

**RULES
OF
TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
SOLID WASTE MANAGEMENT DIVISION**

**0400-12-02
COMMERCIAL HAZARDOUS WASTE MANAGEMENT FACILITIES**

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0400-12-02-.01 COMMERCIAL HAZARDOUS WASTE MANAGEMENT FACILITIES: GENERAL.

(1) General

(a) Purpose, Scope and Applicability

1. This rule provides definitions of terms, general standards, and overview information applicable to these rules.
2. In this rule:
 - (i) Subparagraph (1)(b) establishes rules of grammatical construction for these rules.
 - (ii) Subparagraph (1)(c) describes the system by which these rules are organized, numbered, and referenced.
 - (iii) Subparagraph (2)(a) defines terms which are used in these rules.

(b) Use of Number and Gender

As used in these rules:

1. Words in the masculine gender also include the feminine and neuter genders.
2. Words in the singular include the plural.
3. Words in the plural include the singular.

(c) Rule Structure

These rules are organized, numbered, and referenced according to the following outline form:

- (1) paragraph
 - (a) subparagraph
 1. part
 - (i) subpart

(Rule 0400-12-02-.01, continued)

(l) item

I. subitem

(2) Definitions and Incorporations

(a) Definitions

Unless otherwise defined in this subparagraph, the definitions found in paragraph (2) of Rule 0400-12-01-.01, "Hazardous Waste Management System: General", shall apply when those terms are used in this Chapter. In addition, when used in this Chapter, the following terms have the meanings given below:

"Appropriate local community officials" shall include, but not necessarily be limited to, the chief officer of the county legislative body of the county in which the commercial facility is or is to be located and the chief officer(s) of the municipal legislative body(ies) of all incorporated municipalities where the commercial facility is or is to be situated within, or within one mile of, the boundaries of such municipality.

"Area" means a section or region of land potentially subject to adverse impacts due to releases from hazardous waste TSD units in one or more associated locations. Adverse impacts may occur via both ground water and surface water flow. Because ground water and surface water intake and withdrawal points are not necessarily adjacent to each other, an area does not necessarily border a location.

"Commercial facility" means any hazardous waste management facility that stores, treats or disposes of hazardous waste generated off-site. However, a facility shall not be deemed to be a commercial facility if the only hazardous waste that it receives from off-site is either:

1. hazardous waste generated from material manufactured by a corporation, generated only at a site or sites owned or operated by the same manufacturing corporation, or subsidiaries of such corporation, or product distribution sites under contract to such corporation; provided, that the volume of hazardous waste received from such sites and placed in storage for more than thirty (30) days does not exceed ten percent (10%) of the permitted or interim status storage capacity at the facility; and provided further, that during no annual period may more than ten percent (10%) of the total hazardous waste treated or disposed at the facility be from such sites;
2. mixed hazardous waste (hazardous waste that is also regulated as a radioactive material) that is received for storage and treatment (but not disposal or incineration) pursuant to an order, compliance plan or similar plan or agreement in which such receipt for storage and treatment is specifically approved by the commissioner or board; provided, that any such order, compliance plan or similar plan or agreement also requires that the ultimate land disposal of such mixed hazardous waste or waste from its treatment be at a commercial facility permitted under this part or a properly authorized facility in another jurisdiction; or
3. hazardous wastes in the same waste codes and generated from the same industrial operations that a combustion facility was permitted to receive on July 1, 2001, notwithstanding any change of ownership of such operations since such date. The volume of such waste treated annually shall not exceed ten percent (10%) of the combustion facility's July 1, 2001, permitted treatment capacity.

(Rule 0400-12-02-.01, continued)

“Endangered or threatened species” means any species listed in 50 CFR Part 17, Rule 0400-06-02-.04, as such lists exist on the effective date of this rule.

“Land-based unit” means a unit subject to Rule 0400-12-01-.06(6) including surface impoundments, landfills, waste piles, land treatment units, and hazardous waste management units subject to Rule 0400-12-01-.06(27). Units exempt from ground water monitoring correction requirements under Rule 0400-12-01-.06(6)(a)2 and covered indoor waste piles in compliance with Rule 0400-12-01-.06(12)(a)3 are considered non-land-based units.

“Local community” means the county and incorporated municipality, if any, in which the facility is proposed and any incorporated municipality within one (1) mile of the proposed facility. (Note: For purposes of identifying incorporated municipalities within this one-mile limit, distances shall be measured on the straight line between the points on the facility boundary and the municipal boundary that are nearest each other. For purposes of this determination, “facility boundary” shall refer to the facility property line unless there is a security fence or other clear boundary of a smaller area within which all hazardous waste management activities (exclusive of transportation to and from such smaller area) will be conducted.)

“Location” means a site-specific tract of land that is within or is part of a larger area that is characterized by a distinctive topography, specific local geologic or hydrogeologic conditions, or that has ecological benefit.

“New commercial hazardous waste management facility” or “new commercial facility” means any commercial facility which is not: (1) an existing facility, or (2) an already permitted facility, or (3) a facility for which the permit application required by Rule 0400-12-01-.07 was filed with the department on or before July 1, 1989, or (4) a planned facility which was under review by the department in anticipation of the filing of an application on or before July 1, 1989.

“Non-land-based unit” means an incinerator, tank and its associated piping and underlying containment system, or container storage area, and other units not subject to Rule 0400-12-01-.06(6). Non-land-based unit also means those hazardous waste management units regulated under Rule 0400-12-01-.06(27) that are not subject to Rule 0400-12-01-.06(6).

“Private drinking water supply system” means all water supplies that are not public water supplies which are primary drinking water sources.

“Public Water Supply System” means a system that supplies to the public piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days of the year.

“Qualified professional” means a scientist, engineer, or professional in a technical discipline with sufficient training and experience, as demonstrated by State registration, professional certification, or completion of accredited university programs, that enables the individual to make sound professional judgments regarding location standards demonstrations.

“Scenic, cultural or recreational area” means parks, forests, recreational areas, museums, and wildlife management areas owned and/or operated by Federal, State, and/or local government (or agencies created by such government); Class I and II designated natural areas identified at T.C.A. §11-14-108; Class I, II, and III Scenic Rivers identified at T.C.A. §11-13-104 and Scenic River Areas designated pursuant to T.C.A. §11-13-108; and sites included on the National Register of Historic Places established by the Department of Interior, Washington, D.C. or determined eligible for National Register listing by the National Park Service, Tennessee’s State Historic Preservation Officer. This shall not include rivers

(Rule 0400-12-02-.01, continued)

and streams except where such are located within, or serve as, the boundaries of the above-described areas.

“Stream” means a watercourse which normally carries flow or supports a viable aquatic community.

“Unit” or “Hazardous waste management unit” is a contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is significant likelihood of mixing hazardous waste constituents in the same area. Examples of hazardous waste management units include a surface impoundment, a waste pile, a land treatment area, a landfill cell, an incinerator, a tank and its associated piping and underlying containment system, and a container storage area. A container alone does not constitute a unit; the unit includes containers and the land or pad upon which they are placed.

Authority: §§ 68-212-101 et seq., 68-212-201 et seq., and 4-5-201 et seq. **Administrative History:** Original rule filed June 19, 2012; effective September 17, 2012.

0400-12-02-.02 PERMITTING OF NEW COMMERCIAL HAZARDOUS WASTE MANAGEMENT FACILITIES.

(1) General

(a) Purpose/Scope

The purpose of this rule is to establish special procedures - in addition to those found at Rule 0400-12-01-.07 - which are to be followed in the submission of applications for, and the processing of, permits for new commercial hazardous waste management facilities in Tennessee.

(b) Applicability

1. The requirements of this rule apply as specified to the owners and operators of:

- (i) All proposed new commercial facilities who are required to apply for a permit pursuant to Rule 0400-12-01-.07;
- (ii) Those permitted commercial facilities who are proposing to modify their permit to allow the addition of new land-based or thermal treatment units which are subject to permits under Rule 0400-12-01-.07; and
- (iii) Those permitted non-commercial facilities who are proposing to modify their permit to allow commercial operation.

2. The requirements of this rule shall not apply to the processing of permit applications for:

- (i) Existing commercial facilities or units having interim status pursuant to Rule 0400-12-01-.07(3);
- (ii) Proposed commercial facilities or units which do not meet the definition of “new commercial facility” at Rule 0400-12-02-.01(2)(a);
- (iii) Modifications to permitted commercial facilities other than those modifications identified in subpart 1(ii) of this subparagraph; and
- (iv) New permits to replace expiring permits at commercial facilities.

(Rule 0400-12-02-.02, continued)

(Note: As provided in Rule 0400-12-01-.08(1)(d), no permit or other authorization shall be issued or renewed by the Division of Solid Waste Management pursuant to Chapter 0400-12-01 or this chapter until all fees and/or penalties owed by the applicant to the division are paid in full, unless a time schedule for payments has been approved and all payments are current or contested fees or penalties are under appeal.)

(c) Conversion to Commercial Operation during Interim Status

A non-commercial facility having interim status pursuant to Rule 0400-12-01-.07(3) may not convert to commercial operation without first obtaining a permit pursuant to this rule and Rule 0400-12-01-.07.

(2) Submission of Permit Applications

- (a) Permit applications shall consist of a Part A and a Part B as defined at Rule 0400-12-01-.07. The owner or operator of a proposed new commercial facility must submit his Part A permit application to the commissioner at least 120 days prior to submission of his Part B permit application. Failure to do so will result in the commissioner delaying the processing of the Part B application for a period of time equivalent to the deficiency in this 120-day separation period. If the Part B application is not submitted within one year of submittal of the Part A application, that Part A submission shall be voided.
- (b) On or within five (5) days of the dates he or she submits to the department copies of the original Part A and Part B applications, and any subsequent additions or modifications thereto, the applicant shall also submit at least one copy of the same (each submittal) to all appropriate local community officials. Documentation demonstrating submission of materials to local community officials shall be submitted to the department.

(3) Processing the Permit

The requirements of this paragraph duplicate and supplement the requirements of paragraph (7) of Rule 0400-12-01-.07, and shall apply in lieu of that paragraph (7) in the processing of permits for new commercial facilities.

(a) Preliminary Notices

Within 30 days after the date of original receipt, the commissioner shall issue a preliminary public notice (pursuant to subparagraph (f) of this paragraph) for:

1. Each complete Part A permit application received pursuant to subparagraph (2)(a) of this rule; and
2. Each Part B application received for a proposed new commercial facility.

(b) Local Repository

Within 30 days after the date of original receipt of the Part A or Part B application, the commissioner shall cause such documentation to be placed in a library or other local repository where it can be reviewed by local citizens. The commissioner shall further cause to be placed in such local repository other relevant information, including significant correspondence between the department and the applicant. Such information shall be maintained in the local repository until either a final permit decision is reached or the permit application is withdrawn. If a final permit is issued, the

(Rule 0400-12-02-.02, continued)

commissioner shall cause to be placed in the local repository a copy of the final permit and the response to comments required by subparagraph (m) of this paragraph. The commissioner shall request that the information be maintained permanently in this repository.

