Base Program

Attached to letter dated 7/9/84 (general correspondence)

# I. PROGRAM DESCRIPTION

## A. Scope, Structure, Coverage, and Processes of State Program

It is the intention of the Department of Pollution Control and Ecology to administer a Hazardous Waste Program that is equivalent in force and effect to the Federal Program as established by the Resource Conservation and Recovery Act. The State has adopted the EPA Hazardous Waste Regulations of May 19, 1980, as amended. Subsequent regulations promulgated in interim and/or final form through May 18, 1984, have been adopted by reference by the Commission after public hearing.

Additional revisions of the Code are anticipated in order that the State program will remain substantially equivalent to the Federal Program as federal regulations are amended or modified.

### 1. Equivalent and No Less Stringent Programs

### A. Requirements for Identification and Listing - 271.9

The state program controls a universe of hazardous waste identical to 40 CFR Part 261, as amended. The State also regulates the transportation of polychlorinated biphenyls to storage or treatment facilities.

The State adopts, by reference, federal regulations dealing with hazardous waste. Whenever the federal regulations are amended, modified, revoked, expanded, supplemented, or otherwise changed, such revocation, expansion, supplement or other change becomes part of the Arkansas Hazardous Waste Management Code after public hearing and adoption by the Commission.

The following parts of the Federal Register are adopted by reference:

Title 40 Code of Federal Regulations -

1. Subparts A, B, and C of Part 260;

2. Subparts A, B, C, and D of Part 261;

3. Subparts A, B, C, D, and E of Part 262 with the following exception: 262.21, 262.22, 262.23 (for analogous provisions see Section 16 of this Chapter), 262.41 (for analogous provision see Section 13(a)(6));

4. Subparts A, B, and C of Part 263 with the following exceptions: 263.12, 263.20(a), 263.20(d), 263.20(e), 263.20(f), 263.20(g), 263.21(a), 263.21(b), 263.30, and 263.31 (for analogous provisions see Section 16);

5. Subparts A, B, C, D, E, F, G, H, I, J, K, L, M, N, and O of Part 264 with the following exceptions: 264.71(a)(1), 264.71(a)(4), 264.71(b)(4), 264.76 (for analogous provisions see Section 16), 264.75 (for analogous provisions see Section 13(a)(6)), 264.312(b) and 264.314 (for analogous provisions see Section 13(a)(5));

6. Subparts A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, and R of Part 265 with the following exceptions: 265.71(a)(1), 265.71(a)(4), 265.71(b)(4), 265.76 (for analogous provisions see Section 16), 265.75 (for analogous provisions see Section 13(a)(6)), 265.312(b) and 265.314 (for analogous provisions see Section 13(a)(5));

7. Subparts A, B, C, D, E, F, and G of Part 270 with the following exceptions: the definitions of "Hazardous Waste", "Site", "Person", "Manifest", "Permit", "Permit by Rule", "Operator" set forth in 270.2 (for analogous provisions, see Section 2; 270.10(e) (for analogus provisions see Section 12(a) (1)-(5); 270.70 (for analogous provisions see Section 12(a)(6) and (7); and 270.50(a) for analogous provisions see Section 12(o);

8. The definition of "PCB" and"PCB's", "PCB items", "PCB-contaminated electrical equipment" set forth in 761.3;

9. Subparts A of Part 124 with the following exceptions: 124.1. 124.2, 124.3(b), 124.3(d), 124.3(e), 124.4, 124.5(b), 124.4(e), 124.5(g), 124.6(b), 124.9, 124.10(a)(1)(i), 124.10(a)(i)(iv), 124.10(a)(1)(v), 124.12(e), 124.14, 124.15, 124.16, 124.18, 124.19, and 124.21 (see Regulation No. 8 - Administrative Procedures (for analogous provisions as referenced in Section 20 of this Code.

All as in effect on May 18, 1984.

(b) In addition the following temporary or final waste exclusions resulting from petitions filed with EPA under 40 CFR 260.22 (petitions to amend Part 260 to exclude a waste produced at a particular facility) are hereby adopted as this Chapter:

B. Requirement for Generators - 271.10

Generators are subject to the standards, including recordkeeping requirements set forth in 40 CFR 262. Additional requirements and requirements equivalent to Subpart B of 262 are imposed by Section 16 of the Arkansas Hazardous Waste Management Code.

The Arkansas Hazardous Waste Management Code requires persons who transport hazardous waste into the state and out of the state to notify the Arkansas Department of Pollution Control and Ecology. No person shall cause or permit hazardous waste to be transported into or out of the state of Arkansas for purposes of disposal without first having received written authority from the Arkansas Department of Pollution Control and Ecology.

The Department has established a comprehensive manifest system which should, to the greatest extent possible, allow for a "cradle to grave" tracking of hazardous waste generated or disposed of in the State. This system provides for the interstate and international transport of hazardous waste across the borders of Arkansas. See Appendix I for a detailed description of the Manifest System and a copy of the manifest form.

C. Requirements for Transporters - 271.11

Transporters are subject to all standards covered by Section 16 of the Arkansas Hazardous Waste Management Code which is equivalent to 40 CFR 263. In addition, hazardous waste transporters must be permitted by both the Arkansas Transportation Commission and the Arkansas Department of Pollution Control and Ecology. A high level of cooperation is maintained between the two agencies to insure that their regulatory activities are non-duplicative.

## D. Requirements for Facilities - 271.12

A strict regulatory scheme has been developed for hazardous waste management facilities. Facilities are subject to all standards, CFR 264 and 265 and additional performance standards set forth in section 13 of the Arkansas Hazardous Waste Management Code. See pages 1-45, 1-118, and 1-126 for detailed checklists of additional standards.

In addition to the federally imposed requirements, the Arkansas Hazardous Waste Management Code includes provisions for the following:

(a) Facility Siting: The general siting criteria for facilities is contained in Section 5 of the Code. It was written with respect to the State's unique physiography. (See also Section E, General Siting Criteria.)

(b) Certification of Facility Operators: Section 10 of the Arkansas Hazardous Waste Management Code provides for personnel training and personnel procedures for operators to be approved by the Department. The Department is in the process of planning for certification for facility operators. The Department intend to evaluate the background of facility operators through a committee of in-house staff persons. Arrangements will be made for additional courses to be offered through Southern Arkansas University. (See Appendix III for details. See also Section C.)

(c) Baseline Health Survey: As a condition of facility permit, prior to operation, the Department may require that new commercial facilities have a survey conducted to establish baseline health data. Such surveys are discussed in detail in Section 14 of the Code.

## E. Requirements for Permitting - 271.13 and 271.14

Permits will be issued to hazardous waste facilities and transporters. Permit guidelines and procedures, which include an appellate review process, have been developed. A fee structure is also set out in Section 11 of the Arkansas Hazardous Waste Management Code. No permits shall be issued by the Department with a term greater than five years.

## 2. Consistent Program and More Stringent Program

Thus far, Arkansas has adopted, by reference, EPA's regulations which were enacted through May 18, 1984. The Department has established a procedure to accept as interim provisions of the Code all amendments and other changes to the Federal Regulations prior to hearings held to adopt such changes.

Arkansas has adopted, by reference, the EPA regulations found in Parts 260-266, 270, and 124 of Title 40 of the Code of Federal Regulations as well as adopting numerous additional more stringent regulations that meet the specific needs of the State. Federal Regulations not adopted by reference are included as equivalent standards in the Arkansas Hazardous Waste Management Code. A checklist of more stringent regulations may be found on pages 1-45, 1-118, 1-126 and in Section 7, 10, 14, and 15 of the Code. (Appendix IV)

### A. Some of the Arkansas Hazardous Waste Management Code's More Stringent Requirements Include the Following:

-- New TSD facility siting criteria which are more restrictive than EPA's requirements.

-- Qualifications for certification of commercial hazardous waste management facility operators.

-- Permit fee system for TSD facilities and transporters.

-- Performance standards for TSD facilities in addition to those required by EPA.

-- PCB's must be manifested and sent to a treatment or disposal facility.

-- New TSD facilities may be required to conduct a survey to establish baseline health data.

-- TSD ownership disclosure requirements in addition to those required in Part A of EPA Permit Application.

-- Transporter permits required by both Department of Pollution Control and Ecology and Transportation Commission.

-- Hazardous waste cannot be transported into or out of Arkansas without prior approval from the Department of Pollution Control and Ecology.

Some of these more stringent requirements are discussed in detail below. In addition, please refer to pages 1-45, 1-118, 1-126 and Section 7, 10, 14, and 15 of the Arkansas Hazardous Waste Management Code.

B. Exemptions

In addition to the small generator exclusion found in 40 CFR 261.5, Arkansas has also exempted those generators and disposers from the reporting and manifesting requirements found in the State regulations.

Arkansas requires that the small quantities of hazardous waste (less than 1,000 kg/month) be disposed of in one of four ways:

(1) is disposed of in a solid waste disposal facility in the State of Arkansas which has been permitted by the Department to store, treat or dispose of such waste.

(2) is shipped to a hazardous waste management facility in the State of Arkansas which is permitted by the Department to store, treat or dispose of such waste.

(3) is shipped, pursuant to Section 16(t), of this Code, to an approved facility outside the State of Arkansas, or

(4) is treated or disposed of in on-site, solid waste facilities which are permitted in accordance with Act 472 of 1949, as amended, or Act 237 of 1971.

Under Section 9(b) of the Hazardous Waste Management Code, the owner and/or operator of solid waste disposal facilities or hazardous waste TSD facilities shall not accept any hazardous waste, whether or not it is exempted from reporting/manifesting requirements as specified in Section 9(a) and 40 CFR 261.5 unless such facility has received written permission from the Department. In the case of TSD facilities, a facility will be considered to have such permission if it is operating under the provisions of Interim Status to accept such categories of wastes or has been issued a permit to accept such wastes. Solid waste disposal facilities which are permitted by the State to manage solid or industrial wastes may accept hazardous wastes only if the wastes are exempted wastes as specified in Section 9(a) and only after receiving a permit modification as described in Section 9(d) through (f) of the Hazardous Waste Management Code. In addition to the above, in accordance with the Solid Waste Disposal Code, Section 6(f)(8), certain types of wastes, including, but not limited to hazardous substances, may not be discharged to a sanitary landfill without written permission from the Department.

Owners and operators of solid or hazardous waste facilities must inform the Department should they suspect that persons are generating more than 1,000 kg/month.

Arkansas has also adopted the regulations of 40 CFR 262.51 which permit farmers to dispose of waste pesticides from their own use, provided the farmer complies with the requirements in 262.51.

C. Certification of Operators

In addition to the requirements found in 40 CFR Parts 264 and 265, Arkansas has adopted more stringent requirements for certification of commercial TSD facility operators and personnel.

Arkansas requires that one person, certified by the Department, shall be on duty or on fifteen-minute call at all times while a commercial TSD facility is being operated. In some cases, two such persons may be required to be on duty at all times.

These operators must have the following qualifications:

-- Physically capable to perform all tasks.

-- Baccalaureate degree in engineering, physical science, health science or related disciplines, or four years of significant demonstrated experience in such fields.

-- At least four additional years of experience in management, engineering or in conducting chemical/physical analysis.

-- Working familarity with the principles and requirements relative to industrial hygiene, worker safety, emergency procedures, and environmental protection.

-- Basic knowledge of the principles of operation and standard operating procedures for all equipment used in the facility.

-- Citizen of the United States, of good moral character with no prior conviction of a felony or a crime of moral turpitude.

D. Personnel Training

There are also requirements for personnel training in addition to those found in 40 CFR 264.16.

In addition to maintaining records prescribed in 40 CFR 264.16(d), owners and operators of commercial TSD facilities shall:

-- Maintain complete updated records of all workers assigned to specific jobs, including name, address, date of starting specific job and date of termination of specific job.

-- Maintain a complete previous employment history and a complete job mobility history within the facility for each employee.

-- Have their personnel take part in semi-annual review and update of their initial training in contingency plan, which has previously been submitted to the Department and approved.

-- Have each of their personnel undergo an annual health physical. Spouses shall be offered an annual physical.

-- Whenever modification of training is required by modification of permit conditions, owners and operators shall promptly comply.

E. General Siting Criteria

In addition to the general location standards found in 40 CFR 264.18, Arkansas has adopted more restrictive general siting criteria for new treatment, storage, and disposal (TSD) facilities.

No permit can be issued for a new TSD facility located in an active fault zone, a "regulatory floodway", a 100-year floodplain, a recharge zone of sole source aquifer or a "wetland area" which is inundated or saturated by surface or groundwater.

In addition, no permit can be issued for a hazardous waste landfill or surface impoundment that is located in the following areas:

-- High earthquake potential.

-- Soil which would be classified as vertisol or as having a subgroup modifier of vertic.

-- Stratum of limestone or similar rock of an average thickness of more than three feet shall lie within 99 feet of the base of the proposed liner system. (Limestone has either secondary porosity (solution channels that would allow rapid migration of waste) or the potential for secondary porosity)).

-- Bottom of the liner system or inplace soil barrier is less than 10 feet above the historical high water table.

-- Close to any functioning public or private water supply or livestock water supply.

No permit shall be issued for the construction or operation of a new commercial hazardous waste landfill, if the active portions of the facility are located within one-half mile of any occupied dwelling, church, school, hospital or similarly occupied structure at the time the initial permit application is submitted.

No permit shall be issued for a hazardous waste TSD facility, if: (1) the area and configuration of the facility's property is such that the distance between active portions of the facility and the facility's property line is less than 200 feet; (2) the active portions of the facility are located less than 300 feet from the right-of-way for a public road, pipelines carrying natural gas, fuel oils or chemicals, water and wastewater lines, and power transmission lines.

The Department of Pollution Control and Ecology will consider instances in which the permit applicant can demonstrate that the location of such facilities in the above areas would not constitute a risk to the public health or environment.

And, the above restrictions do not apply to treatment facilities which began operation prior to March 14, 1979, or which had an existing operating permit issued by the Department of Pollution Control and Ecology.

F. Performance Standards

(a) The following standards apply, in addition to those of 40 CFR 264 and 265, to hazardous waste management facilities:

1. the capacity of hazardous waste storage facilities associated with a treatment facility shall not exceed a volume equal to ninety times the permitted daily processing rate of the treatment process; unless (1) the Commission shall find that a lesser volume is required to provide adequate protection of public health and safety or (2) the applicant shall affirmatively demonstrate and the Commission finds that such a restriction shall unduly inhibit the use of the most acceptable method or methods available for treatment;

2. the requirements of subsection (a)(1) of this section shall not apply to wastewater treatment facilities which are designed and operated to meet state and federal water pollution control regulations.

3. each facility shall be designed to operate in such a manner that any emissions from the facility will comply with the provisions of the Arkansas Hazardous Waste Management Act of 1979, the provisions of this Code and all applicable state and federal standards concerning air and water quality and that the transfer, handling and storage of materials will not violate state and federal standards concerning worker safety or create unreasonable hazards to the environment or to the health and welfare of the people living and working in or near such facility; and

4. when it is technically feasible that destruction of the waste can be accomplished by incineration utilizing currently available technology, no acutely hazardous waste shall be disposed of in landfills in the State of Arkansas unless the applicant can demonstrate that the waste is not included in Class I high hazard materials as defined in the Chemical Manufacturer's Association's "A System for Management of Hazardous Wastes by Degree of Hazard Under Subtitle "C" of RCRA" dated July 30, 1979 or as revised or amended thereto after approval by the Commission.

Incineration will be deemed technically feasible by the Director for destruction of all acutely hazardous materials for which disposal in landfills is not allowed unless:

(i) the generator or the disposer can demonstrate to satisfaction of the Director that incineration is not technically feasible;

(ii) it is generally accepted by the scientific community that incineration would not be technically feasible or that incineration would not produce the desired results;

(iii) incineration would not appreciably reduce the degree of hazard; or

(iv) the toxicity of the waste results primarily from inorganic materials which are not destroyed by incineration.

The Director may give a waiver to this subsection (13) (a)(4), if it can be demonstrated to his satisfaction that a process other than incineration is available and will be used that would destroy or permanently immobilize the hazard components of the waste prior to landfilling.

(5) No materials in the form of bulk liquids, semi-solids, and sludges may be disposed of in landfills unless such waste is pretreated and/or stablized into cement-like material. Under no circumstances will municipal refuse be placed in a hazardous waste landfill.

3. Adequate Enforcement, Notice, and Hearing in the Permit Process

A compliance monitoring program and an enforcement program have been developed. Inspections are an integral element of the State's compliance monitoring program.

The State Program provides for public participation at numerous decision-making points. Specific public hearing requirements pertain to the hazardous waste program. The State Program provides that both the applicant for a hazardous waste management facility and the Department publish notice of permit application in the newspaper having the largest circulation in the county where the facility is planned. The Department shall give 45 days notice of a hearing on such application; and, the hearing shall be held in the county where the facility is proposed. Once a completed application is received, the Department (with the concurrent action of the Commission) has 270 days to approve or deny a permit application.

During the forty-five-day period between publication of the Department's notice and the hearing date, a copy of the draft permit will be available to the public at the Department and at a public facility (library or school, for example) in the area of the state where the facility is planned.

Consultation and submission of material on program topics by the public can be freely exercised by any citizen during the review process. Department staff and Commissioners will consider all comments and re-evaluate program elements as issues arise.

Another provision of the Arkansas Hazardous Waste Management Code allows the Department director to hold a preliminary hearing on a proposed waste facility in the affected area. This is a discretionary power and should be exercised prior to the full-scale public hearing with the forty-five-day notice.

Minute Order 80-53 of September 26, 1980, provides for public participation in enforcement actions consistent with 40 CFR 271.128 (f) (2)(ii). A public comment policy, adopted July 24, 1981, establishes procedures for receiving public comment and protocol at hearings and commission meetings.

## 4. Ability of the State to Revise Statutes and Regulations

Section 3(C) of the Arkansas Hazardous Waste Management Code establishes the following procedures to adopt, by reference, amendments and other changes to the Federal Regulations:

> The Director, within 180 days after the date of promulgation of any new or revised federal hazardous waste regulations shall conduct rule-making procedures with reference to this Chapter necessary to maintain a State Hazardous Waste Management Program equivalent to the federal program. Such new or revised federal regulations upon their effective date shall constitute minimum guidelines to the Director in formulating rulemaking proposals to this Chapter but shall not be construed to limit or interfere with the adoption of provisions more stringent than federal regulations.

## B. Multiple State Agency Responsibilities

The Arkansas Department of Pollution Control and Ecology has a memorandum of agreement with the Arkansas Transportation Commission. This agreement is included, at this point, as part of the authorization application.

In addition, the Department of Pollution Control and Ecology and the Federal Highway Administration have signed a cooperative agreement to enforce the safety and hazardous materials laws and regulations concerning highway transportation. This memorandum of agreement is also included below.

B. 1

ACKNOWLEDGMENT OF COOPERATIVE AGREEMENT

BETWEEN THE

ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY

AND THE

FEDERAL HIGHWAY ADMINISTRATION

U.S. DEPARTMENT OF TRANSPORTATION

PURSUANT TO PUBLIC LAW 89-170

ACKNOWLEDGMENT OF COOPERATIVE AGREEMENT
BETWEEN THE
ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY
AND THE
FEDERAL HIGHWAY ADMINISTRATOR

WHEREAS, The Administrator of the Federal Highway Administration, United States Department of Transportation, pursuant to Public Law 89-670 (49 USC 1651-1659) and Public Law 89-170 (49 USC 11502(a)), is authorized to make cooperative agreements with the various States to enforce the motor carrier safety and hazardous materials laws and regulations of various States and the United States concerning highway transportation; and,

WHEREAS, For the purpose of implementing the provisions of Public Law 89-170, the Federal Highway Administrator issued regulations, codified in 49 CFR, Part 388, which specifies the terms of the agreement to be effected between the Federal Highway Administrator and the various States; and,

WHEREAS, On June 8, 1982, the Arkansas Department of Pollution Control and Ecology notified the Federal Highway Administrator of its acceptance of the cooperative agreement;

NOW, THEREFORE, The parties signatory hereto on behalf of their respective Agencies do hereby acknowledge the acceptance by the Arkansas Department of Pollution Control and Ecology of the invitation of the Federal Highway Administrator to participate

in a cooperative agreement to enforce the motor carrier safety and hazardous materials laws and regulations of the State of Arkansas and the United States concerning highway transportation.

Dated at Little Rock, Arkansas in duplicate, this 18th day of August, 1982.

FOR THE ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY

Jarrell E. Southall
Director

FOR THE FEDERAL HIGHWAY ADMINISTRATION

R. A. Barnhart
Federal Highway Administrator

Marshall Jacks, Jr.
Associate Administrator for Safety, Traffic Engineering, and Motor Carriers

Kenneth L. Pierson
Director of Motor Carrier Safety

Wesley S. Mendenhall, Jr.
Regional Federal Highway Administrator

# MEMORANDUM OF UNDERSTANDING
# BETWEEN THE
# ARKANSAS DEPARTMENT OF POLLUTION CONTROL & ECOLOGY
# AND THE
# ARKANSAS TRANSPORTATION COMMISSION

The purpose of this Memorandum of Understanding (MOU) is to delineate the areas of responsibility of the Arkansas Department of Pollution Control & Ecology (ADPC&E) and the Arkansas Transportation Commission (ATC) for the enforcement of standards applicable to the shipment and transportation of hazardous waste. This MOU will also set forth areas of joint responsibility and cooperation between the two agencies.

PART I. Statutory Basis

Act 406 of 1979 provides in Section 7 thereof that ATC shall, in consultation with ADPC&E, issue rules and regulations for the transportation of hazardous waste, which rules and regulations shall be consistent with applicable rules and regulations issued by the United States Department of Transportation and with any rules, regulations and standards issued by ADPC&E pursuant to Act 406. Furthermore, Section 4 of said Act 406 provides that ADPC&E shall have the power and duty to administer and enforce all laws, rules, and regulations relating to the transportation of hazardous waste; to adopt rules and regulations for the transportation of hazardous waste including but not limited to, rules and regulations for the containerization and labeling of hazardous waste which, to the extent practical, should be consistent with those issued by various other agencies, including ATC; and to establish a manifest system for the transportation of hazardous waste.

Act 406 therefore delegates to both ADPC&E and ATC authority to regulate and issue permits for transporters of hazardous waste. To some extent, the authority of ADPC&E and ATC regarding the regulation of transporters of hazardous waste is overlapping, while there are other areas over which only one or the other agency has jurisdiction. The purpose of this MOU is to provide agreement between the agencies regarding the discharge of their duties under Act 406, particularly where those duties overlap.

PART 2. Arkansas Department of Pollution Control & Ecology agrees to perform the following duties:

A. Issue permits to applicants for authority to transport hazardous waste in the State of Arkansas, following a determination by ATC of the capability and financial responsibility of the applicant to transport such waste as provided in Part 3A herein.

B. Conduct an ongoing program to monitor compliance of generators and transporters of hazardous waste and hazardous waste management facilities with the regulations of ADPC&E pursuant to Act 406 and with the regulations of the United States Environmental Protection Agency (EPA) pursuant to the Resource Conservation and Recovery Act of 1976 (RCRA).

C. Bring enforcement actions, at times and places deemed appropriate by ADPC&E, involving hazardous waste transporters where the transportation is ancillary to treatment storage or the disposal of hazardous waste or other activites normally under the primary jurisdiction of ADPC&E and/or EPA. (For example, a "midnight dumper" will be considered an illegal disposer. The fact that the "dumper" is transporting the waste is ancillary to the disposal of the waste, and ADPC&E will bring appropriate action against it).

D. Provide to ATC, on a continuing basis, a list of all hazardous waste transporters who have notified EPA and/or ADPC&E pursuant to Section 3010 of RCRA and their identification numbers.

E. Immediately notify ATC of any possible violation of the Arkansas Hazardous Materials Transportation Act, the Arkansas Motor Carrier Act, or Act 406 of 1979 or any regulations of ATC or ADPC&E adopted under any of said Acts of which ADPC&E is aware and to provide that office with all relevant information.

F. Investigate reports from ATC which give ADPC&E cause to suspect that a violation of RCRA, Act 406 or any regulations of either of the agencies to this agreement has occurred and, where warranted, initiate appropriate regulatory enforcement action under RCRA and/or Act 406 or any regulations promulgated thereunder by either of the agencies according to this agrement.

G. Provide ATC with any information obtained during the course of an investigation by ADPC&E which ADPC&E believes may involve a violation of the regulations promulgated by ATC under Act 406 of 1979, the Hazardous Materials Transportation Act or any other State or Federal law granting to ATC jurisdiction and authority to regulate hazardous waste material transportation.

H. Bring enforcement actions to address hazardous waste activities which may present "imminent and substantial hazard to health and the environment" as those words are used in Act 406 of 1979, RCRA, and in other statutes administered by ADPC&E.

PART 3. Arkansas Transportation Commission will perform the following duties:

A. Conduct an investigation upon the filing of an application for a permit to transport hazardous waste within the State of Arkansas so as to be assured of the financial responsibility and physical capability of the applicant transporter to safely and responsibly transport such waste within the State as provided by the regulations of ATC and ADPC&E.

B. Establish and regulate tariffs to be charged by transporters of hazardous waste in the State of Arkansas.

C. Provide to ADPC&E notice of the filing of all applications for permits to transport hazardous waste within the State of Arkansas.

D. Immediately notify ADPC&E of any possible violation of Act 406, RCRA or regulations adopted thereunder of which ATC is aware and provide ADPC&E with all relevant information of such possible violations.

E. Investigate reports from ADPC&E to ATC which gives ATC cause to suspect a violation of Act 406, the Hazardous Materials Transportation Act, or any other Act under which ATC has enforcement authority, and, where warranted, initiated appropriate regulatory or enforcement actions under such Acts or regulations.

F. Provide ADPC&E with any information obtained during the course of an ATC investigation which ATC believes may involve a violation of Act 406, RCRA, or any regulations promulgated under either of said Acts.

PART 4. Each agency which is a party to this agreement will:

A. Coordinate investigations and enforcement actions involving the granting or revocation of permits, violations of Act 406, the regulations of each of the agencies and other applicable laws and regulations to avoid duplication of effort.

B. Maintain a close working relationship with the other, including an exchange of information relative to the anencys' planned hazardous waste material compliance monitoring and enforcement activities.

C. Issue and exchange with the other agency instructions and guidelines implementing this Memorandum of Understanding identifying interagency contacts and liason representatives and setting forth other pertinent operation procedures to be followed relative to this agreement.

D. Conduct joint hearings, where necessary, to determine matters of mutual interest on applications for permits for authority to transport hazardous waste and in proceedings to revoke such permits.

PART 5. Effect

A. This Memorandum of Understanding is not intended to limit in any way the statutory authority or jurisdiction of either agency.

B. Nothing in this Memorandum of Understanding modifies other existing agreements, or precludes either agency from entering into separate agreements, setting forth procedures for special programs which can be handled more efficiently and expeditiously by such special agreement.

C. This Memorandum of Understanding when accepted by both agencies shall continue in effect unless modified by mutual written consent of both agencies or terminated by either agency upon a thirty day written notice.

D. This Memorandum of Understanding becomes effective on the day that the final signature is set forth below.

Arkansas Transportation Commissi

Date 10/28, 1980 by: [signature]

Arkansas Department of Pollution Control and Ecology

Date Oct. 27, 1980 by: [signature]

## C. State Compliance, Tracking, and Enforcement Program

An effective and efficient compliance monitoring and enforcement program is critical to the success of the State's Hazardous Waste Program. The compliance and monitoring system as outlined in this section is designed to assess and monitor compliance with facility standards and generator and transporter requirements equivalent to:

> 40 CFR 262, "Standards Applicable to Generators of Hazardous Waste."
> 40 CFR 263, "Standards Applicable to Transporters".
> 40 CFR 264 and 265, "Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities," "Standards Applicable to existing facilities with interim status" and, any additional standards imposed by Acts 406, 1098, and the State Hazardous Waste Code."

The Compliance and Technical Assistance, the Technical Services and Legal Branches of the Department are responsible for the numerous activities associated with compliance monitoring and enforcement.

RCRA ENFORCEMENT PROCEDURES

ARKANSAS DEPARTMENT OF POLLUTION CONTROL AND ECOLOGY

## 1.1 Introduction and Purpose

These procedures, which will be updated periodically, should be used by Arkansas Department of Pollution Control and Ecology (ADPC&E) personnel to provide for a uniform course of action in all areas of the State.

## 2.1 Communication and Documentation

Before a meeting or an inspection:

(a) review the file.
(b) check appropriate laws and regulations.

Documentation of all communications and action taken by the inspector is essential in developing an enforcement case against a violator. Utilize the appropriate forms to record the following:

(a) inspections.
(b) telephone calls.
(c) complaints.
(d) correspondence.

Limit your advice and actions to those within the scope of your position. Refer legal or technical information requests to the main office for a response.

## 2.2 Investigation Reports

An investigation shall be conducted in response to a citizen's complaint or other evidence that an environmental hazard may exist.

When an investigation reveals that a violation has occurred, the inspector shall prepare an investigation report. An investigation report should contain:

(a) names, addresses and phone numbers.
(b) description of exact location of facility.
(c) statement of observations made.
(d) statement of facts.
(e) reference to photos taken.
(f) inspection forms if applicable.

The photographs should be attached and submitted with the report. The negatives should be maintained by the inspector until the case is closed, at that time, they will be securely attached to the case folder.

## 2.3 Inspection Reports

An inspection form should be completed whenever an inspection is conducted.

## 2.4 Determination of Severity of Violation and Appropriate Enforcement Response

After the inspection or investigation report has been prepared, the nature and extent of all violations should be listed. Taking into consideration enforcement concepts defined in Appendix C, the inspector should decide whether first or second level enforcement should be pursued. Generally, first level enforcement will be a compliance letter from the inspector. Second level enforcement will usually be reviewed and referred by the CTA Branch Manager to the Legal Section for issuance of a Consent Administrative Order or an Administrative Order following an administrative hearing.

