
- Supply and Storage Officer (DOL)
- Self Service Supply Center Officer (DOL)
- Military Unit Supply Officers (S-4)

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
17-1. Determine actions or changes since previous review of hazardous materials management.	Obtain a copy of previous review to determine if noncompliance issues have been resolved. (1)
...	...
17-2. All relevant regulations, directives, and guidance documents on hazardous materials should be maintained at the installation (GMP).	Verify that the following documents are maintained and kept current at the installation. (1)(6)(7)(8)(9) - DoD Instruction 6050.5, *Hazardous Material Information System.* - DoD Instruction 6050.8, *Storage and Disposal of nonDoD owned Hazardous or Toxic Materials in DoD installations.* - DoD 4145.19-R-1, Chapter 5, Section 4, *Hazardous Commodities.* - AR 40-5, *Preventive Medicine.* - AR 50-6, *Chemical Surety Program.* - AR 55-355, *Military Traffic Management Regulation.* - AR 200-1, *Environmental Protection and Enhancement.* - AR 200-2, *Environmental Effects of Army Action.* - AR 700-141, *Hazardous Materials Information System.* - AR 740-32, *Responsibilities for Technical Escort of Dangerous Materials.* - Reportable Quantities of Hazardous Materials (Table 302.4 of 40 CFR 302). - 29 CFR 1910, *Occupational Safety and Health Standards.* - 40 CFR 171, 172, 173, 178, 179, *Transportation of Hazardous Waste.* - EO 12088, *Federal Compliance with Pollution Standards.* - NEPA, *Fire Protection Guide of Hazardous Materials.*
...	...
17-3. Installations are required to abide by state and local hazardous materials regulations (AR 200-1 para 1-39(a)(3)).	Verify that the installation is abiding by state and local hazardous materials requirements. (1)(2) Verify that the installation is operating according to permits issued by the state or local agencies. (1)(2) NOTE: Issues which are typically regulated by state and local agencies include: (1)(2) - transportation of hazardous materials - storage of hazardous materials. - release reporting requirements
...	...

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
17-4. A master listing of all hazardous materials storage facilities should be maintained at the installation (AR 200-1, Chap. 8).	Obtain a copy of the hazardous materials storage facilities master list. (1)(2)(9) Interview personnel to determine knowledge of locations of all hazardous materials storage areas on installation. (1)(6)(7)(8)(9)
...	...
17-5. Material Safety Data Sheets (MSDS) are required for each chemical procured or stored at the installation (29 CFR 1910.1200, AR 200-1, para. 5-1[b][5]).	Review records to verify that an MSDS is on file for each chemical procured. (1)(2)
...	...
17-6. Hazardous material management is to be considered an integral part of the Army Hazardous Waste Minimization Program (AR 200-1, 6-6[b]).	Confirm that the installation has an Army Hazardous Waste Minimization Program in existence and that it addresses hazardous material management through the use of: (1)(2) - process substitution - material recovery - recycling - reuse.
...	...
17-7. The installation should coordinate with the fire department concerning the types of hazardous chemicals used at the installation, the areas where they are used, what they are used for, and the quantities used in a given operation (GMP).	Review coordination efforts with fire department. Determine whether the department is aware of areas that are at high risk for chemical incidents. (7)
...	...

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

17-8. Installations must have a written Oil and Hazardous Substance Contingency Plan for spill events (AR 200-1, Chap. 8).
 	
(NOTE: This same plan is necessary for auditing oil related operations in POL Management.)
	Examine Oil and Hazardous Substance Contingency Plan for the following items while interviewing personnel from Installation Supply, Fire Department, Safety Department, and Department of Engineering and Housing: (1)(6)(7)(8)(9)
	
	- all hazardous substances storage areas are included in the plan
	- one individual or department is designated to initiate spill response
	- plan is written, reviewed, and made available to other departments on installation
	- plan is rehearsed through periodic drills and demonstrations
	- materials and equipment needed to manage a spill are specified in the plan readily available including:
	  - respiratory protection
	  - absorbents
	  - ear/eye protection
	  - spill kits
	  - protective clothing
	  - neutralizers
	- response materials and protective clothing are readily available
	- emergency medical procedures and first aid materials are specified in the plan
	- hazard control materials are listed in plan including:
	  - hazard signs and labels
	  - rope, wire, tape
	  - monitors, survey meters
	- plan specifies phone numbers of Federal, state and local agencies that must be notified when a spill occurs
	- plan includes contacts for agencies that provide emergency advice and assistance (CHEMTREC)
	- plan specifies personnel decontamination procedures that must be followed after spill has been cleaned up.