(c) Community Meeting

Within 45 days of the publication of the preliminary public notice required in part (a)2 of this paragraph, the commissioner shall hold a public meeting in the local community to explain the proposed facility and the permitting process and to help identify the concerns of the community. The applicant must be adequately represented by one or more persons knowledgeable of the proposed facility, and such representative(s) must participate in, any such meeting in order for it to be considered held. As set forth in T.C.A. § 68-212-108(f) of the Act, appropriate local community officials must also attend or be represented at such meeting. However, their failure to attend shall not invalidate the meeting.

(d) Review of the Permit Application

1. The commissioner shall review every permit application for completeness. Upon completing the review, the commissioner shall notify the applicant in writing whether the application is complete. The commissioner shall complete his review and issue this notice within 45 days after receipt of the Part B permit application. If the application is incomplete, the commissioner shall list the information necessary to make the application complete. The commissioner shall notify the applicant that the application is complete upon receiving this information. After the application is completed, the commissioner may request additional information from an applicant but only when necessary to clarify, modify, or supplement previously submitted material. Requests for such additional information will not render an application incomplete. The commissioner shall provide copies of all such notices of deficiency and requests for information to all appropriate local community officials promptly upon issuance.
2. If an applicant fails or refuses to correct deficiencies in the application, the permit shall not be issued.
3. The commissioner shall visit the proposed facility site as part of the permit application review process in order to verify the site description provided in the application. When the commissioner decides that a site visit is necessary for any reason in conjunction with the processing of an application, he shall notify the applicant and a date shall be scheduled. The commissioner shall notify appropriate local community officials in advance of such scheduled site visits.

(e) Draft Permits

1. Once an application is determined to be complete, the commissioner shall tentatively decide whether the permit should be issued or denied.
2. If the commissioner tentatively decides the permit should be denied, he shall prepare a notice of intent to deny. A notice of intent to deny the permit is a type of draft permit which follows the same procedures as any draft permit prepared under this subparagraph (see part 6 of this subparagraph). If the commissioner finally decides (under subparagraph (l) of this paragraph) that the tentative decision to deny the permit was incorrect, the commissioner shall withdraw the notice of intent to deny and proceed to prepare a draft permit as set forth in part 4 of this subparagraph.

(Rule 0400-12-02-.02, continued)

3. If the commissioner tentatively decides the permit should be issued, he shall prepare a draft permit as set forth in part 4 of this subparagraph.
 4. A draft permit shall contain (either expressly or by reference) all applicable conditions from subparagraph (8)(a) of Rule 0400-12-01-.07.
 5.
 - (i) Except as provided in subpart (ii) of this part, the commissioner shall issue the notice of intent to deny or issue the draft permit within 45 days after notifying the applicant that his application was complete (see part (d)1 of this paragraph).
 - (ii) If the commissioner finds it necessary to request additional information from an applicant after the application is deemed complete (see part (d)1 of this paragraph), the 45-day time limit shall be automatically extended a period of time equal to the time it takes for the applicant to submit the requested information (such time to be calculated from the postmarked date of the commissioner's written request to the date the department receives the information).
 6. All draft permits shall be subject to the procedures of subparagraphs (f), (g), (h), (i), and (j), of this paragraph, unless otherwise specified in those subparagraphs.
 7. Prior to issuance, the commissioner shall provide a copy of the draft permit or notice of intent to deny the permit to appropriate local community officials.
- (f) Fact Sheets
1. A fact sheet shall be prepared for every draft permit (or notice of intent to deny the permit) for new commercial facilities.
 2. The fact sheet shall briefly set forth the principal facts and the significant factual, legal, methodological and policy questions considered in preparing the draft permit; to include, when applicable:
 - (i) A brief description of the type of facility or activity which is the subject of the draft permit;
 - (ii) The type and quantity of wastes which are proposed to be or are being treated, stored, or disposed of;
 - (iii) A brief summary of the applicant's operating and compliance history at other hazardous waste management facilities owned or operated by the applicant;
 - (iv) A brief summary of the basis for the draft permit conditions including references to applicable statutory or regulatory provisions and appropriate supporting references to the permit application;
 - (v) Reasons why any requested waivers or alternatives to required standards do or do not appear justified;
 - (vi) A description of the procedures for reaching a final decision on the draft permit, including:

(Rule 0400-12-02-.02, continued)

- (I) The beginning and ending dates of the comment period under subparagraph (g) of this paragraph and the address where comments will be received;
 - (II) The public hearing; and
 - (III) Any other procedures by which the public may participate in the final decision; and
 - (vii) Name and telephone number of a person to contact for additional information.
 - 3. The commissioner shall send this fact sheet to the applicant, to appropriate local community officials, and, on request, to any other person.
- (g) Public Notice of Permit Actions and Public Comment Period
- 1. Scope
 - (i) The commissioner shall give public notice that the following actions have occurred:
 - (I) A Part A permit application as described in part (a)1 of this paragraph has been received;
 - (II) A Part B permit application as described in part (a)2 of this paragraph has been received;
 - (III) A notice of intent to deny a permit has been prepared under part (e)2 of this paragraph.
 - (IV) A draft permit has been prepared under parts (e)2 or 3 of this paragraph; or
 - (V) A public hearing has been scheduled under subparagraph (i) of this paragraph.
 - (ii) No public notice is required when a request for permit modification, revocation and reissuance, or termination is denied under paragraph (9) of Rule 0400-12-01-.07. Written notice of that denial shall be given to the permittee.
 - (iii) Public notices may describe more than one permit or permit action.
 - 2. Timing
 - (i) Public notice of the preparation of a notice of intent to deny a permit or of a draft permit, as required under part 1 of this subparagraph, shall allow at least 45 days for public comment.
 - (ii) Public notice of a public hearing shall be given at least 30 days before the hearing. (Public notice of the hearing may be given at the same time as public notice of the draft permit and the two notices may be combined.)
 - 3. Methods

(Rule 0400-12-02-.02, continued)

Public notice of activities described in subpart 1(i) of this subparagraph shall be given by the following methods:

- (i) By mailing a copy of a notice to the following persons:
 - (I) The applicant,
 - (II) Any other agency which the commissioner knows has issued or is required to issue an environmental permit for the same facility or activity,
 - (III) All appropriate local community officials,
 - (IV) Each state agency having any authority under state law with respect to the construction or operation of such facility,
 - (V) At the discretion of the commissioner, any other person who has expressed an interest in such facilities or notices or who the commissioner believes may be interested; and
- (ii) By publication of a notice in a daily or weekly major local newspaper or general circulation and broadcast over local radio stations; and
- (iii) By any other method deemed necessary or appropriate by the commissioner to give actual notice of the action in question to the persons potentially affected by it.

4. Contents

- (i) General Public Notices

Except for the preliminary public notices described in subparagraph (a) of this paragraph, all public notices issued under this part shall contain the following minimum information:

- (I) Name and address of the office processing the permit action for which notice is being given;
- (II) Name and address of the permittee or permit applicant and, if different, of the facility or activity regulated by the permit;
- (III) A brief description of the business conducted at the facility or activity described in the permit application;
- (IV) A brief description of the comment procedures required by subparagraphs (h) and (i) of this paragraph and the time and place of any public hearing that will be held, and other procedures by which the public may participate in the final permit decision;
- (V) Name, address, and telephone number of a person from whom interested persons may obtain further information, including copies of draft permits and fact sheets; and
- (VI) Any additional information considered necessary or proper.

- (ii) Public Notices for Public Hearing

(Rule 0400-12-02-.02, continued)

In addition to the general public notice described in subpart (i) of this part, the public notice of a public hearing shall contain the following information:

- (I) Reference to the dates of previous public notices relating to the permit action;
- (II) Date, time and place of the public hearing; and
- (III) A brief description of the nature and purpose of the public hearing, including the applicable Rules and procedures.

(iii) Preliminary Notices

- (I) The preliminary public notice described in part (a)1 of this paragraph shall contain the information from items (I), (II), (III), (V) and (VI) of subpart (i) of this part plus a brief description of the permitting procedures that will be followed, focusing especially upon the opportunities for public participation in the process.
- (II) The preliminary public notice described in part (a)2 of this paragraph shall contain the information from items (I), (II), (III), (V) and (VI) of subpart (i) of this part plus the time and location of the community meeting(s) required in subparagraph (c) of this paragraph.

5. Attachments

In addition to the general public notice described in subpart 4(i) of this subparagraph, all persons identified in items 3(i)(I), (II), (III) and (IV) of this subparagraph shall be mailed a copy of the fact sheet and the draft permit.

6. Public Notice

The applicant shall give all public notices, as prepared and required by the Commissioner, that are to be issued pursuant to this Rule, except for Commissioner permit denial decisions. The permittee shall provide proof of the completion of all notice requirements to the Commissioner within 10 days following conclusion of the public notice procedures. As herein used, public notification applies to paid publications in the print and electronic media. Failure to issue such notices shall be grounds for denial of the permit.

(h) Public Comments

During the public comment period provided under subpart (g)2(i) of this paragraph, any interested person may submit written comments on the draft permit. All comments shall be considered in making the final decision and shall be answered as provided in subparagraph (l) of this paragraph.

(i) Public Hearings

- 1. (i) The commissioner shall hold at least one public hearing on each draft permit issued for a new commercial facility. Such hearings shall follow and be separate from the community meeting required under subparagraph (c) of this paragraph.