## 2.5 Emergency Situations

The Manager of the CTA Branch shall be informed immediately of any situation which, in the inspector's opinion, involves an imminent and substantial hazard to human health or the environment. The CTA Branch Manager shall immediately notify the Deputy Director. In the event that the CTA Branch Manager is unavailable, the inspector shall notify the Deputy Director directly. The CTA Branch Manager/ Deputy Director shall cause the situation to be promptly and thoroughly evaluated and to prepare, if appropriate, an emergency order for issuance by the Director pursuant to the provision of Section 8 of Act 406 of 1979.

## 2.6 First Level Enforcement Compliance Letter

Following the inspection and the completion of the inspection form, a letter shall be prepared by the inspector noting either (a) compliance or (b) non-compliance.

The completed inspection form and the letter shall be submitted to the RCRA Supervisor for review.

The initial letter written noting non-compliance will be known as a Compliance Letter.

A Compliance Letter will be the first letter a facility receives regarding a particular violation. The letter shall follow the prescribed form (see appendix: Compliance Letter). The letter should indicate a time period for correcting the violation and a requirement that the facility notify when compliance is achieved. Where the remedial action will require more than 30 days, the letter should request that the facility prepare a compliance schedule and submit within 30 days. The letter should also include the legal consequences for failure to comply with requirements of the Compliance Letter (i.e., subject to issuance of Order and imposition of penalties).

## 2.7 Extensions

If a facility requests more than 30 days for submitting plans and schedules, an extension may be granted with the concurrence of the CTA Branch Manager.

If the request for an extension to come into compliance exceeds an additional 30 days, the extension may be granted for cause shown with the concurrence of the Deputy Director.

In all cases where the total time for coming into compliance including submission of plans and schedule will exceed six months, the case shall be referred to the CTA Branch Manager for handling by the Legal Section.

## 2.8 Warning Letter

This letter, sent by certified mail, directs the recipient to respond within the time allotted -- usually ten days -- or the matter shall be referred to the Legal Section.

In some cases, it may be appropriate to refer the case to the Legal Section without sending a warning letter.

## 2.9 Second Level Enforcement Response

Second level enforcement action requests will be referred from the Compliance and Technical Assistance Branch Manager to the Legal Section. There are several types of actions which may be taken by the legal staff including making a formal written demand for initiation of compliance activity, negotiation of compliance schedules, calling administrative hearings, and issuing an administrative order, filing civil actions, and referring criminal action. Any of these actions may involve the assessment and collection of monetary penalties. The attorney assigned the case shall make a determination as to the appropriate enforcement action warranted under the circumstances and shall be responsible for advising the Chief Counsel of the type of enforcement action to be initiated, then initiating and completing the appropriate enforcement action/actions necessary to obtain compliance.

Generally, second level enforcement will be an Administrative Order. The concepts in Appendix C will be used as a guideline in determining the severity of a violation and the appropriate enforcement response.

In order to track the progress of the case, the attorney assigned to the case shall be responsible for providing the necessary information to the person assigned to handle the Legal Information System.

Until the computer tracking system becomes operational, the Legal Section will maintain a manual tickler file or system of enforcement action due dates.

## 3.1 Letter Following An Investigation

Following an investigation, the inspector prepares and sends a letter noting the findings -- such as no violations, no jurisdiction, referral to other appropriate agency, or a violation. If a violation is found, the above enforcement procedures will be used to bring the facility into compliance.

The RCRA Supervisor shall be responsible for seeing that the inspector forwards a copy of the report and the letter to the source. The original report and a copy of the letter shall be placed in the appropriate file.

If a referral is to be made, it shall be the responsibility of the RCRA Supervisor to see that referrals are made to the appropriate agency. If the referral is made by phone, a letter confirming the referral and including copies of any relevant information shall be sent by the inspector or the appropriate supervisor.

If no violations are found, a letter shall be sent to the facility noting compliance. Where applicable (see 3.2), copies of correspondence regarding a complaint investigation may be provided to the complainant.

## 3.2 Confidentiality

The complainant should be advised in advance that if he does not wish to be known, then he should not leave his name, address or telephone number. He should also be advised that his name and all other related information may be deemed public information under the Freedom of Information Act, if he wishes his name to be on a recorded complaint or if he wants the status of the Department's investigation and follow-ups to be sent to him.

## 3.3 Response of Facility to the Compliance Letter

| If a facility: | then the CTA Branch: |
|---|---|
| - responds that compliance has been achieved within the time prescribed. | verifies that the facility is in compliance. Follow-up. |
| - does not respond or sends a negative response. | sends a second letter by certified mail containing a copy of original letter, allowing 10 days for a response, and advising that a failure to respond will result in the matter being referred to Legal Section. |
| - requests additional time. | then Department follows procedures in Section 2.7. |
| - does not respond to the "Warning Letter". | the inspector compiles all documentation of violation, including reports, lab analysis, photos, letters, certified mail receipts and submits them to the CTA Branch Manager for referral to the Legal Section. |

3.4 Follow-Up Inspections

On-site follow-ups are not necessary for administrative violations.

The RCRA Supervisor will determine the need for an immediate follow-up inspection in the case of non-administrative violations, taking into consideration the type of and potential for or degree of contamination of the environment and public safety.

In all other cases, the follow-up should be scheduled when the inspector is next in the area.

3.4 If the On-Site Follow-up Reveals

| | |
|---|---|
| - that the facility is in compliance. | then the inspector shall prepare a memo addressing the status of the required compliance activity and letter to the contact person noting that the facility is in compliance. A copy is sent to the inspector's supervisor. |
| - that the facility has not achieved full compliance. | the inspector shall prepare a memo noting compliance achieved and submit it to the RCRA Supervisor for action. If substantial compliance, an extension may be granted for cause shown and in accordance with Section 2.7. The facility must make the request in writing including any necessary supporting data. |
| - that the facility has made no substantial progress towards compliance. | the inspector prepares a memo noting the extent of the continued violation. This information, along with all necessary file information, is sent to the CTA Branch Manager, who refers it to the Legal Section. |

4.1 Work Assignments

All inspections, and complaints received by the Little Rock Office, and investigations requested shall be referred to the RCRA Supervisor for handling. The RCRA Supervisor will schedule all investigations, inspections and requests for assistance. There are two exceptions: A direct request for assistance is made by the Director or Deputy Director where immediate response is necessary for an emergency situation or if the request is made by Emergency Response Coordinator in accordance with the Emergency Operations Plan.

Inspectors who receive direct requests from the Director, Deputy Director or Emergency Response Coordinator shall notify their Supervisor or the Branch Manager prior to responding where possible or as soon as possible after responding.

In the event of a request by the Emergency Response Coordinator, the Emergency Response Coordinator shall be responsible for advising the RCRA Supervisor or CTA Branch Manager at the time of the request if during the normal workday and no later than 8:00 a.m. of the next workday if the request is made prior to the beginning of a workday or on a weekend.

5.1 Information Technical Assistance Meetings

Informal meetings or conferences called to discuss general compliance status, monitoring activities, permit activities and similar matters are not considered to be "compliance hearings".

Informal Technical Assistance meetings may be requested by either Department personnel or the facility to determine what must be done or to clarify the nature of the violation.

It is the responsibility of the RCRA Supervisor to coordinate the scheduling of the meeting, notifying all persons who need to attend and advising the facility.

6.1 Hazardous Waste Data Management System

In order to maintain current information concerning the compliance of permitted and regulated facilities, insure timely responses and resolutions of compliance problems, and track compliance actions of the Department, the Hazardous Waste Data Management System (HWDMS), through use of the Hazardous Waste Compliance Monitoring and Enforcement Logs (M/E Logs) and Legal Information System (LIS) will be utilized by the ADPC&E.

The HWDMS can be very helpful to the Department in accurately tracking compliance activities placed in the system such as the specified period for response to a compliance letter, action dates in a compliance schedule, scheduling of follow-ups, etc. Once a month or as necessary, a list of scheduled actions or time for completing actions will be pulled and provided to the inspector as a reminder of on-going compliance matters that he/she must review and determine status.

It shall be the responsibility of the RCRA Supervisor to see that the inspectors receive a copy of the available print-outs as needed but no less than once per month (once available from HWDMS) reflecting due dates for actions to be taken or responses to be received. Any discrepancies noted from a review of the print-out shall be followed up by the inspector. The person assigned to handle the LIS shall be responsible for obtaining necessary print-outs at least once a month and distributing the print-outs to the attorneys. Chief Counsel shall be responsible for insuring that the attorneys review the print-outs and follow-up on any discrepancies noted.

Until the HWDMS (M/E logs) can be implemented, the RCRA Supervisor shall be responsible for seeing that a manual tickler file for due dates on enforcement actions is maintained by each inspector.

## 7.1 Samples

The following chain of custody procedures demonstrates the reliability of evidence by creating an accurate written record of the possession of the sample from collection to possible introduction into evidence. This procedure will also insure that the samples are collected, transferred, stored, analyzed and destroyed only by authorized personnel.

### Custody

A sample is in custody if it is in any of the following states:

(a) In actual physical possession.
(b) In view, after being in physical possession.
(c) In physical possession and locked up.
(d) In a secure area restricted to authorized personnel only.

### Sample Collection

A. All samples must be tagged or labeled at the time of collection. The tag must contain at a minimum the following items: the station number and location; the date and time taken; the name of the sample collector; and any preservative used.

B. A bound field notebook must be used. It must contain at a minimum the same information as the sample tag and any field measurements and other information necessary to reconstruct the sample collection process. All entries should be signed and all field notebooks should be stored in a safe place.

C. The sample collector is responsible for the care and custody of the samples until they are relinquished. The sample collector must provide the proper storage conditions and insure the delivery of the samples within the permitted holding times. The samples must be in his physical possession or in his view or stored in a locked place at all times.

### Sample Shipment and Transfer of Custody

A. When samples are shipped by common carrier, a bill of lading must be obtained. This bill of lading must be retained as part of the permanent chain of custody.

B. Samples transferred to other personnel for delivery must be accompanied by a chain of custody record. For individual samples, this can consist of a relinquished by signature and a received by signature on the sample tag. For bulk transfer of a group of samples, a separate chain of custody record sheet must be used. This sheet must include the collector's signature, station number and location, and date and time of collection. The transferor and transferee must sign, date and time the record sheet.

C. Samples must be delivered to authorized laboratory personnel and the transfer of custody recorded by signature with date and time of the person relinquishing and the person receiving the samples.

D. The only persons authorized to receive samples in the laboratory shall be the laboratory supervisor and any other lab personnel designated in the Sample Procedures established between the CTA Branch and Technical Services Branch.

Appendix A.
Sample Letters

SAMPLE LETTER SENT BY INSPECTOR TO A FACILITY NOTING COMPLIANCE

Date

xxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx

Dear

On (date), I performed a routine inspection of your facility pursuant to the (state and federal act) and the regulations promulgated pursuant to these laws. This inspection did not reveal any instances of non-compliance with the (state or federal act) and the applicable regulations promulgated pursuant thereto.

If I can be of assistance, please feel free to contact me.

Sincerely,

Field Inspector
Compliance and Technical Assistance
Branch

cc: Facility File

COMPLIANCE LETTER SENT BY INSPECTOR TO A FACILITY NOT IN COMPLIANCE

Date

xxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx

Dear

On (date), I performed a routine inspection of your facility pursuant to the (state or federal act, or regulations). This inspection revealed that you are not in compliance with the requirements of the terms of the permit, regulations, and/or law. Specifically I found the following violations:

1. Describe violation: State or federal regulatory site and summary of needed action. Example: 40 CFR 265.176 - containers of ignitable waste must be at least 50 feet inside property line.

2. (If no permit). You are in violation of (act) and required to have a permit for your operation. You should complete the enclosed application form and submit to:

Arkansas Department of Pollution Control and Ecology
8001 National Drive
Post Office Box 9583
Little Rock, Arkansas 72209

You should immediately undertake to correct the violations noted above. (You should notify me in writing when the violations have been corrected, but not later than _____ days (give specific time not to exceed 30 days). (You should submit a plan and a time schedule for correcting the violations noted within ____ days).

Please be advised that there are civil and criminal penalties for failure to comply with the above regulations. Failure to comply will result in the matter being referred to the Legal Section for appropriate formal enforcement action.

If I can answer any questions, please feel free to contact me.

Sincerely

Field Inspector
Compliance and Technical Assistance
Branch

cc: Facility File

WARNING LETTER SENT BY INSPECTOR TO A FACILITY NOT IN COMPLIANCE

Date

xxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx

Dear

On (date), I wrote to you regarding an (inspection/investigation) I performed on (date). A copy of the letter is enclosed for your review. (You will note that the letter required immediate action to be taken to correct the violations noted). (In the letter you were requested to contact the Permits Branch and obtain an application for a permit and submit the application within ____ days). (You were to advise me in writing within ____ days that the violations has been corrected). (You were to submit plans and a schedule for implementing those plans within ____ days). To date I have not received a reply.

Please be advised that you have ten (10) days from the date you receive this letter to contact me regarding this matter. Failure to do so will result in this matter being referred to the Legal Section for appropriate action. This action may include civil and/or criminal penalties. Your immediate attention to this matter is necessary.

Sincerely

Field Inspector
Compliance and Technical Assistance
Branch

cc: Facility File

SAMPLE LETTER SENT BY AN INSPECTOR AFTER INVESTIGATING A COMPLAINT AND FINDING VIOLATIONS

Date

xxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx

Dear

On (date), I performed an investigation of your (describe source). This investigation was in response to a complaint alleging (described problem). My investigation revealed that you are in violation of the (state or federal law and regulations). Specifically, I found the following violations:

1. Describe violation and state and federal regulatory site and summary of needed action.

2. (If no permit) you are in violation of (act), and required to have a permit for your operation. You should complete the enclosed application forms and submit to:

Arkansas Department of Pollution Control and Ecology
8001 National Drive
Post Office Box 9583
Little Rock, Arkansas 72209

You should immediately undertake to correct the above violations. You should notify me in writing when the violations have been corrected, but not later than ____ days (give specific time not to exceed 30 days). (You should submit a plan and a time schedule for correcting the violations noted within ____ days). Please be advised that there are civil and criminal penalties for failure to comply with the above regulations. Failure to comply will result in this matter being referred to the Legal Section for appropriate action. If I can answer any questions, please feel free to contact me.

Sincerely,

Field Inspector
Compliance and Technical Assistance
Branch

cc: Facility File

SAMPLE LETTER SENT BY INSPECTOR AFTER A COMPLAINT INVESTIGATION

Date

xxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx

Dear

On (date), I performed an investigation of your (describe source), in response to a complaint. The complaint alleged that you were (describe problem).

This investigation did not reveal any instances for non-compliance with the (state or federal act) and the applicable regulations promulgated pursuant thereto.

If I can be of assistance, please feel free to contact me.

Sincerely,

Field Inspector
Compliance and Technical Assistance
Branch

cc: (Complainant if he/she wishes to be identified)
Facility File (if one, otherwise file with other complaints)

Appendix C

Concepts Defining an Aggressive and Effective Enforcement Program

I. Appropriate types of enforcement actions to be taken in response to severity of violations.

A. First Level Enforcement

1. Mechanisms:

a. Citation by inspector.
b. Compliance Letter which should require:

- Time frame for compliance (usually 30 days).
- Legal consequences for failure to comply with requirements of Compliance Letter (i.e., subject to issuance of Order and imposition of penalties, if applicable in State law, or referral).

2. Examples:

In general, these types of actions should be taken when there are violations of procedural or reporting requirements which, in themselves, do not pose direct short-term threats to the public health or environment.

a. Failure to Comply with Requirements For:

- Reporting
- Personnel training, labeling, marking and placarding
- Consulting with local authorities
- Identification Number
- Sufficient number of manifest copies
- Designating an emergency coordinator

b. Manifest Requirements;

- Failure of generator to submit an Exception Report to the State Director when copy of manifest with handwritten signature of owner or operator of designated facility is not received within 45 days of the date waste was accepted by initial transporter.
- Failure to submit a Discrepancy Report to the State Director within 15 days after the owner or operator received the waste.
- Failure to submit an Unmanifested Waste Report to the State Director within 15 days after the owner or operator receives the waste.

c. Closure/Post-Closure Requirements:

- Failure to submit plan to State Director at least 180 days before the date the owner or operator expects to begin closure.
- Failure to remove from the site, or dispose of on-site, all hazardous wastes in accordance with the approved closure plan within 90 days after receiving the final volume of hazardous wastes, or 90 days after approval of the closure plan, if that is later.

- Failure to submit post-closure plan to State Director at least 180 days before the date the owner or operator expects to begin closure.

d. Groundwater Monitoring Requirements:

- Failure to maintain proper documentation.
- Failure to submit routine reports.

e. Financial Responsibility Requirements:

- Failure to comply with timing requirements.
- Failure to make payment into trust 30 to 60 days after anniversary date.
- Failure to make payment into surety more than 60 days after closure cost estimate increase.
- Failure to deliver trust agreement with photocopied signature.
- Failure to include required information letter with letter of credit.

B. Second Level Enforcement

1. Mechanisms

a. Refer to Legal Section (civil).
b. Refer to local prosecuting attorney (criminal).
c. Compliance Order (CO) which should require:

- Correction of violations within 30 days and, where applicable in state law, assessment of penalties.
- Notice and opportunity for hearing.
- Findings of fact.
- Conclusions of law.
- Legal consequences for failure to comply with requirements of CO.

2. Examples:

In general, these types of actions should be taken when violations pose direct immediate harm to public health and the environment.

a. Failure to Comply with Requirements For:

- Interim status standards that result in discharge or imminent threat of discharge to environment.
- Generator or transporter use of manifest system.
- Generator shipment to facility without interim status or permit.
- Transporter delivery to facility not designated by generator.
- Container conditions.
- Wastes kept in containers for less than 90 days.
- Immediate action and discharge clean-up.
- Open burning or security.
- Ignitable, reactive, or incompatible waste.

b. Groundwater Monitoring Requirements:

- Failure to monitor.
- Unjustifiable waiver of requirements.
- Failure to design and operate acceptable monitoring system
- Failure to develop and implement acceptable sampling and analysis plan.
- Failure to prepare and implement acceptable assessment program.
- Failure to submit required reports when contamination is detected.

c. Financial Responsibility Requirements:

- Failure to establish financial assurance for closure and/or post-closure care.
- Failure to use exact wording.
- Failure to send originally signed duplicate.
- Failure to submit financial instruments.
- Failure to establish standby trust fund.
- Cancelling surety bond without State Director's written consent.
- Failure to increase amount and/or not obtaining alternate assurance.
- Obtaining closure insurance with unlicensed or ineligible insurer.
- Failure to pay premium.
- Failure to submit letter and reports required for financial test.
- Failure to notify State Director when financial test is no longer met.
- Failure to provide alternate financial assurance.
- Using multiple mechanisms that provide for less than current closure cost estimate.
- Failure to submit information on multiple facilities covered by one mechanism.
- Failure to notify State Director of bankruptcy proceedings.
- Failure to obtain sudden accidental liability insurance.
- Failure to submit liability endorsement or certificate of insurance.
- Failure to obtain non-sudden accidental liability insurance if required.

d. Part B Permit Application Requirements:

- Failure to submit a Part B Permit application or a closure plan by date specified by State Director.
- Failure to submit a complete Part B application or a closure plan within time frame specified in first Order (issue Notice of Intent to deny Permit).
- Failure to submit a complete Part B application by date specified in notice of deficiency.

Maintenance of Source Information - Inspection Frequency

The Arkansas program will provide for compliance inspections as often as possible; however, resource limitations will require that inspections be scheduled and conducted in priority order.

The CTA Branch Manager shall schedule inspections for major handlers no less frequently than once every year and minor handlers no less frequently than as agreed upon by EPA/State in annual workplans. Whenever inspections reveal that the major/minor status is incorrect, appropriate changes in the listing shall be made. Whenever inspections reveal that a source is not a hazardous waste generator, transporter, or TSD facility a Certification of Exemption is sent to the source. The completed certification is returned to the State, a copy is sent to EPA as documentation to amend the notifiers listing accordingly. The listing shall be further revised as the source's permit status is changed and documented through enforcement proceedings or by information supplied by the Permits Branch.

Determination of Compliance Status

The compliance status of a source shall be measured against the provisions of Act 406 of 1979, Act 1098 of 1979, the Arkansas Hazardous Waste Management Code and any formal schedule of compliance issued or approved by the Department or by the courts. The Environmental Protection Agency's RCRA inspection forms, manuals, and guidance shall be used to determine compliance with concident state and federal requirements. Where a source is affected by state requirements in addition to the coincident federal requirements, the compliance with such additional requirements shall be noted as an addendum to the RCRA inspection form.

Chain-of-custody procedures contained in the State Quality Assurance Plan shall be followed whenever samples are collected as part of a formal inspection.

## Reports and Notices Required for Permittees and Other Regulated Persons

All reports and notices will come to the Division of Solid and Hazardous Waste. It will be logged in and routed to the appropriate division or branch for review and/or action.

## Laboratory Services Available to Support Compliance Monitoring and Enforcement

The Department's Hazardous Waste Laboratory has the necessary capabilities to characterize wastes except by flash point. Flash point must presently be tested on a borrowed instrument. The laboratory can also identify and quantitate hazardous constituents with few exceptions. A normal year's workload would consist of 300-500 samples from compliance sampling, closure monitoring, uncontrolled sites, complaints, etc., including PCB testing. A quality assurance project plan covers the sampling and analysis and requires duplicate and spike samples. A proposed equipment purchase will include analyzers for total organic carbon, total organic halide, and flash point to allow complete coverage of groundwater monitoring and characterization parameters and a new gas chromatograph configured for hazardous waste testing. A gas chromatography mass spectrometer will be purchased in the future to increase sample throughput.

D. Permitting Procedures

Permitting procedures for Components A, B, and C are identical and have been patterned after the procedures contained in 40 CFR Part 270. The complete permit application for a hazardous waste management (RCRA) facility includes both Parts A and B as defined in 40 CFR 270.13, 270.14-270.29, and the Arkansas Hazardous Waste Management (HWM) Code. Part A consists of EPA Forms 1 and 3 of the Consolidated Permit Application Forms. There is no prepared application form for Part B; however, information required to be submitted in Part B is described in detail in 40 CFR 270.14 through 270.29, as revised on April 1, 1983. The respective facility standards can be found in 40 CFR Part 264. Additional requirements and standards for both commercial and non-commercial facilities, as defined in the HWM Code, can be found in Sections 5, 10, and 12 through 15 of the HWM Code. Due to the nature of their operations, commercial hazardous waste management facilities must meet several more stringent permitting standards than corresponding non-commercial facilities. Various checklists have been developed which summarize the permitting requirements and standards. These checklists are provided to the applicant for use in preparing a complete permit application.

Prior to any technical review of a permit application, the application must be deemed to be complete. In order to facilitate this review, it is required that all applications for permits include both Parts A and B, as described above, and any supplemental information required by the HWM Code, unless Part A has been previously submitted/updated for Interim Status and is unchanged. If changes have been made in the operation of the facility, then a revised Part A should be submitted as part of the permit application. In addition, the permit application fee required by Section 11 of the HWM Code should accompany the permit application.

The Department's permits staff will review each application for completeness of information submitted, including the permit fee. This review should be completed within thirty (30 days of receipt for a new facility and within sixty (60) days for an existing facility. Upon completion of this review, the applicant will be notified if any additional information is required.

When all information is present, and the required application fee is paid, the reviewing engineer will conduct a detailed technical review of the application. Upon completion, the engineer will prepare a draft permit (or notice of intent to deny, if appropriate) which, along with other documentation, will be forwarded to the Department Permits Review Committee for comment. Following approval by the Committee, a public notice will be issued announcing the draft permit and setting a forty-five (45) day public comment period. If significant public interest is forthcoming, the Director may schedule a public hearing to receive comments from the public as provided in the Arkansas HWM Code, Section 12(h). The draft permit and any supporting documentation will be available for public scrutiny at one or more of the many depositories throughout the state designated for this reason, in addition to the Department's offices in Little Rock, Arkansas. Upon completion of the 45-day period for public comment, including a hearing, if one is held, the permit will be finalized and submitted to the Commission on Pollution Control and Ecology for final permit action, i.e. issuance or denial. Any appeal of the permit decision will be in accordance with the provisions of the Arkansas Water and Air Pollution Control Act (Act 472 of 1949, as amended), Ark. Stats. 82-1901 et. seq.

In order to minimize confusion among permittees and applicants for permits due to overlapping and/or duplicative regulatory requirements, and to promote a smooth transition from federal to state control of hazardous waste management in the state, Arkansas elected to adopt, by reference, in Section 3 of the HWM Code, applicable federal regulations as promulgated in 40 CFR 270, 271, 124, and 260 - 265. In those few instances where the State has more stringent requirements, the specific federal regulation was excluded from adoption and so indicated in Section 3 of the HWM Code. Consequently, specific permitting procedures and requirements contained in 40 CFR Part 270, including any "unique" permitting procedures, are currently in effect in Arkansas, and are described in detail in the following federal regulations:

| Subject | Regulatory Citation (40 CFR) |
|---|---|
| Transfer of Permits | 270.40 |
| Major Modifications or Revocation and Reissuance of Permits | 270.41 |
| Minor Modifications of Permits | 270.42 |
| Termination of Permits | 270.43 |
| Permits by Rule | 270.60 |
| Emergency Permits | 270.61 |
| Hazardous Waste Incinerator Permits | 270.62 |
| Permits for Land Treatment Demonstrations using Field Tests or Laboratory Anaylses | 270.63 |
| Qualifying for Interim Status | 270.70 |
| Operation During Interim Status | 270.71 |
| Changes During Interim Status | 270.72 |
| Termination of Interim Status | 270.73 |

The flow chart following depicts the major procedural steps followed from the time of permit application to final permit action, accompanied by a brief description of each step in the process.

The State intends to use Part B application completeness checklists provided by EPA, as well as the Part A and Part B Supplemental Checklists which incorporate more stringent requirements of the Arkansas HWM Code and the Wright-Pierce Report.

As part of an integrated management strategy for the protection of Arkansas' groundwater resources, the Department contracted with the Wright-Pierce Engineers, of Topsham, Maine, to prepare guidelines for siting permitted and unpermitted landfills in the State, including hazardous, industrial, and municipal waste landfills.

Using the available information to the maximum extent possible, Wright-Pierce compiled and developed criteria for the determination of the relative groundwater pollution potential of selected sources of contamination. Potential sources of contamination include the following:

(a) Permitted and unpermitted landfills, including hazardous waste, industrial waste, and municipal waste landfills.

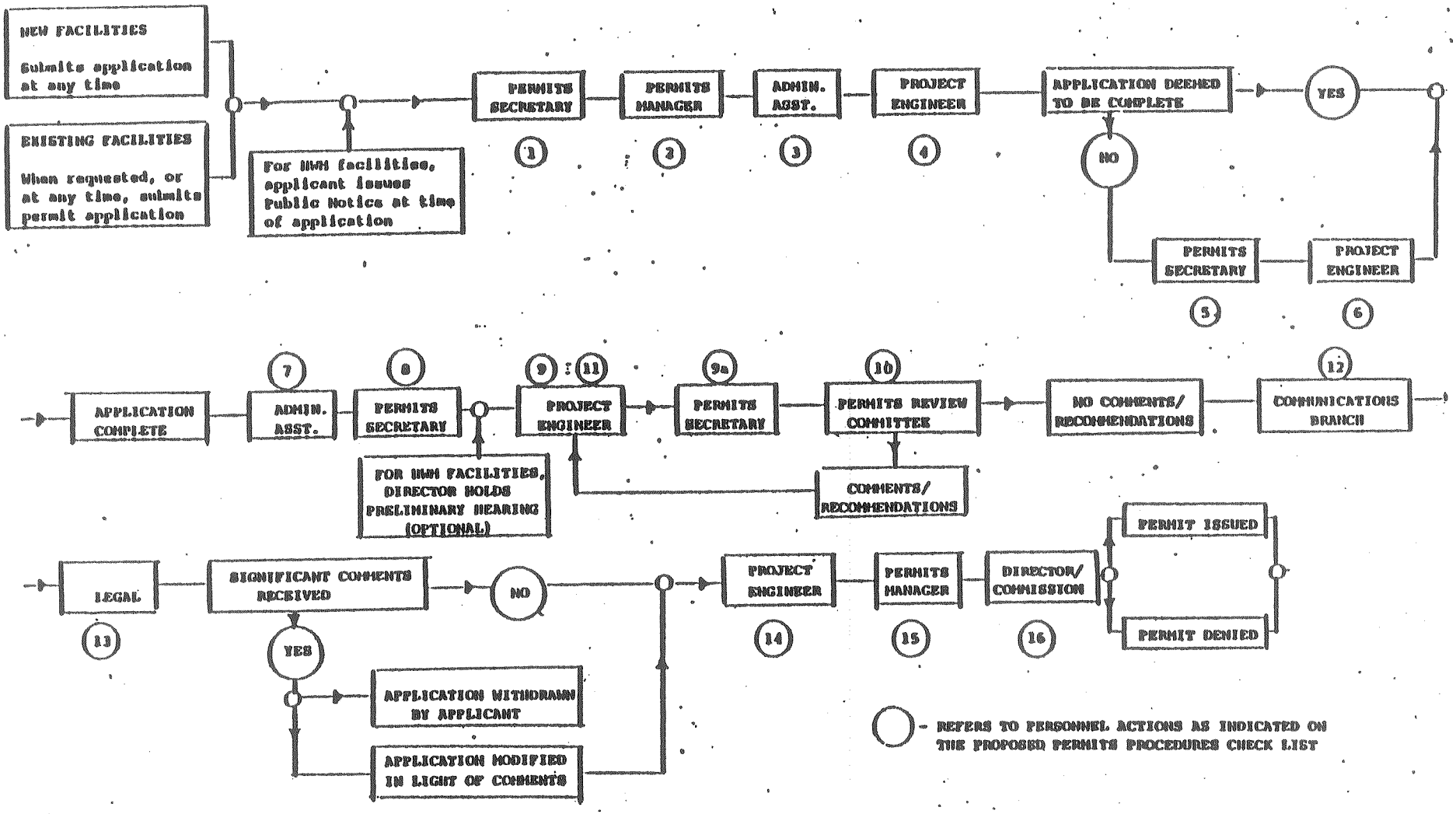
(b) Impoundments ( industrial waste and agricultural waste)

(c) Municipal and industrial wastewater treatment facilities

(d) Land Application Systems.