...	...
STORAGE - General	
17-9. Flammable or combustible liquids shall not be stored in ways that limit the use of exits, stairways, or areas normally used for the safe egress of people (29 CFR 1910.106(d)(5)(i), Subpart H).	Verify that exits or common traffic routes are not blocked. (6)(7)
...	...

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
17-10. Storage cabinets used for the storage of flammable/ combustible liquids must meet specific requirements (29 CFR 1910.106(d)(3), Subpart H).	Verify that storage cabinets meet the following: (1)(6)(7) - no more than 60 gallons of Class I or Class II liquids nor any more than 120 gallons of Class III liquids are stored in the cabinet - the cabinets are fire-resistant - cabinets are constantly closed and are conspicuously labeled "FLAMMABLE--Keep Fire Away" - materials within the cabinet are segregated (GMP) - there are no open containers within the cabinet (GMP) - all containers in the cabinet are labeled. (GMP)
...	...
17-11. Inside flammable/ combustible storage rooms must meet certain specifications (29 CFR 1910.106(d)(4), Subpart H).	Examine installation's flammable/ combustible storage facility for the following: (1)(6)(7) - walls meet fire resistance test NFPA 251-1969 - a 4-inch raised sill or ramp is provided to adjacent rooms or buildings, or the floor of the storage area is 4 inches lower than the surrounding floors - if sill or ramp is not present, an open grated trench that drains to a safe area is in the building - liquid tight wall/ floor joints exist - self-closing fire doors exist (NFPA 80) - electrical wiring and equipment meet NFPA 70 requirements - storage in the rooms meet the requirements in Appendix 17-2 - there is either gravity or mechanical exhaust ventilation system - the exhaust system provides for six changes of air in the room per hour - mechanical exhaust systems are controlled by a switch outside the door and have exhaust outlets on exterior walls - for gravity ventilation, the fresh air intake is on exterior walls - there is one clear aisle at least 3 ft. wide - containers over 30 gallons capacity are not stacked one upon the other - dispensing is done by an approved pump or self-closing faucet.
...	...

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
17-12. The storage of flammable or combustible liquids in liquid warehouses or storage buildings shall meet specific requirements (29 CFR 1910.106(d)(5)(vi); Subpart H).	Verify that the following requirements are met: (6)(7) - if the storage facility is located 50 ft or less from a building or line of adjoining property that may be built upon, the exposing wall is a blank wall having a fire-resistance rating of at least 2 hours - any quantity of liquids may be stored as long as the storage arrangements outlined in APPENDIX 17-3 are met - containers are separated by pallets or dunnage when necessary to provide stability and prevent excess stress on container walls - portable tanks which are stored over one tier high are designed to nest securely - no pile is closer than 3 ft to the nearest beam, chord, girder, or other obstruction - piles are 3 feet below sprinkler deflectors or discharge points of water spray - aisles are at least 3 feet wide when necessary for access to doors, windows, or standpipe connections.
...	...
17-13. Flammable/ combustible materials stored in outside buildings must meet certain storage and handling criteria (29 CFR 1910.106(d)(6)).	Examine flammable/ combustible storage facility for the following: (1)(6)(7) - No more than 1,100 gallons of flammable/ combustible liquids is stored adjacent to buildings located on the same premises unless 10 ft. or more exists between buildings and the nearest flammable container - the storage area is graded to divert spills or is surrounded by a curb at least 6 in. high - drains terminate in a safe location - the storage area is protected against tampering - all containers bear contents, labels, and hazard markings - total quantity and arrangement of liquids within a building complies with the requirements in Appendix 17-3.
...	...
17-14. Areas where flammable/ combustibles are stored must meet certain fire protection standards (29 CFR 1910.106(d)(7)).	Examine flammable/ combustible storage locations for the following: (6)(7) - at least one 12-B rated portable fire extinguisher is located outside and within 10 feet of the door opening - at least one 12-B rated portable fire extinguisher is located within 10 to 25 feet of any Class I or Class II liquid storage area outside of a storage room, but inside a building - fire extinguishing sprinklers or system meet the standards in 29 CFR 1910.159 - no smoking or open flame permitted within 50 feet and signs posted - positive sources of ignition (open flames, cutting, welding, radiant heat, mechanical sparks) are prevented (GMP) - no water reactive materials are stored in the same room with flammable/ combustible liquids.

