

SUBCHAPTER N: LANDFILL MINING

§§330.401 - 330.419

Effective September 1, 2003

§330.401. Definitions.

Unless otherwise noted, all terms contained in this section are defined by their plain meaning. This section contains definitions that are applicable only to this subchapter and which supersede definitions in §330.2 of this title (relating to Definitions) where those terms appear in this subchapter. As used in this subchapter, words in the singular include the plural and words in the plural include the singular. The following words and terms, when used in this subchapter, shall have the following meanings.

(1) **Closed municipal solid waste landfill (CMSWLF)** - A discrete area of land or an excavation that has received only municipal solid waste or municipal solid waste combined with other solid wastes, including but not limited to construction/demolition waste, commercial solid waste, nonhazardous sludge, conditionally exempt small-quantity generator hazardous waste, and industrial solid waste, and that is not a land application unit, surface impoundment, injection well, or waste pit as those terms are defined by 40 CFR §257.2.

(2) **Landfill mining** - The physical procedures associated with the excavation of buried municipal solid waste and processing of the material to recover material for beneficial use.

(3) **Nuisance** - Nuisances as set forth in the Texas Health and Safety Code, Chapter 341 and 382; the Texas Water Code, Chapter 26; and §101.4 of this title (relating to Nuisance), and any other applicable regulation or statute.

(4) **Permitted landfill** - Any type of municipal solid waste landfill that received a permit from the state of Texas to operate and has not completed post closure operations.

(5) **Recyclable material** - For purposes of this subchapter, a recyclable material is a material that has been recovered or diverted from the solid waste stream for purposes of reuse, recycling, or reclamation, or a substantial portion of which is consistently used in the manufacture of products which may otherwise be produced from raw or virgin materials. Recyclable material is not solid waste unless the material is deemed to be hazardous solid waste by the administrator of the United States Environmental Protection Agency, whereupon it shall be regulated accordingly unless it is otherwise exempted in whole or in part from regulation under the federal Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Protection Act. Recyclable material may become solid waste at such time, if any, as it is abandoned or disposed of rather than recycled, whereupon it will be solid waste with respect only to the party actually abandoning or disposing of the material.

(6) **Recycling** - A process by which materials that have served their intended use or are scrapped, discarded, used, surplus, or obsolete are collected, separated, or processed and returned to use in the form of raw materials in the production of new products. Recycling includes the composting process if the compost material is put to beneficial reuse as defined in §332.2 of this title (relating to Definitions) and as specified in §332.71 of this title (relating to Sampling and Analysis Requirements for Final Product).

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Effective September 5, 1999

§330.402. Applicability.

Registration in accordance with §330.416 of this title (relating to Registration Application Preparation) is required for the following operations and the following operations are subject to the general requirements found in §330.403 of this title (relating to General Requirements), and the requirements set for soil end product standards in §330.418 of this title (relating to Final Soil Product Grades), and the air quality requirements in §330.406 of this title (relating to Air Quality Requirements):

(1) Operations that recover reusable or recyclable material buried in permitted or closed municipal solid waste landfill facilities, or municipal solid waste landfill facilities that were never permitted.

(2) Operations that reclaim soil from permitted or closed municipal solid waste landfills, or from municipal solid waste landfill facilities that were never permitted.

(3) Facilities that have received prior approval for excavation of buried materials through permits, permit amendments, or other agency authorization are exempt from further authorization requirements as established in this subchapter, for the specific authorization received. Soil final product standards shall be applicable for all registered facilities.

Adopted November 6, 1996

Effective December 3, 1996

§330.403. General Requirements.

All landfill mining operations shall comply with all of the following general requirements.

(1) Compliance with Texas Water Code. Each operation shall be conducted in a manner which prevents the discharge of material to or the pollution of surface or groundwater in accordance with the provisions of the Texas Water Code, Chapter 26 and §101.4 of this title (relating to Nuisance).

(2) Nuisance conditions. Each operation shall be conducted in a sanitary manner which shall prevent the creation of nuisance conditions as mandated by the Texas Health and Safety

Code, Chapters 341 and 382 and the Texas Water Code, Chapter 26, and as defined in these regulations, and any other applicable regulations or statutes.

(3) Discharge to surface or groundwater. The discharge of material or the contamination of surface or groundwater resulting from each operation is subject to enforcement by the commission and may result in the assessment of civil penalties.

(4) Compliance with federal laws. Facility operations shall be conducted in accordance with all applicable federal laws and regulations.

(5) Compliance with state laws. Facility operations shall be conducted in accordance with all applicable laws and regulations of the State of Texas.

(6) Facility operations. Facility operations shall not be conducted in a manner which causes endangerment of human health and welfare, or the environment.

(7) Operations on a municipal solid waste landfill unit. Landfill mining activities shall be conducted in such a manner that they do not disrupt landfill operations.

(8) Operational requirement. Operations shall be conducted in such a manner to ensure that hazardous constituents uncovered by the operation are properly handled and disposed of at an authorized facility in a timely manner.

(9) Leachate. Leachate found while uncovering buried waste shall be properly disposed of in an authorized facility.

(10) Preliminary application requirements. Prior to initiating work on the registration application, the applicant shall notify the executive director of the intention to file a registration application, and meet with the executive director's staff to discuss elements of the site development plan such as a test pit plan.

Adopted November 6, 1996

Effective December 3, 1996

§330.404. Variances.

(a) In specific cases the executive director may approve a variance from the requirements of this subchapter due to special conditions, if the variance is not contrary to the public health and safety. A variance may not be approved concerning the procedural requirements of this subchapter, including application procedures and the filing of reports, or concerning the provisions of §330.406 of this title (relating to Air Quality Requirements).

(b) A request for a variance must be submitted in writing to the executive director. The request may be made in an application for a registration. Any approval of a variance must be in writing from the executive director.

Adopted November 6, 1996

Effective December 3, 1996

§330.405. Relationship with Operating Landfills.

Landfill mining facilities considered to be in conjunction with permitted landfill facilities in §330.402 of this title (relating to Applicability) may be located at municipal solid waste permitted facilities. The owner shall prepare and submit an application for a permit modification in accordance with the provisions of §305.70 of this title (relating to Municipal Solid Waste Class I Modifications).

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§330.406. Air Quality Requirements.

(a) General requirements.

(1) Any landfill mining process operation which has existing authority under the Texas Clean Air Act does not have to meet the air quality criteria of this subchapter. Pursuant to the Texas Clean Air Act, §382.051, any new landfill mining operation which meets all of the applicable requirements of this subchapter is hereby entitled to an air quality standard permit authorization under this subchapter in lieu of the requirement to obtain an air quality permit under Chapter 116 of this title (relating to Control of Air Pollution by Permits for New Construction or Modification).

(2) Those operations which would otherwise be required to obtain air quality authorization under Chapter 116 of this title, which cannot satisfy all of the requirements of this subchapter, shall apply for and obtain air quality authorization pursuant to Chapter 116 of this title in addition to any registration required in this subchapter.

(3) Any operation authorized under this subchapter which is a new major source or any modification which constitutes a major modification under nonattainment review or Prevention of Significant Deterioration review as amended by the Federal Clean Air Act amendments of 1990, and regulations promulgated thereunder, shall be subject to the requirements of Chapter 116 of this title in addition to any registration required in this subchapter.

(4) Operations that do not wish to comply with the requirements of this section, are required to apply for and obtain air quality authorization under Chapter 116 of this title. Once a person has applied for and obtained air quality authorization under Chapter 116 of this title, the person is exempt from the air quality requirements of this subchapter.

(5) No person may concurrently hold an air quality permit issued under Chapter 116 of this title and an air quality standard permit authorized under this subchapter for landfill mining operations at the same site.

(6) The operator of a landfill mining operation operating under an air quality standard permit shall maintain on file at all times within the operating record of the facility documentation which shows compliance with this section.