The Wright-Pierce report addresses pertinent siting and design criteria for the various types of facilities including hazardous waste landfills. The Department has been instructed by the Commission on Pollution Control and Ecology to use the hazardous waste landfill criteria contained in the Wright-Pierce report as guidelines for evaluating commercial hazardous waste landfills.

The latest revisions of the checklists which are used in the Department's permitting program are included in this program description.


NEW FACILITIES
Submits application at any time
EXISTING FACILITIES
When requested, or at any time, submits permit application
For HWM facilities, applicant issues Public Notice at time of application
PERMITS SECRETARY
1
PERMITS MANAGER
2
ADMIN. ASST.
3
PROJECT ENGINEER
4
APPLICATION DEEMED TO BE COMPLETE
YES
NO
PERMITS SECRETARY
5
PROJECT ENGINEER
6
APPLICATION COMPLETE
7
ADMIN. ASST.
8
PERMITS SECRETARY
FOR HWM FACILITIES, DIRECTOR HOLDS PRELIMINARY HEARING (OPTIONAL)
9 : 11
PROJECT ENGINEER
9a
PERMITS SECRETARY
10
PERMITS REVIEW COMMITTEE
COMMENTS/ RECOMMENDATIONS
NO COMMENTS/ RECOMMENDATIONS
12
COMMUNICATIONS BRANCH
LEGAL
13
SIGNIFICANT COMMENTS RECEIVED
YES
APPLICATION WITHDRAWN BY APPLICANT
APPLICATION MODIFIED IN LIGHT OF COMMENTS
NO
PROJECT ENGINEER
14
PERMITS MANAGER
15
DIRECTOR/ COMMISSION
16
PERMIT ISSUED
PERMIT DENIED
- REFERS TO PERSONNEL ACTIONS AS INDICATED ON THE PROPOSED PERMITS PROCEDURES CHECK LIST

(RCRA, UIC, NPDES, PSD, SOLID WASTE, STATE WATER AND AIR)

| PERSON/OFFICE RESPONSIBLE | ACTION | DATE ACCOMPLISHED |
|---|---|---|
| PERMITS SECRETARY<br>(1) | 1. Date application received | |
| | 2. Date Logged in | |
| | 3. Assigned Permit # _____, CSN _____ | |
| | 4. File established | |
| | 5. Letter of acknowledgement sent to applicant | |
| PERMITS MANAGER<br>(2) | 1. Assigned _____ as project engineer. | |
| PERMITS SUPERVISOR<br>ADMINISTRATIVE ASSISTANT<br>(3) | 1. Reviews application for administrative completeness | |
| | 2. Forwards application with any discrepancies to project engineer | |
| PROJECT ENGINEER<br>(4) | 1. Reviews application for technical completeness | |
| | 2. Forwards discrepancy list to Permits secretary | |
| PERMITS SECRETARY<br>(5) | 1. Sends applicant notice of deficiency, if applicable. | |
| | 2. Receives supplemental information from applicant; forwards to project engineer | |
| PROJECT ENGINEER<br>(6) | 1. Reviews supplemental information and makes determination of adequacy | |
| | 2. Contacts applicant for additional information as required | |
| | 3. APPLICATION DEEMED TO BE COMPLETE | |

| RESPONSIBLE | | ACCOMPLISHED |
|---|---|---|
| PERMITS SUPERVISOR<br>ADMINISTRATIVE ASSISTANT<br>(7) | 1. Prepares Project Decision Schedule, if applicable. (Applicable only to major new HWM facilities, major new UIC wells, major NPDES new sources, major NPDES new dischargers) | |
| PERMITS SECRETARY<br>(8) | 1. Sends letter of completeness to applicant, including Project Decision Schedule, if one is prepared for the facility | |
| PROJECT ENGINEER<br>(9)<br>(9a) | 1. FOR NPDES /WATER: Submits Information Request Form (IRF) to Water Planning Section, if required).<br>2. Information received from WPS<br>3. FOR PSD PERMITS: Submits ambient monitoring data to Technical Services for determination of adequacy.<br>4. Receives response from TECH Services<br>5. FOR PSD PERMITS: Forwards emission data to Air Division for modelling.<br>6. Receives Impact Analysis from Air Division<br>7. FOR ALL PERMITS: Conducts detailed technical review of application<br>8. Prepares draft permit, or notice of intent to deny, as applicable<br>9. Prepares fact sheet and rationale for major facilities, or statement of basis for others<br>10. Forwards draft permit and documentation to Secretary for typing and on to Permits Review Committee | |
| PERMITS REVIEW COMMITTEE<br>(10) | 1. Reviews application, draft permit, and supporting documentation<br>2. Forwards comments/recommendations to project engineer | |
| PROJECT ENGINEER<br>(11) | 1. Modifies draft permit, if required<br>2. Prepares information for Public Notice; forwards to Communications Branch. | |

| PERSON/OFFICE RESPONSIBLE | ACTION | DATE ACCOMPLISHED |
|---|---|---|
| COMMUNICATIONS BRANCH (12) | 1. Prepares and issues Public Notice in accordance with 40 CFR 124.10<br>2. Receives all comments from interested parties | |
| LEGAL (13) | 1. Conducts Public Hearing, if one is required | |
| PROJECT ENGINEER (14) | 1. Prepares final permit<br>2. Prepares Response to Comments | |
| PERMITS MANAGER (15) | 1. Prepares permit for presentation to Director/Commission, as applicable | |
| DIRECTOR/ COMMISSION (16) | 1. Approves/disapproves permit<br>2. For permits approved by Director, permit presented to Commission for consideration | |

PART A SUPPLEMENTAL CHECKLIST
REQUIRED BY
ARKANSAS HAZARDOUS WASTE MANAGEMENT CODE

IN ADDITION TO THE REQUIREMENTS OF PART A (EPA FORMS 1 AND 3), AN APPLICANT FOR A PERMIT TO CONSTRUCT AND/OR OPERATE A COMMERCIAL HAZARDOUS WASTE MANAGEMENT FACILITY SHALL SUBMIT THE FOLLOWING INFORMATION TO THE DEPARTMENT ALONG WITH PART A:

A-1 Waste Origination HWM Code, Section 12(a)(4)

For each waste described in Part A, Form 3, the applicant shall provide the name and address of the generator of the waste.

A-2 Ownership Disclosure HWM Code, Section 15

A-2a Business Operations HWM Code, Section 15(a)(1)

If not an individual, the applicant must state the nature of its business operations for the past 5 years.

A-2a(1) Organizational Chart HWM Code, Section 15(a)(2)

Submit a chart or listing showing identities and interrelationships among the applicant and all affiliates of the applicant.

A-2a(2) Business Information HWM Code, Section 15(a)(3)

For the permit applicant, if he or she is an individual, or for all individuals who are directors, executive officers, or owners of 10% or more of the voting securities of the applicant if not an individual, the following information shall be provided: Name and business address; present principal business activity, occupation, or employment position held; name of corporation or other organization where such employment is carried on; material positions, occupations, offices or employments during the past five years; convictions of criminal proceedings (excluding minor traffic violations during the past 10 years), including the date, nature of conviction, name and location of court, and penalty imposed or other disposition of the case.

A-2a(3) Ultimate Controlling Person HWM Code, Section 15(a)(4)

Submit the following information concerning the ultimate controlling person (a person not controlled by any other person), if different from the applicant: Principal executive office address; principal business of the person; name and address of any person who holds or owns 10% or more of any class of voting security; the class of such security, the number of shares held, and the percentage so held; and, with respect to directors and executive officers of the ultimate controlling person, the individual's name and address, his principal occupation and all offices and positions held during the previous 5 years; and any convictions of crimes other than minor traffic violations during the past 10 years.

A-2a(4) Briefs of Litigation or other Administrative Proceedings HWM Code, Section 15(a)(5)

The permit application shall contain a brief description of any litigation or administrative proceedings of the following types, either pending or concluded within the previous year, to which the applicant, including the ultimate controlling person and any of its directors or executive officers was a party or property of such person was the subject: (1) Administrative proceedings by government agency or authority concerning environmental violations, (2) proceedings which may have a material effect upon the solvency of the ultimate hodling company, including, but not necessarily limited to, bankruptcy, and receivership, and (3) criminal proceedings.

A-2(a)(5) Annual Update HWM Code, Section 15(a)(6)

The permit applicant shall disclose on an annual basis any changes in the information requested in sections A-2a through A-2a(4).

# SUGGESTED FORMAT AND CONTENT

# for

# RCRA PART B PERMIT APPLICATION

Prepared by

Douglas L. Hazelwood
Kay M. Holub

August 1983

SUBJECT REQUIREMENT: 40 CFR Section Nos.

A. PART A APPLICATION: 270.10, 270.13

B-1 General Description: 270.14(b)(1)

Describe the facility, including the nature of the business. Off-site facilities should identify the types of industry served; on-site facilities should briefly describe the process(es) involved in the generation of hazardous waste.

B-2 Topographic Map: 270.14(b)(19), 270.14(c)(3), 270.14(c)(4), 264.95, 264.97

B-2a General Requirements: 270.14(b)

Show the facility and a distance of 1,000 feet around it, at a scale of 1 inch equal to not more than 200 feet. The map must include: contours sufficient to show surface water flow around facility unit operations, map date, 100-year floodplain area, surface waters, surrounding land uses, a wind rose, map orientation, and legal boundaries of facility site. The map should also indicate location of access control, injection and withdrawal wells, buildings, structures, sewers, loading and unloading areas, fire control facilities, flood control or drainage barriers, run-off control systems, and location of hazardous waste operation units.

B-2b Additional Requirements for Land Disposal Facilities: 270.14(c)(3), 270.14(c)(4), 264.95, 264.97

The topographic map must also indicate the waste management area boundaries, property boundaries, proposed point of compliance, proposed groundwater monitoring well locations, the locations of the uppermost aquifer and aquifers hydraulically interconnected beneath the facility (including flow direction and rate), and if present, the extent of the plume of contamination that has entered the groundwater from a regulated unit.

B-3b Floodplain Standard: 270.14(b)(11)(iii), 264.18(b)

Document whether or not the facility is located within a 100-year floodplain, and include the source of data (Federal Insurance Administration Map or equivalent maps and calculations).

B-3b(1) Demonstration of Compliance: 270.14(b)(11)(iv), 264.18(b)

For facilities located within the 100-year floodplain, describe how the facility is designed, constructed, operated, and maintained to prevent washout of any hazardous waste during a flood.

B-3b(1)(a) Flood Proofing and Flood Protection Measures: 270.14(b)(11)(iv)(A) and (B)

Provide a structural or other engineering study showing how the design of the hazardous waste units and the flood proofing and protection devices at the facility will prevent washout.

B-3b(1)(b) Flood Plan: 270.14(b)(11)(iv)(C)

Describe the procedures to be followed to remove hazardous waste to safety before the facility is flooded, including timing related to flood levels, estimated time to move the waste, the location to which the waste will be moved, demonstration that those facilities will be eligible to receive hazardous waste, the planned procedures, equipment, and personnel to be used, and the potential for accidental discharge of the waste during movement.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

B-3b(2) Waiver for Land Storage and Disposal Facilities: 264.18(b)(11)

If a waiver from the Floodplain Standard is requested, the owner or operator must demonstrate that there will be no adverse effects on human health or the environment if washout occurs. The following factors must be considered in this demonstration: the volume and physical and chemical characteristics of the waste; the concentration of hazardous constituents that would potentially affect surface waters; the impact of such concentrations on the current or potential uses of and water quality standards established for the affected surface waters; and the impact of hazardous constituents on the sediments of affected surface waters or the soils of the 100-year floodplain.

B-3b(3) Plan for Future Compliance With Floodplain Standard: 270.14(b)(11)(v)

For facilities located within the 100-year floodplain that do not comply with the floodplain standard, show how and when the facility will be brought into compliance.

B-4 Traffic Information: 270.14(b)(10)

Describe the traffic pattern on-site, including estimated volume, traffic control, access road surfacing, load-bearing capacity, and traffic control signals.

C-1 Chemical and Physical Analyses: 270.14(b)(2), 264.13(a)

For each hazardous waste stored, treated or disposed at the facility, describe the waste, the hazard characteristics, the basis for hazard designation, and provide a laboratory report detailing the chemical and physical analyses of representative samples.

C-1a Containerized Waste: 270.15(b)(1)

For owners and operators that store containers of wastes without a secondary containment system, provide the test procedures and results, or other documentation or information, which show that the wastes do not contain free liquids (see D-1b(1)).

C-1b Waste in Tanks: 264.191

Provide the maximum specific gravity of wastes to be stored in tanks.

C-1c Waste in Piles: 264.250(c)(1)

For owners and operators requesting a waiver from the waste pile requirements, provide the test procedures and results, or other documentation or information, which show that the wastes do not contain free liquids when placed on the pile and that the wastes will not generate leachate through decomposition or other reactions while being stored.

C-1d Landfilled Wastes: 264.314

Provide the test procedures and results, or other documentation or information, showing that wastes do not contain free liquids if a liner and leachate collection and removal system is not employed.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

C-1e Wastes Incinerated and Wastes Used in Performance Tests: 270.62(2)(ii)(A)

Analyses must be provided for each waste or waste mixture to be burned during operation and for the waste feed (to be) used in the performance tests, including: heat value; viscosity of liquids; physical form of nonliquids; identification of Appendix VIII hazardous organic constituents reasonably expected to be present; chlorine concentration; and ash content. If data is submitted in lieu of a trial burn, applicant must quantify potential POHCs and provide a comparison of wastes used in performance tests and those for which permit is sought demonstrating similarity.

C-1f Wastes to be Land Treated: 270.20(b)(4), 264.271(a)(2)

Provide the concentration of cadmium in all wastes to be land treated.

C-2 Waste Analysis Plan: 270.14(b)(3), 264.13(b) and (c)

Provide a copy of the waste analysis plan that describes the methodologies for conducting the analyses required to properly treat, store, or dispose of hazardous wastes.

C-2a Parameters and Rationale: 264.13(b)(1)

List parameters chosen for analysis and explain the rationale for their selection.

C-2b Test Methods: 264.13(b)(2)

Describe the test methods used to test for parameters chosen.

C-2c Sampling Methods: 264.13(b)(3), 261 Appendix I

List the sampling methods used to obtain a representative sample of each waste to be analyzed.

C-2d Frequency of Analyses: 264.13(b)(4)

Describe the frequency at which the analyses will be repeated.

C-2e Additional Requirements for Wastes Generated Off-Site: 264.13(c)

Describe the procedures used to inspect and/or analyze wastes generated off-site, including procedures to determine their identity and sampling methods used.

C-2f Additional Requirements for Ignitable, Reactive or Incompatible Wastes: 264.13(b)(6), 264.17

Describe the methods uned to meet additional waste analysis requirements necessary for treating, storing, or disposin of ignitable, reactive or incompatible wastes.

D-1a(1) Description of Containers: 264.171, 264.172

Describe the facility's primary containment devices, including basic design parameters, dimensions, materials of construction, and compatibility of waste with containers.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-1a(2) Container Management Practices: 264.173

Describe container management practices used to ensure that hazardous waste containers are always kept closed during storage, except when adding or removing waste, and are not opened, handled, or stored in a manner that may cause them to rupture or to leak.

D-1a(3) Secondary Containment System Design and Operation: 270.15(b)(1), 264.175(a)

Describe the design and operation of the container storage area containment system showing the capability of the system to hold spills, leaks, and precipitation. This secondary containment system must have the following documented characteristics:

D-1a(3)(a) Requirement for the Base or Liner to Contain Liquids: 264.175(a)(1)

The base under the containers must be free of cracks or gaps and sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed.

D-1a(3)(b) Containment System Drainage: 270.15(a)(2), 264.175(a)(2)

The base must be sloped or the containment system must be otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation, unless the containers are elevated or are otherwise protected from contact with accumulated liquids.

D-1a(3)(c) Containment System Capacity: 270.15(a)(3), 264.175(a)(3)

The containment system must have sufficient capacity to contain 10 percent of the volume of containers or the volume of the largest container, whichever is greater.

D-1a(3)(d) Control of Run-on: 270.15(a)(4), 264.175(b)(4)

Run-on into the containment system must be prevented, unless the collection system has sufficient excess capacity in addition to that required in the above paragraph to contain any run-on that might enter the system.

D-1a(4) Removal of Liquids from Containment System: 270.15(a)(5), 264.175(b)(5)

Spilled or leaked waste and accumulated precipitation must be removed from the sump or collection area in a timely manner to prevent overflow of the containment system.

D-1b(1) Test for Free Liquids: 270.15(b)(1)

For areas that store containers of wastes that do not contain free liquids, the test procedures and results or other documentation or information must show that the wastes do not contain free liquids.

D-1b(2) Description of Containers: 264.171, 264.172

Describe the facility primary containment devices, including basic design parameters, dimensions, materials and construction, and demonstration of compatibility of waste with containers.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-1b(3) Container Management Practices: 264.173

Describe container management practices used to ensure that hazardous waste containers are always kept closed during storage except when adding or removing waste, and are not opened, handled, or stored in a manner that may cause the container to rupture or to leak.

D-1b(4) Container Storage Area Drainage: 270.15(b)(2), 264.175(c)

Describe how the storage area is designed or operated to drain and remove liquids unless containers are otherwise kept from contact with standing liquids.

D-2a Description of Tanks: 270.16, 264.191

Provide a review of tank design specifications to assure that the tanks will not collapse or rupture. The specifications to be reviewed include existing shell thickness, capacity, width, height and material of construction, pressure controls, foundation, structural support, and seams.

D-2b Tank Corrosion and Erosion: 270.16(b), 264.192(a)

Provide a review of the pertinent characteristics of the tank construction material and lining materials to determine corrosion or erosion effects with wastes and other materials (i.e., treatment reagents).

D-2c Tank Management Practices: 270.16(d) and (e), 264.192(b)

Describe the tank owner's or operator's operating practices and controls to prevent overfilling (such as a waste feed cut-off system or bypass system to a standby tank) and to maintain sufficient freeboard to prevent overtopping of uncovered tanks by wave or wind action or by precipitation.

D-3a List of Wastes: 270.18(a)

Provide a list of all hazardous wastes placed or to be placed in waste piles.

D-3b(1) Enclosed Dry Piles: 270.18(b), 264.250(c)

If an exemption is requested from the requirements to install a liner and leak detection system and the Subpart F groundwater monitoring requirements, demonstrate that neither run-off nor leachate is generated from the pile.

D-3b(1)(a) Protection From Precipitation: 270.18(b), 264.250(c)

Demonstrate that the pile is inside or under a structure that provides complete protection from precipitation.

D-3b(1)(b) Free Liquids: 270.18(b), 264.250(c)(1)

Demonstrate that neither liquids nor materials containing free liquids are placed in the pile.

D-3b(1)(c) Run-on Protection: 270.18(b), 264.250(c)(2)

Demonstrate that the pile is protected from surface water run-on by the structure or in some other manner.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-3b(1)(d) Wind Dispersal Control: 270.18(b), 264.250(c)(3)

Demonstrate how the pile design and operation controls wind dispersal of wastes.

D-3b(1)(e) Leachate Generation: 270.18(b), 264.250(c)(4)

Demonstrate that the pile will not generate leachate through decomposition or other reactions.

D-3b(2) Liner Exemption Request: 270.18(c)(1), 264.251(b)

If an exemption is requested from only the liner requirement, document the design and operating practices that will, in conjunction with local aspects, prevent the migration of hazardous constituents into ground or surface waters at any future time.

D-3c Liner Engineering Report: 270.18(c)(1), 264.251(a)(1)

Provide a description of the liner system, demonstrating that the flow of liquids through the liner(s) will be prevented. Only existing portions of existing facilities are exempt from the liner requirements.

D-3c(1) Liner Description: 270.18(c)(1), 264.251(a)(1)

Describe the type of liner, its material, USCS-type data for soil liners, the liner's thickness and, for synthetics, the manufacturer and the product's name.

D-3c(2) Liner Location Relative to High Water Table: 270.18(c)(1), 264.251(a)(1)

Provide data showing seasonal fluctuations in the depth to the water table and the location of the seasonal high water table in relation to the liner system.

D-3c(3) Calculation of Required Soil Liner Thickness: 270.18(c)(1), 264.251(a)(1)

For units utilizing a primary soil liner, demonstrate that the thickness of the soil liner is sufficient to retard liquid flow through it such that leachate would be wholly contained throughout the active life of the unit. Calculations using either numerical simulation techniques (unsaturated flow conditions) or D'arcy Law-derived transit time equations (saturated flow conditions) should be provided.

D-3c(4) Liner Strength Requirements: 270.18(c)(1), 264.251(a)(1)

Provide the results of calculations defining the minimum strength requirement for liners considering:

- Internal and external pressure gradients;
- Stresses resulting from settlement, compression or uplift;
- Climatic conditions (freeze-thaw stress);
- Installation stresses; and
- Operating stresses.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-3c(5) Liner Strength Demonstration: 270.18(c)(1), 264.251(a)(1)

Provide data showing that the liner exceeds the calculated minimum strength requirement.

D-3c(6) Liner/Waste Compatibility Testing Results: 270.18(c)(1), 264.251(a)(1)

Provide the results of liner/waste compatibility testing demonstrating that liner strength and performance are still adequate after exposure to waste leachates. Both primary and secondary leachates should be used in this testing.

D-3c(7) Liner Installation: 270.18(c)(1), 264.251(a)(1)

Describe the procedures for installing the liner(s).

D-3c(7)(a) Synthetic Liner Seaming: 270.18(c)(1), 264.251(a)(1)

Describe the techniques to be utilized to bond membrane liner seams and the strength and chemical compatibility of th seams.

D-3c(7)(b) Soil Liner Compaction: 270.18(c)(1), 264.251(a)(1)

Describe the procedures for installing the soil liner and compacting the liner to achieve the desired permeability. Include the maximum height of lifts to be placed.

D-3c(7)(c) Installation Inspection/Testing Programs: 270.18(c)(1), 264.254(a)

Describe the inspection, monitoring, sampling and testing methods (and frequencies) to be employed during liner installation to assure that the liner system as installed meets the design requirements.

D-3c(8) Liner Coverage: 270.18(c)(1), 264.251(a)(1)(iii)

Demonstrate that the liner will be installed to cover all surrounding earth likely to be in contact with the waste o leachate.

D-3c(9) Liner Exposure Prevention: 270.18(c)(1), 264.251(a)(1)

Demonstrate that the liner will not be exposed to wind or sunlight or, if exposure is to be permitted, that such exposure will not result in unacceptable liner degradation.

D-3c(10) Synthetic Liner Bedding: 270.18(c)(1), 264.251(a)(1)

Demonstrate that sufficient bedding will be provided above and below the liner to prevent rupture during installatio and operation.

D-3d(1) Liner Foundation Design Description: 270.18(c)(1), 264.251(a)(1)(ii)

Describe the liner foundation design and materials of construction. Describe the capability of the foundation to support any expected static and dynamic loadings.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-3d(2) Subsurface Exploration Data: 270.18(c)(1), 264.251(a)(1)(ii)

The engineering characteristics of the foundation materials should be verified through subsurface explorations. These efforts should be described and may include:

- Test borings;
- Test pits or trenches;
- In situ tests; and
- Geophysical exploration methods.

D-3d(3) Laboratory Testing Data: 270.18(c)(1), 264.251(a)(1)(ii)

Results from sufficient index testing should be provided to classify the site materials. Other lab test data should be provided to evaluate the engineering properties of the foundation materials, particularly for strength, hydraulic conductivity, compressibility, and other important design parameters.

D-3d(4) Engineering Analyses: 270.18(c)(1), 264.251(a)(1)(ii)

Engineering analyses should be provided which are based on the data gathered through subsurface exploration and laboratory testing programs.

D-3d(4)(a) Settlement Potential: 270.18(c)(1), 264.251(a)(1)(ii)

Provide estimates of the total and differential settlement, including immediate settlement, primary consolidation and secondary consolidation. Stresses imposed by liners, wastes and equipment should be considered.

D-3d(4)(b) Bearing Capacity and Stability: 270.18(c)(1), 264.251(a)(1)(ii)

Provide estimates of the bearing capacity and stability of the foundation, demonstrating that allowable bearing capacity will not be exceeded.

D-3d(4)(c) Potential for Bottom Heave or Blow-out: 270.18(c)(1), 264.251(a)(1)(ii)

Provide estimates of the potential for bottom heave or blow-out due to unequal hydrostatic or gas pressures.

D-3d(4)(d) Construction and Operational Loading: 270.18(c)(1), 264.251(a)(1)(ii)

Demonstrate that the foundation is capable of providing adequate support for construction equipment and operating equipment (e.g., dredges).

D-3d(5) Foundation Installation Procedures: 270.18(c)(1), 264.251(a)(1)(ii)

For installed foundations, provide a description of the foundation installation procedures.

D-3d(6) Foundation Installation Inspection Program: 270.18(c)(1), 264.251(a)(1)(ii)

Describe the inspection, monitoring, sampling and testing methods (and frequencies) to be employed during foundation installation to assure that the foundation as installed meets the design requirements.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-3e **Leachate Collection and Removal System:** 270.18(c), 264.251(a)(2)

Provide information describing the design and operation of a system to collect and remove leachate from new portions of existing waste piles and from new waste piles.

D-3e(1) **System Design and Operation:** 270.18(c), 264.251(a)(2)

Describe the design features of the leachate collection and removal system and how the system will function to remove collected leachate in a timely manner. Describe the features that will prevent leachate depth over the liner from exceeding one foot.

D-3e(2) **Chemical Resistance:** 270.18(c), 264.251(a)(2)

Demonstrate that the leachate collection and removal system components are chemically resistant to the waste managed in the pile and the leachate expected to be generated.

D-3e(3) **Strength of Materials:** 270.18(c), 264.251(a)(2)

Demonstrate that system components are of sufficient strength and thickness to prevent collapse under expected static and dynamic loadings.

D-3e(4) **Prevention of Clogging:** 270.18(c), 264.251(a)(2)

Demonstrate that the system design and operation will prevent clogging throughout the active life of the pile.

D-3e(5) **Installation:** 270.18(c), 264.251(a)(2)

Describe the methods to be employed to install the leachate collection and removal system. Include a description of the inspection program to be implemented to assure installation in accordance with design requirements.

D-3e(6) **Maintenance:** 270.18(c), 264.251(a)(2)

Describe anticipated maintenance activities that will be used to assure proper leachate management system operation throughout the pile's expected active life.

D-3f **Run-on Control System:** 270.18(c)(2), 264.251(c)

Describe the system that will be used to prevent run-on onto active portions of piles.

D-3f(1) **Calculation of Peak Flow:** 270.18(c)(2), 264.251(c)

Identify the peak surface water flow expected to result from a 25-year design storm. Describe the data sources and methods used to make the peak flow calculation.

D-3f(2) **Design and Performance:** 270.18(c)(2), 264.251(c)

Describe the run-on control system design. Demonstrate that system design will prevent run-on from reaching active portions of the unit.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-3f(3) Construction: 270.18(c)(2), 264.251(c)

Describe the methods to be employed to construct the run-on control system. Include descriptions of any construction inspection program to be utilized to assure construction in accordance with design requirements.

D-3f(4) Maintenance: 270.18(c)(2), 264.251(c)

Describe any maintenance activities required to assure continued proper run-on system operation throughout the unit's active life.

D-3g Run-off Control System: 270.18(c)(3), 264.251(d)

Describe the run-off control system to be used to collect and control run-off from active portions.

D-3g(1) Calculation of Peak Flow: 270.18(c)(3), 264.251(d)

Identify the total run-off volume expected to result from a 24-hour 25-year storm. Describe data sources and methods used to make the peak flow calculation..

D-3g(2) Design and Performance: 270.18(c)(3), 264.251(d)

Describe the run-off collection and control system design. Demonstrate that the system has sufficient capacity to collect and hold the total run-off volume calculated in D-3g(1).

D-3g(3) Construction: 270.18(c)(3), 264.251(d)

Describe the methods to be employed to construct the run-off collection and control system. Include descriptions of any construction inspection program to be employed to assure construction in accordance with design requirements.

D-3g(4) Maintenance: 270.18(c)(3), 264.251(d)

Describe any maintenance activities required to assure continued proper run-off system operation throughout the unit's active life.

D-3h Management of Collection and Holding Units: 270.18(c)(4), 264.251(e)

Describe how collection and holding facilities associated with run-on and run-off control systems will be emptied or otherwise managed expeditiously after storms to maintain system design capacity.

D-3i Control of Wind Dispersal: 270.18(c)(5), 264.251(f)

If the pile contains any particulate matter which may be subject to wind dispersal, describe how the pile is covered or otherwise managed to control wind dispersal.

D-3j Double-Liner Exemption: 270.18(d), 264.252

If an exemption from the Subpart F groundwater monitoring requirements is sought, provide design data for a double-liner system incorporating a leak detection system between liners and a leachate collection and removal system above the top liner (liners should be described in D-3c and leachate collection/removal systems in D-3e).

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-3j(1) Leak Detection System Design: 270.18(d), 264.252(a)(3)

Describe the design of the leak detection system and the materials of construction.

D-3j(1)(a) Grading: 270.18(d), 264.252(a)(3)

Demonstrate that the leak detection points are appropriately located. Show that the drainage media in which the leak detection system is to operate is appropriately graded to assure that leakage at any point in the liner system could be detected.

D-3j(1)(b) Pipe Network Spacing: 270.18(d), 264.252(a)(3)

If a pipe network is utilized to collect leakage, describe the layout and spacing of that network.

D-3j(1)(c) Pipe Material Strength: 270.18(d), 264.252(a)(3)

Demonstrate that any piping utilized between the liners will have sufficient strength to prevent collapse from anticipated static and dynamic loadings.

D-3j(1)(d) Pipe and Pipe Perforation Sizes: 270.18(d), 264.252(a)(3)

If a piping network is utilized, demonstrate that pipe and pipe perforation sizes are sufficient to allow free liquid access to the drainage system yet avoid clogging of the perforations and pipes by the drainage media.

D-3j(1)(e) Drainage Media Specifications and Performance: 270.18(d), 264.252(a)(3)

Demonstrate sufficient gradation of drainage media and filter materials to allow free liquid access to leak detection points or piping system. Demonstrate that drainage media thickness and hydraulic conductivity allow sufficient head to promote drainage.