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT USA ECAS	
REGULATORY **REQUIREMENTS:**	**REVIEWER CHECKS:**

STORAGE - Industrial Areas
 	
17-15. Areas where flammable/ combustible materials are stored, dispensed, or used in industrial plants shall meet specific guidelines (29 CFR 1910.106(e)(4-9); Subpart H).
 	
...
	NOTE: Items 17-15 through 17-18 pertain to industrial areas where the use of flammable or combustible liquid is incidental to the principal business or where flammable or combustible liquids are handled or used only in unit physical operations which do not involve chemical reactions.
	
	Verify that the following provisions are met: (6)(7)
	
	- portable fire extinguishers and fire control equipment shall be in place in quantity and type as needed for the hazards of operation and storage at the site
	- adequate precautions shall be taken to prevent sources of ignition at the site
	- Class I liquids shall not be dispensed into containers unless nozzles and containers are electrically interconnected
	- operations such as welding and cutting for repairs to equipment shall be done under the supervision of an individual in responsible charge
	- maintenance and operating practices shall control leakage and prevent the accidental escape of flammable or combustible liquids:
	  - adequate aisles shall be maintained
	  - combustible waste material and residues shall be kept to a minimum, stored in covered metal containers, and disposed of daily
	  - the grounds area around the buildings and unit operating areas shall be kept free of weeds, trash or other unnecessary combustibles
	- tank vehicle and tank car loading or unloading facilities are separated from aboveground tanks, warehouses, and other plant buildings or nearest line of adjoining property by a distance of 25 ft for Class I liquids and 15 ft for Class II and III liquids.
	
	...

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
17-16. Incidental storage of flammable/ combustible liquids in industrial areas must conform to certain requirements (29 CFR 1910.106(e)(2); Subpart H).	Verify that flammable and combustible liquids are stored in closed containers. (6)(7) Verify that the storage areas meet the requirements outlined in 29 CFR 1910.106(d)(3-4) as listed in items 17-10 and 17-11 except that: (6)(7) - the quantity of liquid that can be located outside of an inside storage room or storage cabinet in a building or in anyone fire area of a building shall not exceed: - 25 gallons of Class IA liquids in containers - 120 gallons of Class IB, IC, II, or III liquids in containers - 660 gallons of Class IB, IB, II, or III liquids in a single portable tank - where large quantities of flammable or combustible liquids are needed, storage may be in tanks. Verify that areas where flammable/ combustible liquids are transferred from one container to another container are separated from other operations in the building by an adequate distance or by construction having fire resistance. (6)(7) Verify that drainage or other means is provided to contain spills and adequate natural or mechanical ventilation is present. (6)(7) Verify that the following practices are done at the point of final use: (6)(7) - flammable liquids are kept in covered containers when not actually in use - where flammable/ combustible liquids are used or handled means are provided to dispose promptly and safely of spills and leaks - Class I liquids are only used where there are no open flames or other sources of ignition - flammable/ combustible liquids are drawn from or transferred into vessels, containers, or portable tanks within a building only through a closed piping system, from safety cans, by means of a device drawing through the top, or from a container or portable tanks by gravity through an approved self closing valve. Transferring by means of air pressure on the container or portable tanks is prohibited.
...	...
17-17. General purpose warehouse or storage facilities may be used for storage facilities provided certain storage and handling criteria are observed (DoD 4145.19-R-1).	Examine the general purpose storage facilities on the installation. (1)(6)(7) Verify that storage and separation criteria are met for any hazardous materials present. (1)(6)(7)
...	...