(b) Air quality standard permit. Landfill mining operations required to obtain authorization pursuant to §330.402 of this title (relating to Applicability) which meet the following requirements are hereby entitled to an air quality standard permit.

(1) All permanent on-site roads shall be watered, treated with dust-suppressant chemicals, or paved and cleaned as necessary to achieve maximum control of dust emissions. Vehicular speeds on non-paved roads shall not exceed 10 miles per hour. Leachate and gas condensate are prohibited from use as dust-suppressant.

(2) Prior to processing any material with a high odor potential, the operator shall insure that there are means to prevent nuisance odors from leaving the site boundaries.

(3) All material shall be conveyed mechanically, or if conveyed pneumatically, the conveying air shall be vented to the atmosphere through a fabric filter(s) having a maximum filtering velocity of 4.0 feet/minute (ft/min) with mechanical cleaning or 7.0 ft/min with air cleaning.

(4) Except for initial start-up and shut-down, all processing equipment not enclosed inside a building shall be equipped with low-velocity fog nozzles spaced to create a continuous fog curtain or the operator shall have portable watering equipment available during the processing operation. These controls shall be utilized as necessary for maximum control of dust when loading vehicles, and stockpiling recyclable material, reusable soil, or waste material. Excavation equipment is not considered as processing equipment. Leachate from process water is prohibited from use as dust-suppressant.

(5) All conveyors which off-load materials from processing equipment at a point which is not enclosed inside a building shall have available a water or mechanical dust suppression system. These controls shall be utilized as necessary for maximum control of dust when stockpiling material.

(6) All activities which could result in increased odor emissions shall be conducted in a manner that does not create nuisance conditions or shall only be conducted inside a building maintained under negative pressure and controlled with a chemical oxidation scrubbing system or bio filter system.

(7) Excavated waste material transported from the landfill site shall be transported in covered trucks to minimize the loss of material.

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§330.407. Registration Application Processing.

(a) An application shall be submitted to the executive director. When an application is administratively complete, the executive director shall assign the application an identification number.

(b) The applicant and the executive director's staff shall conduct a public meeting in the local area, when the application is administratively complete, to describe the proposed action to the general public. Notice of public meeting shall be as specified in §39.101(d) of this title (relating to Notice of Public Meeting).

(c) The executive director or his designee shall, after review of any application for registration of a landfill mining facility, determine if the application will be approved or denied in whole or in part. The executive director shall base his decision on whether the application meets the requirements of this subchapter and the requirements of §330.403 of this title (relating to General Requirements).

(d) At the same time that the executive director's final decision is mailed to the applicant, a copy or copies of this decision shall also be mailed to all adjacent landowners and to other affected landowners as directed by the executive director.

(e) In regard to motions for reconsideration, notwithstanding §50.31(c)(8) of this title (relating to Purpose and Applicability), applications for registration under this subchapter are governed by §50.39(b)-(f) of this title (relating to Motion for Reconsideration). The applicant or a person affected may file with the chief clerk a motion for reconsideration under §50.39(b)-(f) of this title of the executive director's final decision.

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§330.408. Location Standards.

Facilities shall meet all of the following location criteria.

(1) Floodplains. Owners or operators of new landfill mining operations located in 100-year floodplains shall demonstrate that the unit will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health and the environment. The owner or operator shall submit the demonstration with the registration application. The demonstration shall become part of the operating record once approved.

(2) Drainage. The facility shall not significantly alter existing drainage patterns.

(3) Wetlands. Normally, landfill mining operations should not be located in wetlands, unless the owner or operator makes each of the demonstrations identified in subparagraphs (A)-(E) of this paragraph to the executive director. The owner or operator shall submit the demonstrations with a permit application. The demonstration shall become part of the operating record once approved.

(A) Where applicable under the Clean Water Act, §404 or applicable state wetlands laws, the presumption that a practicable alternative to the proposed landfill is available that does not involve wetlands shall be clearly rebutted.

(B) The construction and operation of the landfill mining facility shall not:

(i) cause or contribute to violations of any applicable state water quality standard;

(ii) violate any applicable toxic effluent standard or prohibition under of the Clean Water Act, §307;

(iii) jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973; and

(iv) violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary.

(C) The landfill mining facility shall not cause or contribute to significant degradation of wetlands. The owner/operator shall demonstrate the integrity of the landfill mining facility and its ability to protect ecological resources by addressing the following factors:

(i) erosion, stability, and migration potential of native wetland soils, muds, and deposits used to support the landfill mining facility;

(ii) erosion, stability, and migration potential of dredged and fill materials used to support the landfill mining facility;

(iii) the volume and chemical nature of the waste managed in the landfill mining facility;

(iv) impacts on fish, wildlife, and other aquatic resources and their habitat from release of the solid waste;

(v) the potential effects of catastrophic release of waste to the wetland and the resulting impacts on the environment; and

(vi) any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected.

(D) To the extent required under the Clean Water Act, §404 or applicable state wetlands laws, steps have been taken to attempt to achieve no net loss of wetlands (as defined by acreage and function) by first avoiding impacts to wetlands to the maximum extent practicable as required by subparagraph (A) of this paragraph, then minimizing unavoidable impacts to the maximum extent practicable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions (e.g., restoration of existing degraded wetlands or creation of man-made wetlands).

(E) Sufficient information shall be made available to the executive director to make a reasonable determination with respect to these demonstrations.

(4) Set back distance from facility boundary. The set back distance from the facility boundary to the areas for processing or storing waste material or final soil product shall be at least 50 feet.

(5) Edwards aquifer recharge zone. If located over the Recharge Zone of the Edwards Aquifer, a facility is subject to Chapter 213 of this title (relating to Edwards Aquifer). The Edwards Aquifer Recharge Zone is specifically that area delineated on official maps of the office of the executive director.

(6) Airport safety. Owners or operators of new mining facilities that are located within 10,000 feet of any airport runway end used by turbojet aircraft or within 5,000 feet of any airport runway end used by only piston-type aircraft shall demonstrate that the facilities are designed and operated so that the facility does not pose a bird hazard to aircraft.

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§330.409. Operational Requirements and Design Criteria.

The operation of the facility shall comply with all of the following operational requirements:

(1) Protection of surface water. The facility shall be constructed, maintained and operated to manage run-on and run-off during a 25-year, 24-hour rainfall event and shall prevent discharge into waters in the state of waste materials, stored feedstock material, including but not limited to, in-process and/or processed materials. One foot of freeboard for the 24-hour rainfall event shall be provided. Any waters coming into contact with solid waste, in-process, and processed materials shall be considered leachate. Leachate shall be contained in retention facilities until properly handled. Retention facilities other than storage tanks shall be lined and the liner shall be constructed in compliance with requirements of this section. Leachate and gas condensate shall be treated and processed at an authorized facility or as authorized by a National Pollutant Discharge

Elimination System permit. The use of leachate and gas condensate in any mining process is prohibited. For construction in a floodplain, the following shall be submitted, where applicable:

(A) approval from the governmental entity with jurisdiction under the Texas Water Code, §16.236, as implemented by Chapter 301 of this title (relating to Levee Improvement Districts, District Plans of Reclamation, and Levees and Other Improvements);

(B) a floodplain development permit from the city, county, or other agency with jurisdiction over the proposed improvements;

(C) a Conditional Letter of Map Amendment from The Federal Emergency Management Agency; and

(D) a Corps of Engineers Section 404 Specification of Disposal Sites for Dredged or Fill Material for construction of all necessary improvements.