D-3j(2) Leak Detection System Operation: 270.18(d), 264.252(a)(3)

Demonstrate that the leak detection system operation will provide for timely detection of liquids entering the space between the liners. Describe automated system features and any required operator interactions or monitoring.

D-3k Subpart F Exemption for Inspectable Piles: 270.18(d), 264.253

If an exemption from the Subpart F groundwater monitoring requirements is sought for an inspectable pile, provide design data for a liner and a leachate collection and removal system (described in D-3c and D-3e, respectively).

Describe the procedures for periodic removal of wastes from the pile to allow for inspection of the liner.

D-3l Treatment Within the Pile: 270.18(f)

If any treatment is accomplished in the pile, provide the following descriptions.

D-3l(1) Treatment Process Description: 270.18(f)

Describe the process by which wastes are treated and the effect of the treatment on the wastes.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-31(2) Equipment Used: 270.18(f)

Describe any equipment or other materials required to initiate or promote treatment.

D-31(3) Residuals Description: 270.18(f)

Describe the nature and quantity of the wastes remaining in the pile after treatment is complete.

D-4a List of Wastes: 270.17(a)

Provide a list of all hazardous wastes placed or to be placed in surface impoundments.

D-4b Liner Exemption Request: 270.17(b)(1), 264.221(b)

Document the design and operating practices that will, in conjunction with local aspects, prevent the migration of hazardous constituents into ground or surface waters at any future time.

D-4c Liner Engineering Report: 270.17(b)(1), 264.221(a)(1)

Provide a description of the liner system, demonstrating that the flow of liquids through the liner(s) will be prevented. Only existing portions of existing facilities are exempt from the liner requirements.

D-4c(1) Liner Description: 270.17(b)(1), 264.221(a)(1)

Describe the type of liner, its material, USCS-type data for soil liners, the liner's thickness and, for synthetics, the manufacturer and the product's name.

D-4c(2) Liner Location Relative to High Water Table: 270.17(b)(1), 264.221(a)(1)

Provide data showing seasonal fluctuations in the depth to the water table and the location of the seasonal high water table in relation to the liner system.

D-4c(3) Calculation of Required Soil Liner Thickness: 270.17(b)(1), 264.221(a)(1)

For units utilizing a primary soil liner, demonstrate that the thickness of the soil liner is sufficient to retard liquid flow through it such that leachate would be wholly contained throughout the active life of the unit. Calculations using either numerical simulation techniques (unsaturated flow conditions) or D'arcy Law-derived transit time equations (saturated flow conditions) should be provided.

D-4c(4) Liner Strength Requirements: 270.17(b)(1), 264.221(a)(1)

Provide the results of calculations defining the minimum strength requirement for liners considering:

- Internal and external pressure gradients;
- Stresses resulting from settlement, compression or uplift;
- Climatic conditions (freeze-thaw stress);
- Installation stresses; and
- Operating stresses.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-4c(5) Liner Strength Demonstration: 270.17(b)(1), 264.221(a)(1)

Provide data showing that the liner exceeds the calculated minimum strength requirement.

D-4c(6) Liner/Waste Compatibility Testing Results: 270.17(b)(1), 264.221(a)(1).

Provide the results of liner/waste compatibility testing demonstrating that liner strength and performance are still adequate after exposure to waste leachates. Both primary and secondary leachates should be used in this testing.

D-4c(7) Liner Installation: 270.17(b)(1), 264.221(a)(1)

Describe the procedures for installing the liner(s).

D-4c(7)(a) Synthetic Liner Seaming: 270.17(b)(1), 264.221(a)(1)

Describe the techniques to be utilized to bond membrane liner seams and the strength and chemical compatibility of the seams.

D-4c(7)(b) Soil Liner Compaction: 270.17(b)(1), 264.221(a)(1)

Describe the procedures for installing the soil liner and compacting the liner to achieve the desired permeability. Include the maximum height of lifts to be placed.

D-4c(7)(c) Installation Inspection/Testing Programs: 270.17(b)(1), 264.226(a)

Describe the inspection, monitoring, sampling and testing methods (and frequencies) to be employed during liner installation to assure that the liner system as installed meets the design requirements.

D-4c(8) Liner Coverage: 270.17(b)(1), 264.221(a)(3)

Demonstrate that the liner will be installed to cover all surrounding earth likely to be in contact with the waste or leachate.

D-4c(9) Liner Exposure Prevention: 270.17(b)(1), 264.221(a)(1).

Demonstrate that the liner will not be exposed to wind or sunlight or, if exposure is to be permitted, that such exposure will not result in unacceptable liner degradation.

D-4c(10) Synthetic Liner Bedding: 270.17(b)(1), 264.221(a)(1)

Demonstrate that sufficient bedding will be provided above and below the liner to prevent rupture during installation and operation.

D-4d(1) Liner Foundation Design Description: 270.17(b)(1), 264.221(a)(2)

Describe the liner foundation design and materials of construction. Determine the capability of the foundation to support any expected static and dynamic loadings.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-4d(2) Subsurface Exploration Data: 270.17(b)(1), 264.221(a)(2)

The engineering characteristics of the foundation materials should be verified through subsurface explorations. These efforts should be described and may include:

- Test borings;
- Test pits or trenches;
- In situ tests; and
- Geophysical exploration methods.

D-4d(3) Laboratory Testing Data: 270.17(b)(1), 264.221(a)(2)

Results from sufficient index testing should be provided to classify the site materials. Other lab test data should be provided to evaluate the engineering properties of the foundation materials, particularly for strength, hydraulic conductivity, compressibility, and other important design parameters.

D-4d(4) Engineering Analyses: 270.17(b)(1), 264.221(a)(2)

Engineering analyses should be provided which are based on the data gathered through subsurface exploration and laboratory testing programs.

D-4d(4)(a) Settlement Potential: 270.17(b)(1), 264.221(a)(2)

Provide estimates of the total and differential settlement, including immediate settlement, primary consolidation and secondary consolidation. Stresses imposed by dikes, liners, wastes and equipment should be considered.

D-4d(4)(b) Bearing Capacity and Stability: 270.17(b)(1), 264.221(a)(2)

Provide estimates of the bearing capacity and stability of the foundation, demonstrating that allowable bearing capacity will not be exceeded.

D-4d(4)(c) Potential for Bottom Heave or Blow-out: 270.17(b)(1), 264.221(a)(2)

Provide estimates of the potential for bottom heave or blow-out due to unequal hydrostatic or gas pressures.

D-4d(4)(d) Construction and Operational Loading: 270.17(b)(1), 264.221(a)(2)

Demonstrate that the foundation is capable of providing adequate support for construction equipment and operating equipment (e.g., dredges).

D-4d(5) Foundation Installation Procedures: 270.17(b)(1), 264.221(a)(2)

For installed foundations, provide a description of the foundation installation procedures.

D-4d(6) Foundation Installation Inspection Program: 270.17(b)(1), 264.221(a)(2)

Describe the inspection, monitoring, sampling and testing methods (and frequencies) to be employed during foundation installation to assure that the foundation as installed meets the design requirements.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-4e **Prevention of Overtopping:** 270.17(b)(2), 264.221(c)

Describe the design and/or operating procedures that will provide protection against impoundment overtopping/overflow

D-4e(1) **Design Features:** 270.17(b)(2), 264.221(c)

Describe the design features utilized to prevent overtopping, such as:

- Spillways or weirs for flow-through systems
- Automatic or manual controls
- Sensors and alarms.

D-4e(2) **Operating Procedures:** 270.17(b)(2), 264.221(c)

If operating procedures are instrumental to preventing overtopping, provide a description of those procedures.

D-4e(3) **Water Balance Study:** 270.17(b)(2), 264.221(c)

Unless foolproof controls are employed to prevent overtopping, provide the results of water balance studies showing that adequate freeboard will be available following a 100-year 24-hour storm.

D-4e(4) **Freeboard Requirements:** 270.17(b)(2), 264.221(c)

Freeboard requirements associated with normal and extreme wind activity should be determined unless automatic contro are utilized and freeboard equals or exceeds two feet.

D-4e(5) **Outflow Destination:** 270.17(b)(2), 264.221(c)

Describe the fate of liquids released through flow control devices. Identify the location to which wastes would be moved in the event of an emergency.

D-4f(1) **Engineer's Certification:** 270.17(e), 264.226(c)

Provide written certification by a qualified engineer attesting to the structural integrity of all dikes. For new units, submit a statement from a qualified engineer that such a certification will be provided upon completion of th new dikes.

D-4f(2) **Dike Design Description:** 270.17(b)(3), 264.221(d)

Provide data and/or drawings specifying design layout of the dikes and their components including materials of construction. Determine the capability of the dikes to withstand failure from expected static and dynamic loadings and the effects of erosion.

D-4f(3) **Erosion Protection:** 270.17(b)(3), 264.221(d)

Provide demonstration that dikes are designed and constructed to minimize erosion and prevent failure due to excess erosion. These demonstrations should consider the erosion potential from rainfall, surface water run-off, any cont between impounded wastes and the dikes, and potential leakage through the dikes. Describe procedures for correctin erosion problems identified during the unit's operating life.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-4f(4) Subsurface Soil Conditions: 270.17(b)(3), 264.221(d)

The engineering characteristics of the dike foundation materials should be verified through testing and subsurface explorations, as necessary. These explorations may include:

- Test borings;
- Test pits or trenches;
- In situ tests; and
- Geophysical exploration methods.

D-4f(5) Stability Analysis: 270.17(b)(3), 264.221(d)

Provide a description of, and the results from, stability analyses for the following conditions, as appropriate:

- Foundation soil bearing failure or settlement;
- Failure in the dike slopes;
- Build-up of hydrostatic pressure due to failure of drainage system, dike cover, and liner; and
- Rapid drawdown.

D-4f(6) Strength and Compressibility Test Results: 270.17(b)(3), 264.221(d)

Provide results of strength and compressibility tests on the dike materials together with a description of the sampling procedures and test methods.

D-4f(7) Dike Construction Procedures: 270.17(b)(3), 264.221(d)

Describe the methods to be used to construct dikes at new units.

D-4f(8) Dike Construction Inspection Program: 270.17(b)(3), 264.221(d)

Describe the inspection, monitoring, sampling and testing methods (and frequencies) to be employed during dike construction to assure that new dikes meet their design requirements.

D-4g Request for Subpart F Exemption: 270.17(c), 264.222(a)

If an exemption from the Subpart F groundwater monitoring requirements is sought, provide design data for a double-liner system incorporating a leak detection system between liners (liners should be described in D-4c).

D-4g(1) Leak Detection System Design: 270.17(c), 264.222(a)(3)

Describe the design of the leak detection system and the materials of construction.

D-4g(1)(a) Grading: 270.17(c), 264.222(a)(3)

Demonstrate that the leak detection points are appropriately located and that the drainage media in which the leak detection system is to operate is appropriately graded to assure that leakage at any point in the liner system could be detected.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-4g(1)(b) Pipe Network Spacing: 270.17(c), 264.222(a)(3)

If a pipe network is utilized to collect leakage, describe the layout and spacing of that network.

D-4g(1)(c) Pipe Material Strength: 270.17(c), 264.222(a)(3)

Demonstrate that any piping utilized between the liners will have sufficient strength to prevent collapse from anticipated static and dynamic loadings.

D-4g(1)(d) Pipe and Pipe Perforation Sizes: 270.17(c), 264.222(a)(3)

If a piping network is utilized, demonstrate that pipe and pipe perforation sizes are sufficient to allow free liquid access to the drainage system yet avoid clogging of the perforations and pipes by the drainage media.

D-4g(1)(e) Drainage Media Specifications and Performance: 270.17(c), 264.222(a)(3)

Demonstrate sufficient gradation of drainage media and filter materials to allow free liquid access to leak detection points or piping system. Demonstrate that drainage media thickness and hydraulic conductivity allow sufficient head to promote drainage.

D-4g(2) Leak Detection System Operation: 270.17(c), 264.222(a)(3)

Demonstrate that the leak detection system operation will provide for timely detection of liquids entering the space between the liners. Describe automated system fentures and any required operator interactions or monitoring.

D-5a Justification for Exemption: 270.19(a)

Document the following: (1) waste contains no or insignificant concentrations of Part 261, Appendix VIII materials; and (2) waste is considered hazardous solely because it is ignitable and/or corrosive or reactive. Exempted reactive wastes are limited to materials that will not liberate toxic fumes or vapors per Sections 261.23(a)(4) and (5) and shall not be burned when other hazardous wastes are present in combustion zone.

Demonstrate that insignificant quantities of Appendix VIII materials can be based on either: (1) risk assessment which considers dispersion rates, local receptors, and toxicological effects; or (2) relationship of emission to prevalent ambient concentrations; or (3) detectability of contaminants in stack gases.

D-5b Trial Burn: 270.19(b) or (c)

Performance may be demonstrated through either a trial burn (in which event the trial burn plan should be included ir this section) or through the submission of data in lieu of a trial burn (see D-5c).

D-5b(1) New Incinerator Start-up/Shakedown Conditions (Reserved)

D-5b(2)(a) Detailed Engineering Description of Incinerator: 270.62(b)(2)(ii)

Describe, at a minimum: manufacturer's name and model, if available; incinerator type; linear dimensions of incinerator unit, including the cross-sectional area of the combustion chamber; description of auxiliary fuel system (type and feed); prime mover capacity and type; description of the automatic waste feed cut-off system(s); stack gas monitoring and pollution control equipment; nozzle and burner design; construction materials; and location and description of temperature, pressure, and flow indicating and control devices. (A process and instrumentation diagr

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-5b(2)(b) Sampling and Monitoring Procedures: 270.62(b)(2)(iii)

Describe sampling and monitoring procedures during the trial burn (i.e., waste feed, fuel feed rate, combustion gas velocity and emissions), including sampling and monitoring locations, equipment, frequency, and analytical procedures. EPA approved sampling and analysis methods must be employed or, alternatively, a demonstration of equivalence with EPA approved methods must be made.

Quality assurance/quality control programs must be described. Statistical analyses of trial burn data must utilize 95 percent confidence limits.

D-5b(2)(c) Trial Burn Schedule: 270.62(b)(2)(iv)

Submit a detailed schedule for each waste for which a trial burn is proposed, including: dates when trial burn(s) are planned; the duration of each trial burn; the quantity of waste to be burned during each trial burn; and any other relevant factors.

D-5b(2)(d) Test Protocols: 270.62(b)(2)(v)

For each waste to be burned, describe ranges in operating conditions that will be tested, including: waste constituents; combustion temperature ranges; waste feed rates; combustion gas velocity; and auxiliary fuel use.

D-5b(2)(e) Pollution Control Equipment Operation: 270.62(b)(2)(vi)

Describe any emission control equipment identified in D-5b(2)(a) and include the planned operating conditions for each.

D-5b(2)(f) Shutdown Procedures: 270.62(b)(2)(vii)

Describe procedures for rapidly stopping waste feed, shutting down the incinerator, and controlling emissions in the event of an equipment malfunction.

D-5b(2)(g) New Incinerator Post-Trial Burn Operation (Reserved)

D-5c(1) Detailed Engineering Description of Incinerator: 270.19(c)(2)

Describe, at a minimum: manufacturer's name and model, if available; incinerator type; linear dimensions of incinerator unit, including the cross-sectional area of the combustion chamber; description of auxiliary fuel system (type and feed); prime mover capacity and type; description of the automatic waste feed cut-off system(s); stack gas monitoring and pollution control equipment; nozzle and burner design; construction materials; and location and description of temperature, pressure, and flow indicating and control devices. (A process and instrumentation diagram should be included.)

D-5c(2) Expected Incinerator Operation: 270.19(c)(6)

Submit information on the expected incinerator operation to demonstrate conformance with 264.343 and 264.345 including: expected carbon monoxide level in the stack exhaust gas; waste feed rate; combustion zone temperature; expected stack gas volume, flow rate and temperature; computed residence time for waste in the combustion zone; expected HCl removal efficiency; expected fugitive emissions and their control procedures; and proposed waste feed system cut-off limits based on identified significant operating parameters.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-5c(3) Design and Operating Conditions: 270.19(c)(4)

Provide design and operating conditions of the incinerator unit compared with similar information from the unit used to develop data in lieu of trial burn. Information contained in D-5c(1) and D-5c(2) should be used as a basis for comparison.

D-5c(4) Previous Trial Burn Results: 270.19(c)(5)

Describe the results from all previously conducted, approved trial burns.

D-5c(4)(a) Sampling and Analysis Techniques: 270.19(c)(5)(i)

Describe the sampling and analysis techniques used to demonstrate performance in past trial burn(s). Unless EPA approved methods are used, the methods must be described and demonstrated to be equivalent with EPA approved methods.

D-5c(4)(b) Methods and Results: 270.19(c)(5)(ii)

Describe the methods and results of monitoring temperatures, waste feed rates, carbon monoxide, and combustion gas velocity during past trial burn(s) (including a precision and accuracy statement regarding this measurement).

D-5d Determinations: 270.62(b)(6)

If approved trial burn has already been conducted, or if data in lieu of trial burn is submitted, provide the following determinations: quantitative analysis of waste feed POHCs; quantitative analysis of exhaust gas concentrations of trial POHCs, oxygen and HCl; computation of DRE; quantitative analysis of any scrubber water, ash residues and other residues (for use in estimating fate of trial POHCs); computation of HCl removal efficiency (if HCl emission rate exceeds 1.8 kg/hr); identification of fugitive emissions and their means of control; average temperatures; minimum temperatures; combustion gas velocity; and continuous-monitoring results of CO exhaust gas concentrations.

D-6a List of Wastes: 270.21(a)

Provide a list of all hazardous wastes placed or to be placed in landfills.

D-6b Exemption Request: 270.21(b)(1), 264.301(b)

If an exemption is requested from the requirements to install a liner and leak detection system, document the design and operating practices that will, in conjunction with local aspects, prevent the migration of hazardous constituents into ground or surface waters at any future time.

D-6c Liner Engineering Report: 270.21(b)(1), 264.301(a)

Provide a description of the liner system, demonstrating that any flow of liquids into and through the liner(s) will be prevented. Only existing portions of existing facilities are exempt from the liner requirements.

D-6c(1) Liner Description: 270.21(b)(1), 264.301(a)

Describe the type of liner, its material, the liner's thickness, and the manufacturer and the product's name.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-6c(2) Liner Location Relative to High Water Table: 270.21(b)(1), 264.301(a)

Provide data showing seasonal fluctuations in the depth to the water table and the location of the seasonal high water table in relation to the liner system.

D-6c(3) Liner Strength Requirements: 270.21(b)(1), 264.301(a)

Provide the results of calculations defining the minimum strength requirement for liners considering:

- Internal and external pressure gradients;
- Stresses resulting from settlement, compression or uplift;
- Climatic conditions (freeze-thaw stress);
- Installation stresses; and
- Operating stresses.

D-6c(4) Liner Strength Demonstration: 270.21(b)(1), 264.301(a)

Provide data showing that the liner exceeds the calculated minimum strength requirement.

D-6c(5) Liner/Waste Compatibility Testing Results: 270.21(b)(1), 264.301(a)

Provide the results of liner/waste compatibility testing demonstrating that liner strength and performance are still adequate after exposure to waste leachates. Both primary and secondary leachates should be used in this testing.

D-6c(6) Liner Installation: 270.21(b)(1), 264.301(a)

Describe the procedures for installing the liner(s).

D-6c(6)(a) Synthetic Liner Seaming: 270.21(b)(1), 264.301(a)

Describe the techniques to be utilized to bond membrane liner seams and the strength and chemical compatibility of the seams.

D-6c(6)(b) Installation Inspection/Testing Programs: 270.21(b)(1), 264.303(a)

Describe the inspection, monitoring, sampling and testing methods (and frequencies) to be employed during liner installation to assure that the liner system as installed meets the design requirements.

D-6c(7) Liner Coverage: 270.21(b)(1), 264.301(a)(1)(iii)

Demonstrate that the liner will be installed to cover all surrounding earth likely to be in contact with the waste or leachate.

D-6c(8) Liner Exposure Prevention: 270.21(b)(1), 264.301(a)(1)(i)

Demonstrate that the liner will not be exposed to wind or sunlight or, if exposure is to be permitted, that such exposure will not result in unacceptable liner degradation.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-6c(9) Synthetic Liner Bedding: 270.21(b)(1), 264.301(a)(1)(i)

Demonstrate that sufficient bedding will be provided above and below the liner to prevent rupture during installation and operation.

D-6d(1) Liner Foundation Design Description: 270.21(b)(1), 264.301(a)(1)(ii)

Describe the liner foundation design and materials of construction. Determine the capability of the foundation to support any expected static and dynamic loadings.

D-6d(2) Subsurface Exploration Data: 270.21(b)(1), 264.301(a)(1)(ii)

The engineering characteristics of the foundation materials should be verified through subsurface explorations. These efforts should be described and may include:

- Test borings;
- Test pits or trenches;
- In situ tests; and
- Geophysical exploration methods.

D-6d(3) Laboratory Testing Data: 270.21(b)(1), 264.301(a)(1)(ii)

Results from sufficient index testing should be provided to classify the site materials. Other lab test data should be provided to evaluate the engineering properties of the foundation materials, particularly for strength, hydraulic conductivity, compressibility, and other important design parameters.

D-6d(4) Engineering Analyses: 270.21(b)(1), 264.301(a)(1)(ii)

Engineering analyses should be provided which are based on the data gathered through subsurface exploration and laboratory testing programs.

D-6d(4)(a) Settlement Potential: 270.21(b)(1), 264.301(a)(1)(ii)

Provide estimates of the total and differential settlement, including immediate settlement, primary consolidation and secondary consolidation. Stresses imposed by liners, wastes and equipment should be considered.

D-6d(4)(b) Bearing Capacity and Stability: 270.21(b)(1), 264.301(a)(1)(ii)

Provide estimates of the bearing capacity and stability of the foundation, demonstrating that allowable bearing capacity will not be exceeded.

D-6d(4)(c) Potential for Bottom Heave or Blow-out: 270.21(b)(1), 264.301(a)(1)(ii)

Provide estimates of the potential for bottom heave or blow-out due to unequal hydrostatic or gas pressures.

D-6d(4)(d) Construction and Operational Loading: 270.21(b)(1), 264.301(a)(1)(ii)

Demonstrate that the foundation is capable of providing adequate support for construction equipment and operating equipment (e.g., dredges).

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-6d(5) Foundation Installation Procedures: 270.21(b)(1), 264.301(a)(1)(ii)

For installed foundations, provide a description of the foundation installation procedures.

D-6d(6) Foundation Installation Inspection Program: 270.21(b)(1), 264.301(a)(1)(ii)

Describe the inspection, monitoring, sampling and testing methods (and frequencies) to be employed during foundation installation to assure that the foundation as installed meets the design requirements.

D-6e Leachate Collection and Removal System: 270.21(b)(1), 264.301(a)(2)

Provide information describing the design and operation of a system to collect and remove leachate from new portions of landfills.

D-6e(1) System Design and Operation: 270.21(b)(1), 264.301(a)(2)

Describe the design features of the leachate collection and removal system and how the system will function to remove collected leachate in a timely manner.

D-6e(2) Maximum Leachate Head: 270.21(b)(1), 264.301(a)(2)

Describe the design and operating features that will prevent leachate depth over the liner from exceeding one foot.

D-6e(3) Chemical Resistance: 270.21(b)(1), 264.301(a)(2)

Demonstrate that the leachate collection and removal system components are chemically resistant to the waste managed in the landfill and the leachate expected to be generated.

D-6e(4) Strength of Materials: 270.21(b)(1), 264.301(a)(2)

Demonstrate that system components are of sufficient strength and thickness to prevent collapse under expected static and dynamic loadings.

D-6e(5) Prevention of Clogging: 270.21(b)(1), 264.301(a)(2)

Demonstrate that the system design and operation will prevent clogging throughout the active life of the landfill.

D-6e(6) Installation: 270.21(b)(1), 264.301(a)(2)

Describe the methods to be employed to install the leachate collection and removal system. Include a description of the inspection program to be implemented to assure installation in accordance with design requirements.

D-6e(7) Maintenance: 270.21(b)(1), 264.301(a)(2)

Describe anticipated maintenance activities that will be used to assure proper system operation throughout the landfill's expected active life.

D-6f Run-on Control System: 270.21(b)(2), 264.301(c)

Describe the system that will be used to prevent run-on onto active portions of landfills.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-6f(1) Calculation of Peak Flow: 270.21(b)(2), 264.301(c)

Identify the peak surface water flow expected to result from a 25-year design storm. Describe the data sources and methods used to make the peak flow calculation.

D-6f(2) Design and Performance: 270.21(b)(2), 264.301(c)

Describe the run-on control system design. Demonstrate that system design will prevent run-on from reaching active portions of the unit.

D-6f(3) Construction: 270.21(b)(2), 264.301(c)

Describe the methods to be employed to construct the run-on control system. Include descriptions of any construction inspection program to be utilized to assure construction in accordance with design requirements.

D-6f(4) Maintenance: 270.21(b)(2), 264.301(c)

Describe any maintenance activities required to assure continued proper run-on system operation throughout the unit's active life.

D-6g Run-off Control System: 270.21(b)(3), 264.301(d)

Describe the run-off control system to be used to collect and control run-off from active portions.

D-6g(1) Calculation of Peak Flow: 270.21(b)(3), 264.301(d)

Identify the total run-off volume expected to result from a 24-hour 25-year storm. Describe data sources and methods used to make the peak flow calculation.

D-6g(2) Design and Performance: 270.21(b)(3), 264.301(d)

Describe the run-off collection and control system design. Demonstrate that the system has sufficient capacity to collect and hold the total run-off volume calculated in D-3g(1).

D-6g(3) Construction: 270.21(b)(3), 264.301(d)

Describe the methods to be employed to construct the run-off collection and control system. Include descriptions of any construction inspection program to be employed to assure construction in accordance with design requirements.

D-6g(4) Maintenance: 270.21(b)(3), 264.301(d)

Describe any maintenance activities required to assure continued proper run-off system operation throughout the unit's active life.

D-6h Management of Collection and Holding Units: 270.21(b)(4), 264.301(e)

Describe how collection and holding facilities associated with run-on and run-off control systems will be emptied or otherwise managed expeditiously after storms to maintain system design capacity.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-6i Control of Wind Dispersal: 270.21(b)(5), 264.301(f)

If the landfill contains any particulate matter which may be subject to wind dispersal, describe how the landfill is covered or otherwise managed to control wind dispersal.

D-6j Double-Liner Exemption: 270.21(c), 264.302

If an exemption from the Subpart F groundwater monitoring requirements is sought, provide detailed plans and an engineering report explaining the location of the saturated zone in relation to the landfill. Also provide design data for a double-liner system incorporating a leak detection system between liners and a leachate collection and removal system above the top liner (liners should be described in D-6c and leachate collection/removal systems in D-6e).

D-6j(1) Leak Detection System Design: 270.21(c), 264.302(a)(3)

Describe the design of the leak detection system and the materials of construction.

D-6j(1)(a) Grading: 270.21(c), 264.302(a)(3)

Demonstrate that the leak detection points are appropriately located. Show that the drainage media in which the leak detection system is to operate is appropriately graded to assure that leakage at any point in the liner system could be detected.

D-6j(1)(b) Pipe Network Spacing: 270.21(c), 264.302(a)(3)

If a pipe network is utilized to collect leakage, describe the layout and spacing of that network.

D-6j(1)(c) Pipe Material Strength: 270.21(c), 264.302(a)(3)

Demonstrate that any piping utilized between the liners will have sufficient strength to prevent collapse from anticipated static and dynamic loadings.

D-6j(1)(d) Pipe and Pipe Perforation Sizes: 270.21(c), 264.302(a)(3)

If a piping network is utilized, demonstrate that pipe and pipe perforation sizes are sufficient to allow free liquid access to the drainage system yet avoid clogging of the perforations and pipes by the drainage media.

D-6j(1)(e) Drainage Media Specifications and Performance: 270.21(c), 264.302(a)(3)

Demonstrate sufficient gradation of drainage media and filter materials to allow free liquid access to leak detection points or piping system. Demonstrate that drainage media thickness and hydraulic conductivity allow sufficient head to promote drainage.

D-6j(2) Leak Detection System Operation: 270.21(c), 264.302(a)(3)

Demonstrate that the leak detection system operation will provide for timely detection of liquids entering the space between the liners. Describe the automated system features and any required operator interactions or monitoring.

SUBJECT REQUIREMENT: 40 CFR Section.Nom.

D-6k **Bulk or Noncontainerized Free Liquids:** 270.21(h), 264.314(a)

If bulk or noncontainerized free liquids are to be placed in the landfill, demonstrate that the requirements of either D-6k(1) or D-6k(2) are met.

D-6k(1) **Leachate Collection and Removal System:** 270.21(h), 264.314(a)(1)

A liner meeting the requirements of D-6c must be installed and a leachate collection and removal system must be installed and operated as described in D-6e.

D-6k(2) **Free Liquid Elimination:** 270.21(h), 264.314(a)(2)

Describe how, before landfilling, the wastes are treated or stabilized so that free liquids are no longer present.

D-6l **Containers Holding Free Liquids:** 270.21(h), 264.314(b)

If containers holding free liquids are to be landfilled, describe how the requirements of D-6l(1), or D-6l(2), or D-6l(3), or D-6l(4) will be met for all landfilled containers with free liquids.

D-6l(1) **Removal of Free-Standing Liquid:** 270.21(h), 264.314(b)(1)

Describe how all free-standing liquid will be removed, eliminated, absorbed or solidified.

D-6l(2) **Restriction to Small Containers:** 270.21(h), 264.314(b)(2)

Demonstrate that containers will be very small.

D-6l(3) **Nonstorage Containers:** 270.21(h), 264.314(b)(3)

Demonstrate that the containers are designed to hold free liquids for use other than storage (e.g., batteries, capacitors).

D-6l(4) **Labpacks:** 270.21(h), 264.314(b)(4)

Describe how it will be assured that labpacks to be landfilled containing free liquids meet the following requirements.