(Rule 0400-12-02-.02, continued)

- (ii) Whenever possible, the commissioner shall schedule a hearing under this subparagraph at a location convenient to the nearest population center to the subject facility.
 - (iii) Public notice of the hearing shall be given as specified in subparagraph (g) of this paragraph.
 - (iv) The public hearing shall be held within the public comment period established under subpart (g)2(i) of this paragraph and at least one week prior to the scheduled close of such comment period. The Hearing Officer may also extend the comment period by so stating at the hearing.
 - 2. Any person may submit oral or written statements and data concerning the draft permit. Reasonable limits may be set upon the time allowed for oral statements, and the submission of statements in writing may be required.
 - 3. A tape recording or written transcript of the hearing shall be made available to the public.
- (j) Reopening of the Public Comment Period
- 1. If any data, information, or arguments submitted during the public comment period appear to raise substantial new questions concerning a permit action, the commissioner may (at his discretion or as directed by the Board) take one or more of the following actions:
 - (i) Prepare a new draft permit, appropriately modified, under subparagraph (e) of this paragraph;
 - (ii) Prepare a fact sheet or revised fact sheet under subparagraph (f) of this paragraph and reopen the comment period under subparagraph (g) of this paragraph; or
 - (iii) Reopen or extend the comment period under subparagraph (g) of this paragraph to give interested persons an opportunity to comment on the information or arguments submitted.
 - 2. Comments filed during the reopened comment period shall be limited to the substantial new questions that caused its reopening. The public notice under subparagraph (g) of this paragraph shall define the scope of the reopening.
 - 3. Public notice of any of the actions of part 1 of this subparagraph shall be issued under subparagraph (g) of this paragraph.
- (k) Local Community Input
- In addition to commenting during the public comment period, local communities may have input into the permit decision-making process by submission of a report as set forth in T.C.A. § 68-212-108(f) of the Act.
- (l) Final Permit Decision
- 1. Within 90 days after the close of the public comment period (under subparagraph (g) of this paragraph) on a draft permit (including a notice of intent to deny a permit), the commissioner shall issue a final permit decision. In reaching such a final decision, the commissioner shall consider any reports submitted from local

(Rule 0400-12-02-.02, continued)

communities as set forth in § 68-212-108(f) of the Act. For the purposes of this subparagraph, a final permit decision means a final decision to issue, deny, modify, revoke and reissue, or terminate a permit.

2. The commissioner shall notify the applicant, the appropriate local community officials, and each person who has submitted written comments or requested notice of the final permit decision.
3. A final permit decision shall become effective upon the date of the service of notice of the decision to the applicant under part 1 of this subparagraph unless a later date is specified in the decision.

(m) Response to Comments

1. At the time that a final permit is issued under subparagraph (l) of this paragraph, the commissioner shall issue a response to comments. This response shall:
 - (i) Specify which provisions, if any, of the draft permit have been changed in the final permit decision, and the reasons for the change; and
 - (ii) Briefly describe and respond to all significant comments on the draft permit raised during the public comment period, or during any public hearing.
2. The response to comments shall be made available to the public.

(n) Appeals

The commissioner's final permit decision under subparagraph (l) of this paragraph may be appealed to the Board as set forth in T.C.A. §68-212-113(a)(2)(B) and (b). Such decision may be so appealed by any aggrieved person, to include only the applicant, persons who own property or live within a three (3) mile radius of the proposed facility, local communities and/or any resident of such local communities. If the commissioner fails to take any action on a permit application within 45 days after it was submitted to him, or fails to meet the time limits imposed by parts (d)1, (e)5, and (l)1 of this paragraph, the permit applicant may appeal to the Board as set forth in T.C.A. § 68-212-113(a)3 and (b).

Authority: §§ 68-212-101 et seq., 68-212-201 et seq., and 4-5-201 et seq. **Administrative History:** Original rule filed June 19, 2012; effective September 17, 2012.

0400-12-02-.03 SITING CRITERIA FOR NEW COMMERCIAL HAZARDOUS WASTE MANAGEMENT FACILITIES.

(1) General

(a) Purpose/Scope

1. Paragraph (2) of this rule establishes the criteria which define an acceptable site for a new commercial facility in Tennessee. These criteria provide a basis upon which permit applications for facilities will be evaluated. The differences between treatment, storage and disposal facilities are incorporated into a "unit" approach (i.e. "land-based units" and "non-land-based units"). This approach rather than a "facility" approach was selected in recognition that a "facility" may include several different "units" of various types and functions. The land-based/non-land-based distinction was selected over a storage/treatment/disposal distinction when it became apparent that the structural nature of a unit was much more

(Rule 0400-12-02-.03, continued)

important than its intended use function in evaluating the risks the unit poses to human health and the environment in a given locational setting. For example, a surface impoundment holding hazardous wastes presents much the same hazards to surrounding persons and properties whether it is holding the wastes for purposes of storage, treatment, or disposal. In effect, the land-based/non-land-based approach distinguishes between certain types of storage/treatment units and others, with disposal units always considered land-based units. This is consistent with the approach taken in establishing the hazardous waste management facility standards promulgated in Chapter 0400-12-01, Hazardous Waste Management.

2. Paragraph (3) of this rule establishes the criteria by which the permit applicant's previous operating history in the field of solid or hazardous waste management will be evaluated.
3. Paragraph (4) of this rule establishes the documentation deemed necessary in order for the department to determine compliance with the criteria of paragraphs (2) and (3). These information requirements must be met in order for a person to be permitted to operate a new commercial facility in Tennessee.

(b) Applicability

1. Except as provided in part 4 of this subparagraph, the requirements of this rule apply as specified to the following hazardous waste management facilities or units, and the owner(s) and operator(s) thereof:
 - (i) All new commercial facilities that are required to apply for a permit pursuant to Rule 0400-12-01-.07;
 - (ii) All new hazardous waste management units to be added to commercial facilities which previously received a permit pursuant to this rule and Rule 0400-12-02-.02;
 - (iii) New land-based and thermal treatment units to be added to existing or proposed commercial facilities which do not meet the definition of "new commercial facility" at Rule 0400-12-02-.01(2)(a).
 - (iv) Those permitted non-commercial facilities whose permit is modified to allow commercial operation.
2. Except as provided in subpart 1(iii) of this subparagraph, the requirements of this rule shall not apply to:
 - (i) Those commercial facilities or units which were in existence and had a permit and/or interim status on July 1, 1989;
 - (ii) Proposed commercial facilities or units which do not meet the definition of "new commercial facility" at Rule 0400-12-02-.01(2)(a).
3. The requirements of this rule shall not apply to those commercial facilities which are seeking a new permit to replace an expiring permit unless subpart 1(ii) or (iii) of this subparagraph also apply.
4. With respect to the addition of new units to permitted commercial facilities;

(Rule 0400-12-02-.03, continued)

- (i) The requirements of paragraph (3) and subparagraphs (4)(q) and (r) of this rule shall not apply, and
 - (ii) The other requirements of this rule shall apply only to those units for which a permit is required pursuant to Rule 0400-12-01-.07.
- (c) Relationship to Rules 0400-12-01-.06 and 0400-12-01-.07(5)
 - 1. The criteria of paragraphs (2) and (3) of this rule shall apply to new commercial facilities in addition to the facility standards of Rule 0400-12-01-.06. In the event of any overlap or conflict between these criteria and standards, the more stringent requirements shall apply.
 - 2. The information required in paragraph (4) of this rule must be submitted as part of, or along with, the Part B permit application described in Rule 0400-12-01-.07(5). However, those portions of the documentation submitted in compliance with paragraph (4) of this rule must be clearly identifiable and separable.
- (d) Definition of "Existing"

The distance criteria of this rule shall apply to those wetlands, wells, streams, intake points, parks, structures and other protected entities as those entities exist on the date of original Part A application submittal (exclusive of voided Part A applications - see Rule 0400-12-02-.02(2)(a)) for a proposed new commercial facility. The term "existing" is used in this rule to denote this.

(2) Siting Criteria

(a) Floodplains

- 1. New land-based units shall not be located in 100-year floodplains.
- 2. Owners or operators of new non-land-based units located in 100-year floodplains must demonstrate, to the satisfaction of the commissioner, that the unit is designed, constructed, operated, and maintained to prevent the washout of any hazardous waste by a 100-year flood, and to enable the unit to withstand the effects of erosion during its active life. New units will be prohibited in locations where the owner or operator is unable to make these demonstrations.
- 3. Owners or operators of new units located in the 100-year floodplain must further demonstrate that maintenance activities will repair controls after a flood.
- 4. New non-land-based units shall not be located in the historical migration zone of 100-year floodplains.
- 5. As used in this subparagraph:
 - (i) "100-year flood" means a flood discharge that has a one-percent chance of being equaled or exceeded in any given year.
 - (ii) "100-year floodplain" means any land area which is subject to a one percent or greater chance of flooding in any given year from any source.
 - (iii) "Historical Migration Zone" means the area within any 100-year floodplain as defined by the Federal Emergency Management Agency (FEMA) on

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their Flood Insurance Rate Maps (FIRMs) having a Flood Hazard Factor code greater than or equal to A7.

- (iv) "Flood Hazard Factor" (FHF) is, for a given reach of any body of water, the weighted difference between the 10- and 100-year water surface elevations expressed to the nearest one-half foot; FHF's have been calculated by FEMA for the vast majority of flood-prone areas of the U.S.
- (v) "Washout" means the movement of hazardous waste from hazardous waste management unit as a result of a flood event.

(b) Wetlands

1. New land-based and non-land-based units shall be prohibited in or adjacent to wetlands.
2. As used in part 1 of this subparagraph:
 - (i) "Adjacent" to a wetland means bordering, contiguous, neighboring, or hydrologically interconnected via surface water or ground water. Adjacent wetlands include, but are not limited to, those areas that are separated from other waters of the states by man-made dikes, berms, or barriers, natural river berms, and beach dunes.
 - (ii) "Wetland(s)" means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands include, but are not limited to, swamps, marshes, bogs, and similar areas.

(c) Seismic Considerations

1. New land-based and non-land-based units to be located in the vicinity of a fault along which movement during the Holocene has occurred shall be located no closer than 200 feet (61 meters) to the fault, unless a site-specific demonstration under part 3 of this subparagraph is made.
2. For new land-based and non-land-based units that will be located within 3,000 feet of a lineament, owners or operators shall demonstrate, to the satisfaction of the commissioner, that no faults along which movement during the Holocene has occurred are present within 200 feet of the unit. This is the minimum distance specified by the commissioner, unless a site-specific demonstration is made under part 3 of this subparagraph.
3. In cases where the owner or operator or the regulatory authority believes that the 200 foot distance is either larger than necessary or not large enough to protect human health and the environment, they may do site-and regional-specific studies to demonstrate, to the satisfaction of the commissioner, that the zone of deformation is smaller or larger than 200 feet. This comprehensive site and regional investigation must show that any movement along the Holocene fault and in the adjacent zone of deformation will not disrupt the contents of any unit or damage the structural integrity of any unit, or in any way threaten human health or the environment.
4. For new land-based and non-land-based units to be located in a seismic impact zone, as determined by the owner or operator based on approved seismic risk

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maps or methods, the owner or operator shall demonstrate, to the satisfaction of the commissioner, that:

- (i) The structural integrity of the unit will allow it to withstand damage caused by any ground shaking, liquefaction, or seismic wave motion exceeding the predicted maximum horizontal acceleration for the corresponding seismic impact zone, or
- (ii) There is less than 10 percent probability that the maximum horizontal acceleration at the site will exceed 0.10g in 250 years.