(2) Protection of groundwater. The processing operation shall be designed, constructed, maintained and operated to protect groundwater. Facilities shall install and maintain a liner system constructed in accordance with one of the provisions of subparagraphs (A) or (B) of this paragraph. The liner system shall be provided where receiving, processing, post-processing, screening, and storage areas would be in contact with the ground or in areas where leachate, contaminated materials, contaminated products or contaminated water is stored or retained. The application shall demonstrate the facility is designed so as not to contaminate the groundwater and so as to protect the existing groundwater quality from degradation. For the purposes of these sections, protection of the groundwater includes the protection of perched water or shallow surface infiltration. The liner shall be covered with a material designed to withstand normal traffic from the processing operations. The owner or operator of the facility shall demonstrate that any liner system constructed will not undergo uplift from hydrostatic forces during its construction or operational life and that any existing liner system will not undergo uplift from hydrostatic forces during mining operations. Acceptable demonstration methods are listed within §330.203(a)(1)-(4) of this title (relating to Special Conditions (Liner Design Constraints)).

(A) A composite liner consisting of two components; the upper component must consist of a minimum 30 mil geomembrane and the lower component must consist of at least a 2 foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec. Geomembrane components consisting of High Density Polyethylene shall be at least 60 mil thick. The geomembrane shall be installed in direct and uniform contact with the soil component.

(B) An alternative design approved by the executive director that is protective of groundwater. When approving a design that complies with this subsection, the executive director shall consider at least the following factors:

(i) the hydrogeologic factors of the area;

(ii) the climatic factors of the area; and

(iii) the volume and physical and chemical characteristics of the waste and leachate.

(C) The owner or operator of the facility shall demonstrate that any liner system constructed will not undergo uplift from hydrostatic forces during its construction or operational life and that any existing liner system will not undergo uplift from hydrostatic forces during mining operations. Acceptable demonstration methods are listed within §330.203(a)(1-4) of this title.

(3) Prohibited materials. The operator shall operate the recovery process in a manner that will preclude the entry of hazardous constituents. The operator shall not arrange for waste disposal at an unauthorized facility.

(4) Access. Access to the facility shall be controlled to prevent unauthorized activities. The facility shall be completely fenced with a gate that is locked when the facility is closed.

(5) Nuisance conditions. The facility shall be designed and operated in such a manner as to prevent the potential of nuisance conditions and fire hazards. Where nuisance conditions or fire hazards exist, the operator will immediately take action to abate such conditions or hazards.

(6) Waste slopes. Side slopes of excavations into buried waste for the sake of obtaining material to process shall be no steeper than 34 degrees (per Occupational Safety and Health Administration 1926.652) unless otherwise approved.

(7) Site sign. Each site shall conspicuously display at all entrances to the site, a sign measuring at least four feet by four feet with letters at least three inches in height stating the type of site, the hours and days of operation, and the registration number or site number. The posting of erroneous or misleading information shall constitute a violation of this section.

(8) Access road. The facility access road shall be an all-weather road.

(9) Authorization required for significant changes. The operator shall obtain written permission from the commission before changing the processing method or other significant changes to the original registration application.

(10) Existing systems. On landfills where leachate collection systems, liners, or gas collection systems exist, care must be taken to not destroy or disrupt these systems if it is planned to retain these features on-site, and these systems must remain operational until they are removed.

(11) Soil end-product standards.

(A) Particle sizes found in soil to be beneficially used shall not exceed the screen size and the foreign matter criteria contained §330.418, of this title (relating to Final Soil Product Grades).

(B) The operator shall meet processing testing requirements set forth in §330.417 of this title (relating to Sampling and Analysis Requirements for Final Product), final product grades set forth in §330.418 of this title.

(12) Certified operator. The operator shall employ at least one commission-certified landfill operator who shall routinely be available on-site during the hours of operation.

(13) Health and safety coordinator. The operator shall employ at least one health and safety coordinator on a full time basis to be on-site at least 70% of the time during excavation and waste processing. The health and safety coordinator shall be trained in hazardous waste and emergency response operations.

(14) Personal protection equipment. The operator shall specify personal protection equipment and its operational characteristics and the equipment must be located on-site.

(15) Health and safety plan. Operations must be conducted in accordance with an approved health and safety plan.

(16) Covered trucks. Covered trucks must be used for transporting excavated material off-site.

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§330.410. Soils and Liner Quality Control Plan.

(a) A facility registration application must contain a Soils and Liner Quality Control Plan (SLQCP) prepared under the direction of a registered professional engineer, and it shall be the basis for the type and rate of quality control testing performance and reported in the Soil and Liner Evaluation Report (SLER) as required in §330.411 of this title (relating to Soils and Liner Evaluation Report (SLER) and Flexible Membrane Liner Evaluation Report (FMLER)). The SLQCP shall specify construction methods employing good engineering practices for compaction of clay soils to form a liner. Unless alternate construction procedures are approved in writing by the executive director, all constructed liners shall be keyed into an underlying formation of sufficient strength to ensure stability of the constructed lining. The SLQCP shall address the installation and testing of a geomembrane liner, if used. The SLQCP shall include the following information:

(1) Constructed liner details, where applicable shall be depicted on cross sections and should include such details as slope, widths, and thicknesses for compaction lifts. The amount of compaction shall be expressed as a percentage of predetermined laboratory density.

(2) Soil and liner quality-control testing procedures, to include sampling frequency, shall be included in the SLQCP. All field sampling and testing, both during construction and after completion, shall be performed by a person acting in compliance with the provisions of the Texas Engineering Practice Act and other state laws and regulations. The professional of record who signs the SLER or his qualified representative should be on-site throughout liner construction. Quality control of construction and quality assurance of sampling and testing procedures should follow the latest technical guidelines of the executive director.

(b) The SLQCP shall also:

(1) describe and illustrate, for operating personnel, all necessary procedures for assuring continuous compliance with this subsection;

(2) provide guidance needed for the testing and reporting of evaluating procedures for assuring continuous compliance with this subsection;

(3) specify materials, equipment, and construction methods for the compaction of clay soils to form liners for the conditions described in subparagraphs (A) and (B) of this paragraph. The SLQCP shall adhere to testing frequencies and procedures as specified.

(A) Details for the over excavation and recompaction of the in-situ soils, or the compaction of soils from a barrow source, shall be depicted on cross-sections of a typical liner area showing the slope, widths, and thicknesses for compaction lifts.

(B) Procedures to be followed when liner areas extend into or have the potential to extend into the ground water shall be outlined within the SLQCP.

(4) describe installation methods and quality control testing and reporting for any geomembrane liner that may be required or authorized by the executive director as part of a composite liner.

(c) Soil liner quality control testing frequencies and procedures shall be in accordance with the executive director's most recent guidelines and §330.205(c)-(h).

Adopted November 6, 1996

Effective December 3, 1996

§330.411. Soils and Liner Evaluation Report (SLER) and Flexible Membrane Liner Evaluation Report (FMLER).

(a) Prior to the placement of waste on any lined or unprotected area, a SLER and a FMLER shall be submitted to the executive director for review and approval. If the approved design does not require a synthetic liner, a FMLER is not required.

(b) Each SLER and FMLER shall be submitted in triplicate (including all attachments) to the Municipal Solid Waste Division and shall be prepared in accordance with the methods and procedures contained in the approved Soils and Liner Quality Control Plan. The evaluated area should not be used for the receipt of solid waste until approval is received from the executive director. The executive director will make every effort to review and respond either verbally or in writing within 14 days from the date on which the SLER or FMLER document is date stamped by the Municipal Solid Waste Division. Verbal approval may be obtained from the executive director, which will be followed by written concurrence. If no response, either written or verbal, is provided within 14 days, the SLER or FMLER shall be considered approved.

(c) The executive director shall be provided sufficient documentation to assure that the potential for contamination of waters in the state is minimized. If the executive director determines that the SLER is incomplete or that the test data provided are insufficient to support the evaluation conclusion, additional test data or other test information may be required, and use of the area will not be allowed until such additional data are received, reviewed or approved. Each SLER must be signed and, where applicable, sealed by the individual performing the evaluation and countersigned by the facility operator or his authorized representative.