D-6l(4)(a) **Inside Containers:** 270.21(h), 264.314(b)(4), 264.316(a)

Demonstrate how it will be assured that inside containers:

- Are securely sealed and not leaking;
- Will not react with, be decomposed by, or ignited by the waste; and
- Meet DOT specifications.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-61(4)(b) Overpack: 270.21(h), 264.314(b)(4), 264.316(b)

Demonstrate that overpacking consists of:

- Metal, DOT containers, with open heads no larger than 110 gallons; and
- Sufficient absorbent material.

D-61(4)(c) Absorbent Materials: 270.21(h), 264.314(b)(4), 264.316(c)

Demonstrate that the absorbent materials used are not capable of reacting dangerously with, being decomposed by, or being ignited by the contents of the inside containers.

D-61(4)(d) Incompatible Wastes: 270.21(h), 264.314(b)(4), 264.316(d)

Demonstrate that incompatible wastes will not be placed in the same outside containers.

D-61(4)(e) Reactive Wastes: 270.21(h), 264.314(b)(4), 264.316(e)

Demonstrate how reactive wastes, other than cyanide-bearing and sulfide-bearing wastes, will be treated or rendered nonreactive prior to packaging.

D-6m Containerized Wastes: 270.21(i)

If containerized wastes are to be landfilled, describe how either: it will be assured that all containers are at least 90 percent full when placed in the landfill, or containers will be crushed, shredded or similarly reduced in volume to the maximum practical extent before burial.

D-7a Treatment Demonstration: 270.20(a), 264.272(a)

Demonstrate that hazardous constituents in the waste will be completely degraded, transformed or immobilized in the treatment zone of the unit for which a permit is sought or provide plans for conducting such a demonstration. Include demonstrations, or plans for demonstrations showing that volatilization of hazardous constituents will not be significant.

D-7a(1) Demonstration Wastes: 270.20(a)(1)

Describe the wastes used in the demonstration and the wastes to be treated during normal operation. Identify the concentrations of potential hazardous constituents in both wastes.

D-7a(2) Demonstration Data Sources: 270.20(a)(2)

Describe the source of the data used for the treatment demonstration and provide available determinations.

D-7a(2)(a) Existing Literature: 270.20(a)(2)

If existing literature is used to demonstrate treatment, submit a brief written review of scientific literature and previous studies that contain pertinent information. Information sources should be properly referenced.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-7a(2)(b) Operating Data: 270.20(a)(2)

Describe any operating data used to make the demonstration of the units from which the data was gathered, application rate data and operating records. Describe sampling and analysis methods used and provide analytical confirmation of the extent of waste degradation, transformation and immobilization, as appropriate.

D-7a(3) Laboratory/Field Testing Programs: 270.20(a)(3)

Field and laboratory tests to be used for the demonstration should be thoroughly described. The characteristics of the units used to gather the demonstration data should be compared to those of the units to be permitted. Include interpretive discussions as appropriate.

D-7a(3)(a) Test Description: 270.20(a)(3)(i)

Describe the type of tests to be conducted to determine waste immobilization, degradation and transformation rates.

D-7a(3)(b) Materials and Methods: 270.20(a)(3)(ii)

Describe the test set-up, test protocols and sampling and analysis procedures.

D-7a(3)(c) Schedule: 270.20(a)(3)(iii)

Describe the testing schedule and expected completion date.

D-7a(3)(d) Simulated Characteristics: 270.20(a)(3)(iv)

Demonstrate that the testing program will accurately simulate the actual design and operation of the unit to be permitted, including climatic conditions, topography and soil characteristics.

D-7a(3)(e) Clean-up: 270.20(a), 264.272(b)

Describe clean-up activities to be employed on completion of the test program.

D-7a(3)(f) Environmental Protection: 270.20(a), 264.272(c)(3)

Describe how the test will be conducted in a manner that protects human health and the environment. In the case of field tests, describe the potential for groundwater or surface water contamination resulting from the field tests.

D-7a(4) Toxicity: 270.20(a), 264.272(c)(2)

Demonstrate that hazardous waste application rates will be controlled so as not to adversely affect performance, considering microbial toxicity and phytotoxicity, as appropriate.

D-7b Land Treatment Program: 270.20(b), 264.271

Describe the characteristics and operating conditions of the land treatment unit(s) to be permitted.

D-7b(1) List of Wastes: 270.20(b)(1)

Provide a list of all wastes to be placed in the land treatment unit(s).

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-7b(2) Operating Procedures: 270.20(b)(2), 264.273(a)

Describe the operating procedures used to assure uniform and complete degradation, transformation and immobilization.

D-7b(2)(a) Waste Application Rates and Methods: 270.20(b)(2)(i), 264.273(a)(1)

Submit information establishing the constituents in the wastes which limit the amount of waste applied at one time, the rate at which reapplication is conducted, and the total capacity of each unit. Identify the rate and frequency of waste application and the concentration of the limiting constituents in the waste. Describe the methods utilized to apply wastes to the unit.

D-7b(2)(b) Control of Soil pH: 270.20(b)(2)(ii), 264.273(a)(2)

Identify acceptable limits of soil pH and describe the rationale for those limits. Describe how soil pH will be measured and adjusted.

D-7b(2)(c) Enhancement of Microbial or Chemical Reactions: 270.20(b)(2)(iii), 264.272(a)(3)

Describe measures used to enhance treatment, including the method and frequency of such measures (e.g., fertilization, microbial innoculations, soil aeration).

D-7b(2)(d) Control of Soil Moisture: 270.20(b)(2)(iv), 264.272(a)(4)

Identify the limits on soil moisture content. Describe how soil moisture will be monitored and adjusted, if necessary.

D-7c Unsaturated Zone Monitoring Plan: 270.20(b)(3), 264.278

Submit an Unsaturated Zone Monitoring Plan describing the measures used to determine if hazardous wastes have migrated out of the treatment zone.

D-7c(1) Sampling Location: 270.20(b)(3)(ii), 264.278(b), 264.278(d)

Identify sampling locations, if known, and provide the rationale used to select locations. Demonstrate that the sampling locations provide the capability to detect migration of hazardous constituents out of the treatment zone.

D-7c(2) Sampling Frequency: 270.20(b)(3)(i), 264.278(e)

Provide a schedule for sampling soils and soil-pore liquid. Demonstrate that the proposed frequency is adequate, considering potential migration rates of hazardous constituents out of the treatment zone.

D-7c(3) Sampling Equipment: 270.20(b)(3)(i), 264.278(e)

Identify and describe equipment used to obtain soil core and soil-pore liquid samples.

D-7c(4) Equipment Installation: 270.20(b)(3)(i), 264.278(e)

Describe the procedures used to install soil-pore liquid monitoring devices.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-7c(5) Sampling Procedures: 270.20(b)(3)(i), 264.278(e)

Describe soil and soil-pore liquid sampling procedures including methods for sample preparation, preservation and transport.

D-7c(6) Analytical Procedures: 270.20(b)(3)(iii), 264.278(e)

Identify the analytical methods used to determine the concentration of hazardous constituents in collected samples.

D-7c(7) Chain of Custody: 270.20(b)(3)(iv), 264.278(e)

Provide a description of the methods to be utilized to assure sample integrity throughout, sampling, transportation, analysis and reporting.

D-7c(8) Background Values: 270.20(b)(3)(v), 264.278(c)

Describe the sampling and analytical program used to establish background soil and soil-pore liquid concentrations of hazardous constituents. Identify sampling locations and depths. Provide background data, if available.

D-7c(9) Statistical Methods: 270.20(b)(3)(vi), 264.278(c)

Describe the statistical methods that will be used to determine if significant differences exist between background and treatment zone concentrations of hazardous constituents in soils and soil-pore liquids.

D-7c(10) Justification of Principle Hazardous Constituents: 270.20(b)(3)(vii), 264.278(a)(2).

Provide a suggested list of 40 CFR 261 Appendix VIII hazardous constituents to be monitored for in soils and soil-pore liquids. Demonstrate that the selected principal hazardous constituents are more difficult to treat than all other Appendix VIII constituents present in the waste.

D-7d Treatment Zone Description: 270.20(b)(2), 270.20(b)(5), 264.272(c)(1)(iv)

Identify the dimensions of the treatment zone and the soil within the treatment zone.

D-7d(1) Soil Survey: 270.20(b)(2), 264.272(c)(1)(iv)

Provide a map or plot plan delineating the horizontal boundaries of the treatment zone and all soil series occurring within the treatment zone.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-7d(2) Soil Series Descriptions: 270.20(b)(2), 264.272(c)(1)(iv)

Submit a description of each soil series identified within the treatment zone, including:

- Profile description with horizonation
- Depth
- Color
- USDA texture
- Structure
- Thickness
- Slope
- Mineralogy
- Use and vegetation
- Atterburg limits
- Water capacity
- Shrink-swell potential
- Erosion factors
- Salinity.

D-7d(3) Soil Sampling Data: 270.20(b)(2), 264.272(c)(1)(iv)

Provide the results of soil analyses for each treatment zone soil series.

D-7d(4) Depth of Treatment Zone: 264.271(c)(1), 264.272(c)(1)(iv)

Identify the vertical dimensions of the treatment zone.

D-7d(5) Seasonal High Water Table: 264.271(c)(2)

Identify the depth to the seasonal high water table and the source of that data.

D-7e Design, Construction, Operation and Maintenance: 270.20(c), 264.273

Describe the design, construction, operation and maintenance of run-on, run-off and wind dispersal controls.

D-7e(1) Surface Water Control Plans: 270.20(c)(1)

Submit a scale drawing of the unit showing any run-on controls utilized. Demonstrate that those controls will prevent flow onto the treatment zone from at least a 25-year storm.

D-7e(2) Collection and Control of Run-off: 270.20(c)(2), 264.273(d)

Describe the run-off collection and control system and demonstrate that it is capable of managing the peak flow resulting from a 24-hour 25-year storm.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-7e(3) Minimizing Hazardous Constituent Run-off: 270.20(c)(3), 264.273(b)

Identify specific measures that will minimize the concentration of hazardous constituents in run-off from the unit.

D-7e(4) Management of Accumulated Run-on and Run-off: 270.20(c)(4), 264.273(e)

Demonstrate that collection and holding facilities associated with run-on and run-off control systems will be managed after storms to maintain the minimum required design capacity of the system. Describe the fate of collected surface water including sampling and analysis protocols for determining contaminant levels.

D-7e(5) Control of Wind Dispersal: 270.20(c)(6), 264.273(f)

Describe the methods employed to control wind dispersal of particulate matter from the treatment zone.

D-7f Food Chain Crops: 270.20(d), 264.276

Demonstrate that there is no substantial risk to human health or the environment caused by the growth of food chain crops on the unit.

D-7f(1) Food Chain Crop Demonstration: 270.20(d), 264.276(a)(1)

For all hazardous constituents, except cadmium, demonstrate that:

- Hazardous constituents will not be transferred to the food or feed portions of the crop nor ingested by food chain animals; or
- Will not occur in food or feed chain crops in concentrations above background levels.

D-7f(1)(a) Demonstration Basis: 270.20(d), 264.276(a)(3)(i)

Show that the demonstration results will be representative of the unit to be permitted, considering:

- Soil characteristics
- Waste characteristics
- Application rates and methods
- Crop characteristics
- Climate effects.

D-7f(1)(b) Test Procedures: 270.20(d)(3), 264.276(a)(3)(ii)

Describe the procedures used in any tests referenced or conducted. Include sample selection criteria, sample size, analytical methods, and statistical procedures.

D-7f(2) Cadmium-Bearing Wastes: 270.20(d)(5), 264.276(b)

If cadmium is present in the waste to be land treated, provide the information specified in either D-7f(2)(a) or D-7f(2)(b).

SUBJECT REQUIREMENT: 40 CFR Section Nos.

D-7f(2)(a) Crops for Human Consumption: 270.20(d)(5), 264.276(b)(1)

If crops are to be grown for human consumption, provide the following data:

- Soil pH
- Soil pH controls
- Cadmium loading rate
- Soil cation exchange capacity.

D-7f(2)(b) Animal Feed: 270.20(d)(5), 264.276(b)(2)

If only animal feed is to be grown, provide the soil pH and soil pH controls. Provide a copy of an operating plan demonstrating how animal feed will be distributed to preclude ingestion by humans, including control of alternative land use.

E. GROUNDWATER MONITORING

E-1 Exemption from Groundwater Protection Requirements: 270.14(c), 264.90(b)

If a waiver from the Subpart F groundwater monitoring requirements is requested, the owner or operator must demonstrate that one of the following conditions applies to the facility.

E-1a Surface Impoundment: 264.90(b)(2), 264.222

Demonstrate that the surface impoundment has been designed and operated in compliance with 264.222. (See comment D-4b.)

E-1b Waste Piles: 264.90(b)(2), 264.250(c), 264.252, 264.253

Demonstrate that the waste pile has been designed and operated in compliance with 264.250(c), 264.252, or 264.253. (See comments D-3b(1), D-3b(2), or D-3k, respectively.)

E-1c Landfill: 264.90(b)(2), 264.302

Demonstrate that the landfill has been designed and operated in compliance with 264.302. (See comment D-6b.)

E-1d No Migration: 264.90(b)(4)

Demonstrate that there is no potential for migration of liquid from a regulated unit to the uppermost aquifer during the active life of the regulated unit (including the closure period) and the post-closure care period. (Predictions must be based on assumptions that maximize the rate of liquid migration.) This demonstration must be certified by a qualified geologist or geotechnical engineer.

SUBJECT REQUIREMENT: 40 CFR Section Non.

E-2 Interim Status Period Groundwater Monitoring Data: 270.14(c)(1), 265.90 - 265.94

Existing facilities must provide a summary of the groundwater monitoring data obtained during the interim status period, including:

- A copy of the map provided for Section 270.14(b) on which the location and identification of each monitoring well are indicated.
- A description of the design and construction of each well (e.g., depths of screen and casing, depths at which water was encountered, filter pack and sealing materials placement, dates of construction, boring logs, etc.).
- Copies of each quarterly (from first year) water analysis results for each well, and copies of any subsequent (annual or semi-annual) water analysis reports to date. (A sample data report form is provided as Table A.) Include copies of any notifications of significant change in water analysis parameter values made to the Regional Administrator (or State Director) pursuant to §265.93.
- A copy of the facility's ground water sampling and analysis plan that includes the procedures used and the protocol followed in:
  - -- Sample collection;
  - -- Sample preservation and shipment;
  - -- Analytical procedures; and
  - -- Chain of custody control.
- A description of the statistical procedures used (if applicable) in processing the data submitted (as in the use of a student's t-test and the level of significance used).
- An indication of which wells are downgradient of the disposal area, and which are upgradient.

E-3 Aquifer Identification: 270.14(c)(2)

Identify the uppermost aquifer and any hydraulically interconnected underlying aquifers, and describe their hydrogeologic properties (e.g., hydraulic gradient, groundwater flow, rate and direction) and provide the supporting data used to identify this information (i.e., the information obtained from hydrogeologic investigations of the facility area).

E-4 Contaminant Plume Description: 270.14(c)(4), Part 261, Appendix VIII

Provide a description of any plume of contamination that has entered the groundwater from a regulated unit. Identify the concentrations of Part 261, Appendix VIII constituents throughout the plume or the maximum concentration of each Appendix VIII constituent) for the plume of contamination delineated on the topographic map. (See comment B-2b.)

E-5 Detection Monitoring Program: 270.14(c)(6), 264.98

Provide sufficient information, supporting data, and analyses documenting the absence of hazardous constituents in the groundwater to support the implementation of a detection monitoring program at the present time.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-5a **Indicator Parameters, Waste Constituents, Reaction Products to be Monitored For:** 270.14(c)(6)(i), 264.98(a)

Supply a list of indicator parameters, waste constituents, or reaction products that can provide a reliable indication of the presence of hazardous constituents in the groundwater.

E-5a(1) **Hazardous Waste Characterization:** 264.98(a)(1)

Identify the type, quantity and concentrations of constituents in wastes managed at the regulated unit(s).

E-5a(2) **Behavior of Constituents:** 264.98(a)(2)

Provide a description of the expected mobility, stability, and persistence of waste constituents, or their reaction products, in the unsaturated zone beneath the waste management area.

E-5a(3) **Detectability:** 264.98(a)(3)

Specify the detectability of indicator parameters, waste constituents, or their reaction products in the groundwater.

E-5b **Groundwater Monitoring Program:** 270.14(c)(6)(ii), 264.97, 264.98

Describe in detail the individual elements of the monitoring system to be used during detection monitoring.

E-5b(1) **Description of Wells:** 264.97(a) and (c)

Identify the number, location and depth of each well. Describe the well construction materials.

E-5b(2) **Representative Samples:** 264.97(a)(1) and (2)

Provide details supporting the representative nature of the groundwater quality at (1) background monitoring points and (2) the compliance monitoring point.

E-5b(3) **Locations of Background Groundwater Monitoring Wells that are Not Upgradient:** 264.97(g)(3)

For wells that are not located upgradient from the waste management area, demonstrate that either the hydrogeologic conditions do not allow determination that the wells are upgradient, or that sampling at other wells will provide an indication of background groundwater quality that is as representative or more representative than that provided by the upgradient wells.

E-5c **Background Values:** 270.14(c)(6)(iii), 264.98(c)

Submit background values for each proposed monitoring parameter or constituent, or procedures to calculate such values. Submit the information identified in Section E-5c(1) or E-5c(2).

E-5c(1) **Data Currently Available:** 264.98(c)

E-5c(1)(a) **Background Groundwater Quality Data:** 264.98(a)(4), 264.98(c)

Specify the concentrations and coefficients of variation for each of the proposed monitoring parameters or constituents in the background groundwater quality.

SUBJECT REQUIREMENT: 40 CFR Section Non.

E-5c(1)(b) Sampling Frequency: 264.97(g)(1)

Demonstrate that background groundwater quality for each parameter or constituent is based on data obtained through quarterly sampling of wells.

E-5c(1)(c) Sampling Quantity: 264.97(g)(4)

Demonstrate that a minimum of one sample from each well and a minimum of four samples from the entire system is taken each time the system is sampled.

E-5c(1)(d) Background Values: 264.98(c)(2)

Show that the background values for each monitoring parameter or constituent will be expressed in the form necessary to determine statistically significant increases.

E-5c(2) Plan for Establishing Groundwater Quality Data: 270.14(c)(6)(iii), 264.98(c)

Submit a plan for establishing background values. The plan must address the following items.

E-5c(2)(a) Well Location: 264.98(c)

Indicate the wells to be used to collect the background groundwater quality data.

E-5c(2)(b) Sampling Frequency: 264.97(g)(1)

Demonstrate that background groundwater quality for each parameter or constituent is based on data obtained through quarterly sampling of wells.

E-5c(2)(c) Sampling Quantity: 264.97(g)(4)

Demonstrate that a minimum of one sample from each well and a minimum of four samples from the entire system is taken each time the system is sampled.

E-5c(2)(d) Background Values: 264.98(c)(2)

Show that the background values for each monitoring parameter or constituent will be expressed in the form necessary to determine statistically significant increases.

E-5d Sampling, Analysis and Statistical Procedures: 270.14(c)(6)(iv), 264.97(d), (e) and (h), 264.98(d), (e), (f) and (g)

Submit a proposed sampling and analysis plan that includes procedures for sample collection, sample preservation and shipment, analytical methods, and chain of custody controls. The plan should also describe the statistical comparison procedure(s) to be used.

E-5d(1) Sample Collection: 264.97(d)(1)

Describe the procedures and techniques for sample collection.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-5d(2) Sample Preservation and Shipment: 264.97(d)(2)

Describe the procedures and techniques for sample preservation and shipment.

E-5d(3) Analytical Procedure: 264.97(d)(3)

Describe the analytical technique that will be used for each monitoring parameter. (The methods specified in the most recent edition of "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (SW-846) must be used.)

E-5d(4) Chain of Custody: 264.97(d)(4)

Describe the procedures for chain of custody control for all samples collected.

E-5d(5) Additional Requirements for Compliance Point Monitoring: 264.98(d)

E-5d(5)(a) Sampling Frequency: 264.98(d)

Demonstrate that sampling of each monitoring well at the compliance point will be performed semi-annually during the active life of a regulated unit.

E-5d(5)(b) Compliance Point Groundwater Quality Values: 264.98(d)

Show that the groundwater quality values will be expressed in the form necessary to determine statistically significant increases.

E-5d(6) Annual Determination: 264.98(e)

Specify the procedure for the annual determination of the uppermost aquifer flow rate and direction.

E-5d(7) Statistical Determination: 264.98(g)

Specify the procedures to be used to determine whether there has been a statistically significant increase over background values for each parameter or constituent monitored at the compliance point.

E-5d(7)(a) Statistical Procedure: 264.98(g)(1), 264.97(h)

Specify the statistical comparison procedures which will be used to evaluate whether there has been a statistically significant increase over background values for each parameter or constituent monitored at the compliance point.

E-5d(7)(b) Results: 264.98(g)(2)

Provide an estimate of the time period, subsequent to sampling completion, within which the results of the statistical analysis will be available.

E-6 Compliance Monitoring Program: 270.14(c)(7)

If the presence of hazardous constituents has been detected in the groundwater at the point of compliance at the time of permit application, submit the following information.

SUBJECT REQUIREMENT: 40 CFR Section Non.

E-6a **Waste Description:** 270.14(c)(7)(i)

A description of the wastes previously handled at the facility. This description should include:

- Historical records of volumes, types (including EPA ID number, if applicable), and chemical composition of wastes placed in units in the waste management area;
- The results of any direct sampling of the waste (see "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods", SW-846);
- A list of constituents that are reasonably expected to be in or derived from the waste; and
- Identification of the dominant constituents expected to be present, and their relative abundance.

If it is expected that some constituents may form a separate, immiscible fluid, the composition of this fluid and its viscosity and density should be included in the application.

E-6b **Characterization of Contaminated Groundwater:** 270.14(c)(7)(ii)

Provide a characterization of the contaminated groundwater including the concentration of identified hazardous constituents. For each well at the point of compliance, and for each background well, provide the following information:

- Concentrations of each constituent in Appendix VIII of 40 CFR Part 261;
- Concentrations of major anions and cations; and
- Concentrations of the constituents listed in Table 1 of §264.94, if not already determined by the above.

E-6c **Hazardous Constituents to be Monitored:** 270.14(c)(7)(iii), 264.93

Specify the hazardous constituents which you propose to monitor and present a rationale for selecting these constituents.

E-6d **Concentration Limits:** 270.14(c)(7)(iv), 264.99(a)(2), 264.94

Specify proposed concentration limits for each hazardous constituent. (The proposed concentration limit must not exceed the present background level of that constituent in the groundwater nor may it exceed the value of that constituent, if listed in Table 1 of §264.94, entitled Maximum Concentrations of Constituents for Groundwater Protection. If you wish to petition the Regional Administrator to establish alternate concentration limits than those specified above you must supply the information identified in comment E-6c.)

E-6e **Alternate Concentration Limits:** 270.14(c)(7)(iv), 264.99(a)(2), 264.94(b)

Provide a justification for establishing alternate concentration limits. This justification must address each of the following factors.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-6e(1) Adverse Effects on Groundwater Quality: 264.94(b)(1)

The potential adverse effects on groundwater quality, considering:

- The physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;
- The hydrogeological characteristics of the facility and surrounding land;
- The quantity of groundwater and the direction of groundwater flow;
- The proximity and withdrawal rates of groundwater users;
- The current and future uses of groundwater in the area;
- The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;
- The potential for health risks caused by human exposure or waste constituents;
- The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and
- The persistence and permanence of the potential adverse effects.

E-6e(2) Potential Adverse Effects: 264.94(b)(2)

The potential adverse effects on hydraulically-connected surface-water quality, considering:

- The volume and physical and chemical characteristics of the waste in the regulated unit;
- The hydrogeological characteristics of the facility and surrounding land;
- The quantity and quality of groundwater, and the direction of groundwater flow;
- The patterns of rainfall in the region;
- The proximity of the regulated unit to surface waters;
- The current and future uses of surface waters in the area and any water quality standards established for those surface waters;
- The existing quality of surface water, including other sources of contamination and the cumulative impact on surface-water quality;
- The potential for health risks caused by human exposure to waste constituents;
- The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and
- The persistence and permanence of the potential adverse effects.

E-6f Groundwater Monitoring System: 270.14(c)(7)(v), 264.97, 264.99

Describe in detail the individual elements of the monitoring system to be used during compliance monitoring.

E-6f(1) Description of Wells: 264.97(a) and (c)

Identify the number, location and depth of each well. Describe the well construction materials.

SUBJECT REQUIREMENT: 40 CFR Section Non.

E-6f(2) Representative Samples: 264.97(a)(1) and (2)

Provide details supporting the representative nature of the groundwater quality at (1) background monitoring points and (2) the compliance monitoring point.

E-6f(3) Locations of Background Groundwater Monitoring Wells that are Not Upgradient: 264.97(g)(3)

For wells that are not located upgradient from the waste management area, provide information for either E-6f(3)(a) or E-6f(3)(b).

E-6f(3)(a) Inability to Determine Upgradient: 264.97(g)(3)(i)

Demonstrate that the hydrogeologic conditions do not allow determination that the wells are upgradient.

E-6f(3)(b) Representative Samples of Background Groundwater Quality: 264.97(g)(3)(ii)

Demonstrate that sampling at other wells will provide an indication of background groundwater quality that is as representative or more representative than that provided by the upgradient wells.

E-6g Background Values: 270.14(c)(8), 264.97(g)

Submit background values for each proposed monitoring parameter or constituent, or procedures to calculate such values. Submit the information identified in Section E-6g(1) or E-6g(2).

E-6g(1) Background Groundwater Quality Data Currently Available: 270.14(c)(8), 264.99(c)

E-6g(1)(a) Background Groundwater Quality Data: 264.97(g)(2), 264.99(c)

Specify the concentrations and coefficients of variation for each of the proposed monitoring parameters or constituents. Document that the background groundwater quality is based on data from upgradient wells that account for measurement errors in sampling and analysis and accounts, to the extent feasible, for seasonal fluctuation in background groundwater quality if such fluctuations are expected to affect the concentration of the hazardous constituent.

E-6g(1)(b) Sampling Frequency: 264.97(g)(2), 264.99(c)(3)(i)

Describe the sampling frequency used in developing the data base used to determine a background value for each parameter or constituent for each well.

E-6g(1)(c) Sampling Quantity: 264.97(g)(4)

Demonstrate that a minimum of one sample from each well and a minimum of four samples from the entire system is taken each time the system is sampled.

E-6g(1)(d) Background Values: 264.99(c)(3)(ii)

Show that the background values for each monitoring parameter or constituent will be expressed in the form necessary to determine statistically significant increases.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-6g(2) Plan for Establishing Groundwater Quality Data: 264.99(c), 264.97(g)

Submit a plan for establishing background groundwater quality values. The plan must address the following items.

E-6g(2)(a) Background Data: 264.97(g)(2)

Document that the background groundwater quality will be based on data from upgradient wells -- which will be available before the permit is issued; that the data accounts for measurement errors in sampling and analysis and accounts, to the extent feasible, for seasonal fluctuations in background groundwater quality if such fluctuations are expected to affect the concentration of the hazardous constituent.

E-6g(2)(b) Well Location: 264.99(c)

Indicate the wells to be used to collect the data.

E-6g(2)(c) Sampling Frequency: 264.99(g)(2)

Describe the sampling frequency to be used in developing the data base used to determine the background water quality for a monitoring parameter or constituent for each well.

E-6g(2)(d) Sampling Quantity: 264.97(g)(4)

Demonstrate that a minimum of one sample from each well and a minimum of four samples from the entire system is taken each time the system is sampled.

E-6g(2)(e) Background Values: 264.99(c)(3)(ii)

Show that the background values for each monitoring parameter or constituent will be expressed in the form necessary to determine statistically significant increases.

E-6h Sampling, Analysis and Statistical Procedures: 270.14(c)(7)(v) and (vi), 264.97(d), (e) and (h), 264.99(d), (e), (f) and (g)

Submit a proposed sampling and analysis plan that includes procedures for sample collection, sample preservation and shipment, analytical methods, and chain of custody controls. The plan should also describe the statistical comparison procedure(s) to be used.

E-6h(1) Sample Collection: 264.97(d)(1)

Describe the procedures and techniques for sample collection.

E-6h(2) Sample Preservation and Shipment: 264.97(d)(2)

Describe the procedures and techniques for sample preservation and shipment.

E-6h(3) Analytical Procedure: 264.97(d)(3)

Describe the analytical technique that will be used for each monitoring parameter. (The methods specified in the most recent edition of "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (SW-846) must be used.)

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-6h(4) Chain of Custody: 264.97(d)(4)

Describe the procedures for chain of custody control for all samples collected.

E-6h(5) Additional Requirements for Compliance Point Monitoring: 264.99(d)

E-6h(5)(a) Sampling Frequency: 264.99(d)

Demonstrate that sampling of each monitoring well at the compliance point will be performed quarterly during the active life of a regulated unit.

E-6h(5)(b) Testing for Appendix VIII Hazardous Constituents: 264.99(f)

Specify the procedure for the annual testing of all monitoring wells at the compliance point for all constituents contained in Appendix VIII of Part 261.

E-6h(5)(c) Compliance Point Groundwater Quality Values: 264.99(d)

Show that the groundwater quality values will be expressed in the form necessary to determine statistically significant increases.

E-6h(6) Annual Determination: 264.99(e)

Specify the procedure for the annual determination of the uppermost aquifer flow rate and direction.

E-6h(7) Statistical Determination: 264.99(h)

E-6h(7)(a) Statistical Procedure: 264.97(h), 264.99(h)(1)

Specify the statistical comparison procedures which will be used to evaluate whether there has been a statistically significant increase over background values for each parameter or constituent monitored at the compliance point.

E-6h(7)(b) Results: 264.99(h)(2)

Provide an estimate of the time period, subsequent to sampling completion, within which the results of the statistical analysis will be available.

E-7 Corrective Action Program: 270.14(c)(8), 264.100

If hazardous constituents have been measured in the groundwater which exceed the concentration limits established under §264.94 Table 1, or if groundwater monitoring conducted at the time of permit application at the waste boundary indicates the presence of hazardous constituents from the facility in groundwater over background concentrations, the owner or operator must submit sufficient information, supporting data, and analyses to establish a corrective action program which meets the requirements of §264.100. (However, an owner or operator is not required to submit information to establish a corrective action program if he demonstrates to the Regional Administrator that alternate concentration limits will protect human health and the environment after considering the criteria listed in §264.94(b).)