5. As used in parts 1 through 4 of this subparagraph:

- (i) "Displacement" means the relative movement of any two sides of a fault measured in any direction.
- (ii) "Fault" means a fracture or zone of rock fracturing in any material along which there has been an observable amount of displacement of the sides relative to one another.
- (iii) "Holocene" means the most recent geologic epoch within the Quaternary Period, from the end of the Pleistocene Epoch to the present, including the last 10,000 - 12,000 years.
- (iv) "Lineament" means an arranged topographical line or series of lines on the earth's surface, which may be straight or gently curved, and of sufficient length as to indicate or reflect the alignment of buried structural configurations (these features may be indicated by depressions, uplifts, changes in stream course, or changes in vegetation, and may denote the presence of faults, folds, or joints).
- (v) "Horizontal ground acceleration" is the maximum change in velocity over time relative to horizontal movement of the earth's surface as measured at a particular point during an earthquake. This is a parameter used to specify the hazard posed to structures caused by ground motion during an earthquake. This information can be used to calculate the acceleration values for any particular area and is derived from equations relating to the area's geology and its past seismicity. Calculated acceleration values are plotted on a map and contoured to delineate regional variations in predicted estimates of maximum ground acceleration. Such maps are available in Open-File Report No. 82-1033 of the U.S. Geological Survey.
- (vi) "Seismic impact zone" means an area where the probability is greater than or equal to 10 percent that the maximum horizontal acceleration in lithified earth material will equal or exceed 0.10g (expressed as a percentage of the earth's gravitational pull (g), in 250 years.
- (vii) "Structural component(s)" means any constituent, part, element, or ancillary device used in the construction and operation of a land-based or non-land-based unit.
- (viii) "Zone of deformation" means the area adjacent to and surrounding a Holocene fault which is subject to structural deformation as a result of movement along the fault. Geologic features that may occur in a zone of deformation include splay or satellite faults, gauge zones, en echelon fault clusters, and complexly deformed strata.

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(d) Unstable Areas

1. Poor Foundation Conditions

- (i) Owners and operators of new land-based and non-land-based units to be located in areas where poor foundation conditions exist at, beneath, adjacent to, or in the area of the unit shall demonstrate, to the satisfaction of the commissioner, that the problem conditions can and will be mitigated, or have been mitigated, using appropriate engineering methods.
- (ii) As used in subpart (i) of this part, “poor foundation conditions” means those areas where features exist which indicate that a natural or man-induced event may result in inadequate foundation support for the structural components of a land-based or non-land-based unit.

2. Areas Susceptible to Mass Movement

- (i) Owners and operators of new land-based and non-land-based units to be located in areas susceptible to mass movement shall demonstrate, to the satisfaction of the commissioner, that appropriate engineering measures will be applied to ensure unit structural integrity and to mitigate the threats posed to human health and the environment by mass movement.
- (ii) As used in subpart (i) of this part, “areas susceptible to mass movement” means those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where the movement of earth material at, beneath, or adjacent to the unit, because of natural or man-induced events, results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, creep, solifluction, block sliding, rock fall, and slump. As a minimum those areas identified on the Geological Hazards Map of Tennessee (published in 1977 by the Tennessee Department of Conservation and the Tennessee State Planning Office) as subject to mass movements, shall be so considered.
- (iii) As used in subpart (i) of this part, “structural integrity” means the ability of a unit to withstand physical forces exerted upon designed components, ancillary devices, and containment structures (e.g., liners, dikes) of the unit.

3. Karst Terrain

- (i) New land-based units shall not be located in a karst terrain unless the owner or operator demonstrates, to the satisfaction of the commissioner, that:
 - (I) The site hydrogeologic characterization requirements of part (4)(h)1 of this rule have been met, and
 - (II) The media-specific requirements for ground water under part (e)1 of this paragraph have been met, and that ground water can be effectively monitored and corrective action can be effectively implemented in accordance with Rule 0400-12-01-.06(6)(h) through

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- (k) to prevent the rapid spread of contaminants through the subsurface in the event of a hazardous waste release, and
 - (III) A geotechnical and hydrogeologic investigation of the site as required by part (4)(h)1 of this Rule shows that the site is stable within Holocene time, and that subsidence into or collapse of subsurface solution cavities as a consequence of instability caused by liquefaction of overburden or by the presence of subsurface voids will not occur.
 - (ii) New non-land-based units shall not be located in a karst terrain unless the owner or operator demonstrates, to the satisfaction of the commissioner, that:
 - (I) The site hydrogeologic characterization requirements of part (4)(h)1 of this rule have been met, and
 - (II) A geotechnical and hydrogeologic investigation of the site as required by part (4)(h)1 of this rule shows that the site is stable within Holocene time and subsidence into or collapse of subsurface solution cavities as a consequence of instability caused by liquefaction of overburden or by the presence of subsurface voids will not occur, or
 - (III) Where the requirement of item (II) of this subpart cannot be met, that appropriate engineered measures are applied to ensure the unit's structural integrity and to contain, mitigate, or eliminate the adverse effects to human health and the environment that may occur as a result of locating in karst terrain.
 - (iii) Owners or operators of new units located in a karst terrain that meet the demonstration requirements specified in subparts (i) and (ii) of this part shall design, construct, operate, and maintain the unit in a manner such as to prevent any adverse impacts on human health and the environment as a consequence of the unit's location in karst terrain.
 - (iv) As used in subparts (i) through (iii) of this part, "karst terrain" means a specific type of topography that is formed by dissolving or solution of carbonate formations, such as limestone or dolomite; it is characterized by closed depressions or sinkholes, caves, sinking and reappearing streams, and/or underground conduit drainage flow.
- (e) Ground water
- 1. Complex Hydrogeology
 - (i) New land-based units are prohibited in areas where the owner or operator cannot demonstrate, to the satisfaction of the commissioner:
 - (I) That the hydrogeology of the site can be adequately characterized. The characterization shall include the rate and direction of ground water flow within the uppermost aquifer and all interconnected aquifers using a ground water flow net (or equivalent hydrogeologic model on a local scale as specified under part (4)(i)1 of this rule);

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- (II) Compliance with the ground water monitoring requirements under Rule 0400-12-01-.06(6); and
 - (III) The technical practicability of a corrective action program at the site, based on the availability of current or new and innovative technologies that could practicably achieve ground water remediation. The demonstration shall specify how a corrective action response will be effectively implemented to remediate a release to ground water within the facility property boundary and shall illustrate all the factors that are necessary to be in compliance with the corrective action requirements under Rule 0400-12-01-.06(6).
- (ii) Owners or operators of new land-based units that meet the requirements for an exemption from ground water monitoring/correction requirements as specified under Rule 0400-12-01-.06(6)(a)2 are exempt from items (i)(I) and (i)(II) of this part.

2. High-Resource-Value Ground Waters

- (i) New land-based units located in vulnerable hydrogeologic settings overlying high-resource-value ground waters or the recharge zone of high-resource-value ground waters are prohibited unless the following conditions are met by the owner or operator:
 - (I) An extension of the post-closure-care period is granted by the commissioner for such time as is necessary to protect human health and the environment;
 - (II) The unit contains only waste that has been treated using Best Demonstrated Available Technology (BDAT) as required under Rule 0400-12-01-.10; and
 - (III) The owner or operator can demonstrate, to the satisfaction of the commissioner, that health-based criteria for those hazardous wastes or hazardous constituents of concern will not be exceeded beyond the limit of the waste management area in the event of a release, or that the owner or operator can implement an effective corrective action program within the time necessary to prevent contamination in the underlying aquifer from moving beyond the facility property boundary and endangering human health and the environment. Health-based criteria are:
 - I. Maximum contaminant levels (MCLs) promulgated under Section 141.2 of the Safe Drinking Water Act (40 CFR Part 141 Subpart B), or
 - II. For hazardous constituents for which MCLs have not been promulgated, a concentration which satisfies the following criteria, assuming exposure through consumption of the water contaminated with the hazardous constituent:
 - A. Is derived in a manner consistent with U.S. Environmental Protection Agency guidelines for assessing the health risks of environmental pollutants (51 FR 33992, 34006, 34014, 34028), and

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- B. Is based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act (TSCA) Good Laboratory Practice Standards (40 CFR Part 792), or equivalent, and
 - C. For carcinogens, represents a concentration associated with an excess upper bound lifetime cancer risk of 1×10^{-6} due to continuous constant lifetime exposure, and considers the overall weight of evidence for carcinogenicity, and
 - D. For systemic toxicants, represents a concentration to which the human population (including sensitive subgroups) could be exposed on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime.
 - (ii) The commissioner shall extend the unit post-closure-care period as specified under Rule 0400-12-01-.06(7)(h)1 for new land-based units in vulnerable hydrogeologic settings overlying ground waters other than high-resource-value ground waters for such time as is necessary to protect human health and the environment.
- 3. Corrective Action Buffer Zone
 - (i) Owners or operators of new land-based units shall establish a dedicated buffer zone between the unit and the facility property boundary adequate to ensure that ground water time of travel, measured along a flow line at least 100 feet in length and originating at the base of the unit, allows adequate time to implement the corrective action response necessary to remedy a hazardous waste release to ground water and to mitigate, contain, or eliminate the release within the facility property boundary. Calculation of the ground water time of travel shall be made as specified under item (4)(i)2(iii) of this rule.
 - (ii) Owners and operators of new land-based units that cannot establish a dedicated buffer zone at their site that fulfills the requirements under subpart (i) of this part are prohibited from constructing their facility at that particular site.
 - (iii) A dedicated buffer zone as required under subpart (i) of this part shall meet the following criteria:
 - (I) It shall consist of an area of land between the unit and the facility property boundary that is owned by the owner or operator and serves as a separation distance between the unit and facility property boundary. The buffer zone shall be used for corrective action and not for the treatment, storage, or disposal of hazardous waste;
 - (II) It shall serve as a buffer zone for as long as hazardous waste or hazardous constituents remain in the unit, and
 - (III) It shall be recorded as a notation on the facility property deed as a dedicated portion of the facility property for the sole purpose for

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which it is intended as specified under items (I) and (II) of this subpart.