(d) Markers shall be placed so that all areas for which a SLER has been submitted and approved by the executive director are readily determinable. Such markers are to provide site workers immediate knowledge at all times of the extent of approved areas. These markers shall be located so they are not destroyed during operations and shall be in accordance with §330.55(b)(10) of this title (relating to Site Development Plan).

(e) The integrity of constructed liners shall be maintained. Approved liner designs shall have a minimum two-foot thick protective soil cover overlying the compacted liner surface to mitigate the effects of surface erosion and damage from equipment. Any required repairs shall be performed promptly and a new SLER shall be submitted for all repaired liner areas. Alternate protective cover designs may be approved by the executive director.

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Effective December 3, 1996

§330.412. Records Requirements.

(a) The operator shall maintain records on-site, available for inspection by the commission, for a period consisting of the two most recent calendar years. The records shall consist of the following:

(1) a log of abnormal events at the facility, including but not limited to, hazardous constituents uncovered, fires, explosions, process disruptions, extended equipment failures, injuries, and weather damage; and

(2) results of final soil product testing required by §330.417 of this title (relating to Sampling and Analysis Requirements for Soil Final Product).

(b) The operator shall maintain copies of the annual report on-site for the five most recent calendar years.

(c) The operator shall maintain a copy of the facility registration obtained from the executive director.

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Effective December 3, 1996

§330.413. Certification by Engineer, Ownership or Control of Land, and Inspection.

(a) Certification by registered professional engineer. The operator shall obtain certification by a Texas-Registered Professional Engineer that the facility has been constructed as designed and in general compliance with the regulations prior to initial operation and maintain that certification on-site for inspection.

(b) Ownership or control of property. The facility shall be located on property owned by the operator or the operator shall establish, using an affidavit form provided by the executive director, signed by the owner and notarized, that the owner is aware of and consents to the operation prior to any processing activities. A copy of the affidavit shall be kept on-site at all times.

(c) Inspection of facility. Prior to the initial operation of the facility, the facility shall be inspected by the executive director to determine compliance with the registration.

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§330.414. Required Forms, Applications, and Reports

The operator shall submit all of the following:

(1) Commission application forms. The operator shall submit a completed application on a form supplied by the executive director, and a registration application prepared in accordance with the requirements of §330.416 of this title (relating to Registration Application Preparation).

(2) Annual report. The operator shall submit annual written reports. These reports shall at a minimum include input and output quantities, a description of the soil end-product distribution, and all results of any required laboratory testing. A copy of the annual report shall be kept on-site for a period of five years.

(3) Final soil product testing report. Facilities requiring registration must submit reports on final product testing to the executive director in compliance with §330.417 of this title (relating to Sampling and Analysis Requirements for Soil Final Product) on a quarterly basis.

(4) Engineer's appointment. An engineer's appointment which consists of a letter from the applicant to the executive director identifying the engineer responsible for the submission of

the plan, specifications and any other technical data to be evaluated by the executive director regarding the project.

- (5) Applicant's agent. The applicant's agent and engineering firm must be identified.

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§330.415. Additional Requirements for Municipal Solid Waste Mining Facilities.

(a) Within 30 days after the approval of a registration of a municipal solid waste (MSW) facility, the owner or operator shall submit three copies of the final approved site development plan to the executive director. These copies must be loose-leaf bound and must include all drawings and sketches. The outside binder must be marked "Approved Site Development Plan" and must indicate the date of executive director approval. The executive director may allow an extension of the deadline if work required cannot reasonably be completed within 30 days.

(b) If at any time during the life of the site the site owner or operator becomes aware of any condition in the approved site development plan that necessitates a change to accommodate new technology or improved methods or that makes it impractical to keep the site in compliance, the site owner or operator shall submit to the executive director a revised plan.

(c) All drawings or other sheets prepared for revisions to a site development plan or other previously approved documents, that may be required by this subchapter, must be submitted in triplicate. The revised pages must be marked for the current revision (i.e., "Revision Number 3"), dated, and punched for insertion into the loose-leaf binder. Drawings must be 8 1/2 by 11 inches or 11 by 17 inches. However, standard-sized drawings (24 by 36 inches) folded to 8 1/2 by 11 inches may be submitted or required if reduction would render them illegible or difficult to interpret. All revised engineering drawings must be signed and sealed by the licensed professional engineer responsible for their preparation and must be included in the loose-leaf binder. All revised geological drawings shall be signed and sealed by the licensed professional geoscientist responsible for their preparation and must be included in the loose-leaf binder.

(d) Prior to the beginning of initial excavation or construction for an MSW mining facility, a preconstruction conference shall be held. All aspects of the application, construction activities, and inspections shall be discussed. An initial preconstruction conference shall be held within 90 days after the issuance of a registration. Executive director representatives and owner's representatives, including the engineer, the geotechnical consultant, the contractor, and the site manager, shall attend the preconstruction conference.

(e) After all initial construction activity has been completed and prior to processing waste, the owner/operator shall contact executive director representatives and request a pre-opening inspection. A pre-opening inspection shall be conducted by executive director representatives within 14 days of notification by the owner or operator that all construction activities have been completed, accompanied by representatives of the owner/operator and the engineer.

(f) The MSW mining facility shall not process solid waste until the executive director has confirmed in writing that all applicable submissions required by the registration, the approved site development plan, and this chapter have been received and found to be acceptable, and that construction is in compliance with the application and the approved site development plan. If the executive director has not provided a written or verbal response within 14 days of completion of the pre-opening inspection, the facility shall be considered approved for mining.

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Effective September 1, 2003

§330.416. Registration Application Preparation.

(a) General instruction and title page. To assist the executive director in evaluating the technical merits of a landfill mining facility, a site development plan shall be prepared and submitted to the commission along with a Registration Application Form. The site development plan shall be sealed by a licensed professional engineer in accordance with the provisions of 22 TAC §131.166 (relating to Engineers' Seals). All submittals must be in a complete final form. The site development plan must contain all of the information specified in this section. A title page must show the name of the project, the county (and city if applicable) in which the proposed project is located, the name of the applicant, the name of the engineer, the date the application was prepared, and the latest date the application was revised.

(b) Table of contents. A table of contents shall be included which lists the main sections of the plan, any requested variances and includes page numbers.

(c) Engineer's appointment. An engineer's appointment shall be included which consists of a letter from the applicant to the executive director identifying the consulting engineering firm responsible for the submission of the plan, specifications and any other technical data to be evaluated by the commission regarding the project. The notice of appointment shall identify by name both the applicant's consulting and the individual engineer of record. Include the mailing address, phone number and facsimile (FAX) number of the engineer.

(d) Construction plans and specifications. Those applications receiving authorization shall be required to prepare and maintain Construction Plans and Specifications, and Record Documents.

(1) Construction Plans and Specifications of the proposed or modified facility shall be prepared and one copy maintained at the facility at all times during construction.

(2) After completion of a construction phase, a record document set of construction plans and specifications shall prepared and maintained at the facility and/or at the owner or operator's main office. These plans shall be made available for inspection by the commission or other interested parties.

(3) Final Construction Plans and Specifications are not required for authorization.

(e) Applicants responsibilities.

(1) All aspects of the application must be addressed by the applicant, even if only to show why they are not applicable for that particular site.

(2) It is the responsibility of the applicant to provide the executive director data of sufficient completeness, accuracy, and clarity to provide assurance that operation of the site will pose no reasonable probability of adverse effects on the health, welfare, environment, or physical property of nearby residents or property owners. Failure to provide complete information as required by this chapter may be cause for the executive director to return the application without further action. Submission of false information shall constitute grounds for denial.

(3) The applicant is responsible for determining and reporting to the executive director any site-specific conditions that require special design considerations.

(f) Soil boring plan approval. The applicant is responsible for submitting to the executive director a soil boring plan that conforms to the requirements found in the applicable subchapter. The soil boring plan shall be approved by the executive director prior to initiation of the work.