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT USA ECAS	
REGULATORY **REQUIREMENTS:**	**REVIEWER CHECKS:**
17-18. Those areas where flammable/ combustible liquids are used in unit operations such as mixing, drying, evaporating, filtering, or distillation are required to meet specific operating standards (29 CFR 1910.106(e)(3); Subpart H).	Verify that the the following parameters are met: (6)(7) - these areas are located so that each building or unit of equipment is accessible from at least one side for fire fighting - areas where unstable liquids are handled or small scale unit chemical processes are carried on shall be separated from the remainder of the area by a fire wall of 2-hour minimum fire resistance rating - emergency drainage systems direct leakage and fire protection water to a safe location - emergency drainage systems, if connected to public sewers or discharged into public waterways, are equipped with traps or a separator - when Class I liquids are being used, ventilation is provided at a rate of not less than 1 cubic foot per minute per square foot of solid floor area through either natural or mechanical means - equipment is designed to limit flammable vapor-air mixtures.
...	...
STORAGE - Compressed Gases	
17-19. Bulk storage of compressed gases in roofed, open-sided sheds must meet certain criteria (DoD 4145.19-R-1).	Examine the compressed gases storage areas for the following: (1)(6)(7) - shed is on concrete slab above grade - shed is located in secured area - shed is separated from other buildings by at least 50 feet - flammable gases and gases that support combustion are stored in separate sheds with at least 50 feet between sheds - if shed has one or more sides, provisions are made to ensure complete change of air at least six times per hour - shed is not heated, and - if necessary, stationary or rotating roof vents are used to lower temperature near ceiling to ambient conditions during warm weather.
...	...
17-20. Bulk storage of compressed gases in enclosed storage facilities must meet certain criteria (DoD 4145.19-R-1).	Examine the compressed gases storage areas for the following: (1)(6)(3) - building is one story in height, preferably of noncombustible construction - separate storage compartments or rooms are available for flammable gases or gases that support combustion - at least one wall of each storage room or compartment for combustible gases is an exterior wall - every storage room or compartment is provided with either a gravity or mechanical exhaust ventilation system designed to provide complete change of air at least six times per hour - building is not heated.
...	...

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	REVIEWER CHECKS:

STORAGE - Acids
 	
17-21. Bulk storage of acids must meet certain storage and handling criteria (DoD 4145.19-R-1, 29 CFR 1910).
 	
...
	Examine the bulk acid storage areas for the following: (1)(6)(7)
	
	- building is one story in height, preferably of nonflammable construction
	- permanent louvered openings at floor and ceiling levels or other gravity ventilation method is provided
	- safety equipment is available and operating (eye wash, deluge shower, self-contained breathing apparatus, protective clothing)
	- building is heated (if applicable)
	- different acids stored in separate spaces or noncombustible sealed barriers at least 3 feet high between acids:
	  - 'NO SMOKING' signs posted
	  - automatic sprinkler protection provided
	- workers provided with protective safety equipment and a copious, flowing supply of fresh, clean water for first aid.
	
	...

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
TRANSPORTATION	
17-22. Packages or freight containers containing a hazardous material offered for transportation by the installation must meet specific labeling requirements (49 CFR 172.4, and AR 55-355, Chap. 33).	Examine sample of containers of hazardous materials awaiting shipment. (6) Verify that label on container is compatible with classification on shipping papers. (6)
...	...
17-23. Each package, container, or transport vehicle shall be marked in accordance with specific marking requirements (49 CFR 172.3, and AR 55-355, Chap. 33).	Verify commodity description (proper shipping name) on container. (6) Verify that exemption numbers are on containers shipped under DOT exemptions. (6) Verify name and address of consignee (or consignor) on the container. (6)
...	...
17-24. Installation is responsible for providing proper placarding to vehicles transporting hazardous materials off the installation (49 CFR 172, and AR 55-355, Chap. 33).	Determine if Army vehicles are used in transporting hazardous materials off the installation. (6) Verify that they have proper DOT placards affixed to vehicles. (6) Verify that commercial vehicles used for transportation of hazardous materials have proper DOT placards provided by DOL. (6) Identify proper placarding procedures of vehicles used to transport hazardous materials, if practical. (6)

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
17-25. Installation transportation of hazardous materials between buildings should be accomplished with good management practices to ensure against spills, releases and accidents (AR 200-1, para. 5-1).	Determine if procedures exist to manage movement of hazardous materials throughout the installation. (6)(9) Verify that drivers are trained in spill control procedures. (9) Verify that provisions have been made for securing hazardous materials in vehicles when transporting. (9)