4. Definitions

As used in parts 1 through 3 of this subparagraph:

- (i) "Areas of complex hydrogeology" include, but are not limited to, karst terrains where ground water flow occurs through conduits and along bedding planes and fractures enlarged by dissolution of the rock; fractured rock formations (joints and faults; excludes self-healing fractures); irregularly stratified geologic deposits (e.g., certain fluvial and glacial deposits); mixed hydrogeologic regimes (e.g., certain glacial deposits overlying fractured crystalline bedrock); folded areas where flow paths may be contorted and recharge zones where background water quality cannot be determined.
- (ii) "Areas of vulnerable hydrogeology" are sites where ground water is particularly susceptible to contamination in the event of a release of hazardous waste or hazardous constituents from a hazardous waste unit. Areas of vulnerable hydrogeology are determined by calculating the time of travel (TOT) of ground water measured along a 100-foot flow line originating at the base of the land-based unit. Procedures for calculating the ground water time of travel are described in EPA statutory interpretive guidance document no. EPA 530-SW-86-0228 entitled, 'Criteria for Identifying Areas of Vulnerable Hydrogeology Under the Resource Conservation and Recovery Act,' Interim Final, July 1986.
- (iii) "Flow net" is a graph of flow lines and equipotential lines used in the study of ground water that represents three-dimensional flow through porous media. Procedures for constructing a ground water flow net are described in EPA statutory interpretive guidance document no. EPA 530-SW-86-0228 entitled, "Criteria for Identifying Areas of Vulnerable Hydrogeology Under the Resource Conservation and Recovery Act," Interim Final, July, 1986. Equivalent hydrogeologic models may be used in place of a flow net, subject to the approval of the commissioner.
- (iv) "High-Resource-Value Ground waters" are defined as those ground waters that are characterized by either of the following factors: the ground water is irreplaceable because no reasonable alternative source of drinking water is available to substantial populations, or the ground water is ecologically vital because it provides the base flow for a particularly sensitive ecological system that, if polluted, would destroy a unique habitat.
- (v) "Recharge Zone" is defined as that part of a geologic unit, which is an aquifer, where ground water is absorbed and added to the zone of saturation; from this area the ground water can migrate through the geologic unit under the influence of existing hydraulic gradients.
- (vi) "Release" means any spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, escaping, leaching, dumping, or disposing of hazardous waste or hazardous constituents into the environment including the abandonment or discarding of containers, barrels, and other closed or open receptacles containing hazardous waste or hazardous constituents.

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5. Vertical Buffer Zones

- (i) New land-based units shall be located and constructed such that there is, between the bottom of the unit's liner system and the seasonally high water elevation in the uppermost saturated zone underlying the unit, a buffer layer of natural and/or emplaced soil meeting one of the following descriptions:
 - (I) Ten feet thick, with a saturated hydraulic conductivity of 1×10^{-5} centimeters per second, or
 - (II) Five feet thick, with a saturated hydraulic conductivity of 1×10^{-6} centimeters per second.
 - (ii) New non-land-based units shall be located and constructed such that there is, between the bottom of the unit's secondary containment system and the seasonably high water elevation in the uppermost saturated zone underlying the unit, one of the following:
 - (I) A buffer layer of natural and/or emplaced soil meeting one of the following descriptions:
 - I. Four feet thick, with a saturated hydraulic conductivity of 1×10^{-5} centimeters per second, or
 - II. Two feet thick, with a saturated hydraulic conductivity of 1×10^{-6} centimeters per second; or
 - (II) A buffer layer of other material, mechanically separate from the secondary containment system, which the commissioner determines to provide equivalent or superior protection to fluid movement.
- (f) Drinking Water Supplies
- 1. Except as provided in part 4 of this subparagraph, new land-based units shall be located at least:
 - (i) Outside the lateral limits of the theoretical cone of depression (calculated at the design capacity of the existing pumping system) for any public or private drinking water supply well which withdraws water from the uppermost aquifer or any underlying aquifer which is hydraulically connected to the uppermost aquifer within this cone of depression; and
 - (ii) Two times the corrective action buffer zone distance calculated pursuant to part (e)3 of this paragraph from existing private drinking water supply wells; and
 - (iii) Five times the corrective action buffer zone distance calculated pursuant to part (e)3 of this paragraph from existing public water supply wells; and
 - (iv) Two times the corrective action buffer zone distance calculated pursuant to part (e)3 of this paragraph from any stream segments that are, relative to existing private drinking water supply intakes:
 - (I) For impounded stream segments, within one mile upstream or downstream, and

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- (II) For non-impounded stream segments, within one mile upstream and 0.1 mile downstream; and
 - (v) Five times the corrective action buffer zone distance calculated pursuant to part (e)3 of this paragraph from any stream segments that are, relative to existing public water supply intakes:
 - (I) For impounded stream segments, within two miles upstream or downstream, and
 - (II) For non-impounded stream segments, within two miles upstream and 0.2 mile downstream.
- 2. Except as provided in part 4 of this subparagraph, new non-land-based units shall be located at least:
 - (i) Five hundred feet from any existing private drinking water supply well, except that a shorter distance shall be allowed if the owner or operator agrees to install, operate, and maintain a ground-water monitoring system as described in Rule 0400-12-01-.06(6) and establishes a corrective action buffer zone between the unit and the facility property boundary as provided in part (e)3 of this paragraph; and
 - (ii) One thousand feet from any existing public water supply well, except that a shorter distance shall be allowed if the owner or operator agrees to install, operate, and maintain a ground-water monitoring system as described in Rule 0400-12-01-.06(6) and establishes a corrective action buffer zone between the unit and the facility property boundary as provided in part (e)3 of this paragraph; and
 - (iii) Five hundred feet, measured upgradient along existing drainage ways from the normal banks, from any stream segments that are, relative to existing private drinking water supply intakes:
 - (I) For impounded stream segments, within one mile upstream or downstream, and
 - (II) For non-impounded stream segments, within one mile upstream and 0.1 mile downstream; and
 - (iv) One thousand feet, measured upgradient along existing drainage ways from the normal banks, from any stream segments that are, relative to existing public water supply intakes:
 - (I) For impounded stream segments, within two miles upstream or downstream, and
 - (II) For non-impounded stream segments, within two miles upstream and 0.2 mile downstream.
- 3. Except as provided in part 4 of this subparagraph, transport vehicle parking areas (excluding driveways/access roads), loading/unloading areas, recycling units, and other areas/units (excluding analytical laboratories) where hazardous wastes are managed at a new facility but which are not land-based or non-land-

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based units shall be subject to the set-back requirements of subparts 2(i) through (iv) of this subparagraph.

4. The set-back requirements of parts 1 through 3 of this subparagraph shall not apply to those water supply wells and intakes used to supply drinking water solely to the hazardous waste management facility itself, providing such are monitored on at least a quarterly basis and other measures taken as necessary to ensure a safe drinking water supply for employees.

(g) Surface Waters

1. New land-based units shall be set back from streams, lakes, ponds, reservoirs, and other surface water bodies (except those constructed as part of the facility) by a distance at least equal to the corrective action buffer zone distance calculated pursuant to part (e)3 of this paragraph.
2. New non-land-based units shall be located at least 200 feet, measured upgradient along existing drainageways from the normal banks, from streams, lakes, ponds, reservoirs, and other surface water bodies (except those constructed as part of the facility).
3. Transport vehicle parking areas (excluding driveways/access roads), loading/unloading areas, recycling units, and other areas/units (excluding analytical laboratories) where hazardous wastes are managed at a new facility but which are not land-based or non-land-based units shall be subject to the set-back requirement of part 2 of this subparagraph.

(h) Scenic, Cultural and Recreational Areas

To ensure that human enjoyment of scenic, cultural, and recreational areas are not impaired, new commercial facilities must:

1. Be screened from sight, or at sufficient distance as to be indistinguishable from the surroundings, from the boundaries of such areas, unless the owner or operator demonstrates to the satisfaction of the commissioner that the facility and operations are consistent with the visual character of other surrounding structures and activities; and
2. Be located, configured, designed, constructed, and/or operated such that driveways, transport vehicle parking areas, loading and unloading areas, and other areas where mechanized (or other) noisy operations may take place do not cause a significant increase in the noise level at the boundaries of scenic, cultural, and recreational areas.

(i) Endangered Species

A new commercial facility must be located, designed, constructed, operated, maintained, closed, and (for disposal units) cared for during the post-closure care period in a manner that does not:

1. Cause or contribute to the taking of any endangered or threatened species of plants, fish, or wildlife; or
2. Result in the destruction or adverse modification of the critical habitat of endangered or threatened species.

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(j) Distances from Other Structures/Areas

This subparagraph establishes criteria governing the location of proposed commercial facilities relative to other structures or areas, which may be impacted. These criteria are designed to minimize incompatibility with the character of the surrounding area, to minimize adverse effects on the value of surrounding areas through impairment of the ability to enjoy or use such structures/areas, and to provide additional protection to public health and safety. These requirements shall not apply to structures which are part of or associated with the facility or which the owner or operator owns.

1. Except as provided by part 5 of this subparagraph, new commercial facilities shall be at least 1,500 feet from the actual location of the hazardous waste facility measured as the shortest distance between the permitted hazardous waste management unit and the property line of existing structures/areas identified in part 3 of this subparagraph. New commercial facilities must also be screened from sight, or at a sufficient distance (not less than 1,500 feet) as to be indistinguishable from the surroundings and from existing structures/areas as identified in part 3 of this subparagraph, unless the owner or operator demonstrates to the satisfaction of the Commissioner that the facility and operations are consistent with the visual character of other surrounding structures and activities.
2. New commercial facilities must be located, configured, designed, constructed, and/or operated such that transport vehicle parking areas (excluding driveways/access roads), loading and unloading areas, and other areas where mechanized (or other) noisy operations may take place do not cause a significant increase in the noise level at existing structure/area boundaries as identified in part 3 of this subparagraph.
3. The requirements of parts 1 and 2 of this subparagraph apply to:
 - (i) Structures which are hospitals, nursing homes, or other institutions which house populations of the aged or sick;
 - (ii) Structures which are schools, child-care centers, or other non-residential facilities where children spend substantial amounts of time, and surrounding areas of associated use (e.g., including playgrounds but excluding driveways and parking areas);
 - (iii) Structures which are used as residences, and surrounding areas of associated use (e.g., including yards but excluding driveways, parking areas, farmlands, woodlots, etc.);
 - (iv) Structures which are churches, and surrounding areas of associated use (e.g., including yards, playgrounds, and picnic areas, but excluding driveways and parking areas); and
 - (v) Structures which are used for public service, commercial retail, or commercial service purposes and frequented by the public.
4. New non-land based units and other areas/units (other than land-based units) where hazardous wastes are managed (including transport vehicle parking lots but excluding driveways and access roads) shall be located at least 50 feet from the facility property line.

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5. The Commissioner may grant a variance from the 1,500 feet requirement in part 1 for new commercial facilities without land-based or thermal treatment units, which are sited at a location that was formerly permitted as a commercial hazardous waste management facility. All such facilities shall be at least 1,000 feet from the property line of existing structures/areas identified in part 3 of this subparagraph. These commercial facilities must also be screened from sight, or at a sufficient distance (not less than 1,000 feet) as to be indistinguishable from the surroundings and from existing structures/areas as identified in part 3 of this subparagraph, unless the owner or operator demonstrates to the satisfaction of the Commissioner that the facility and operations are consistent with the visual character of other surrounding structures and activities. This variance shall constitute an exemption to T.C.A. § 68-212-105(6) as required by T.C.A. § 68-212-108(a)(2). In granting the variance, the Commissioner shall consider existing artificial and/or natural barriers, such as fences, ridges, hills, cliffs, airport runways, or a combination of such barriers, that will provide, in the opinion of the Commissioner, the equivalent protection provided by part 1 of this subparagraph.