(g) Permanent site benchmark. A permanent benchmark must be established at the site in an area of the site that is readily accessible. This benchmark must be a bronze or other suitable metal survey marker set in concrete at a sufficient depth to retain a stable and distinctive location and be of sufficient size to withstand the deteriorating forces of nature to best achieve this goal. The benchmark elevation and survey date must be stamped on it. The benchmark elevation must be surveyed from a known National Geodetic Survey benchmark or other compatible and comparable benchmark. The location and elevation of the reference benchmark and the permanent benchmark must be identified on a map and must be included in the site development plan. Horizontal monumentation must be in accordance with 22 TAC §663.15 (relating to Precision) of the Texas Board of Professional Land Surveying rules. Vertical control precision must be ± 0.1 feet relative to the elevation of the benchmark of origin.

(h) Application considerations. The application for a municipal solid waste registration shall be organized in the order of the rules of the subchapter and in conformance with the following requirements.

(1) Preparation. Preparation of the application shall conform with the Texas Civil Statutes, Engineering Practice Act, Article 3271a.

(A) The responsible engineer shall affix his seal, sign his name, place the date of execution and state the intended purpose on each sheet of engineering plans, drawings, maps, calculations, computer models, cost estimates, and on the title or contents page of the application as required by the Texas Engineering Practice Act.

(B) Applications that have not been signed and sealed shall be considered incomplete for the intended purpose and shall be returned to the applicant.

(2) Application document.

(A) Applications shall be submitted in three-ring loose-leaf binders.

(B) The narrative of the report shall be printed on 8 1/2 by 11 inches white paper.

(C) All pages shall contain a page number and date.

(D) During technical review revisions shall have the revision date and note that the sheet is revised in the header or footer of each revised sheet. The cover sheet to the application shall note all revision dates. The revised text shall be marked to highlight the revision.

(E) Dividers and tabs are encouraged.

(F) The application shall be organized in the format directed by these rules.

(G) Applications shall be initially submitted in three copies. The applicant shall furnish additional copies of the application for use by required reviewing agencies, on request of the executive director.

(i) Application drawings.

(1) All information contained on a drawing shall be legible, even if it has been reduced. The drawings shall be 8 1/2 by 11 inches or 11 by 17 inches. Standard sized drawings (24 by 36 inches) folded to 8 1/2 by 11 inches may be submitted or required if reduction would render them illegible or difficult to interpret.

(2) If color coding is used, it should be legible and the code distinct when reproduced on black and white photocopy machines.

(3) Drawings shall be submitted at a standard engineering scale.

(4) Each map or plan drawing shall have:

(A) a dated title block;

(B) a bar scale at least one inch long;

(C) a revision block;

(D) the responsible engineer's signature and seal with intended purpose, if required;

(E) the drawing number and a page number;

(F) a north arrow. Preferred orientation is to have the north arrow pointing toward the top of the page;

(G) a reference to the base map source and date if the map is based on another map. The latest published edition of the base map should be used;

(H) a legend;

(I) two longitudes and two latitudes showing on all general location maps;

(J) the boundary of the site; and

(K) match lines and section lines which shall reference the drawing where the match or section is shown. Section drawings should note from where the section was taken.

(j) Application format.

(1) General information. The first part of the application, Part A, is designed to provide information that is required regardless of the type of site involved. All items required by this section shall be submitted.

(2) Title page. The title page shall show the name of the project, the municipal solid waste registration application number if known, the name of the applicant, the location by city and county, the date of preparation and, if appropriate, the number and date of the revision. It shall be signed and sealed as required by the Texas Engineering Practice Act.

(3) Table of contents. The table of contents shall list and give the page numbers for the main sections of the application.

(4) Part A Application Form. The Part A Application Form shall be completed, signed by the applicant, and notarized on a form provided by the agency.

(k) Land use. To assist the executive director in evaluating the impact of the facility on the surrounding area, the applicant shall provide the following:

(1) a description of the zoning, if any, at the facility and within one mile of the facility. If the facility requires approval as a nonconforming use or a special use permit from the local government having jurisdiction, a copy of such approval shall be submitted with the application;

(2) a description of the character of the surrounding land uses within one mile of the proposed facility;

(3) proximity to residences and other uses (e.g. schools, churches, cemeteries, historic structures, historic sites, archaeologically significant sites, sites having exceptional aesthetic quality, parks, recreational sites, recreational facilities, licensed day care etc.). Give the approximate number of residences and business establishments within one mile of the proposed facility including the distances and directions to the nearest residences and businesses;

(4) a discussion that shows the facility is compatible with the surrounding land uses;
and

(5) a constructed land use map showing the land use, zoning, residences, businesses, schools, churches, cemeteries, historic structures, historic sites, archaeologically significant sites, sites having exceptional aesthetic quality, licensed day care centers, parks, recreational sites and recreational facilities within one mile of the facility and wells within 500 feet of the facility.

(l) Access. To assist the executive director in evaluating the impact of the facility on the surrounding roadway system, the applicant shall provide the following:

(1) data on the roadways, within one mile of the facility, used to access the facility. The data shall include dimensions, surfacing, general condition, capacity and load limits;

(2) data on the volume of vehicular traffic on access roads within one mile of the proposed facility. The applicant shall include both existing and projected traffic during the life of the facility (for projected include both traffic generated by the facility and anticipated increase without the facility);

(3) an analysis of the impact the facility will have on the area roadway system, including a discussion on any mitigating measures (turning lanes, roadway improvements, intersection improvements, etc.) proposed with the project; and

(4) an access roadway map showing all area roadways within a mile of the facility. The data and analysis required in paragraphs (1) - (3) of this subsection must be keyed to this map.

(m) Site plans. To assist the executive director in evaluating the impact of the facility on the environment, public safety, and public health, the applicant shall provide the following.

(1) Surface water protection plan. The surface water protection plan shall be prepared by a licensed professional engineer. At a minimum the applicant shall provide all of the following.

(A) A design for a run-on control system capable of preventing flow onto the facility and into active excavation areas during the peak discharge from at least a 25-year, 24-hour rainfall event.

(B) A design for a run-off management system to collect and control at least the peak discharge from the facility generated by a 25-year 24-hour rainfall event.

(C) A design for a contaminated water collection system to collect and contain all leachate. Leachate shall not be used in any of the facility processes.

(D) Drainage calculations as follows.

(i) Calculations for areas of 200 acres or less shall follow the rational method as specified in the Texas Department of Transportation Bridge Division Hydraulic Manual.

(ii) Calculations for discharges from areas greater than 200 acres shall be computed by using USGS/DHT hydraulic equations compiled by the United States Geological Survey and the Texas Department of Transportation Bridge Division Hydraulic Manual, the HEC-1 and HEC-2 computer programs developed through the Hydrologic Engineering Center of the United States Army Corps of Engineers, or an equivalent or better method approved by the executive director.

(iii) Calculations for sizing containment facilities for leachate shall be shown to be determined based on the facilities proposed leachate disposal method.

(iv) Temporary and permanent erosion control measures shall be discussed.

(v) Drainage Maps and Drainage Plans shall be provided as follows:

(I) an off-site topographic drainage map showing all areas which contribute to the facilities run-on. The map shall delineate the drainage basins and sub-basins, show the direction of flow, time of concentration, basin area, rainfall intensity and flow rate. This map shall also show all creeks, rivers, intermittent streams, lakes, bayous, bays, estuaries, arroyos, and other surface waters in the state. All calculations shall be provided.

(II) a pre-construction on-site drainage map. The map shall delineate the drainage basins and sub-basins, show the direction of flow, time of concentration, basin area, rainfall intensity and flow rate. All calculations shall be provided.

(III) a post-construction on-site drainage map. The map shall delineate the drainage basins and sub-basins, show the direction of flow, time of concentration, basin area, rainfall intensity and flow rate. All calculations shall be provided.