Submit the following information to establish a corrective action program:

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-7a **Characterization of Contaminated Groundwater:** 270.14(c)(8)(i)

Provide a characterization of the contaminated groundwater including the concentration of identified hazardous constituents. For each well at the point of compliance, and for each background well, provide the following information:

- Concentrations of each constituent in Appendix VIII of 40 CFR Part 261;
- Concentrations of major anions and cations; and
- Concentrations of the constituents listed in Table 1 of §264.94, if not already determined by the above.

E-7b **Concentration Limits:** 270.14(c)(8)(ii), 264.99(a)(2), 264.94

Specify proposed concentration limits for each hazardous constituent. (The proposed concentration limit must not exceed the present background level of that constituent in the groundwater nor may it exceed the value of that constituent, if listed in Table 1 of §264.94, entitled Maximum Concentrations of Constituents for Groundwater Protection. If you wish to petition the Regional Administrator to establish alternate concentration limits than those specified above you must supply the information identified in comment E-7c.)

E-7c **Alternate Concentration Limits:** 270.14(c)(8)(ii), 264.99(a)(2), 264.94(b)

Provide a justification for establishing alternate concentration limits. This justification must address each of the following factors.

E-7c(1) **Adverse Effects on Groundwater Quality:** 264.94(b)(1)

Potential adverse effects on groundwater quality, considering:

- The physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;
- The hydrogeological characteristics of the facility and surrounding land;
- The quantity of groundwater and the direction of groundwater flow;
- The proximity and withdrawal rates of groundwater users;
- The current and future uses of groundwater in the area;
- The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;
- The potential for health risks caused by human exposure or waste constituents;
- The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and
- The persistence and permanence of the potential adverse effects.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-7c(2) Potential Adverse Effects: 264.94(b)(2)

Potential adverse effects on hydraulically-connected surface-water quality; considering:

- The volume and physical and chemical characteristics of the waste in the regulated unit;
- The hydrogeological characteristics of the facility and surrounding land;
- The quantity and quality of groundwater, and the direction of groundwater flow;
- The patterns of rainfall in the region;
- The proximity of the regulated unit to surface waters;
- The current and future uses of surface waters in the area and any water quality standards established for those surface waters;
- The existing quality of surface water, including other sources of contamination and the cumulative impact on surface-water quality;
- The potential for health risks caused by human exposure to waste constituents;
- The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and
- The persistence and permanence of the potential adverse effects.

E-7d Corrective Action Plan: 270.14(c)(8)(iii), 264.100(b)

The applicant must submit detailed plans and an engineering report on the corrective actions proposed for the facility. This information should include:

E-7d(1) Location: 270.14(c)(8)(iii), 264.100(b)

Maps showing the location of engineered barriers, caps, drains and wells, etc. (use the topographic map in Section B-2).

E-7d(2) Construction Detail: 270.14(c)(8)(iii), 264.100(b)

Descriptions and engineering drawings of construction details and specifications of engineered barriers, caps, drains, wells, etc.

E-7d(3) Plans for Removing Wastes: 270.14(c)(8)(iii), 264.100(b)

If proposed, plans for removing and handling of any hazardous wastes.

E-7d(4) Treatment Technologies: 270.14(c)(8)(iii), 264.100(b)

A description of the treatment technologies to be used for contaminated groundwater that is pumped or drained from the zone of contamination.

E-7d(5) Effectiveness of Correction Program: 270.14(c)(8)(iv), 270.14(c)(8)(iii), 264.100(b)

A prediction and sensitivity analysis on the effectiveness of corrective actions. (For example, anticipated drain flow rates, assuming a range of hydrologic properties.)

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-7d(6) Reinjection System: 270.14(c)(8)(iii), 264.100(b)

If treated ground or surface water is to be reinjected at the site, the concentration levels of all hazardous constituents to be reinjected.

E-7d(7) Additional Hydrogeologic Data: 270.14(c)(8)(iii), 264.100(b)

A description and summary of any additional hydrogeologic data collected for use in designing the corrective action.

E-7d(8) Operation and Maintenance: 270.14(c)(8)(iii), 264.100(b)

Operation and maintenance plans for the correction action measures.

E-7d(9) Closure and Post-Closure Plans: 270.14(c)(8)(iii), 264.100(b)

If applicable, closure and post-closure care plans for the materials used to handle hazardous wastes as part of the corrective action.

E-7e Groundwater Monitoring Program: 270.14(c)(8)(iv), 264.100(d)

Description of the groundwater monitoring program used to assess the effectiveness of the corrective action measures. Water quality monitoring must be conducted over the on-site extent of the contaminated groundwater. Submit the following information:

E-7e(1) Description of Wells: 264.97(a) and (c)

Identify the number, location and depth of each well. Describe the well construction materials.

E-7e(2) Representative Samples: 264.97(a)(1) and (2)

Provide details supporting the representative nature of the groundwater quality at (1) background monitoring points and (2) the compliance monitoring point.

E-7e(3) Locations of Background Groundwater Monitoring Wells that are Not Upgradient: 264.97(g)(3)

For wells that are not located upgradient from the waste management area, demonstrate either that the hydrogeologic conditions do not allow determination that the wells are upgradient, or that sampling at other wells will provide an indication of background groundwater quality that is as representative or more representative than that provided by the upgradient wells.

E-7f Background Values: 264.99(c)

Submit background values for each proposed monitoring parameter or constituent, or procedures to calculate such values. Submit the information identified in Section E-7f(1) or E-7f(2).

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-7f(1) Data Currently Available: 264.99(c)

E-7f(1)(a) Background Groundwater Quality Data: 264.97(g)(2),.264.99(c)

Specify the concentrations and coefficients of variation for each of the proposed monitoring parameters or constituents. Document that the background groundwater quality is based on data from upgradient wells that account for measurement errors in sampling and analysis and accounts, to the extent feasible, for seasonal fluctuation in background groundwater quality if such fluctuations are expected to affect the concentration of the hazardous constituent.

E-7f(1)(b) Sampling Frequency: 264.97(g)(2), 264.99(c)(3)(i)

Describe the sampling frequency used in developing the data base used to determine a background value for each parameter or constituent for each well.

E-7f(1)(c) Sampling Quantity: 264.97(g)(4)

Demonstrate that a minimum of one sample from each well and a minimum of four samples from the entire system is taken each time the system is sampled.

E-7f(1)(d) Background Values: 264.99(c)(3)(ii)

Show that the background values for each monitoring parameter or constituent will be expressed in the form necessary to determine statistically significant increases.

E-7f(2) Plan for Establishing Groundwater Quality Data: 264.99(c), 264.97(g)

Submit a plan for establishing background groundwater quality values. The plan must address the following items.

E-7f(2)(a) Background Data: 264.97(g)(2)

Document that the background groundwater quality will be based on data from upgradient wells -- which will be available before the permit is issued; that the data accounts for measurement errors in sampling and analysis and accounts, to the extent feasible, for seasonal fluctuations in background groundwater quality if such fluctuations are expected to affect the concentration of the hazardous constituent.

E-7f(2)(b) Well Location: 264.99(c)

Indicate the wells to be used to collect the data.

E-7f(2)(c) Sampling Frequency: 264.99(g)(2)

Describe the sampling frequency to be used in developing the data base used to determine the background water quality for a monitoring parameter or constituent for each well.

E-7f(2)(d) Sampling Quantity: 264.97(g)(4)

Demonstrate that a minimum of one sample from each well and a minimum of four samples from the entire system is taken each time the system is sampled.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-7[(2)(e) Background Values: 264.99(c)(3)(ii)

Show that the background values for each monitoring parameter or constituent will be expressed in the form necessary to determine statistically significant increases.

E-7g Sampling, Analysis and Statistical Procedures: 270.14(c)(7)(vi), 264.97(d), (e) and (h), 264.99(d), (e), (f) and (g)

Submit a proposed sampling and analysis plan that includes procedures for sample collection, sample preservation and shipment, analytical methods, and chain of custody controls. The plan should also describe the statistical comparison procedure(s) to be used.

E-7g(1) Sample Collection: 264.97(d)(1)

Describe the procedures and techniques for sample collection.

E-7g(2) Sample Preservation and Shipment: 264.97(d)(2)

Describe the procedures and techniques for sample preservation and shipment.

E-7g(3) Analytical Procedure: 264.97(d)(3)

Describe the analytical technique that will be used for each monitoring parameter. (The methods specified in the most recent edition of "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (SW-846) must be used.)

E-7g(4) Chain of Custody: 264.97(d)(4)

Describe the procedures for chain of custody control for all samples collected.

E-7g(5) Additional Requirements for Compliance Point Monitoring: 264.99(d)

E-7g(5)(a) Sampling Frequency: 264.99(d)

Demonstrate that sampling of each monitoring well at the compliance point will be performed quarterly during the active life of a regulated unit.

E-7g(5)(b) Testing for Appendix VIII Hazardous Constituents: 264.99(f)

Specify the procedure for the annual testing of all monitoring wells at the compliance point for all constituents contained in Appendix VIII of Part 261.

E-7g(5)(c) Compliance Point Groundwater Quality Values: 264.99(d)

Show that the groundwater quality values will be expressed in the form necessary to determine statistically significant increases.

E-7g(6) Annual Determination: 264.99(e)

Specify the procedure for the annual determination of the uppermost aquifer flow rate and direction.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

E-7q(7) Statistical Determination: 264.99(h)

Specify the procedures to be used to determine whether there has been a statistically significant increase over background values for each parameter or constituent monitored at the compliance point.

E-7q(7)(a) Statistical Procedure: 264.97(h), 264.99(h)(1)

Specify the statistical comparison procedures which will be used to evaluate whether there has been a statistically significant increase over background values for each parameter or constituent monitored at the compliance point.

E-7q(7)(b) Results: 264.99(h)(2)

Provide an estimate of the time period, subsequent to sampling completion, within which the results of the statistical analysis will be available.

F-1a Security Procedures and Equipment: 270.14(b)(4), 264.14

Unless a waiver is granted, the facility must demonstrate the following:

F-1a(1) 24-Hour Surveillance System: 264.14(b)(1)

A 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) that continuously monitors and controls entry onto the active portion of the facility; or

F-1a(2)(a) Barrier: 264.14(b)(2)(i)

An artificial or natural barrier (e.g., a fence in good repair or a fence combined with a cliff), that completely surrounds the active portion of the facility; and

F-1a(2)(b) Means to Control Entry: 264.14(b)(2)(ii)

A means to control entry, at all times, through the gates or other entrances to the active portion of the facility (e.g., an attendant, television monitors, locked entrance, or controlled roadway access to the facility).

F-1a(3) Warning Signs: 264.14(c)

The facility must have a sign with the legend, "Danger - Unauthorized Personnel Keep Out", which must be posted at each entrance to the active portion of the facility and at other locations, in sufficient numbers to be seen from any approach to this active portion. The legend must be written in English and in any other language predominant in the area surrounding the facility and must be legible from a distance of at least 25 feet. Existing signs with a legend other than "Danger - Unauthorized Personnel Keep Out" may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion, and that entry onto the active portion can be dangerous.

F-1b Waiver: 264.14(a)

If a waiver of the security procedures and equipment requirements is requested, the owner or operator must demonstrate the following:

SUBJECT REQUIREMENT: 40 CFR Section Nos.

F-1b(1) Injury to Intruder: 264.14(a)(1)

Physical contact with the waste, structure, or equipment within the active portion of the facility will not injure unknowing or unauthorized persons or livestock that may enter the active portion of a facility; and

F-1b(2) Violation Caused By Intruder: 264.14(a)(2)

Disturbance of the waste or equipment by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility will not cause a violation of the requirements of this part.

F-2a General Inspection Requirements: 270.14(b)(5), 264.15(a) and (b), 264.33

Describe the facility schedule for inspection of monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment that are vital to prevent, detect, or respond to environmental or human health hazards. The schedule must be kept at the facility.

F-2a(1) Types of Problems: 264.15(b)(3)

The schedule must identify the types of problems to look for during the inspection.

F-2a(2) Frequency of Inspections: 264.15(b)(4)

Describe the frequency of inspection for items on the schedule. The frequency of inspection should be based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, must be inspected daily when in use.

F-2b(1) Container Inspection: 264.174

Document weekly inspections of containers and container storage area for deterioration caused by corrosion or other factors.

F-2b(2) Tank Inspection: 264.194(a) and (b)

Document daily or weekly inspection procedures by the facility owner or operator of the following:

F-2b(2)(a) Tank Construction Materials: 264.194(a)(4)

The construction materials of the above-ground portions of the tank to detect corrosion or erosion and leaking of fixtures and seams (weekly).

F-2b(2)(b) Tank Surrounding Area: 264.194(a)(5)

The area immediately surrounding the tank to detect obvious signs of leakage (weekly).

F-2b(2)(c) Tank Overfilling Control Equipment: 264.194(a)(1)

Overfilling control equipment (e.g., waste-feed cut-off systems and bypass systems) to ensure good working order (daily).

SUBJECT REQUIREMENT: 40 CFR Section Nos.

F-2b(2)(d) Tank Monitoring Data: 264.194(a)(2)

Data gathered from monitoring equipment (e.g, pressure and temperature gauges) where present to ensure that the tank is operated according to design specifications (daily).

F-2b(2)(e) Tank Level of Waste: 264.194(a)(3)

The level of waste in uncovered tanks to ensure maintenance of sufficient freeboard to prevent overtopping by wave or wind action, or by precipitation (daily).

F-2b(2)(f) Tank Condition Assessment: 264.194(b)

The schedule and procedure for assessing the condition of the tank. Procedure must be adequate to detect cracks, leaks, or wall thinning to less than sufficient shell strength.

F-2b(2)(g) Tank Interior Inspection: 264.194(b)

Document established procedures for emptying a tank to allow entry and inspection of the interior to detect corrosion or erosion of the tank sides and bottom.

F-2b(3) Waste Pile Liner Inspection for Exemption from Groundwater Protection Requirement: 270.18(d), 264.253(a)(3)

The wastes in the pile must be removed periodically, and the liner must be inspected for deterioration, cracks, or other conditions that may result in leaks. The frequency of inspections must be based on the potential for the liner (base) to crack or otherwise deteriorate under the conditions of operation (e.g., waste type, rainfall, loading rates, and subsurface stability).

F-2b(4) Waste Pile Inspection: 264.254(b)

Describe how each waste pile, while in operation, will be inspected weekly and after storms to detect evidence of any of the following:

F-2b(4)(a) Leak Detection Systems: 264.254(b)(1)

The presence of liquids in leak detection systems.

F-2b(4)(b) Run-on and Run-off Control System: 264.254(b)(2)

Deterioration, malfunctions, or improper operation of run-on and run-off control systems.

F-2b(4)(c) Wind Dispersal System: 264.254(b)(3)

Proper functioning of wind dispersal control systems, where present.

F-2b(4)(d) Leachate Collection and Removal System: 264.254(b)(4)

The presence of leachate in and proper functioning of leachate collection and removal systems, where present.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

F-2b(5) Surface Impoundment Inspection: 264.226(b), 264.226(c)

Document inspection procedures for the following:

F-2b(5)(a) Condition Assessment: 264.226(b)

Describe how each surface impoundment, while in operation, will be inspected weekly and after storms to detect evidence of any of the following:

F-2b(5)(a)(1) Overtopping Control System: 264.226(b)(1)

Deterioration, malfunctions, or improper operation of overtopping control system.

F-2b(5)(a)(2) Impoundment Contents: 264.226(b)(2)

Sudden drop in the level of the impoundment contents.

F-2b(5)(a)(3) Leak Detection System: 264.226(b)(3)

The presence of liquids in the leak detection system, where present.

F-2b(5)(a)(4) Deterioration: 264.226(b)(4)

Severe erosion or other signs of deterioration in dikes or other containment devices.

F-2b(5)(b) Structural Integrity: 264.226(c)

Specify the procedure to be followed for assessing the structural integrity of the surface impoundment dike, including that portion of any dike which provides freeboard. Prior to issuance of the permit, and after any extended period of time during which the impoundment was not in service, the owner or operator must obtain a certification from a qualified engineer. The certification must establish that the dikes will withstand the stress of the pressure exerted by the types and amount of wastes to be placed in the impoundment and will not fail due to scouring or piping without dependence on any liner system included in the surface impoundment construction.

F-2b(6) Incinerator Inspection: 264.347

Document the daily or weekly inspection procedures used by the facility owner or operator with respect to the following:

F-2b(6)(a) Incinerator and Associated Equipment: 264.347(b)

Document the procedures for daily visual inspections of the incinerator and associated equipment for leaks, spills, fugitive emissions, and signs of tampering.

F-2b(6)(b) Incinerator Waste Feed Cut-off System and Associated Alarms: 264.347(c)

Document the procedures for testing the emergency waste feed cut-off system and associated alarms. Testing must be conducted on a weekly basis unless a demonstration can be made that the weekly frequency is unduly restrictive and that less frequent inspections will be adequate. At a minimum, operational testing must be conducted monthly.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

F-2b(7) Landfill Inspection: 264.303(b)

Demonstrate that while the landfill is in operation it will be inspected weekly and after storms to detect evidence of any of the following:

F-2b(7)(a) Run-on and Run-off Control System: 264.303(b)(1)

Deterioration, malfunctions, or improper operation of run-on and run-off control systems.

F-2b(7)(b) Leak Detection System: 264.303(b)(2)

The presence of liquids in leak detection systems, where present.

F-2b(7)(c) Wind Dispersal Control System: 264.303(b)(3)

Proper functioning of wind dispersal control systems, where present.

F-2b(7)(d) Leachate Collection and Removal System: 264.303(b)(4)

The presence of leachate in and proper functioning of leachate collection and removal systems, where present.

F-2b(8) Land Treatment Facility Inspection: 264.273(g)

Describe how the land treatment facility units will be inspected weekly and after storms to detect evidence of the following:

F-2b(8)(a) Run-on and Run-off Control System: 264.273(g)(1)

Deterioration, malfunctions, or improper operation of run-on and run-off control systems.

F-2b(8)(b) Wind Dispersal Control System: 264.273(g)(2)

Improper functioning of wind dispersal control measures.

F-3a Equipment Requirements: 270.14(b)(6), 264.32

Demonstrate that the facility possesses the equipment listed below. (The location, description, and capabilities of this equipment must be provided in the Contingency Plan, Section G-5. Requests for a waiver of part or all of this requirement must be accompanied by a demonstration that none of the hazards posed by waste handled at the facility could require a particular kind of equipment:

F-3a(1) Internal Communications: 264.32(a)

An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

F-3a(2) External Communications: 264.32(b)

A device, such as a telephone (immediately available at the scene of operations) or a handheld two-way radio, for summoning emergency assistance from local police departments, fire departments, or state or local emergency response teams.

F-3a(3) Emergency Equipment: 264.32(c)

Portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment.

F-3a(4) Water for Fire Control: 264.32(d)

Water at adequate volume and pressure to supply water hose streams, foam producing equipment, automatic sprinklers, or water spray systems.

F-3b Aisle Space Requirement: 264.35

Demonstrate that the facility maintains sufficient aisle space to allow the unobstructed movement of personnel, fire protection equipment, or spill control equipment to any area of facility operation in an emergency. Requests for a waiver of the aisle space requirement must be accompanied by a demonstration that aisle space is not needed for any, or all, of these purposes.

F-4 Preventive Procedures, Structures, and Equipment: 270.14(b)(8)

Describe procedures, structures, or equipment used at the facility for the following:

F-4a Unloading Operations: 270.14(b)(8)(i)

Prevention of hazards in unloading operations (e.g., use of ramps or special forklifts).

F-4b Run-off: 270.14(b)(8)(ii)

Prevention of run-off from hazardous waste handling areas to other areas of the facility or environment, or prevention of flooding (e.g., berms, dikes, trenches).

F-4c Water Supplies: 270.14(b)(8)(iii)

Prevention of contamination of water supplies.

F-4d Equipment and Power Failure: 270.14(b)(8)(iv)

Mitigation of effects of equipment failure and power outage.

F-4e Personnel Protection Equipment: 270.14(b)(8)(v)

Prevention of undue exposure of personnel to hazardous waste (e.g., protective clothing).

SUBJECT REQUIREMENT: 40 CFR Section Nos.

F-5a **Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste:** 270.14(b)(9), 264.17(a)

Describe the precautions taken by a facility that handles ignitable or reactive waste to prevent actual ignition, including separation from sources of ignition such as open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (e.g., heat-producing chemical reactions), and radiant heat. Demonstrate that when ignitable or reactive waste is being handled, the owner or operator confines smoking and open flames to specially designated locations. "NO SMOKING" signs must be conspicuously placed wherever a hazard exists from ignitable or reactive waste.

F-5b **General Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste:** 270.14(b)(9), 264.17(b)

Describe the precautions taken by a facility that treats, stores, or disposes of ignitable or reactive waste, or accidentally mixes incompatible waste or incompatible wastes and other materials, to prevent reactions which: (1) generate extreme heat or pressure, fire or explosions, or violent reactions; (2) produce uncontrolled flammable fumes, dusts, or gases in sufficient quantities to threaten human health or the environment; (3) produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions; (4) damage the structural integrity of the device or facility; (5) by similar means threaten human health or the environment.

F-5c **Management of Ignitable or Reactive Wastes in Containers:** 270.15(c), 264.176

Provide sketches, drawings, or data demonstrating that containers of ignitable or reactive waste are located at least 15 meters (50 feet) from the facility's property line.

F-5d **Management of Incompatible Wastes in Containers:** 270.15(d), 264.177

Describe the procedures used to ensure that incompatible wastes and materials are not placed in the same containers or in an unwashed container that previously held incompatible waste. If a storage container holds a hazardous waste that is incompatible with any waste or other materials stored nearby in other containers, piles, open tanks, or surface impoundments, document that the wastes are separated from the other material or protected from them by means of a dike, berm, wall or other device.

F-5e **Management of Ignitable or Reactive Wastes in Tanks:** 270.16(f), 264.198

Describe the operational procedures used for storing such wastes in tanks that includes specific information on: (1) how the waste is treated, rendered, or mixed before or immediately after the placement in the tank so that it is no longer considered ignitable and complies with §264.17(b); or the waste is stored or treated in such a way that it is protected from any material or conditions that may cause the waste to react or ignite; or the tank is used solely for emergencies; (2) how facilities that treat or store ignitable or reactive waste in covered tanks comply with the National Fire Protection Association's buffer zone requirements for tanks.

F-5f **Management of Incompatible Wastes in Tanks:** 270.16(f), 264.199(b)

Certify that incompatible wastes and materials are not stored in the same tank or in an unwashed tank that previously held an incompatible waste or material.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

F-5g Management of Ignitable or Reactive Wastes Placed in Waste Piles: 270.18(g)

If ignitable or reactive wastes are to be placed in the waste pile, provide a description of how the wastes will be mixed, treated or otherwise rendered nonignitable and/or nonreactive. Alternately, describe the procedures for managing the waste in such a way that it is protected from any material or conditions which may cause it to ignite or react.

F-5h Management of Incompatible Wastes Placed in Waste Piles: 270.18(h)

If incompatible wastes, or incompatible wastes and materials are to be placed in the waste pile, provide a demonstration that such activities will not:

- Generate extreme heat or pressure, fire, explosions, or violent reactions;
- Produce uncontrolled toxic or flammable emissions in significant quantities;
- Damage the unit's structural integrity; or
- Otherwise threaten human health or the environment.

This demonstration must be thoroughly documented.

F-5i Management of Ignitable or Reactive Wastes Placed in Surface Impoundments: 270.17(h), 264.229

Except for surface impoundments to be used solely for emergencies, if ignitable or reactive wastes are to be placed in the surface impoundment, provide a description of how the wastes will be mixed, treated or otherwise rendered non-ignitable and/or non-reactive. Alternately, describe the procedures for managing the waste in such a way that it is protected from any material or conditions which may cause it to ignite or react.

F-5j Management of Incompatible Wastes Placed in Surface Impoundments: 270.17(i), 264.230

If incompatible wastes, or incompatible wastes and materials are to be placed in the surface impoundment, provide a demonstration that such activities will not:

- Generate extreme heat or pressure, fire, explosions, or violent reactions;
- Produce uncontrolled toxic or flammable emissions in significant quantities;
- Damage the unit's structural integrity; or
- Otherwise threaten human health or the environment.

This demonstration must be thoroughly documented.

F-5k Management of Ignitable or Reactive Wastes Placed in Landfills: 270.21(f), 264.312

If ignitable or reactive wastes are to be placed in the landfill, provide a description of how the wastes will be mixed, treated or otherwise rendered nonignitable and/or nonreactive. Alternately, describe the procedures for managing the waste in such a way that it is protected from any material or conditions which may cause it to ignite or react.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

F-5l Management of Incompatible Wastes Placed in Landfills: 270.21(q), 264.313

If incompatible wastes, or incompatible wastes and materials are to be placed in the landfill, provide a demonstration that such activities will not:

- Generate extreme heat or pressure, fire, explosions, or violent reactions;
- Produce uncontrolled toxic or flammable emissions in significant quantities;
- Damage the unit's structural integrity; or
- Otherwise threaten human health or the environment.

This demonstration must be thoroughly documented.

F-5m Management of Ignitable or Reactive Wastes Placed in Land Treatment Units: 270.20(d)(7), 264.281

If ignitable or reactive wastes are to be placed in the land treatment unit, provide a description of how the wastes will be mixed, treated or otherwise rendered nonignitable and/or nonreactive. Alternately, describe the procedures for managing the waste in such a way that it is protected from any material or conditions which may cause it to ignite or react.

F-5n Management of Incompatible Wastes Placed in Land Treatment Units: 270.20(d)(8), 264.282

If incompatible wastes, or incompatible wastes and materials are to be placed in the land treatment unit, provide a demonstration that such activities will not:

- Generate extreme heat or pressure, fire, explosions, or violent reactions;
- Produce uncontrolled toxic or flammable emissions in significant quantities;
- Damage the unit's structural integrity; or
- Otherwise threaten human health or the environment.

This demonstration must be thoroughly documented.

G. CONTINGENCY PLAN: 270.14(b)(7), 264.50 through 264.56, 264.52(b)

Provide a copy of the Contingency Plan or Spill Prevention Control and Countermeasures (SPCC) Plan amended for hazardous waste management to describe the actions facility personnel will take in response to fires, explosions, or any unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility.

G-1 General Information

Provide the facility name and location, operator, site plan, and description of facility operations.

G-2 Emergency Coordinators: 264.52(d), 264.55

Provide names, addresses, office and home phone numbers, and duties of primary and alternate coordinators and statement of authorization of coordinator to commit necessary resources to plan.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

G-3 Implementation: 264.52(a), 264.56(d)

Describe how and when the contingency plan will be implemented.

G-4a Notification: 264.56(a)

Describe the methodology for immediate notification of facility personnel and necessary state or local agencies.

G-4b Identification of Hazardous Materials: 264.56(b)

Describe procedures for identification of hazardous materials involved in the emergency.

G-4c Assessment: 264.56(c), 264.56(d)

Describe the policy for assessment of possible hazards to the environment and human health and need for evacuation and notification of authorities. The authorities to be notified should include the on-scene coordinator for that area or the National Response Center.

G-4d Control Procedures: 264.52(a)

Specify control procedures to be taken in the event of a fire, explosion, or release.

G-4e Prevention of Recurrence or Spread of Fires, Explosions, or Releases: 264.56(e)

Describe the necessary steps to be taken to ensure that fires, explosions, or releases do not occur, reoccur or spread to other hazardous waste at the facility.

G-4f Storage and Treatment of Released Material: 264.56(g)

Provide for treatment, storage, or disposal of any material that results from a release, fire, or explosion at the facility.

G-4g Incompatible Waste: 264.56(h)(1)

Describe provisions for prevention of incompatible waste from being treated, stored, or located in the affected areas until clean-up procedures are completed.

G-4h Post-Emergency Equipment Maintenance: 264.56(h)(2)

Describe procedures for ensuring that all emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.

G-4i Container Spills and Leakage: 264.52, 264.171

Specify procedures to be used when responding to container spills or leakage, including procedures and timing for expeditious removal of spilled waste and repair or replacement of the container(s).

SUBJECT REQUIREMENT: 40 CFR Section Non.

G-4j **Tank Spills and Leakage:** 264.194(c)

Document the procedures to be used by the facility owner or operator to respond to tank spills or leakage, including procedures and timing for expeditious removal of leaked or spilled waste and repair of the tank.

G-4k **Waste Pile Spills and Leakage:** 264.252, 264.253

Describe the procedures to be used when responding to waste pile spills and leakage.

G-4k(1) **Double-lined Waste Piles:** 264.252(b)

Describe the procedures to be followed in the event a liquid leaks into the leak detection system of a double-lined waste pile, including the following:

G-4k(1)(a) **Notification:** 264.252(b)(1)

Procedures for notifying the Regional Administrator in writing within seven days.

G-4k(1)(b) **Remedial Action:** 264.252(b)(2)(i)

Procedures for removing accumulated liquid, repairing or replacing the liner which is leaking and obtain a certification from a qualified engineer that to the best of his/her knowledge and opinion, the leak has been stopped.

G-4k(1)(c) **Detection Monitoring Program:** 264.252(b)(2)(ii)

Procedure for enacting a ground-water detection program.

G-4k(2) **Inspectable Piles:** 264.253

Specify the remedial procedures which will be used if deterioration, a crack, or other condition is identified that is causing or could cause a leak. Address the following:

G-4k(2)(a) **Notification:** 264.253(b)(1)

Procedures for notifying the Regional Administrator in writing within seven days.

G-4k(2)(b) **Remedial Action:** 264.253(b)(2)(i)

Procedures for repairing or replacing the liner (base) obtaining a certification from a qualified engineer that, to the best of his/her knowledge and opinion, the liner (base) has been repaired and leakage will not occur.