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT USA ECAS	
REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
17-25. Installation transportation of hazardous materials between buildings should be accomplished with good management practices to ensure against spills, releases and accidents (AR 200-1, para. 5-1).	Determine if procedures exist to manage movement of hazardous materials throughout the installation. (6)(9) Verify that drivers are trained in spill control procedures. (9) Verify that provisions have been made for securing hazardous materials in vehicles when transporting. (9)

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Appendix 17 - 1

Maximum Allowable Capacity of Containers And Portable Tanks

Container Type	Flammable Liquids			Combustible Liquids	
	IA	*IB*	*IC*	*II*	*II*
Glass or approved plastic[1]	1 pt[2]	1 qt[2]	1 gal	1 gal	1 gal
Metal (other than DOT drums)	1 gal	5 gal	5 gal	5 gal	5 gal
Safety cans	2 gal	5 gal	5 gal	5 gal	5 gal
Metal drums (DOT specifications)	60 gal	60 gal	60 gal	60 gal	60 gal
Approved portable tanks	660 gal	660 gal	660 gal	660 gal	660 gal

[1] Nearest metric size is also acceptable for the glass and plastic containers listed.
[2] One gallon of nearest metric equivalent size may be used if metal containers must be avoided because of chemical reaction with their contents.

Appendix 17 - 2

Storage in Inside Rooms

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

[1] Fire protection system will be sprinkler, water spray, or other approved method.
[2] If metric containers are being stored, use the nearest metric equivalent.

Appendix 17-3

Flammable/Combustible Materials
Indoor Container Storage

Class Liquid	Storage Level	*Protected Storage Maximum per Pile Gallons	Unprotected Storage Minimum per Pile Gallons
IA	Ground and upper floors	2,750 (50)	600 (12)
	Basement	Not permitted	Not permitted
IB	Ground and upper floors	5,500 (100)	1,375 (25)
	Basement	Not permitted	Not permitted
IC	Ground and upper floors	16,500 (300)	4,125 (25)
	Basement	Not permitted	Not permitted
II	Ground and upper floors	16,500 (300)	4,125 (75)
	Basement	5,500 (100)	Not permitted
III	Ground and upper floors	55,000 (1,000)	13,750 (250)
	Basement	8,250 (450)	Not permitted

* A sprinkler or equivalent fire protection system installed in accordance with NFPA Standard 30.

NOTE 1: When two or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile will be the smallest of the two or more separate maximum gallonages.

NOTE 2: Aisles will be provided so no container is more than 12 feet from an aisle. Main aisles will be at least 8 feet wide and side aisles at least 4 feet wide. (Numbers in parentheses indicate corresponding number of 55-gallon drums.)

NOTE 3: Each pile shall be separated from each other by at least 4 feet.

Appendix 17-3
(continued)

Flammable/Combustible Materials
Outdoor Container Storage

Class	Maximum per pile (See NOTE 1)	Distance between piles (See NOTE 2)	Distance to property line that can be built upon (see NOTES 3 and 1)	Distance to street, alley public way (See NOTE 4)
	(Gal)	(Ft)	(Ft)	(Ft)
IA	1,100	5	20	10
IB	2,200	5	20	10
IC	4,400	5	20	10
II	8,800	5	10	5
III	22,000	5	10	5

NOTE 1: When two or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile will be the smallest of the two or more separate gallonages.

NOTE 2: Within 200 feet of each container, there will be a 12-foot wide access way to permit approach of fire control apparatus.

NOTE 3: The distances listed apply to properties that have protection for exposures as defined. If there are exposures, and such protection for exposures does not exist, the distances in column 3 will be doubled.

NOTE 4: When total quantity stored does not exceed 50 percent of maximum per pile, the distance in columns 4 and 5 may be reduced 50 percent, but not less than 3 feet.