(IV) a drainage facilities map. The map shall show all proposed drainage facilities (ditches, ponds, piping, inlets, outfalls, structures, etc.) and design parameters (velocities, cross-section areas, grades, flowline elevations, flow rates, etc.). Complete cross sections of all ditches and ponds shall be included.

(V) a profile drawing. The drawing shall include profiles of all ditches and pipes. Profiles shall include top of bank, flowline, hydraulic grade flowrate, velocities, and existing groundline. Ditches and swales shall have a minimum of one foot of freeboard.

(VI) a floodplain and wetlands map. The map shall show the location and lateral extent of all floodplains and wetlands on the site and on lands within 500 feet of the site.

(VII) an erosion control map and sedimentation control plan which indicates placement of erosion control features on the site.

(E) The test pit evaluation report shall be prepared by an engineer. Prior approval of a test pit plan must be obtained from the executive director before excavation of test pits including location and depth of all test pits. The applicant shall include a discussion and information on the following:

(i) a description of the characteristics of waste observed in test pits excavated on the site to include the percent of paper, plastics, ferrous metal, other metal, glass, other constituents, and soil fraction by weight.

(ii) test pits shall extend four feet beneath the waste or to a depth authorized by the executive director and information submitted shall include a Toxicity Characteristic Leaching Procedure (TCLP) of the soil to characterize the soil beneath the site. Liners if present shall not be disrupted.

(iii) a TCLP of each representative type of waste excavated must be included in the report. Additionally, waste excavated from each test pit must be analyzed for asbestos and polychlorinated biphenyl. Consideration should be given to analysis of waste material from each test pit for hazardous waste constituents.

(iv) a sufficient number of test pits shall be performed to establish the properties of the waste. The number of test pits shall be three for a site of five acres or less. For sites larger than five acres the required number of test pits shall be three pits plus one for every five acres or fraction thereof. The number of test pits shall be approved by the executive director prior to making the pits. The test pits should be sufficiently large to provide representative information.

(v) all test pits where waste is removed shall be backfilled with clean CH or CL clay. The excavation shall be backfilled to exceed the existing grade and provide positive drainage.

(vi) the applicant shall prepare a cross-section drawing using the information from the test pits to depict the top and bottom elevations of the landfill.

(vii) the applicant shall include a plan view map depicting the location and extent (vertical and lateral) of the waste unit and proposed extent of mining/recovery operations. In areas with liners, mining operations should not extend below the top of the protective cover of the liner. In areas where no liner exists, excavation operations may extend below the waste.

(viii) as a part of the test pit evaluation report, historical records of landfill operations, where available, shall be evaluated to determine such things as hazardous waste potential, receipt of special waste, types of waste received, special waste disposal areas, construction and demolition material disposal areas, methane and leachate records, age, volume, and disposal methods, existence of liners, gas collection systems, and leachate collection systems.

(ix) all waste removed in test pit evaluation must be disposed of in a permitted landfill.

(F) In cases where a geologic/hydrogeologic report is determined to be needed by the executive director, the geologic/hydrogeologic report shall be prepared and signed by a licensed professional engineer or geoscientist. If determined to be needed by the executive director, the applicant shall include discussion and information on all of the following:

(i) a description of the regional geology of the area. This section must include:

(I) a geologic map of the region with text describing the stratigraphy and lithology of the map units. An appropriate section of a published map series such as the Geologic Atlas of Texas prepared by the Bureau of Economic Geology is acceptable;

(II) a description of the generalized stratigraphic column in the facility area from the base of the lowermost aquifer capable of providing usable groundwater, or from a depth of 1,000 feet, whichever is less, to the land surface. The geologic age, lithology, variation in lithology, thickness, depth geometry, hydraulic conductivity, and depositional history of each geologic unit should be described based upon available geologic information.

(ii) a description of the geologic processes active in the vicinity of the facility. This description shall include an identification of any faults and/or subsidence in the area of the facility.

(iii) a description of the regional aquifers in the vicinity of the facility based upon published and open-file sources. The section must provide:

(I) aquifer names and their association with geologic units described in clause (ii) of this subparagraph;

- (II) a description of the composition of the aquifer(s);
- (III) a description of the hydraulic properties of the aquifer(s);
- (IV) information on whether the aquifers are under water table or artesian conditions;
- (V) information on whether the aquifers are hydraulically connected;
- (VI) a regional water-table contour map or potentiometric surface map for each aquifer, if available;
- (VII) an estimate of the rate of groundwater flow;
- (VIII) typical values or a range of values for total dissolved solids content of groundwater from the aquifers;
- (IX) identification of areas of recharge to the aquifers within five miles of the site; and
- (X) the present use of groundwater withdrawn from aquifers in the vicinity of the facility. The identification, location, and aquifer of all water wells within one mile of the property boundaries of the facility must be provided.

(iv) a subsurface investigation report. If determined to be needed by the executive director, the subsurface investigation report must include all or any part of the following details. The report must describe all borings drilled on-site to test soils and characterize groundwater and must include a site map drawn to scale showing the surveyed locations and elevations of the boring. Boring logs must include a detailed description of materials encountered including any discontinuities such as fractures, fissures, slickensides, lenses, or seams. Each boring must be presented in the form of a log that contains, at a minimum, the boring number; surface elevation and location coordinates; and a columnar section with text showing the elevation of all contacts between soil and rock layers, description of each layer using the unified soil classification, color, degree of compaction, and moisture content. A key explaining the symbols used on the boring logs and the classification terminology for soil type, consistency, and structure must be provided.

(I) If determined to be necessary by the executive director, a sufficient number of borings shall be performed to establish subsurface stratigraphy and to determine geotechnical properties of the soils and rocks beneath the facility. If borings records exist from a previous authorization, additional borings may not be necessary. The number of borings necessary can only be determined after the general characteristics of a site are analyzed. The minimum number of borings required for a site shall be three for sites of five acres or less, for sites larger than five acres the required number of borings shall be three borings plus one boring for each additional five acres or

fraction thereof. The boring plan shall be approved by the executive director prior to making the borings.

(II) Borings shall be sufficiently deep to allow identification of the uppermost aquifer and underlying hydraulically interconnected aquifers. Borings shall penetrate the uppermost aquifer and all deeper hydraulically interconnected aquifers and be deep enough to identify the aquiclude at the lower boundary. All the borings shall be at least five feet deeper than the elevation of the deepest excavation. In addition, at least the number of borings shown on the Table of Borings shall be drilled to a depth at least 30 feet below the deepest excavation planned at the waste management unit, unless the executive director approves a different depth. If no aquifers exist within 50 feet of the elevation of the deepest excavation, at least one test hole shall be drilled to the top of the first perennial aquifer beneath the site, if sufficient data does not exist to accurately locate it. The executive director may accept data equivalent to a deep boring on the site to determine information for aquifers more than 50 feet below the site. Aquifers more than 300 feet below the lowest excavation and where the estimated travel times for constituents to the aquifer are in excess of 30 years plus the estimated life of the site, need not be identified through borings. The number of borings shall be determined in consultation with the executive director.

(III) All borings shall be conducted in accordance with established field exploration methods. Care must be taken to not extend borings through buried waste and into groundwater.

(IV) Installation, abandonment, and plugging of the boring shall be in accordance with the rules of the commission.

(V) The applicant shall prepare cross-sections utilizing the information from the boring and depicting the generalized strata at the facility.

(VI) The report shall contain a summary of the investigator's interpretations of the subsurface stratigraphy based upon the field investigation.

(v) a groundwater investigation report. If required by the executive director, this report must establish and present the groundwater flow characteristics at the site and must include groundwater elevation, gradient, and direction of flow. The flow characteristics and most likely pathway(s) for pollutant migration must be discussed in a narrative format and shown graphically on a piezometric contour map. The groundwater data must be collected from piezometers installed at the site. The minimum number of piezometers required for the site must be three for sites of five acres or less; for sites greater than five acres the total number of piezometers required must be three piezometers plus one piezometer for each additional five acres or fraction thereof unless otherwise approved by the executive director.