(k) Roads

To minimize the impact on existing traffic flows and patterns:

1. The primary transportation route from a state or federal highway leading to and from the facility must be designed to carry the commercial truck traffic that will serve the facility.
2. Entrances to and exits from the facility onto public roads shall be designed and constructed in accordance with appropriate provisions of A Policy on Geometric Design of Highways and Streets, 1984 Edition, published by the American Association of State Highway and Transportation Officials.

(l) Emergency Response Capabilities

1. The owner or operator of a proposed new commercial facility must demonstrate to the satisfaction of the commissioner that, in the event of any fire, explosion, or unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituent to air, soil, or surface water that might reasonably occur, adequate trained personnel, procedures, and equipment are available to respond so as to minimize hazards to human health or the environment. This demonstration may consider both on-site emergency response resources and those of off-site emergency response authorities.
2. The owner or operator must develop and submit for approval by the commissioner a contingency plan which describes how facility personnel will respond in the event of a fire, explosion, or accidental release. This contingency plan must meet the requirements of Rule 0400-12-01-.06(4).
3. The owner or operator must coordinate his contingency planning efforts with the Local Emergency Planning Committee (LEPC) established pursuant to Title III of the Superfund Amendments and Reauthorization Act, and identify to the LEPC a facility coordinator who will be available to work with the LEPC in its development of a local emergency response plan, as it relates to the facility.
 - (i) The owner or operator must initiate the following arrangements, as appropriate to the facility, through the LEPC:

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- (I) Arrangements to familiarize police, fire departments, and emergency response teams with the layout of the facility, properties of hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility, and possible evacuation routes;
 - (II) Where more than one police and fire department might respond to an emergency, agreements designating primary emergency authority to a specific police and a specific fire department, and agreements with any others to provide support to the primary emergency authority;
 - (III) Agreements with state emergency response teams, emergency response contractors, and equipment suppliers, and
 - (IV) Arrangements to familiarize local hospitals with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions, or releases resulting from human error or natural events at the facility.
- (ii) Where the LEPC declines to enter into such arrangements, the owner or operator must document the refusal in the operating record and attempt to make arrangements directly with the local emergency services authorities such as fire, police, and hospitals.
- (m) Economic Impact

The owner or operator of a proposed new commercial facility must demonstrate to the satisfaction of the Commissioner that the adverse economic impacts of constructing and operating the proposed facility (at the selected site) on the local community and the surrounding communities have been minimized.

(3) Operating History of the Applicant

- (a) A new commercial facility shall not be issued a permit if the owner's or operator's previous operating experience and compliance history in managing hazardous waste indicate to the commissioner an inability or unwillingness to operate the proposed facility in compliance with permit terms and conditions.
- (b) No permit for a commercial facility shall be issued if any person who is the legal or beneficial owner of ten percent (10%) or more of the stock of the company or corporation applying for such permit:
 - 1. Has been convicted of any felony; or,
 - 2. Has been convicted of a misdemeanor for the unlawful storage, treatment or disposal of hazardous wastes.
- (c) A permit shall not be denied on the basis of violations of the Act, rules or a permit if there have been neither criminal convictions nor administrative orders issued for such violations.

(4) Siting Information Requirements

(Rule 0400-12-02-.03, continued)

The owner and operator, if different, of a proposed new commercial facility must submit the information specified in this paragraph as part of his application for a permit.

(a) General

1. Owners or operators providing information or making demonstrations under this rule must comply with the general requirements for Part B applications at Rule 0400-12-01-.07(5).
2. Information required under this paragraph must be prepared and/or approved by a qualified professional in the appropriate field of expertise.
3. Information required under this paragraph must include plans for a quality assurance/quality control (QA/QC) program for all engineered measures.
4. Where required, geologic information shall be obtained from United States Geological Survey 7.5' (1:24,000) Quarter Quadrangle maps. Smaller scale maps may be used where the 7.5' quadrangle maps are unavailable.
5. If applicable, and in lieu of any subparagraph(s) under this paragraph, the owner or operator must submit information, supporting data, and analyses sufficient to demonstrate, to the satisfaction of the commissioner, that a location characteristic is not applicable at the unit.

(b) General Facility/Site Mapping

The owner or operator for a proposed new commercial facility must submit a topographic map showing a distance of 2500 feet around the facility at a scale of 1 inch equal to not more than 200 feet. Contours must be shown on the map. The contour interval must be sufficient to clearly show the pattern of surface water flow in the vicinity of and from each operational unit of the facility (for example, contours with an interval of 5 feet if relief is greater than 20 feet, or an interval of 2 feet if relief is less than 20 feet). If the proposed site is located in mountainous areas, larger contour intervals should be used to adequately show topographic profiles of facilities. The map shall clearly show the following if and as they exist within the mapped area (Note: More than one map may be utilized if necessary to clearly show all items. In addition, aerial photographs may be utilized in lieu of mapping where appropriate.):

1. Map scale and date;
2. Boundaries of counties and incorporated municipalities;
3. Legal boundaries of the proposed hazardous waste management facility site;
4. Location of proposed hazardous waste management units within the facility site along with driveways/access roads, transport vehicle parking areas, loading/unloading areas, fences, gates, etc.;
5. Streams and other surface waters;
6. Wetlands;
7. Public and private water supply wells (refer to subpart (j)1(i) of this paragraph);
8. Scenic, cultural, and recreational areas and their boundaries;

(Rule 0400-12-02-.03, continued)

9. Structure/areas identified at part (2)(j)3 of this rule; and
10. Primary and alternate transportation routes that will be used to access the facility.

(c) Floodplains

1. Site Characterization

- (i) Based on Flood Insurance Rate Maps (FIRMs) developed by the Federal Emergency Management Agency (FEMA) under the Federal Flood Insurance Act of 1968, owners and operators of all proposed new land-based and non-land-based units shall identify whether or not the unit is to be located in a 100-year floodplain, and if so, what the Flood Hazard Factor (FHF) is at their site. A copy of the relevant flood insurance map which clearly shows the entire site and indicates the source and date of publication must be included.
 - (I) If there are no FIRMs that cover the entire site, then other flood insurance maps that show the 100- year floodplain and FHF boundaries at the site must be substituted, or
 - (II) If there are no flood insurance maps that cover the site or parts of the site, or if FHF's are not shown on the map, the owner or operator must submit:
 - I. Data determining the flood flow frequency using procedures outlined by the Water Resource Council in Bulletin Number 17B: Guidelines for Determining Flood Flow Frequency, and
 - II. Data determining the Flood Hazard Factor using procedures outlined by FEMA in (References to be determined).
- (ii) Owners or operators of all proposed new non-land-based units whose site has an FHF of A7 or higher can include the data and results of a site-specific geomorphic study undertaken to determine if their units are subject to erosion rates equal to those determined by FEMA. This study would be undertaken to demonstrate that the FEMA FHF for their site is not an accurate indicator of erosion, and would include:
 - (I) The results of an analysis of successive historical aerial photographs; and/or
 - (II) Other site-specific analyses which can be shown to predict the erosion potential at the site.

2. Engineering Demonstration

In order to determine compliance with the requirements of subparagraph (2)(a) of this rule, owners or operators of all proposed new non-land-based units to be located in the 100-year floodplain, as determined through the site characterization requirements in subpart 1(i) of this subparagraph, must provide the following information:

- (i) A report outlining engineering analyses that have determined the hydrodynamic and hydrostatic forces expected to be experienced by the unit's erosion control structures as a consequence of a 100-year flood.

(Rule 0400-12-02-.03, continued)

- (ii) Structural or other engineering studies showing that units subject to the requirements under subpart (i) of this part, and their flood protection devices (e.g., floodwalls and dikes) at the facility are, or can and will be, designed, constructed, operated, and maintained to prevent washout during a flood event.

(d) Wetlands

Owners or operators of proposed new land-based or non-land-based units must submit documentation indicating that the unit is not located in or adjacent to a wetland, as defined in subpart (2)(b)2(ii) of this rule. This must include documentation demonstrating that the U.S. Fish and Wildlife Service and the Tennessee Department of Conservation were consulted with regard to this determination.

(e) Seismic Considerations

1. Site Fault Characterization

To determine the applicability of the seismic Holocene fault zone requirements under parts (2)(c)1 through 3 of this rule, owners or operators of proposed new land-based and non-land-based units shall demonstrate to the satisfaction of the commissioner that the unit is not located within 200 feet (61 meters) of a Holocene fault. The information submitted by the owner or operator shall be of a quality that is acceptable to geologists experienced in identifying and evaluating faults and fault movements. The information submitted shall show the following:

- (i) Any lineaments that suggest the presence of a fault or faults within 3,000 feet of a unit, and the absence of a fault or faults that have had displacement in the Holocene within 200 feet of a unit. This information shall include a map of the zone of deformation surrounding any Holocene faults, and it shall be based on geologic analyses of the site, which will include the following studies:
 - (I) Published geologic studies,
 - (II) Aerial analysis of the area within a five-mile radius of the unit,
 - (III) An analysis of aerial photographs covering an area having a 3,000-foot radius of the unit, and
 - (IV) A reconnaissance based on walking portions of the area within 3,000 feet of the unit to clarify and confirm findings from the above studies.
- (ii) If the information submitted under subpart (i) of this part indicates that a fault or faults may be present within 3,000 feet of the unit, the owner or operator of the unit shall demonstrate that no fault or faults that have had displacement during the Holocene occur within the distance specified by the commissioner under part (2)(c)3 of this rule. If the site analysis conducted under subpart (i) of this part is not conclusive or has not been conducted to the satisfaction of the commissioner, the owner or operator shall also conduct a comprehensive geologic analysis consisting of the following:

(Rule 0400-12-02-.03, continued)

- (I) Subsurface exploration of the area within a distance of 3,000 feet from the unit; methods for exploration may include geophysical surveys, drilling or trenching, or other appropriate methods.
 - (II) Trenching perpendicular to any fault or lineaments passing within 200 feet of the unit.
 - (III) Determination of the age of any displacements made evident from the subsurface exploration based on stratigraphic relationships, radiometric age dating, or other acceptable, equivalent methods.
 - (IV) Construction of supporting maps and other analyses to document the location and ages of the fault or faults found.
- (iii) In cases where the owner or operator or the regulatory authority determines that the zone of deformation is smaller or larger than 200 feet, the owner or operator shall submit the results of geologic analyses supporting this determination, including any or all of the analyses listed in items (ii)(I) through (IV) of this part.