G-4k(2)(c) **Detection Monitoring Program:** 264.253(b)(2)(ii), 264.90

Procedures for enacting a groundwater detection program.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

G-41 Surface Impoundment Spills and Leakage: 264.222, 264.227

G-41(1) Emergency Repairs: 264.227

Describe the procedures to be used for removing a surface impoundment from service when the level of the liquid in the impoundment suddenly drops and the drop is not known to be caused by changes in the flow into or out of the impoundment or when the dike leaks. Address the following:

G-41(1)(a) Stopping Waste Addition: 264.227(b)(1)

Procedures for stopping waste additions to the impoundment.

G-41(1)(b) Containing Leaks: 264.227(b)(2)

Procedures for containing any leakage.

G-41(1)(c) Stopping Leaks: 264.227(b)(3)

Procedures for stopping the leak.

G-41(1)(d) Preventing Catastrophic Failure: 264.227(b)(4)

Procedures to stop or prevent catastrophic failure.

G-41(1)(e) Emptying the Impoundment: 264.227(b)(5)

Procedures for emptying the impoundment, if necessary.

G-41(2) Certification: 264.227(d)(1), 264.226(c)

Specify the procedure which will be followed for recertifying the dike's structural integrity, in the event the impoundment is removed from service as a result of actual or imminent dike failure.

G-41(3) Repairs as a Result of Sudden Drop: 264.227(d)(2)

Specify the procedure which will be followed in the event the impoundment is removed from service as the result of a sudden drop in the liquid level for the following:

G-41(4)(a) Existing Portions of Surface Impoundment: 264.227(d)(2)(i)

Installation of a liner for any existing portion of the impoundment.

G-41(4)(b) Other Portions of the Surface Impoundment: 264.227(d)(2)(ii)

Certification by a qualified engineer for other than existing portions of the impoundment.

G-41(5) Double-Lined Surface Impoundments: 264.222(b)

Describe the procedures to be followed in the event a liquid leaks into the leak detection system of a double-lined surface impoundment including:

SUBJECT REQUIREMENT: 40 CFR Section Nos.

G-4l(5)(a) Notification: 264.222(b)(1)

Procedures for notifying the Regional Administrator in writing within seven days.

G-4l(5)(b) Remedial Action: 264.222(b)(2)(i)

Procedures for removing accumulated liquid, repairing or replacing the liner which is leaking, and obtain a certification from a qualified engineer that to the best of his/her knowledge and opinion, the leak has been stopped.

G-4l(5)(c) Detection Monitoring Program: 264.222(b)(2)(ii)

Procedure for enacting a groundwater detection program.

G-4m Incineration Spills and Leakage: 264.52

Describe the procedures for responding to spills or leakage, including the decontamination process and repair of the unit.

G-4n Landfill Leakage: 264.52, 264.302(b)

Describe the procedures to be followed in the event a liquid leaks into the leak detection system of a double-lined landfill including:

G-4n(1) Notification: 264.302(b)(1)

Procedures for notifying the Regional Administrator in writing within seven days.

G-4n(2) Remedial Action: 264.302(b)(2)(i)

Procedures for removing accumulated liquid, repairing or replacing the liner which is leaking, and obtain a certification from a qualified engineer that to the best of his/her knowledge and opinion, the leak has been stopped.

G-4n(3) Detection Monitoring Program: 264.302(b)(2)(ii)

Procedure for enacting a groundwater detection program.

G-5 Emergency Equipment: 264.52(e)

Describe the location and specifications of the emergency equipment.

G-6 Coordination Agreements: 264.52(c), 264.37

Describe the coordination agreements with local police and fire departments, hospitals, contractors, and state and local emergency response teams to familiarize them with the facility and actions needed in case of emergency. Document refusal to enter into a coordination agreement.

G-7 Evacuation Plan: 264.52(f)

Describe signal(s) to be used to begin evacuation routes, and planned and alternate evacuation routes.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

G-8 Required Reports: 264.56(j)

Describe the provisions for submission of reports of emergency incidents within 15 days of occurrence, and maintenance of records identifying the time, date, and details of an emergency incident.

H. PERSONNEL TRAINING: 270.14(b)(12), 264.16

H-1 Outline of the Training Program: 264.16(a)(1)

Provide an outline of both the introductory and continuing training programs by owners or operators to prepare personnel to operate or maintain the facility in a safe manner. Include a brief description on how training will be designed to meet actual job tasks. (Note: On-the-job training may be used to comply with these requirements.)

H-1a Job Title/Job Description: 264.16(d)(1), 264.16(d)(2)

Provide the job title and job description of each employee whose position at the facility is related to hazardous waste management.

H-1b Training Content, Frequency, and Techniques: 264.16(c) and (d)(3)

Describe the content, frequency, and techniques used in both introductory and continuing training (including an annual review of the initial training) for each employee.

H-1c Training Director: 264.16(a)(2)

Demonstrate that the program is directed by a person trained in hazardous waste management.

H-1d Relevance of Training to Job Position: 264.16(a)(2)

Demonstrate that facility personnel are instructed in hazardous waste management procedures (including contingency plan implementation) relevant to their positions.

H-1e Training for Emergency Response: 264.16(a)(3)

Demonstrate that facility personnel are able to respond effectively to emergencies and are familiar with emergency procedures, emergency equipment, and emergency systems. The training program should include the following, if applicable:

- Procedures for Using, Inspecting, Repairing, and Replacing Facility Emergency and Monitoring Equipment
- Key Parameters for Automatic Waste Feed Cut-off Systems
- Communications or Alarm Systems
- Response to Fires
- Response to Groundwater Contamination Incidents
- Shutdown of Operations

SUBJECT REQUIREMENT: 40 CFR Section Non.

II-2 Implementation of Training Program: 264.16(b) and (d)(4)

Indicate that training has been successfully completed by facility personnel within six months of their employment or assignment to the facility or transfer to a new position within the facility, whichever is later. Employees hired after the effective date of these regulations must not work in unsupervised positions until they have completed the training requirements. Records documenting that the required training has been given to and completed by facility personnel must be maintained.

I. CLOSURE AND POST-CLOSURE REQUIREMENTS: 270.14(b)(13), 264.110 through 264.120

I-1 Closure Plans: 270.14(b)(13), 264.112

Include a copy of the written closure plan consistent with I-1a through I-1g including an estimate of the maximum inventory of wastes in storage and treatment at any time.

I-1a Closure Performance Standard: 264.111

Describe how closure minimizes the need for post-closure maintenance and minimizes releases of wastes.

I-1b Partial and Final Closure Activities: 264.112(a)(1)

If partial closure is anticipated, describe how and when the facility will be partially closed, including an identification of the maximum extent of operation after partial closure. Describe how and when the facility will finally be closed.

I-1c Maximum Waste Inventory: 264.112(a)(2)

Describe the maximum inventory of wastes in storage and in treatment at any time during the life of the facility.

I-1d Inventory Removal, Disposal or Decontamination of Equipment: 264.112(a)(3), 264.114

Describe how the hazardous waste inventory will be removed or treated and how all facility equipment and structures will be decontaminated or disposed of when closure is completed. Alternatively, provide information for closing the unit as a disposal facility as described in I-1e.

I-1d(1) Closure of Containers: 264.178

Show that at closure, all hazardous waste and hazardous waste residue will be removed from the containment system, and how remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues will be decontaminated or removed.

I-1d(2) Closure of Tanks: 264.197

Show that at closure, all hazardous waste and hazardous waste residue will be removed from tanks, discharge control equipment, and discharge confinement structures, and that the facility will be decontaminated.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-1d(1) Closure of Waste Piles: 270.18(1), 264.258

Describe how all hazardous waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate will be removed or decontaminated at closure and managed as hazardous waste. If any wastes, waste residues or contaminated materials or soils will remain after closure, provide plans for closing the pile as a landfill [I-1e] and provide post-closure plans [I-2]. Piles without liners or with liners that do not meet the requirements of D-3c must also provide contingent plans for closing the facility as a landfill [I-1e] and a contingent post-closure plan [I-2], except for dry, enclosed piles meeting the requirements of D-3b(1) or piles for which a liner exemption is sought in accordance with D-3b(2).

I-1d(4) Closure of Surface Impoundments: 270.17(g), 264.228

Describe how all hazardous waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate will be removed or decontaminated at closure and managed as hazardous waste. If any wastes, waste residues or contaminated materials or soils will remain after closure provide plans for closing the surface impoundment as a disposal unit [I-1e] and provide post-closure plans [I-2]. Surface impoundments without liners or with liners that do not meet the requirements of D-4c must also provide contingent plans for closure as a disposal unit [I-1e] and a contingent post-closure plan [I-2], except for impoundments requesting a liner exemption in accordance with D-4b.

I-1d(5) Closure of Incinerators: 264.351

Describe how, at closure, all hazardous residues will be removed from the incinerator, associated ductwork, piping, air pollution control equipment, sumps, and any other structures or operating equipment such as pumps, valves, etc., that have come into contact with the hazardous waste. Alternatively, describe how the incinerator and associated units and equipment will be dismantled and disposed of as a hazardous waste.

I-1d(6)(a) Continuance of Treatment: 264.280(a)(1) - (7)

Describe how, during the closure period, all operations (including pH control) necessary to maximize degradation, transformation and immobilization of hazardous constituents within the treatment zone will be continued. Include a description of how, during the closure period, run-off of hazardous constituents will be minimized, and how run-on, run-off and wind dispersal control systems will be maintained. Demonstrate that compliance with any prohibitions or conditions concerning growth of food-chain crops will be continued. Demonstrate that unsaturated zone monitoring also will be continued.

I-1d(6)(b) Vegetative Cover: 270.20(d)(6), 264.280(a)(8)

Describe the vegetative cover to be established during closure, including:

- Common name, species and variety of the cover crop to be established;
- Data showing that the cover crop can thrive in the soils and climate in which it will be placed;
- The minimum percentage of soil cover to be maintained on the closed land treatment unit; and
- Methods to be used to establish and maintain the cover.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-1e **Closure of Disposal Units:** 270.14(b)(13), 270.17(g), 270.18(i), 270.21(e), 264.228(a)(2), 264.228(c)(1)(i); 264.250(c), 264.310(a)

Closure plans for all piles, landfills and surface impoundments in which wastes or contaminated materials are to remain at closure must describe how the unit will be closed, including a description of the final cover to be established and its expected performance. Contingent closure plans for surface impoundments and waste piles also must provide these descriptions.

I-1e(1) **Disposal Impoundments:** 264.228(a)(2)

If wastes are to remain in the impoundment after closure, describe the methods for preparing the wastes for the final cover.

I-1e(1)(a) **Elimination of Liquids:** 264.228(a)(2)(i)

Describe how free liquids are to be removed or solidified at closure.

I-1e(1)(b) **Waste Stabilization:** 264.228(a)(2)(ii)

Describe the methods to be used to stabilize remaining wastes to support the final cover, including:

- Stabilization methods, equipment and materials
- Required bearing strength of stabilized waste
- Demonstration of stabilized waste bearing strength
- Methods for bearing strength determination during closure.

I-1e(2) **Cover Design:** 264.228(a)(2)(iii), 264.310(a)

The cover design and installation procedures should be thoroughly described. This submission should include:

- Drawings showing cover layers, thicknesses, slopes and overall dimensions
- The common name, species and variety of the proposed cover crop
- Descriptions of synthetic liners to be used, including chemical properties, strength thickness and manufacturers specifications
- Description of rationale for cover selection
- Descriptions of and specifications for protective materials placed above and below synthetic liners
- Clay liner characteristics, including thickness and permeability
- Clay liner construction plans including lift sequencing.

I-1e(3) **Minimization of Liquid Migration:** 264.228(a)(2)(iii), 264.310(a)

For cover designs different than EPA-recommended designs (refer to Permit Applicant's Guidance Manual), provide engineering calculations showing the proposed cover will provide long-term minimization of liquid migration through the cover.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-1e(4) Maintenance Needs: 264.228(a)(2)(iii), 264.310(a)

Demonstrate that the cover system will function effectively with minimum maintenance needs.

I-1e(5) Drainage and Erosion: 264.228(a)(2)(iii), 264.310(a)

Provide the following information:

- Data demonstrating that the proposed final slopes will not cause significant cover erosion.
- Descriptions of drainage materials and their permeabilities.
- Engineering calculations demonstrating free drainage of precipitation off of and out of the cover.
- Estimation of the potential for drainage-layer clogging.

I-1e(6) Settlement and Subsidence: 264.228(a)(2)(iii), 264.310(a)

Describe potential cover settlement and subsidence, considering immediate settlement, primary consolidation, secondary consolidation, and creep and liquefaction. Include the following information:

- Potential foundation compression.
- Potential soil liner compression.
- Potential waste consolidation and compression resulting from waste dewatering, biological oxidation and chemical conversion of solids to liquids.

Describe the effects of potential subsidence/settlement on the ability of the final cover to minimize infiltration.

I-1e(7) Cover Permeability: 264.228(a)(2)(iii), 264.310(a)

Demonstrate that the cover system will have a permeability less than or equal to that of the liner system.

I-1e(8) Freeze/Thaw Effects: 264.228(a)(2)(iii), 264.310(a)

Identify the average depth of frost penetration and describe the effects of freeze/thaw cycles on the cover.

I-1f Schedule for Closure: 264.112(a)(4)

Provide an estimate of the expected year of closure and the schedule for final closure, including total time to close the facility and time required for intervening closure activities. This will allow tracking of the progress of closure.

I-1g Extensions for Closure Time: 264.113(a), 264.113(b)

Submit a petition for a schedule for closure which exceeds the 90 days for treatment, removal or disposal of wastes and/or the 180 days for completion of closure activities which justifies that a longer period of closure time is required.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

1-2 Post-Closure Plan: 270.14(b)(13), 270.17(g), 270.18(i), 270.21(e), 264.118, 264.228(b), 264.228(c)(1)(ii), 264.280(c), 264.310(b)

Submit a copy of the most recent post-closure plan or, if applicable, the contingent post-closure plan. Landfill, surface impoundment and waste pile post-closure plans should address items 1-2a, b and c; land treatment unit post-closure plans, item 1-2d.

1-2a Inspection Plan: 264.118(a), 264.228(b), 264.228(c)(1)(ii), 264.258(b), 264.258(c)(1)(ii), 264.310(b)

Describe the inspections to be conducted during the post-closure care period, their frequency, the inspection procedure, and the logs to be kept. The following items, as applicable, should be included in the inspection plan:

- Security control devices
- Erosion damage
- Cover settlement, subsidence and displacement
- Vegetative cover condition
- Integrity of run-on and run-off control measures
- Cover drainage system functioning
- Leak detection system
- Leachate collection and removal system
- Gas venting system
- Well condition
- Benchmark integrity.

The rationale for determining the length of time between inspections should be provided.

1-2b Monitoring Plan: 264.228(b), 264.228(c)(1)(ii), 264.258(b), 264.258(c)(1)(ii), 264.310(b)

Describe the monitoring to be conducted during the post-closure care period, including, as applicable, the procedures for conducting the following operations and evaluating the data gathered:

- Groundwater monitoring
- Leachate collection and removal
- Leak detection between liners.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-2c Maintenance Plan: 264.228(b), 264.228(c)(1)(ii), 264.258(b), 264.258(c)(1)(ii), 264.310(b)

Describe the preventative and corrective maintenance procedures, equipment requirements and material needs., Include the following items in the maintenance plan, as applicable:

- Repair of security control devices
- Erosion damage repair
- Correction of settlement, subsidence and displacement
- Mowing, fertilization and other vegetative cover maintenance
- Repair of run-on and run-off control structures
- Leachate removal system maintenance
- Well replacement.

Describe the rationale to be used to determine the need for corrective maintenance activities.

I-2d Land Treatment: 264.280(c)

Describe the operation, inspection, and maintenance programs to be used at the closed facility. Include descriptions of the procedures for conducting the following activities and identify frequencies at which they are to be conducted:

- Continuance of land treatment
- Vegetative cover maintenance
- Maintenance of run-on control systems and run-off management systems
- Wind dispersal control
- Control of food chain crops
- Unsaturated zone monitoring.

I-3 Notice in Deed: 270.14(b)(14), 264.120, 264.117(c), 264.119

Existing facilities must submit a copy of the notice or notation recorded in the deed to the facility property, or on some other instrument which is normally examined during title search, that will in perpetuity notify any potential purchaser of the property that (1) the land has been used to manage hazardous wastes; (2) its use is restricted; and (3) the survey plot and record of the type, location, and quantity of hazardous wastes disposed of within each cell or area of the facility has been filed with the local zoning authority or the authority with jurisdiction over local land use and with the Regional Administrator of the U.S. Environmental Protection Agency.

I-4 Closure Cost Estimate: 270.14(b)(15), 264.142

Provide a copy of the most recent closure cost estimate, calculated to cover the cost of closure when the cost would be greatest (not including partial closure). The cost must be updated annually using an inflation factor.

I-5 Financial Assurance Mechanism for Closure: 270.14(b)(15), 264.143

Provide a copy of the established financial assurance mechanism for facility closure. The mechanism must be one of the following:

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-5a **Closure Trust Fund:** 264.143(a), 264.151(a)(1)

Provide a copy of the closure trust fund agreement with the wording required by 264.151(a)(1) and a formal certification of acknowledgment.

I-5b **Surety Bond:** 264.143(b) and (c), 264.151(b) and (c)

I-5b(1) **Surety Bond Guaranteeing Payment Into a Closure Fund:** 264.143(b), 264.151(b)

Provide a copy of the surety bond with the wording required by 264.151(b) and a copy of the standby trust agreement. The bond must guarantee that the owner or operator will fund the standby trust fund in an amount equal to the penal sum of the bond before the beginning of final closure of the facility, or fund the standby trust fund in an amount equal to the penal sum within 15 days of an order to begin closure, or provide alternate financial assurance if the bond is cancelled.

I-5b(2) **Surety Bond Guaranteeing Performance of Closure:** 264.143(c), 264.151(c)

Provide a copy of the surety bond with the wording required by Part 264.151(c), guaranteeing that the owner or operator will perform closure according to the closure plan and the requirements of Subpart G.

I-5c **Closure Letter of Credit:** 264.143(d), 264.151(d)

Provide a copy of the irrevocable letter of credit with the wording required by 264.151(d) and a copy of the standby trust agreement. The letter of credit must be issued for a period of at least one year and be for the amount of estimated closure.

I-5d **Closure Insurance:** 264.143(e), 264.151(e)

Provide a copy of the certificate of insurance with the wording required in 264.151(e).

I-5e **Financial Test and Corporate Guarantee for Closure:** 264.143(f), 264.151(f), 264.151(h)

Submit a letter signed by the owner's or operator's chief financial officer and worded as specified by 264.151(f)( a copy of the independent certified public accountant's report on examination of the applicant's financial statements for the latest fiscal year, and a special report from the certified public accountant. If a parent company is guaranteeing closure for a subsidiary facility, the corporate guarantee must accompany the preceding items.

I-5f **Use of Multiple Financial Mechanisms:** 264.143(g)

Provide a copy of a combination of trust fund agreements, surety bonds guaranteeing payment into a closure trust fund, letters of credit, or insurance, together which provide financial assurance for the amount of closure.

I-5g **Use of Financial Mechanism for Multiple Facilities:** 264.143(h)

Provide a copy of a financial assurance mechanism for more than one facility showing, for each facility, the EPA ID number, name, address, and amount of funds closure assured by the mechanism. The amount of funds available through the mechanism must be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for each facility.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-6 Post-Closure Cost Estimate: 270.14(b)(6), 264.144

Provide a copy of the most recent post-closure cost estimate, calculated to cover the cost, in current dollars, of post-closure monitoring and maintenance of the facility in accordance with the applicable post-closure plan. The cost must be updated annually using an inflation factor.

I-7 Financial Assurance Mechanism for Post-Closure Care: 270.14(b)(16), 264.145

Provide a copy of the established financial assurance mechanism for post-closure care of the facility. The mechanism must be one of the following:

I-7a Post-Closure Trust Fund: 264.145(a), 264.151(a)(1)

Provide a copy of the post-closure fund agreement with the wording required by 264.151(a)(1) and submit a formal certification of acknowledgment.

I-7b Surety Bond: 264.145(b) and (c), 264.151(b) and (c)

I-7b(1) Surety Bond Guaranteeing Payment Into a Post-Closure Trust Fund: 264.145(b), 264.151(b)

Provide a copy of the surety bond with the wording required by 264.151(b) and a copy of the standby trust agreement. The bond must guarantee that the owner or operator will fund the standby trust fund in an amount equal to the penal sum of the bond before the beginning of final closure of the facility, or fund the standby trust fund in an amount equal to the penal sum within 15 days of an order to begin closure, or provide alternate financial assurance if the bond is cancelled.

I-7b(2) Surety Bond Guaranteeing Performance of Post-Closure Care: 264.145(c), 264.151(c)

Provide a copy of the surety bond with the wording required by Part 264.151(c), guaranteeing that the owner or operator will perform post-closure care according to the post-closure plan and the requirements of Subpart G.

I-7c Post-Closure Letter of Credit: 264.145(d), 264.151(f)

Provide a copy of the irrevocable letter of credit with the wording required by 264.151(f) and a copy of the standby trust agreement. The letter of credit must be issued for a period of at least one year and be for the amount of estimated post-closure costs.

I-7d Post-Closure Insurance: 264.145(e), 264.151(e)

Provide a copy of the certificate of insurance with the wording required by 264.151(e).

I-7e Financial Test and Corporate Guarantee for Post-Closure Care: 264.145(f), 264.151(f), 264.151(h)

Submit a letter signed by the owner's or operator's chief financial officer and worded as specified by 264.151(f), a copy of the independent certified public accountant's report on examination of the applicant's financial statements for the latest fiscal year, and a special report from the certified public accountant. If a parent corporation is guaranteeing post-closure care for a subsidiary facility, the corporate guarantee must accompany the preceding items.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-7f **Use of Multiple Financial Mechanisms:** 264.145(g)

Provide a copy of a combination of financial mechanisms, including trust fund agreements, surety bonds guaranteeing payment into a post-closure trust fund, letters of credit, and insurance, together which provide financial assurance for the amount of post-closure care.

I-7g **Use of Financial Mechanism for Multiple Facilities:** 264.145(h)

Provide a copy of a financial assurance mechanism for more than one facility showing, for each facility, the EPA ID number, name, address, and amount of post-closure funds assured by the mechanism. The amount of funds available through the mechanism must be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for each facility.

I-8 **Liability Requirements:** 270.14(b)(17), 264.147

Provide copies of the required items documenting compliance with applicable liability requirements for sudden and nonsudden accidental occurrences.

I-8a **Coverage for Sudden Accidental Occurrences:** 264.147(a)

Liability coverage must be maintained for sudden accidental occurrences in the amount of at least $1 million per occurrence with an annual aggregate of at least $2 million. Liability coverage may be demonstrated in one of three ways:

I-8a(1) **Endorsement or Certification:** 264.147(a)(1)

Submit a signed duplicate original of the Hazardous Waste Facility Liability Endorsement, with the wording specified by 264.151(i), or of a Certificate of Liability Insurance, with the wording specified by 264.151(j).

I-8a(2) **Financial Test for Liability Coverage:** 264.147(a)(2), 264.147(f)

Submit a letter signed by the owner's or operator's chief financial officer and worded as specified by 264.151(g), a copy of the independent certified public accountant's report on examination of the applicant's financial statements for the latest fiscal year, and a special report from the certified public accountant. If the applicant is using the financial test to demonstrate both assurance for closure or post-closure care and liability coverage, the letter specified in 264.151(g) must be submitted to cover both forms of financial responsibility. Under these circumstances, a separate letter as specified by 264.151(f) is not required.

I-8a(3) **Use of Multiple Insurance Mechanisms:** 264.147(a)(3)

Submit items demonstrating required liability coverage through a combination of endorsement or certification and financial test as these mechanisms are specified in this section (see I-8a(1) and I-8a(2)). The amounts of coverage demonstrated must total at least the minimum amounts required by 264.147(a).

I-8b **Coverage for Nonsudden Accidental Occurrences:** 264.147(b)

Liability coverage must be maintained for nonsudden accidental occurrences in the amount of at least $3 million per occurrence with an annual aggregate of at least $6 million. Coverage may be demonstrated in one of three ways:

SUBJECT REQUIREMENT: 40 CFR Section Nos.

I-8b(1) Endorsement or Certification: 264.147(a)(1)

Submit a signed duplicate original of the Hazardous Waste Facility Liability Endorsement, with the wording specified by 264.151(i), or of a Certificate of Liability Insurance, with the wording specified by 264.151(j).

I-8b(2) Financial Test for Liability Coverage: 264.147(a)(2), 264.147(f)

Submit a letter signed by the owner's or operator's chief financial officer and worded as specified by 264.151(g), a copy of the independent certified public accountant's report on examination of the applicant's financial statements for the latest fiscal year, and a special report from the certified public accountant. If the applicant is using the financial test to demonstrate both assurance for closure or post-closure care and liability coverage, the letter specified in 264.151(g) must be submitted to cover both forms of financial responsibility. Under these circumstances, a separate letter as specified by 264.151(f) is not required.

I-8b(3) Use of Multiple Insurance Mechanisms: 264.147(a)(3)

Submit items demonstrating required liability coverage through a combination of endorsement or certification and financial test as these mechanisms are specified in I-8b(1) and I-8b(2). The amounts of coverage demonstrated must total at least the minimum amounts required by 264.147(b).

I-8c Request for Variance: 264.147(c)

Request for an adjusted level of required liability coverage must be accompanied by supporting information to demonstrate that established levels of financial responsibility specified in 264.147(a) or (b) are not consistent with the degree and duration of risk associated with treatment, storage, or disposal at the applicant's facility or group of facilities.

I-9a Use of State Required Mechanism: 270.14(b)(18), 264.149

Where a state has hazardous waste regulations with equivalent or greater liability requirements for financial assurance for closure and post-closure care, provide a copy of the state-required financial mechanisms, including the facility EPA ID number, name, address, and amounts of coverage and a letter requesting that the state mechanism be considered acceptable.

I-9b State Assumption of Responsibility: 270.14(b)(18), 264.150

If a state assumes legal responsibility for compliance with closure, post-closure, or liability requirements, or the state assures that state funds are available to cover those requirements, submit a copy of a letter from the state describing the state assumption of responsibility and including the facility EPA ID number, name, address, and amounts of liability coverage or funds for closure or post-closure care that are assured by the state, together with a letter requesting that the state's assumption of responsibility be considered acceptable.

J. OTHER FEDERAL LAWS: 270.14(b)(20), 270.3

Demonstrate compliance with the requirements of applicable Federal laws such as the Wild and Scenic Rivers Act, National Historic Preservation Act of 1966, Endangered Species Act, Coastal Zone Management Act, and Fish and Wildlife Coordination Act.

SUBJECT REQUIREMENT: 40 CFR Section Nos.

K. PART B CERTIFICATION: 270.11(a) and (b)

Applications must be accompanied by a certification letter as specified in 270.11(d). The required signatures are as follows: (1) for a corporation, a principal executive officer (at least at the level of vice-president); (2) for a partnership or sole proprietorship, a general partner or the proprietor, respectively; (3) for a municipal, state, Federal, or other public agency, either a principal executive officer or ranking elected official.

REQUIRED BY

ARKANSAS HAZARDOUS WASTE MANAGEMENT CODE

IN ADDITION TO THE REQUIREMENTS OF PART B, AS SPECIFIED IN 40 CFR PART 270, THE APPLICANT MUST SUBMIT THE FOLLOWING INFORMATION TO COMPLY WITH THE REQUIREMENTS OF THE ARKANSAS HWM CODE.

K-1 New Hazardous Waste Management Facilities HWM Code, Section 5(a)

The applicant shall submit information and documentation to affirmatively demonstrate that the location of such facilities in the following areas would not constitute a risk to the public health or the environment: (1) active fault zone; (2) "regulatory floodway", as adopted by communities participating in the National Flood Program; (3) 100-year floodplain; (4) a recharge zone of a sole source aquifer; and (5) weland areas which are inundated or saturated by surface water or groundwater at a frequency and duration to support, and under normal circumstances do support or would support, vegetation typically adapted for life in saturated or seasonally saturated soil conditions.

Note: No permit shall be issued for new hazardous waste management facilities which cannot demonstrate to the satisfaction of the Commission that location of a new facility in an area where the above factors or combination of factors exist will not constitute a risk to the public health or the environment.

K-2 Additional Requirements for landfills and surface impoundments HWM Code, Section 5(b)

The applicant shall submit documentation demonstrating that location of a landfill or surface impoundment in areas in which the following geologic or pedologic factors, or combination of factors, exist will not create an unacceptable risk to the public health or safety due to the nature, design, and/or operation of the facility described in the application; (1) areas of high earthquake potential; (2) areas having a soil which would be classified as vertisol or as having a subgroup modifier of vertic by the criteria of the Soil Conservation Service; (3) areas in which a stratum of limestone or similar rock of an average thickness of more than 1 meter (3 feet) shall lie within 30 meters (99 feet) of the base of the proposed liner system as described in the application; (4) areas in which the bottom of the landfill's or surface impoundment's liner system or inplace soil barrier is less than 10 feet above the historically high water table; or (5) the proximity of a functioning private or public water supply in relationship to any active portion of the facility would constitute an unacceptable risk to the public health or safety.



K-3 Factors affecting the public health and the environment HWM Code, Section 5(e)

The applicant shall submit documentation demonstrating compliance with the following distances; alternately, if less than the prescribed distances, that the lesser distance will provide adequate safety margins even under abnormal operating conditions: (1) Distance between active portions of the facility and the property line at least 200 feet; (2) Active portions of the facility are located at least 300 feet from the right of way for a public road; pipelines carrying natural gas, fuel oils, or chemicals, excluding service lines to the facility; water and wastewater lines, other than service lines to the facility; power transmission lines, other than service lines to the facility.

K-3a Commercial Hazardous Waste Landfills HWM Code, Section 5(c)

The applicant shall submit documentation demonstrating that active portions of the facility are not located within ½ mile of an occupied dwelling, church, school, hospital, or similarly occupied structure at the time the initial application is submitted; if located within ½ mile, submit documentation demonstrating that a lesser distance wikk provide adequate safety margins under abnormal operating conditions

K-4 Abstract of Title HWM Code, Section 5(d)

The applicant for a land disposal permit shall provide such forms of assurance including an abstract of title showing full fee ownership and all mineral rights thereto, to ensure that said owner has the legal authority to commit such landfill to perpetual security.