(G) The application shall demonstrate the processing facility is designed so as not to contaminate the groundwater and so as to protect the existing groundwater quality from degradation. At a minimum, groundwater protection must consist of all of the following.

(i) Liner system. All excavated waste storage, processing, and screening shall be located on a surface which is adequately lined to control seepage. The liner shall be covered with a material designed to withstand normal traffic from the processing operations.

(ii) Groundwater monitor system. If required by the executive director, a groundwater monitoring system must be designed and installed such that the system will reasonably assure detection of any contamination of the groundwater before it migrates beyond the boundaries of the processing area.

(I) If required, details of monitor well construction and placement of monitor wells shall be shown on the site plan;

(II) A groundwater sampling program in accordance with Subchapter I of this chapter (relating to Groundwater Monitoring and Corrective Action) shall be provided. Monitoring shall be continued through the duration of processing and until the executive director determines monitoring is no longer needed.

(iii) Interface with existing groundwater protection facilities. Consideration must be given to how excavations around any existing liners, leachate collection systems, and gas collection systems will be handled. Any existing liner, leachate collection system, or gas collection system must be maintained as functional and operated until made obsolete by the progression of excavation.

(H) The facility plan and facility layout shall be prepared by a licensed professional engineer. All proposed facilities, structures, and improvements must be clearly shown and annotated on this drawing. The plan must be drawn to standard engineering scale. Any necessary details or sections must be included. As a minimum the plan must show property boundaries, fencing, internal roadways, processing area, facility office, sanitary facilities, potable water facilities, storage areas, etc. If phasing is proposed for the facility, a separate facility plan for each phase is required.

(I) The process description shall be composed of a descriptive narrative along with a process diagram. The process description shall include all of the following.

(i) Material identification. The applicant shall prepare a list of the typical materials intended for processing along with the anticipated volume to be processed. This section shall also contain an estimate of the daily quantity of material to be processed at the facility along with a description of the proposed process of screening for hazardous materials.

(ii) Excavation process. Indicate the methods of excavating the buried waste materials. Indicate how the material is handled, how long it remains in the area, what equipment is used, how the material is moved from the excavation area, how the area of excavation can be held to a minimum, the maximum side slopes in buried waste, and the maximum area of excavation at any one time. The sequence of excavation shall be shown.

(iii) Process. Indicate what happens to process the waste to recover reusable or recyclable material. Indicate what process or processes are used. The narrative shall include, any water addition, processing rates, equipment, and mass balance calculations.

(iv) Process waters. Indicate how any process water will be handled and disposed of if a wet mining process is to be used.

(v) Product distribution. Provide a complete narrative on product distribution to include items such as disposition of material recovered and probable use of soils on-site and off-site.

(vi) Process diagram. Provide a process diagram that depicts graphically the general process.

(J) The health and safety plan must be composed of a descriptive narrative describing types of equipment and methods of its use for all of the following:

- (i) air monitoring;
- (ii) radiation monitoring;
- (iii) pathogen monitoring;
- (iv) hazardous constituent monitoring;
- (v) personal protective equipment;
- (vi) decontamination plans;
- (vii) emergency response plans; and
- (viii) fire protection.

(K) Contingency plans must include a description of the courses of action which should be taken in response to abnormal or unsafe events that may occur during excavation or material processing. The contingency plan must address hazard evaluation and protection from potential hazards, including engineering controls, personal protection equipment, and air monitoring techniques. The plan must include decontamination procedures, on-site communication procedures, and emergency procedures. The contingency plan must be composed of a narrative describing actions taken in response to all of the following:

- (i) hazardous constituents;
- (ii) leachate;

- (iii) drums;
- (iv) compressed gas cylinders;
- (v) unanticipated releases;
- (vi) unanticipated emergency;
- (vii) fires and explosions;
- (viii) hydrogen sulfide; and
- (ix) respiratory protection.

(2) Site operating plan. This document is to provide guidance from the design engineer to site management and operating personnel in sufficient detail to enable them to conduct day to day operations in a manner consistent with the engineer's design. As a minimum, the site operating plan shall include specific guidance or instructions on the all of the following:

(A) the minimum number of personnel and their functions to be provided by the site operator in order to have adequate capability to conduct the operation in conformance with the design and operational standards;

(B) the minimum number and operational capacity of each type of equipment to be provided by the site operator in order to have adequate capability to conduct the operation in conformance with the design and operational standards;

(C) security, site access control, traffic control and safety;

(D) control of dumping within designated areas, screening for unprocessable or unauthorized material;

(E) fire prevention and control plan that shall comply with provisions of the local fire code, provision for fire-fighting equipment, and special training requirements for fire fighting personnel;

(F) control of windblown material;

(G) vector control;

(H) quality assurance and quality control. As a minimum the applicant shall provide testing and assurance in accordance with the provisions of §330.417 of this title (relating to Sampling and Analysis Requirements for Soil Final Product);

- (I) control of airborne emissions;
- (J) minimizing odors;
- (K) equipment failures and alternative disposal and storage plans in the event of equipment failure;
- (L) a description of the intended final use of materials;
- (M) a description of how saturated waste will be dried;
- (N) a description of how mining operations will be conducted;
- (O) a description of how oversized material such as white goods will be managed;
- (P) consideration of odor masking agents;
- (Q) a description of how mining operations will be conducted to avoid interference with any daily landfill practices; and
- (R) evaluation of excavated material at a determined frequency.

(3) Legal description of the facility. The applicant shall submit an official metes and bounds description, and plat of the landfill area to be mined and an official metes and bounds description, and plat of the process area if the process area is not within the boundaries of the landfill to be mined. The description and plat shall be prepared and sealed by a registered professional land surveyor.

(4) Financial assurance. Municipal solid waste landfill facilities are subject to the requirements specified in Subchapter K of this chapter (relating to Closure, Post-Closure, and Corrective Action) and Chapter 37, Subchapter R of this title (relating to Financial Assurance for Municipal Solid Waste Facilities).

(5) Landowner list. The applicant shall include a list of landowners, residents, and businesses within one-half mile of the facility boundaries along with an appropriately scaled map locating property owned by the landowners.

Adopted August 6, 2003

Effective September 1, 2003

§330.417. Sampling and Analysis Requirements for Soil Final Product.

(a) Applicability. Facilities that receive a registration under this subchapter, are required to test final product in accordance with this section.

(b) Analytical methods. Facilities which use analytical methods to characterize their final product must use methods such as those described in the following publications:

(1) Chemical and physical analysis shall utilize:

(A) "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods" (SW-846);

(B) "Methods for Chemical Analysis of Water and Wastes" (EPA-600); or

(2) Analysis of pathogens shall utilize "Standard Methods for the Examination of Water and Wastewater" (Water Pollution Control Federation, 1995).

(3) Analysis for salinity and pH shall utilize North Central Regional (NCR) Method 14 for Saturated Media Extract Method contained in "Recommended Test Procedure for Greenhouse Growth Media" NCR Publication Number 221 (Revised), Recommended Chemical Soil Test Procedures, Bulletin Number 49 (Revised), October 1988, pages 34-37.

(4) Analysis of total, fixed and volatile solids shall utilize Method 2540 G (Total, Fixed, and Volatile Solids in Solid and Semi-solid Samples) as described in "Standard Methods for the Examination of Water and Wastewater" (Water Pollution Control Federation, 1995).

(c) Sample collection. Sample collection, preservation and analysis shall assure valid and representative results pursuant to an agency-approved quality assurance quality control (QAQC) plan.

(d) Documentation.