2. Seismic Impact Zone Determination

To determine the applicability of the seismic impact zone requirements under part (2)(c)4 of this rule, the owner or operator of a proposed new land-based unit shall determine, to the satisfaction of the commissioner, the location of the unit relative to a seismic impact zone, as applicable. The owner or operator shall submit information to show the following:

- (i) The presence or absence of a seismic impact zone relative to the location of the unit. The information shall be based on the following:
 - (I) The results of a site-specific seismic risk assessment or state and local site-specific risk maps, or, where these are not available, approved seismic risk maps presented in the United States Geological Survey Open-File Report No. 82-1033, or
 - (II) Results of a site-specific seismic activity investigation based on standard industry techniques.
- (ii) Information indicating the potential for seismically induced liquefaction at the site, including results of soil characterization tests and moisture tests.
- (iii) Seismic unit integrity engineering demonstration. If the owner or operator has determined that the unit is located within a seismic impact zone based on the information submitted under subpart (i) of this part, the owner or operator of the unit shall submit the following information:
 - (I) A demonstration of the integrity of the unit's structures, foundations, embankments, and ancillary components to withstand damage from liquefaction, and from seismic wave motion where the maximum horizontal acceleration in the underlying geologic units will exceed the maximum horizontal acceleration for a seismic impact zone as defined under subpart (2)(c)5(v) of this rule,

(Rule 0400-12-02-.03, continued)

- (II) A description of the engineering measures taken to prevent the following unit structures from sustaining damage from wave motion when the maximum horizontal acceleration is exceeded:
 - I. Container storage containment system (required under Rule 0400-12-01-.06(9)(f)),
 - II. Tank systems (required under Rule 0400-12-01-.06(10)(c)),
 - III. Secondary containment structure (required by Rule 0400-12-01-.06(10)(d)),
 - IV. Dikes, liners, and leachate collection systems (required for land-based units under Rules 0400-12-01-.06(11)(b), (12)(b), and (14)(b)),
 - V. Incinerator structures (required under Rule 0400-12-01-.06(15)(a)),
 - VI. Units regulated under Rule 0400-12-01-.06(19), and
 - VII. Any other structures, features, or ancillary components directly related to the units that may be affected, to the satisfaction of the commissioner.

(f) Unstable Areas - Poor Foundation Conditions

1. Site Characterization

In order to determine compliance with the requirements of part (2)(d)1 of this rule, owners and operators of proposed new land-based and non-land-based units shall submit a geotechnical report demonstrating, to the satisfaction of the commissioner, that poor foundation conditions do not exist. The report shall include:

- (i) A description of the site's physical conditions and identification of the following unstable areas, if present:
 - (I) Soil conditions (e.g., presence of swelling clays) where differential settling, subsidence, or liquefaction may result in structural failure;
 - (II) Geologic or geomorphic features (e.g., solution cavities; lava tubes) that may result in sudden or non-sudden structural failure;
 - (III) Certain man-made features or events (e.g., areas of extensive subsurface mining or ground water withdrawal) that may result in sudden or non-sudden structural failure;
 - (IV) Ground subsidence that has occurred or is occurring as the result of natural or human-induced events;
 - (V) Areas where increased loading may result in soil failure, and
 - (VI) Other unstable zones as appropriate.

(Rule 0400-12-02-.03, continued)

- (ii) Results of a site geologic investigation including, but not limited to, the following:
 - (I) A detailed geologic mapping program;
 - (II) A boring and sampling program which includes drilling, collection of minimally disturbed soil samples, logging and classification of soil samples and in-situ physical testing;
 - (III) Laboratory soils analyses on selected soil samples to determine the soil's physical index properties such as grain size distribution, Atterberg limits, and moisture content, and
 - (IV) Determination of the soil's engineering properties (e.g., strength, consolidation, and compaction), including a determination of the susceptibility of the soil to liquefaction.

2. Geotechnical Engineering Demonstration

Owners or operators of proposed new land-based and non-land-based units located in areas of poor foundation conditions, as determined through the site characterization requirements in part 1 of this subparagraph, shall demonstrate, to the satisfaction of the commissioner, that the adverse conditions can be adequately mitigated or that the unit can be constructed in a manner to prevent any compromising of its structural integrity. The owner or operator shall submit the following:

- (i) A report showing how the information submitted under part 1 of this subparagraph will be analyzed and applied to determine the design criteria for the construction of each unit. The criteria will identify the appropriate engineering methods and techniques which shall be implemented in order to ensure adequate unit integrity. The techniques and methods must meet state-of-the-art, industry-accepted design standards;
- (ii) A report describing how the engineering measure will protect and prevent the following structures from damage, including:
 - (I) Container storage containment systems (required by Rule 0400-12-01-.06(9)(f));
 - (II) Tank foundations for new tanks (required by Rule 0400-12-01-.06(10)(c));
 - (III) Secondary containment structures (required by Rule 0400-12-01-.06(10)(d));
 - (IV) Dikes required for surface impoundments, and liners (required for surface impoundments, waste piles, and landfills by Rules 0400-12-01-.06(11)(b), (12)(b), and (14)(b)),
 - (V) Incinerator structures (required under Rule 0400-12-01-.06(15)(a)),
 - (VI) Units regulated under Rule 0400-12-01-.06(19); and
 - (VII) Any other structures or features deemed necessary by the commissioner.

(Rule 0400-12-02-.03, continued)

(g) Unstable Areas - Areas Susceptible to Mass Movement

1. Site Characterization

In order to determine compliance with the requirements of part (2)(d)2 of this rule, owners or operators of proposed new land-based and non-land-based units must demonstrate, to the satisfaction of the commissioner, that the units are not located in an area susceptible to mass movements based on a slope stability report. The report shall include the following:

- (i) Geomorphic aerial photo and geologic studies of the surrounding area of influence, defined as the area susceptible to present or future mass movement.
- (ii) Site field investigation for physical evidence of slope instability or evidence of failure.
- (iii) If evidence of natural slope instability or mass movement exists, or if the unit design requires slope modification, then a site-specific slope stability study will be performed that shall include, but not be limited to, the following investigations:
 - (I) Detailed geologic mapping identifying rock and soil types and major structures (e.g., faults and formation contacts);
 - (II) Structural statistical study of faults and fractures;
 - (III) Laboratory fabric strength testing of soil, rock, rock joints, and fault surfaces;
 - (IV) Analysis of loading conditions, drainage areas, and slope angle;
 - (V) Study of site seismicity and hydrogeologic conditions, and
 - (VI) Evaluation of the potential for future mass movement, including: types of mass movement, areas of probable mass movement, areas that would be affected by mass movement, probabilities of the movements, and volumes of material involved. The report must address the existing and future static and dynamic forces on the geologic material that would affect the unit, and of any other geologic material that, by a failure or movement (including creep), might compromise the structural integrity of the unit. The potential for movement or failure and the vulnerability of the unit must be evaluated.

2. Mass Movement Engineering Demonstration

- (i) In order to determine compliance with part (2)(d)2 of this rule, owners or operators of proposed new land-based and non-land-based units located in areas susceptible to mass movements, as determined through the site characterization requirements in part 1 of this subparagraph, must submit a geotechnical engineering report describing the measures that will be taken to mitigate the threats posed by mass movements to the unit. The proposed engineering measures must meet current industry-accepted geotechnical engineering and design standards. The report must indicate

(Rule 0400-12-02-.03, continued)

the engineering measures applied to slopes, or to the on-site structures themselves, which will be used to protect the following structures from damage:

- (ii) Container storage containment systems (required by Rule 0400-12-01-.06(9)(f));
 - (iii) Tank foundations for new tanks (required by Rule 0400-12-01-.06(10)(c));
 - (iv) Secondary containment structures (required by Rule 0400-12-01-.06(10)(d));
 - (v) Dikes required for surface impoundments, and liners (required for surface impoundments, waste piles, and landfills by Rules 0400-12-01-.06(11)(b), (12)(b), and (14)(b));
 - (vi) Incinerator structures (required by Rule 0400-12-01-.06(15)(a));
 - (vii) Units regulated under Rule 0400-12-01-.06(19); and
 - (viii) Any other structures or features deemed necessary by the commissioner.
- (h) Unstable Areas - Karst Terrain

1. Site Characterization

In order to determine compliance with the requirements of part (2)(d)3 of this rule, owners or operators of proposed new land-based and non-land-based units shall conduct the following studies:

- (i) A site hydrogeologic characterization, including:
 - (I) A determination as to whether the unit is located in a karst terrain, and if so, identification of the nature of the karst present at the site. Such studies shall be based on a review of geologic and topographic maps, aerial photo geomorphic studies and other pertinent background information.
 - (II) Where studies conducted under item (I) of this subpart have determined the presence of karst, the following investigations shall be performed:
 - I. Determination of the location, size, and density of features such as sinkholes, solution channels, caverns, faults and fractures, honeycombs, microkarst, and bedding plane fractures located beneath or adjacent to the unit. This will include a stratigraphic column with detailed lithologic descriptions for the units that comprise the karst terrain.
 - II. Determination of the location, density, and orientation of large- and small-scale conduits.
 - III. For land-based units only, a subsurface investigation to determine the rock's solubility and porosity (primary and secondary), rate of dissolution, and the rock's subsurface characteristics (structural competency data).

(Rule 0400-12-02-.03, continued)

- (ii) Where the site is located in a karst terrain as determined under item (i)(I) of this part, the owner or operator shall submit a geotechnical study demonstrating the degree of stability and potential for subsidence of the site based on the historical changes in regional and local water levels and on history and presence of sinkhole development during the Holocene, as defined by subpart (2)(c)5(iii) of this rule.

2. Engineering Demonstration

In order to determine compliance with the requirements of item (2)(d)3(ii)(III) of this rule, owners or operators of units located in karst terrain, as determined by part 1 of this subparagraph, shall submit structural or other engineering studies demonstrating that the design and operation of the unit will mitigate the adverse effects of the karst terrain.

(i) Ground water

1. Complex Hydrogeologic Conditions

Owners and operators of proposed new land-based units must submit a demonstration that characterizes the hydrogeology of the site to include hydraulic and geologic features, subsurface strata, recharge and discharge conditions, and those additional conditions that render the location hydrogeologically complex. Specifically, the demonstration shall include, but not be limited to, the following:

- (i) Identification of the uppermost aquifer and aquifers hydraulically interconnected beneath and adjacent to the facility property.
- (ii) A ground water flow net (or equivalent hydrogeologic model) constructed from data collected on a local scale that identifies the rate and direction of ground water flow within the aquifers. Field piezometer data and any additional information obtained from hydrogeologic investigations of the facility area shall serve as the basis for the ground water flow net (or equivalent model) and identification of aquifers beneath and adjacent to the facility property. The commissioner may require validation of the flow net analysis by requiring that the owner or operator install additional piezometers at points selected by the commissioner. In areas difficult to characterize, and where a flow net analysis (or model) may be inconclusive, the owner or operator must submit an alternate hydrogeologic method for identifying areas of horizontal and vertical components of flow in the uppermost aquifer and interconnected aquifers for determining ground water flow rate and direction.
- (iii) Use of the ground water flow net (or equivalent hydrogeologic method) to identify the placement and position of ground water monitoring wells at the facility property boundary to ensure compliance with the ground water monitoring requirements under Rule 0400-12-01-.06(6).