The applicant shall submit documentation demonstrating that the operator of a commercial hazardous waste management facility has met the minimum qualifications for certification by the Department. Such qualifications include: (1) physically capable of performing all tasks reasonable expected of the job; (2) possession of a baccalaureate degree in engineering, physical science, health science, or related discipline. College transcript is required as part of the permit application, or modification; alternately, as substitue for the baccalaureate degree, the applicant may substitute 4 years of significant demonstrated experience in such fields, including submittal of a resume; (3) operators are required to have a minimum of 4 additional years experience in management, engineering, or in conducting chemical/physical analyses as documented in a resume submitted with the application; (4) Operators must have a working relationship with the principles and requirements of the following as related to the nature of the hazardous waste to be managed, and as such principles and requirements relate to the type storage, treatment, and/or disposal at the facility: industrial hygiene; worker safety; emergency procedures; environmental protection; and basic knowledge of the principles of operation and standard operating procedures for all equipment used in the facility in which said person is to have supervisory responsibility: (5) that the operator to be certified is a citizen of the United States, of good moral character, and has never been convicted of a felony or a crime of moral turpitude.

K-6 Public Notice HWM Code, Section 12(d)

The applicant shall submit proof of publication of the public notice required to be issued by the HWM Code at the time of application.

K-7 Waste Analysis Procedures HWM Code, Section 12(a)(6)

In addition to the waste analysis plan required by Part B of the application, the applicant shall submit a complete description of all laboratory equipment, sampling procedures, and analytical procedures to identify, segragate, or locate hazardous waste within the facility.

K-8 Baseline Health Survey HWM Code, Section 14

The applicant for a permit to operater a commercial hazardous waste management facility shall submit information to enable the Department to decide whether or not to have a baseline health survey conducted by the appropriate health agency.

K-9 Treatability of Wastes HWM Code, Section 13(a)(4)

The owner or operator shall provide contracts, agreements, and such other documentation as may be required to demonstrate that the waste which is to be disposed of is waste resulting from the treatment of waste to the full extent of known technology or economics, or for which there is no technically feasible means of treatment available.

## PART B SUPPLEMENTAL CHECKLIST

### FOR COMMERCIAL HAZARDOUS WASTE LANDFILLS ONLY
### (IN ADDITION TO REQUIREMENTS OF THE CODE)

NOTE: THE FOLLOWING CHECKLIST ITEMS ARE BASED ON INFORMATION CONTAINED IN "GUIDELINES FOR SITING PERMITTED AND UNPERMITTED LANDFILLS, INCLUDING HAZARDOUS, INDUSTRIAL, AND MUNICIPAL WASTE LANDFILLS IN THE STATE OF ARKANSAS" (SECOND DRAFT, OCTOBER 1981), PREPARED BY WRIGHT-PIERCE, WATER RESOURCES BRANCH, AS ADOPTED BY THE POLLUTION CONTROL AND ECOLOGY COMMISSION. A COPY OF SUBJECT REPORT IS ENCLOSED FOR USE BY THE APPLICANT. ALL APPLICANTS FOR COMMERCIAL HAZARDOUS WASTE LANDFILLS MUST CONSIDER EACH OF THE FOLLOWING ITEMS IN SELECTING A SUITABLE LOCATION FOR THE SITE, ALTHOUGH FAILURE TO MEET ALL OF THE CRITERIA WILL NOT NECESSARILY RULE OUT THE SITE AS AN APPROVED LANDFILL SITE. PAGE NUMBERS FROM THE WRIGHT-PIERCE REPORT ARE PROVIDED FOR REFERENCE PURPOSES.

A. GENERAL SITING CRITERIA CONSIDERATIONS

| | | Page # | YES | NO | COMMENTS |
|---|---|---|---|---|---|
| 1. | 100 year floodplain area | 9 | ____ | ____ | |
| 2. | Resource protection area (forests, wildlife, etc.) | 9 | ____ | ____ | |
| 3. | Wetland protection area | 9 | ____ | ____ | |
| 4. | Park/forest preserve areas | 9 | ____ | ____ | |
| 5. | Endangered species habitat area | 9 | ____ | ____ | |
| 6. | Zoning restricted areas | 9 | ____ | ____ | |
| 7. | Areas of historic or archeologic significance | 9 | ____ | ____ | |
| 8. | Minimum distance to surface water ( to provide for monitoring, reaction time, and construction space) should be 500' | 8 | ____ | ____ | |
| 9. | Minimum distance to existing community (10 or more residences) should be 2500' | 8 | ____ | ____ | |
| 10. | Minimum distance to conventional airport - 5000' | 8 | ____ | ____ | |
| 11. | Minimum distance to jet airport - 10,000' | 8 | ____ | ____ | |

| | | YES | NO | COMMENTS |
|---|---|---|---|---|
| 12. Distance between active portions of the facility and the facility's property line should be at least 200' | 7 | ____ | ____ | |
| 13. Active portions of such facility are located at least 300' from the right of way for | | | | |
| (a) public road | 8 | ____ | ____ | |
| (b) pipelines | 8 | ____ | ____ | |
| (c) power lines | 8 | ____ | ____ | |
| 14. Maximun existing slope ($D_2$) of 15% | 7 | ____ | ____ | |
| 15. Minimum distance ($D_3$) to municipal or agricultural groundwater supply - 1000' | 7 | ____ | ____ | |
| 16. Minimum distance to existing residence - 1000' | 8 | ____ | ____ | |

B. HYDROLOGIC CONSIDERATIONS ( Must be considered and a technical evaluation made)

| | | | | |
|---|---|---|---|---|
| 1. Surface Water | | | | |
| (a) Set back of 500' | 11 | ____ | ____ | |
| (b) Boundary of Minor Watershed (1 to 20 $mi^2$) | 11 | ____ | ____ | |
| (c) Boundary of Major Watershed ( 20 to 500 $mi^2$) | 11 | ____ | ____ | |
| (d) Name and ownership of stream, pond, lake, or reservoir into which surface run-off from the site flows | 11 | ____ | ____ | |
| (e) Estimated discharge from the site | 11 | ____ | ____ | |
| (f) Existing water quality of receiving surface water within the minor watershed | 12 | ____ | ____ | |
| (g) Locations and withdrawal rates of surface water users at downstream sites | 12 | ____ | ____ | |

| | | YES | NO | COMMENTS |
|---|---|---|---|---|
| (h) Flooding frequency of the site | 12 | ____ | ____ | |
| 2. Groundwater | | | | |
| (a) Location, general geology, yield and water quality of significant aquifers beneath and in the vicinity of the site, including both potable and agricultural groundwater sources within 1 mile of the site (aquifers capable of yielding 10 or more GPM) | 13 | ____ | ____ | |
| (b) Location, depth, and yield of all water wells and springs in the same area as (a) above | 13 | ____ | ____ | |
| (c) Directions of groundwater flow must be determined for the site area, expressed in a series of flownets | 14 | ____ | ____ | |
| (d) Hydraulic conductivity of the geologic strata beneath the site determined | 14 | ____ | ____ | |
| (e) Vertical and horizontal gradients of the groundwater flow calculated | 14 | ____ | ____ | |
| (f) Vertical and horizontal seepage velocities of the groundwater beneath the site calculated | 14 | ____ | ____ | |
| (g) Time of travel of potential contaminants from the site to downstream gradient discharge zones or other points calculated | 20 | ____ | ____ | |

NOTE: Minimum acceptable containment criteria is 1000 years at the property boundary.

| | | YES | NO | COMMENTS |
|---|---|---|---|---|
| 3. Climate | | | | |
| (a) Climatic factors influencing the quantity and quality of moisture at the site, including precipitation, evaporation, transpiration, air temperature and other factors. The single most important factor is average annual precipitation. | | | | |
| (1) average precipitation, distribution of rainfall | 23 | ____ | ____ | |
| (2) Quality of precipitation (e.g. acid rain) | 23 | ____ | ____ | |
| (3) Air Temperature variations | 23 | ____ | ____ | |
| 4. Water Budget Calculations | | | | |
| (a) Before and after construction | 24 | ____ | ____ | |
| (b) Dimensions and variability of groundwater mounding beneath the site, if applicable | 24 | ____ | ____ | |
| 5. Geologic Considerations | | | | |
| (a) Soil type and thickness | | | | |
| (1) Soils map of the site at a scale of 1" = 200' with narrative to include chemical, engineering, and physical properties of soil and water features | 26 | ____ | ____ | |
| (2) Soils map or data of areas to be used for borrow | 27 | ____ | ____ | |
| (b) Texture and composition of sediments | | | | |
| (1) Test pit and/or boring logs submitted | 27 | ____ | ____ | |

| | | | YES | NO | COMMENTS |
|---|---|---|---|---|---|
| (c) | Stratigraphy considerations, including: | | | | |
| | (1) Sequence and thickness of distinct geologic strata beneath the site | 28 | ____ | ____ | |
| | (2) Continuity and possible change in facies | 28 | ____ | ____ | |
| (d) | Structure | | | | |
| | (1) fractures | 28 | ____ | ____ | |
| | (2) dipping and folding strata | 29 | ____ | ____ | |
| | (3) faults | 29 | ____ | ____ | |
| | (4) general characteristics of major and minor folds occurring within the area of site (should be illustrated on map of 1" = 2000') | 29 | ____ | ____ | |
| | (5) strike and dip of joint systems | 30 | ____ | ____ | |
| | (6) strike and dip of faults in the area | 30 | ____ | ____ | |
| | (7) Linear features detected from aerial photographs which may indicate water-bearing fracture systems | 30 | ____ | ____ | |
| | (8) Angular conformities occurring within the area described and illustrated on maps or cross-sections used to show other structural geological data | 30 | ____ | ____ | |
| 6. | Seismicity (incidence of earthquakes, in frequency and magnitude) | | | | |
| (a) | Seismic activity must be reported | 30 | ____ | ____ | |

| | | YES | NO | COMMENTS |
|---|---|---|---|---|
| 7. Geomorphology and Erosional Characteristics | | | | |
| (a) Topographic map of present day landforms | 31 | ____ | ____ | |
| (b) If applicable, a bedrock surface topography map | 31 | ____ | ____ | |
| 8. Geotechnical Aspects | | | | |
| (a) Ability of soils to support the proposed waste disposal facility, including | | | | |
| (1) depth of water table | 32 | ____ | ____ | |
| (2) cemented pan | 32 | ____ | ____ | |
| (3) soil reaction | 32 | ____ | ____ | |
| (4) shrink - swell potential | 32 | ____ | ____ | |
| (b) Location and geotechnical characteristics of geologic hazards, such as rockfalls, mudfalls, solution cavities, shear zones, etc. | 32 | ____ | ____ | |
| (c) Minerology and other characteristics of underlying clay formations that may affect stability and integrity of the subsurface and its hydraulic conductivity | 32 | ____ | ____ | |
| (d) Grain-size distribution analyses | 32 | ____ | ____ | |
| 9. Economic Geology | | | | |
| (a) Location and general characteristics of all abandoned or active gravel or borrow pits, rock quarries, open pits, and sub-surface mines within 1 mile of the site must be mapped and described | 33 | ____ | ____ | |

(b) Location and general characteristics of any known, but currently unexploited aggregate, borrow, ore, or oil deposits — 33 ____ ____

(c) Locations of existing and abandoned oil and gas wells must be reported where known to occur within 1 mile of the site — 33 ____ ____

10. Attenuation Mechanisms

(a) Three basic categories for consideration

(1) hydrodynamic dispersion by which a contaminant is transported through a saturated porous medium by advection and is mechanically mixed with surrounding groundwater resulting in dilution — 34 ____ ____

(2) Diffusion by which ions and molecules move along concentration gradients from points of high concentration to areas of lower concentration — 34 ____ ____

(3) Geochemical reactions between a contaminant and the porous media, the groundwater or other contaminants by which ions and molecules are retarded or altered by physical and chemical processes including absorption, adsorption, oxidation, reduction, and ion exchange — 34 ____ ____

11. Characterization of waste materials

(a) Physical properties, such as volume or weight, water content, weathering characteristics, density — 39 ____ ____

(b) Chemical properties, such as composition, solubility, concentration, pH, compatability — 39 ____ ____

TABLE 2

## ESTIMATED TYPES AND NUMBER OF REGULATED TSD'S

| | ON-SITE | OFF-SITE | PERMITTED FY84 | DRAFT PERMIT FY84 | PERMITS DRAFTED AND ISSUED - FY85 & FY86 |
|---|---|---|---|---|---|
| DISPOSAL FACILITIES | | | | | |
| Disposal Only | 2 | | | 2 (on-site) | 0 |
| Disposal/Treatment | | | | | 0 |
| *Disposal/Treatment/Storage | 2 | | 1 (on-site) | | |
| TREATMENT FACILITIES | | | | | |
| Treatment Only | 3 | 1 | 1 (on-site) | | 3 |
| Treatment/Storage | 16 | 2 | 1 (off-site) | | 17 |
| *STORAGE ONLY | 18 | 1 | 4 (on-site) | 1 (off-site) | 14 |
| TOTALS | 41 | 4 | 7 | 3 | 35 |

TOTAL TSD FACILITIES : 45

## ESTIMATED NUMBERS OF GENERATORS AND TRANSPORTERS

| | STATE PERMIT | TOTAL |
|---|---|---|
| GENERATORS | N/A | 323 |
| TRANSPORTERS | 155 | 198 |

Date: 6/22/84

## E. ESTIMATED QUANTITIES

TABLE 3

ANNUAL QUANTITIES OF HAZARDOUS WASTES

| ACTIVITY | ANNUAL QUANTITIES |
|---|---|
| Generated in the State | 59,045.36 TONS |
| Transported<br>Into the State | 26,116.90 TONS |
| Out of the State | 45,476.68 TONS |
| Stored, Treated,<br>Disposed in the State<br>*On-Site | |
| Off-Site | 39,685.58 TONS |

* Not available until annual reports are processed in 1984.

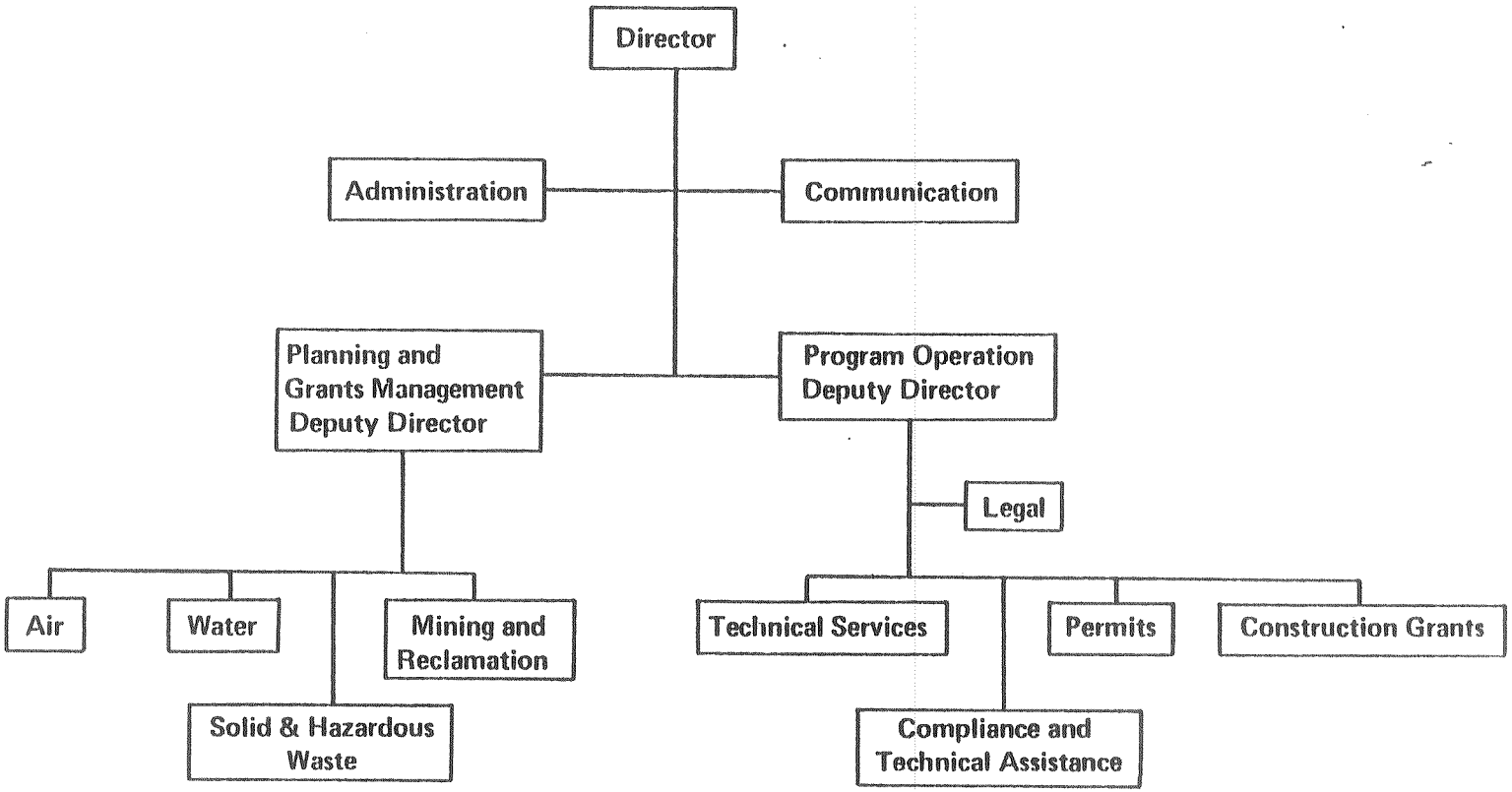
Date: Calendar Year 1984

## I. State Agency Organization and Structure

The Department of Pollution Control and Ecology is organized by function. The organization chart, which follows, represents the Department's overall structure and organization.

The succeeding pages describe the responsibilities for each division or branch involved in the Hazardous Waste Management Program.

# ARKANSAS DEPARTMENT OF POLLUTION CONTROL ORGANIZATIONAL CHART



A. Department of Pollution Control and Ecology Organization Chart.

B. Branch and Division Functions & Disciplines.

C. Resources Necessary to Administer the More Stringent State Requirements.

D. Federal Assistance to the State Program Budget.

E. Division and Branch Responsibilities and Resources.

The following describes the responsibilities of the division and branches and the resources necessary to administer the RCRA program. Man-years are based on the workload projections contained in Appendix VI with the exception of administrative and support positions which are based on historical records of time necessary to administer the hazardous waste management program.

1. The Solid and Hazardous Waste Division has the prime responsibility for the administration of the RCRA program. The Division is responsible for guidance and regulation issuance, grant preparation and tracking, the manifest system and other projects such as biennial reports.

   The resources necessary to meet these responsibilities are as follows:

   (a) Chief of Solid and Hazardous Waste Division - provides overall management of the Division, participates in planning and policy development, coordinates activities, supervises employees, interprets policy and legislation and allocates resource to meet priorities. This position will contribute .6 workyears to the RCRA program.

   (b) Hazardous Waste Program Coordinator - provides program management support and coordination between the Division and the branches undertaking technical activites: Prepares grants, ascertains compliance with appropriate regulation and tracks grant committments. This position will contribute one workyear to the RCRA program.

   (c) Administrative Assistant II (Public Information) - assures that information concerning the RCRA program is properly disseminated to the public. Writes and distributes news releases, articles and other publications, answer requests for information, arranges conferences and seminars. Handles all public participation aspects to the RCRA program. This position will contribute one workyear to the RCRA program.

   (d) Administrative Assistant II (Manifest/Reporting Requirements Coordinator) - responsibilities include manifest system oversight, assistance in problem solving with regards to manifest system, reporting requirements under the RCRA grant and assistance with the Hazardous Waste Data Management System. This position will contribute one workyear to the RCRA program.

   (e) Administrative Assistant I (Manifest Coordinator) - maintains manifest system, maintains the manifest files, reports on exceptions, provides information and assists in solving problems encountered in the manifest system, provides other administrative support as needed. This position will contribute .5 workyears to the RCRA program.

(f) Hazardous Waste Inspector Engineer II - advises industry on proper disposal of chemical wastes and provides technical assistance on groundwater monitoring evaluations and assessments. This position will contribute one workyear to the RCRA program.

(g) Secretary II - provides secretarial support to the Division. This position will contribute .80 workyears to the RCRA program in FY85 and .85 workyears in FY86.

2. Legal - the legal staff operates out of the Office of Program Operations. Its responsibilities include legal counsel on RCRA matters, conducting hearings, initiating and conducting administrative, criminal or civil proceedings in accordance with Departmental policies, and the review of financial assurance documents.

The resources necessary to meet these reponsibilities consists of one and one-half workyears by staff attorneys.

3. Permits Branch - this branch is responsible for the issuance, modification, and revocation of permits for hazardous waste treatment, storage, transportation and disposal facilities. The specific procedures used in this process are contained in Section IV of this application.

The resources necessary to meet this workload, by disciplines, are as follows:

(a) Manager, Permits Branch - provides overall branch management, participates in planning and policy development, coordinates activities, supervises employees, interprets policy and legislation, and allocates resources to meet priorities. This position will contribute .2 manyears to the RCRA program in FY85 and FY86 respectively.

(b) Permits Supervisor - provides supervision of section, assures compliance with policies, regulations and procedures, recommends permits for issuance, prepares schedules, directs the adoption of various checks and controls within the Branch to assure quality and quantity of permit reviews, assists in identifying permit violation, maintains liaison with regulated community, establishes priorities and allocates resources. The position will contribute .6 workyears to the RCRA program in FY85 and FY86 respectively.

(c) Engineer/Geologist - reviews permit applications, recommends issuance or denial, reviews engineering reports, planning documents and engineering design for construction or alteration of facilities, advises regulated community of program requirements, plans and directs technical studies and surveys, provides technical assistance within the Department. It is estimated that 2.5 manyears will be necessary to meet the workload projected for this discipline in FY85 and FY86 respectively.

(d) Secretaries - provide clerical assistance to the Branch. These positions will provide .2 workyears in FY85 and FY86 respectively.

(e) Administrative Assistant I - provides administrative support to the Branch. Workload estimate .1 workyear FY85 and FY86 respectively.

4. Technical Services Branch - this branch is responsible for providing technical assistance to the Department and regulated community and providing data processing capabilities.

The disciplines necessary to meet these responsibilities are as follows:

(a) Technical Services Branch Manager - provides overall Branch management, quality assurance, coordination, and provides technical assistance as needed. This position will contribute .20 workyears to the RCRA program.

(b) Chemist II - Analyzes samples, reports findings, provides technical assistance, performs advanced verification analysis of chemical substances. This position will contribute one workyear to the RCRA program.

(c) System Application Supervisor - provides computer management and other data management needs. Analyzes input-output data and formulates logical processing steps; develops program flow charts and diagrams; codes program instructions; compiles and tests program; corrects coding errors and recompiles; sets up data and runs program test; reads and analyzes file dump and program instructions; defines and structures input-output specifications. This position will contribute .2 workyears to the RCRA program in FY85 and FY86 respectively.

(d) Senior Program Analyst - provides supervision to computer programmer's data entry operators. Completes system design for computer programs; develops, compiles, and test programs; evaluates and implements programs; plans and develops processing procedures. This position will contribute .2 workyears to the RCRA program in FY85 and FY86 respectively.

(e) Applications and Programmer Analysts - programs computer; analyzes user problems and requirements; identifies key design elements; develops report formats and source documents; accounts for data exceptions and modifies program. These positions will provide .2 workyears in FY85 and FY86 respectively.

(f) Computer Technician - inputs data into computer; operates an alpha-numeric data input machine; keys and enters required statements to sign on and enact data entry. This position will contribute .2 workyears to the RCRA program in FY85 and FY86 respectively.

(g) Administrative Assistant - provides administrative support. This position contributes .2 workyears to the RCRA program.

5. Compliance and Technical Assistance Branch - this branch has the responsibility for inspections determining compliance with regulations. The CTA Branch's compliance, tracking and enforcement procedures are contained in Section III of the application.

The disciplines necessary to meet this workload are as follows:

(a) Compliance and Technical Assistance Manager - provides overall management of Branch activities.

(b) RCRA Supervisor - provides supervision to Hazardous Waste Section assuring completion of commitments and providing technical assistance; may conduct permitting and ISS inspections; reviews reports from staff; investigates and evaluates problems; advises Compliance Manager on enforcement actions needed. Will provide one workyear to the RCRA program in FY85 and FY86 respectively.

(c) Inspectors - investigates violations, gathers samples, provides technical assistance to industry, and assures compliance with Interim Status Standards and other permitting standards. Will provide 4.5 workyears in FY85 and 5.0 workyears in FY86.

(d) Secretary - provides secretarial services to Branch. Will contribute .6 workyears in FY85 and .8 workyears in FY86.

The increase in inspectors is based on the following justification. The upcoming Reauthorization of RCRA will bring about the phasing-in of changes in the hazardous waste laws and regulations which will drastically increase the number of regulated facilities within the next two to three years. This in turn will increase the number of facilities to be inspected under our agreements with EPA to run an equivalent program. There is also a greater emphasis being placed on the groundwater monitoring and closure/post-closure program elements. Both of these elements require a great deal of time to adequately evaluate the issues. Information from EPA also speaks of a new type of inspection to be required next year; this inspection will consist primarily of a Quality Assurance audit of laboratories performing certain services for the hazardous waste regulated community.

The ability to absorb this additional workload without a decrease in work quality is of prime concern during the upcoming fiscal years, particularly since the Department anticipates receiving Final Authorization for the RCRA program. In addition, the Department's role in enforcement under the RCRA program is increasing and with it the time spent by the inspectors in enforcement support is increasing.

6. Support Positions - RCRA program support positions consist of a number of disciplines within the Department. These resources are funded through the indirect cost rate applied to direct RCRA program costs. Positions included are those of the Director; Deputy Director, Fiscal Officer, Communications Branch Manager, Chief of Administration and their respective staffs. Support positions contribute approximately 3 workyears to the RCRA program.

   NOTE: The FY85 and FY86 budgets for the RCRA program, by Branch and Division are contained in IX. E of this Application.

C. Resources Necessary to Administer the More Stringent State Requirements.

The state program is more stringent than the federal in two areas. These are the manifest system requirements regulating PCB's and the operator certification process for commercial hazardous waste management facilities.

It is anticipated that the manifesting of PCB's within the state will require .5 manyears in both FY85 and FY86. The hazardous waste manifest coordinator will be the only resource involved. Funding for that resource will be from state sources.

The operator certification process will use existing administrative staff resources in the creation of a certification committee under the coordination of state training offices. Resources used will be those primarily of the training officer and will be supported by state sources.

The state permit requirements listed under Section 2A are amplifications of Federal requirements and should not be considered more stringent. They are more detailed requirements which fall under the broader, more general permit requirements.

D. Federal Assistance to the State Programs

There are certain aspects of the state program which can be most efficiently addressed by the state through assistance from the Environmental Protection Agency. These program aspects require specialized expertise which EPA possesses and which, due to the limited number of requests and/or reviews involving those disciplines it is more cost-effective for the state to request assistance from EPA on a case-by-case basis. These program aspects are the delisting of regulated wastes, review support on closure plan cost estimates and review support on financial assurance documents.

In addition, the state anticipates the need for assistance in their enforcement program should federal legislative changes substantially increase the size of the regulated community. This assistance would be required only until the state's resources are expanded to meet the need.

## PROJECTED RESOURCES

| INCOME | FY85 | FY86 |
|---|---|---|
| Non-federal funds | $144,770 | $153,456 |
| 1 PM Permit Appropriation | $39,920 | $42,315 |
| Permit Advertising Reimbursement | 1,233 | 1,307 |
| State General Revenues | 103,617 | 109,834 |
| Federal Funds, Subtitle "C" Hazardous Waste | $434,310 | $460,368 |
| Total Project Cost | $579,080 | $613,824 |

| EXPENDITURES | | |
|---|---|---|
| Salaries | $340,245 | $360,659 |
| Matching @ 21.36% | 72,676 | 77,036 |
| Supplies | 4,990 | 5,289 |
| Travel | 8,051 | 8,534 |
| Equipment | 3,181 | 3,374 |
| Other | 7,995 | 8,474 |
| Total Direct | $437,138 | $463,366 |
| Indirect @ 61% on base of $232,692 | $141,942 | $150,458 |
| TOTAL PROJECT COSTS | $579,080 | $613,824 |

| | FY85 WY | FY86 WY |
|---|---|---|
| **Solid & Hazardous Waste Division** | | |
| Chief | .6 | .6 |
| Coordinator | 1.0 | 1.0 |
| Administrative Asst. II (Public Info) | .5 | .5 |
| Administrative Asst. II (Manifesting/ Reporting) | 1.0 | 1.0 |
| Administrative Asst. I (Manifest) | .5 | .5 |
| Inspection Engineer II | 1.0 | 1.0 |
| Secretary II | .80 | .85 |
| | 5.4 | 5.45 |
| **Program Operations - Legal Staff** | | |
| Staff Attorneys | 1.5 | 1.5 |
| **Permits Branch** | | |
| Manager | .2 | .2 |
| Permits Supervisor | .6 | .6 |
| Engineer/Geologist | 2.5 | 2.5 |
| Administrative Assistant I | .1 | .1 |
| Secretary | .2 | .2 |
| | 3.6 | 3.6 |
| **Technical Services Branch** | | |
| Manager | .20 | .20 |
| Chemist II | 1.0 | 1.0 |
| System's Application Supervisor | .2 | .2 |
| Senior Program Analyst | .2 | .2 |
| Applications & Program Analyst | .2 | .2 |
| Computer Technician | .2 | .2 |
| Administrative Assistant | .2 | .2 |
| | 2.2 | 2.2 |

| | FY85 WY | FY86 WY |
|---|---|---|
| Compliance Branch | | |
| Compliance Manager | .4 | .4 |
| RCRA Supervisor | 1.0 | 1.0 |
| Inspectors | 4.5 | 5.0 |
| Secretary | .6 | .8 |
| | 6.5 | 7.2 |
| TOTAL | 19.2 WY | 19.95 WY |

## BIENNIAL REPORT

The State intends to use the biennial report forms supplied by EPA (8700-13A, and 8700-13B).