(1) Owners or operators of registered facilities shall record and maintain all of the following information regarding their activities of operation for three years after the final product is shipped off-site or upon site closure:

(A) batch numbers identifying the final product sampling batch;

(B) the quantities, types and sources of materials processed and the dates processed;

(C) the quantity and final product grade assigned described in §330.418 of this title (relating to Final Soil Product Grades);

(D) the date of sampling; and

(E) all analytical data used to characterize the final product, including laboratory quality assurance/quality control data.

(2) The following records shall be maintained on-site permanently or until site closure:

- (A) sampling plan and procedures;
- (B) training and certification records of staff; and
- (C) soil final product test results.

(3) Records shall be available for inspection by executive director representatives during normal business hours.

(4) The executive director may at any time request by registered or certified mail that a soil generator submit copies of all documentation listed in paragraph (1) of this subsection for auditing the final soil product grade. Documentation requested under this section shall be submitted within ten (10) working days of receipt of the request.

(e) Sampling frequencies. All final soil product must be sampled and assigned a final product grade set forth in §330.418 of this title at a minimum rate of one sample for every 5,000 cubic yard batch of final soil product or annually, whichever is more frequent. Each sample will be a composite of nine grab samples as discussed in subsection (f) of this section.

(f) Sampling requirements. The operator shall utilize the protocol in an executive director approved facility QAQC plan. The executive director may at any time request that split samples be provided to an agency representative. Specific sampling requirements which must be satisfied include:

(1) Sampling from stockpiles. One third of the grab samples shall be taken from the base of the stockpile (at least 12 inches into the pile at ground level), one third from the exposed surface and one third from a depth of two feet from the exposed surface of the stockpile.

(2) Sampling from conveyors. Sampling times shall be selected randomly at frequencies which provide the same number of subsamples per volume of mined soil product as is required in subsection (d) of this section.

(A) If samples are taken from a conveyor belt, the belt shall be stopped at that time. Sampling shall be done along the entire width and depth of the belt.

(B) If samples are taken as the material falls from the end of a conveyor, the conveyor does not need to be stopped. Free-falling samples need to be taken to minimize the bias created as larger particles segregate or heavier particles sink to the bottom as the belt moves. In order to minimize sampling bias, the sample container shall be moved in the shape of a "D" under the falling product to be sampled. The flat portion of the "D" shall be perpendicular to the beltline. The circular portion of the "D" shall be accomplished to return the sampling container to the starting point in a manner so that no product to be sampled is included.

(g) Analytical requirements. Final product subject to the sampling requirements of this section will be tested for all of the following parameters. The executive director may at any time request that additional parameters be tested. These parameters are intended to address public health and environmental protection.

- (1) total metals, to include:
 - (A) arsenic;
 - (B) cadmium;
 - (C) chromium;
 - (D) copper;
 - (E) lead;
 - (F) mercury;
 - (G) molybdenum;
 - (H) nickel;
 - (I) selenium; and
 - (J) zinc.
- (2) weight percent of foreign matter, dry weight basis.
- (3) pH by the saturated media extract method.
- (4) salinity by the saturated media extract electrical conductivity method.
- (5) pathogens:
 - (A) salmonella; and
 - (B) fecal coliform.
- (6) polychlorinated-biphenyls.
- (7) asbestos.

(h) Data precision and accuracy. Analytical data quality shall be established by the United States Environmental Protection Agency standard laboratory practices to ensure precision and accuracy.

(i) Reporting requirements.

(1) Facilities must report the following information to the executive director on a semi-annual basis for each sampling batch of final soil product. Reports must include, but may not be limited to all of the following information:

(A) batch numbers identifying the final soil product sampling batch;

(B) the quantities and types of waste materials processed the dates processed;

(C) the quantity of final soil product;

(D) the final soil product grade or permit number of the disposal facility receiving the final product if it is not Grade 1 or Grade 2 as established in §330.418 of this title;

(E) all analytical results used to characterize the final soil product including laboratory quality assurance/quality control data and chain-of-custody documentation; and

(F) the date of sampling.

(2) Reports must be submitted to the executive director within two months after the reporting period ends.

Adopted November 6, 1996

Effective December 3, 1996

§330.418. Final Soil Product Grades.

(a) Applicability. Facilities that receive a registration under this subchapter, are required to test final soil products in accordance with this section.

(b) Grades. Soils mined for off-site uses and for distribution off-site shall be considered final product, and shall be classified with one of the following grades:

(1) Grade 1 Soil;

(2) Grade 2 Soil;

(3) Waste Grade Soil.

(c) Final soil product testing. Final soil product shall be regularly tested pursuant to §330.417 of this title (relating to Sampling and Analysis Requirements for Soil Final Product) to determine the product's grade. Testing of final product and interpretation of test results shall be conducted in accordance with the Texas Natural Resource Conservation Commission's current Quality Assurance Program Plan, or, in the case of facilities with commission registrations, the Quality Assurance Quality Control Plan specified in the facility's authorization.

(d) Final product classification. Final soil product shall be classified according to the following classification system:

(1) Grade 1 Soil. To be considered Grade 1 soil, the final product must meet all of the following criteria:

(A) Shall contain no foreign matter of a size or shape that can cause human or animal injury;

(B) Shall not exceed all Maximum Allowable Concentrations for Grade 1 Soil in Table 1 of this section;

Table 1: Maximum Allowable Concentrations

PARAMETER	Grade 1 Soil (mg/kg)	Grade 2 Soil (mg/kg)
As	10	41
Cd	16	39
Cr(total)	180	1200
Cu	1020	1500
Pb	300	300
Hg	11	17
Mo	75	75
Ni	160	420
Se	36	36
Zn	2190	2800
PCBs	1	10

(C) Shall not contain foreign matter in quantities which cumulatively are greater than 1.5% dry weight on a 4mm screen;

(D) Shall meet the requirements for pathogen reduction for Grade 1 soil as described in Table 2 of this section; and

Table 2: Additional Final Product Standards.

PARAMETER	Grade 1 Soil	Grade 2 Soil
Salinity (mmhos/cm) ¹	10	10
pH ¹	5.0 to 8.5	5.0 to 8.5
Pathogens: Fecal Coliform	less than 1,000 MPN per gram of solid or meets PFRP	geometric mean density less than 2,000,000 MPN per gram of solids or meets PSRP
Salmonella	less than 3 MPN per 4 grams total solid or meets PFRP	No value

¹ A higher conductivity or pH outside the indicated range may be appropriate if the soil is specified for a special use.

(E) Shall meet the requirements for salinity and pH for Grade 1 Soil as described in Table 2 of this section.

(2) Grade 2 Soil:

(A) Shall contain no foreign matter of a size or shape that can cause human or animal injury;

(B) Shall not exceed all Maximum Allowable Concentrations for Grade 2 Soil in Table 1 of this section;

(C) Shall not contain foreign matter in quantities which cumulatively are greater than 1.5% dry weight on a 4mm screen;

(D) Shall meet the requirements for pathogen reduction for Grade 2 Soil as described in Table 2 of this section; and

(E) Shall meet the requirements for salinity and pH for Grade 2 Soil as described in Table 2 of this section.

(3) Waste Grade Soil:

(A) Exceeds any one of the Maximum Allowable Concentrations for Grade 2 final product in Table 1 of this section, and

(B) Does not meet the other requirements of Grade 1 or Grade 2 Soil.

(e) Waste grade final product. Any material which does not meet the final product standards shall be appropriately disposed at a permitted municipal solid waste facility.

Adopted November 6, 1996

Effective December 3, 1996

§330.419. Allowable Uses of Final Soil Product by Grade.

(a) Applicability. Facilities that receive a registration under this subchapter, are required to test final soil product in accordance with this section.

(b) Distribution. Distribution and use of final product shall be in accordance with the following restrictions:

(1) Grade 1 Soil. There are no restrictions on the use of Grade 1 soil.

(2) Grade 2 Soil. Grade 2 soil shall not be used at a residence, recreational area, or licensed child-care facility, or for food chain crops.

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