2. High-Resource-Value Ground waters

- (i) For owners or operators of new land-based units, a demonstration showing that the unit is not located over a high-resource-value ground water or in the recharge zone of high-resource-value ground water as defined under subpart (2)(e)4(iv) of this rule. The demonstration shall include, but not be limited to, the following:

(Rule 0400-12-02-.03, continued)

- (I) Calculation of the ground water time of travel as a means of determining the vulnerability of the ground water beneath the facility units using EPA guidance document no. 530-SW-86-0228;
 - (II) A site-specific determination of the resource value of the ground water, and
 - (III) A site-specific determination of whether the site is a recharge zone and, if so, the resource value of the ground water being recharged.
- (ii) The owner or operator must submit sufficient information, supporting data, and analysis to demonstrate the technical practicability of a corrective action plan that will prevent a ground water release from migrating beyond the facility property boundary.
 - (iii) Ground water is vulnerable if the time for ground water to travel from the base of the unit to any point at least 100 feet away, and that is along a flow line following the path of least resistance, is less than the time required to detect a release and implement corrective action. The method of determining time of travel is described in detail in the document entitled, "Criteria for Identifying Areas of Vulnerable Hydrogeology Under the Resource Conservation and Recovery Act" (EPA, 1986).

3. Corrective Action Buffer Zone

Owners and operators of new land-based units shall submit an estimated buffer zone distance (as defined under subpart (2)(e)3(i) of this rule, based on the distance traveled by ground water from the unit boundary for a period of 2 to 5 years. Calculations shall be based on the methodology contained in the EPA guidance manual entitled "Criteria for Identifying Areas of Vulnerable Hydrogeology Under the Resource Conservation and Recovery Act."

4. Vertical Buffer Zone

- (i) Except as provided in subpart (iv) of this part, owners or operators of proposed new land-based or non-land-based units must submit data, diagrams, text, and/or other information as necessary to describe how natural and/or emplaced soils will be utilized to provide the vertical buffers required by items (2)(e)5(i)(I) and (II) and (2)(e)5(ii)(I) of this rule. This information must include, but not necessarily be limited to, the following:
 - (I) A description of the subsurface soil profile, including field soil classifications (according to the criteria of the U.S. Department of Agriculture's Soil Conservation Service) and depths;
 - (II) The saturated hydraulic conductivities of undisturbed samples of soils underlying the site which are to be used without being recompacted in meeting the vertical buffer requirements;
 - (III) The saturated hydraulic conductivities of remolded samples of soils which are to be emplaced or recompacted as buffer materials;
 - (IV) Cross-sections showing the configuration of natural and/or emplaced soils used in meeting the vertical buffer requirements;

(Rule 0400-12-02-.03, continued)

- (V) Soil emplacement and/or recompaction procedures, including field testing procedures to be utilized for quality assurance/quality control;
 - (VI) A description of the soil sampling and analytical procedures used;
 - (VII) A tabulation of water table elevations (if encountered within the limits of drillings) at the time borings were performed, 24 hours later, and seven days later; and
 - (VIII) An identification of the seasonally high water elevation in the uppermost aquifer underlying the units and an explanation of how this was determined.
 - (ii) The information submitted pursuant to subpart (i) of this part must be based on an analysis of existing data (e.g., well drillers' logs) and site-specific soil borings and drillers' logs or other subsurface investigations. The soil borings performed must be of such number, locations, and depths as to provide a complete and accurate description of relevant subsurface conditions.
 - (iii) The hydraulic conductivities required pursuant to subpart (i) of this part shall be determined on samples collected in thin-walled Shelby tubes as per ASTM D-1587, using the falling head method with permeameter specified in the U.S. Corps of Engineers Manual EM 1110-2-1906. Samples shall be recompact as defined by a Proctor test (ASTM D-698).
 - (iv) Owners or operators of proposed new non-land-based units seeking to provide an alternate buffer as provided in item (2)(e)5(ii)(II) of this rule must submit data, diagrams, text, and/or other information as necessary to demonstrate that the alternate buffer provides protection to fluid movement which is equivalent to or superior to that of the soil buffers described in item (2)(e)5(ii)(I) of this rule.
- (j) Drinking Water Supplies
1. Relative to proposed new land-based units, the owner or operator must:
 - (i) Identify all public and private water supply wells within 2500 feet of such units and their use (Note: Identification of such wells shall require a survey of all homes and businesses that might have knowledge of such wells in addition to a review of state and local governmental records as appropriate.);
 - (ii) Submit calculations, diagrams, and/or other information as necessary to show that the set-back requirements of subparts (2)(f)1 (ii) and (iii) of this rule are met;
 - (iii) Submit calculations, diagrams, and/or other information as necessary to demonstrate that the units are outside the cone of depression of water supply wells required by subpart (2)(f)1(i) of this rule. (Note: This demonstration shall not be limited to those wells identified in subpart (i) of this part.)
 2. Relative to proposed new non-land-based units and other areas/units where hazardous wastes are managed at a new facility but which are not land-based or non-land-based units, the owner or operator must:

(Rule 0400-12-02-.03, continued)

- (i) Identify all public and private water supply wells within 1000 feet of such units and their use (Note: Identification of such wells shall require a survey of all homes and businesses that might have knowledge of such wells in addition to a review of state and local governmental records as appropriate.);
 - (ii) Submit calculations, diagrams, and/or other information as necessary to show that the set-back requirements of subparts (2)(f)2(i) and (ii) of this rule are met;
- 3. The owner or operator of a proposed new commercial facility must submit mapping, calculations, diagrams, and/or other information as necessary to show that the set-back requirements relative to water supply intakes which are presented in subparts (2)(f)1(iv) and (v) and (2)(f)2(iii) and (iv) and part (2)(f)3 of this rule are either not applicable or met.

(k) Surface Waters

The owner or operator of proposed new commercial facilities must submit mapping, calculations, diagrams, and/or other information demonstrating that the set-back requirements of parts (2)(g)1 through 3 are met.

(l) Scenic, Cultural and Recreational Areas - The owner or operator of a proposed new commercial facility must submit:

- 1. Documentation demonstrating that this Department and other agencies as appropriate were consulted relative to the identification of scenic, cultural, and recreational areas which might be impacted by the proposed facility;
- 2. Descriptive text, diagrams, artist's renderings, photographs, and/or other information as necessary to demonstrate compliance with part (2)(h)1 of this rule; and
- 3. Background noise data, anticipated facility source noise levels, barrier designs, noise reduction calculations, and/or other information as necessary to demonstrate compliance with part (2)(h)2 of this rule.

(m) Endangered Species

The owner or operator of a proposed new commercial facility must submit:

- 1. Documentation demonstrating that the Tennessee Resource Management Division, U.S. Fish and Wildlife Service, Tennessee Wildlife Resources Agency, and other agencies as appropriate were consulted relative to the identification of endangered or threatened species and their habitat, and the impacts of the proposed facility on such species and/or their habitat; and
- 2. Descriptive text, diagrams, and/or other information as necessary to demonstrate that the criteria at subparagraph (2)(i) of this rule are met.

(n) Distances from Other Structures/Areas

The owner or operator of a proposed new commercial facility must submit:

(Rule 0400-12-02-.03, continued)

1. Descriptive text, diagrams, artist's renderings, photographs, and/or other information as necessary to demonstrate compliance with part (2)(j)1 or 5 of this rule; and
2. Background noise data, anticipated facility source noise levels, barrier designs, noise reduction calculations, and/or other information as necessary to demonstrate compliance with part (2)(j)2 of this rule.

(o) Roads

The owner or operator of a proposed new commercial facility must submit design details of highway entrances and exits necessary to demonstrate compliance with part (2)(k)2 of this rule;

(p) Emergency Response Capabilities

The owner or operator of a proposed new commercial facility must submit the documentation required by subparagraph (2)(l) of this rule.

(q) Economic Impact Evaluation

In order to demonstrate compliance with subparagraph (2)(m) of this rule, the owner or operator of a proposed new commercial facility must submit a report documenting the results of a study evaluating the economic impacts the proposed facility would have on the local community and surrounding communities and demonstrating how any adverse economic impacts will be minimized. The report shall include the sources of information, assumptions, and calculations utilized. The economic impact shall be projected based on the following factors assessed over the period beginning with the initiation of construction and extending through the expected operating life of the facility or - for disposal facilities - through the post-closure care period required under Rule 0400-12-01-.06(7):

1. Effects on property values;
2. Tax revenue to be generated and/or other direct compensation to the community;
3. Effects on employment (e.g., increases or decreases in job opportunities and/or personal incomes);
4. Increases in public expenditures for services such as police protection, fire and emergency response, sewers, water, electricity, roads, schools, etc.;
5. Decreases in hazardous waste management costs to local, state, or regional generators; and
6. Attractiveness to existing or potential industrial neighbors.

(r) Operating History of the Applicant

The owner and operator of a proposed new commercial facility must each submit a disclosure statement, supported by an affidavit(s) attesting to the truth and completeness of the facts asserted therein, which includes:

1. A brief description of the structure of the business (e.g. partnership, sole proprietorship, corporation, association, or other);

(Rule 0400-12-02-.03, continued)

2. The names, addresses, and titles of all officers, directors or partners of the applicant, of any parent or subsidiary corporation if the applicant is a corporation, and of any person owning 10% or more interest in the applicant company;
3. The name and address of any company in the field of hazardous waste management in which the applicant business or any of its officers, directors or partners, holds a 10% or greater interest and the name of the officer, director, or partner holding such interest;
4. The name and address of any hazardous waste facility heretofore constructed or operated by the applicant or any parent or subsidiary corporation if the applicant is a corporation;
5. A copy of any judicial order, or any administrative order issued within the five (5) years preceding the submission of the part B permit application, concerning any hazardous waste facility identified in part 3 or 4 of this subparagraph issued by any state or federal authority relating to permit or license revocation or citing a violation of any state or federal statute or local ordinance;
6. A copy of any judicial or administrative order against any person identified in part 2 of this subparagraph which concerns any felony, or a misdemeanor for unlawful waste management, or a local ordinance governing waste management;
7. A description of any still pending administrative or judicial proceeding concerning waste management that could result in a determination against any person identified in part 2 of this subparagraph. The description must include title, docket or case number and status of the proceeding.

Authority: §§ 68-212-101 *et seq.*, 68-212-201 *et seq.*, and 4-5-201 *et seq.* **Administrative History:** Original rule filed June 19, 2012; effective September 17, 2012.