Appendix 17-3
(continued)

Flammable/Combustible Materials
Indoor Portable Tank Storage

Class Liquid	Storage Level	*Protected Storage Maximum per Pile Gallons	Unprotected Storage Minimum per Pile Gallons
IA	Ground and upper floors	Not permitted	Not permitted
	Basement	Not permitted	Not permitted
IB	Ground and upper floors	20,000	2,000
	Basement	Not permitted	Not permitted
IC	Ground and upper floors	40,000	5,500
	Basement	Not permitted	Not permitted
II	Ground and upper floors	40,000	5,500
	Basement	20,000	Not permitted
III	Ground and upper floors	60,000	22,000
	Basement	20,000	Not permitted

* A sprinkler or equivalent fire protection system installed in accordance with NFPA Standard 30.

NOTE 1: When two or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile will be the smallest of the two or more separate maximum gallonages.

NOTE 2: Aisles will be provided so no container is more than 12 feet from an aisle. Main aisles will be at least 8 feet wide and side aisles at least 4 feet wide. (Numbers in parentheses indicate corresponding number of 55-gallon drums.)

NOTE 3: Each pile shall be separated from each other by at least 4 feet.

Appendix 17-3
(continued)

Flammable/Combustible Materials
Outdoor Portable Tank Storage

Class	Maximum per pile (See NOTE 1)	Distance between piles (See NOTE 2)	Distance to property line that can be built upon (see NOTES 3 and 1)	Distance to street, alley public way (See NOTE 4)
	(Gal)	(Ft)	(Ft)	(Ft)
IA	2,200	5	20	10
IB	4,400	5	20	10
IC	8,800	5	20	10
II	17,600	5	10	5
III	44,000	5	10	5

NOTE 1: When two or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile will be the smallest of the two or more separate gallonages.

NOTE 2: Within 200 feet of each container, there will be a 12-foot wide access way to permit approach of fire control apparatus.

NOTE 3: The distances listed apply to properties that have protection for exposures as defined. If there are exposures, and such protection for exposures does not exist, the distances in column 3 will be doubled.

NOTE 4: When total quantity stored does not exceed 50 percent of maximum per pile, the distance in columns 4 and 5 may be reduced 50 percent, but not less than 3 feet.

Appendix 17-4

Placarding Guidelines

The following table specifies placards that should be used for the transportation of ANY QUANTITY of the listed hazardous material.

Hazardous Materials Classed or Described As	Placards
Class A Explosives	EXPLOSIVES A
Class B Explosives	EXPLOSIVES B
Poison A	POISON GAS
Flammable Solid (DANGEROUS WHEN WET label only)	FLAMMABLE SOLID W
Radioactive material	RADIOACTIVE

RADIOACTIVE

The following table specifies placards that should be used for the transportation of *1000 pounds or more* of the listed hazardous materials.

Hazardous Materials Classed or Described As	Placards
Class C Explosives	FLAMMABLE
Nonflammable Gas	NONFLAMMABLE GAS
Nonflammable Gas (Chlorine)	CHLORINE
Nonflammable Gas (Fluorine)	POISON
Nonflammable Gas (Oxygen, pressurized liquid)	OXYGEN
Flammable Gas	FLAMMABLE GAS
Combustible Liquid	COMBUSTIBLE
Flammable Liquid	FLAMMABLE
Flammable Solid	FLAMMABLE SOLID
Oxidizer	OXIDIZER
Organic Perioxide	ORGANIC PERIOXIDE
Poison B	POISON
Corrosive Material	CORROSIVE
Irritating Material	DANGEROUS

Appendix 17-4
(continued)

Placarding Guidelines

1. Placards should be affixed on both sides, rear, and front of the motor vehicle.

2. Place placards clear of ladders, pipes, and tarps.

3. Placards should be at least 3 inches away from advertising and markings.

4. The "DANGEROUS" placards may be used when a motor vehicle contains two or more classes of hazardous materials requiring different placards. The "DANGEROUS" placard may be used in place of the separate placards for each class.

5. Portable tanks having a rated capacity of 1000 gallons or more must be placarded.

6. Cargo tanks having any quantity of hazardous material must be placarded.

INSTALLATION:	COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT USA ECAS	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

(1) Directorate of Engineering and Housing (DEH) (2) Environmental Coordinator (EC) (3) Preventive Medicine Officer (6) Director of Logistics (DOL) (7) Fuels Management Officer (DOL/DEH) (8) Transportation/Maintenance Officer (DOL) (9) Chief of Operations and Maintenance (O&M)