

**Title 33**  
**ENVIRONMENTAL QUALITY**  
**Part VII.Solid Waste**

**Chapter 7. Type I Surface Impoundments**

**§701. Part I: Permit Application Form**

The applicant shall complete a standard permit application Part I Form (Appendix B). The following subsections refer to the items on the form requiring that information:

A. name of applicant (prospective permit holder) applying for a standard permit;

B. facility name;

C. description of the location of the facility (identify by street and number or by intersection of roads, or by mileage and direction from an intersection);

D. geographic location (section, township, range, and parish where the facility is located, and the coordinates [as defined by the longitude and latitude to the second] of the centerpoint of the facility);

E. mailing address of the applicant;

F. contact person for the applicant (position or title of the contact person is acceptable);

G. telephone number of the contact person;

H. type and purpose of operation (check each applicable box);

I. status of the facility (if leased, state the number of years of the lease and provide a copy of the lease agreement);

J. operational status of the facility;

K. total site acreage and the amount of acreage that will be used for processing and/or disposal;

L. list of all environmental permits that relate directly to the facility represented in this application;

M. a letter attached from the Louisiana Resource Recovery and Development Authority (LRRDA) stating that the operation conforms with the applicable statewide plan. (Note: In accordance with R.S. 30:2307.B, this regulation does not apply to solid waste disposal activity occurring entirely within the boundaries of a plant, industry, or business which generates such solid waste);

N. zoning of the facility (if the facility is zoned, note the zone classification and zoning authority, and include a zoning affidavit or other documentation stating that the proposed use does

not violate existing land-use requirements);

O. types, maximum quantities (wet tons/week), and sources (percentage of the on-site or off-site-generated waste to be received) of waste to be processed or disposed of by the facility;

P. indicate the specific geographic area(s) to be serviced by the solid waste facility;

Q. attach proof of publication of the notice regarding the submittal of the permit application as required in LAC 33:VII.513.A;

R. provide the signature, typed name, and title of the individual authorized to sign the application. Proof of the legal authority of the signatory to sign for the applicant must be provided; and

S. any additional information required by the administrative authority.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:2001 et seq.

HISTORICAL NOTE: Promulgated by the Department of Environmental Quality, Office of Solid and Hazardous Waste, Solid Waste Division, LR 19:187 (February 1993).

### **§703. Part II: Supplementary Information**

The following information is required in the permit application for Type I surface impoundments. All responses and exhibits must be identified in the following sequence to facilitate the evaluation. If a section does not apply, the applicant must state that it does not apply and explain why.

#### A. Location Characteristics.

1. Area Master Plans. A location map showing the facility, road network, major drainage systems, drainage-flow patterns, location of closest population center(s), location of the public-use airport(s) used by turbojet aircraft or piston-type aircraft, proof of notification of affected airport and Federal Aviation Administration, location of the 100-year flood plain, and other pertinent information. The scale of the maps and drawings must be legible, and engineering drawings are required.

a. Facilities that dispose of putrescible solid waste shall not be located within 10,000 feet of any public-use airport runway end used by turbojet aircraft or within 5,000 feet of any public-use airport runway end used by only piston-type aircraft.

2. A letter from the appropriate agency or

agencies regarding those facilities receiving waste generated off-site, stating that the facility will not have a significant adverse impact on the traffic flow of area roadways and that the construction, maintenance, or proposed upgrading of such roads is adequate to withstand the weight of the vehicles.

a. Access to facilities by land or water transportation shall be by all-weather roads or waterways that can meet the demands of the facility and are designed to avoid, to the extent practicable, congestion, sharp turns, obstructions, or other hazards conducive to accidents.

b. The surface roadways shall be adequate to withstand the weight of transportation vehicles.

3. Existing Land Use. Disposal facilities may be subject to a comprehensive land-use or zoning plan established by local regulations or ordinances. A description of the total existing land use within three miles of the facility (by approximate percentage) including, but not limited to:

- a. residential;
- b. health-care facilities and schools;
- c. agricultural;
- d. industrial and manufacturing;
- e. other commercial;
- f. recreational; and
- g. undeveloped.

4. Aerial Photograph. A current aerial photograph, representative of the current land use, of a one-mile radius surrounding the facility. The aerial photograph shall be of sufficient scale to depict all pertinent features.

5. Environmental Characteristics.

a. a list of all swamps, marshes, wetlands, estuaries, wildlife-hatchery areas, habitat of endangered species, publicly owned recreation areas, known historic sites, archaeological sites, designated wildlife-management areas, and other sensitive

ecologic areas within 1,000 feet of the facility perimeter or as otherwise appropriate. These and other similar critical environmental areas shall be isolated from the facility by effective barriers that eliminate probable adverse impacts from facility operations.

b. documentation from the appropriate state and federal agencies substantiating the historic sites, recreation areas, archaeologic sites, designated wildlife-management areas, wetlands, habitats for endangered species, and other sensitive ecologic areas within 1,000 feet of the facility; and

c. a description of the measures planned to protect the areas listed from the adverse impact of operation at the facility;

d. Units of a facility which have not received waste prior to October 9, 1993, shall not be located in wetlands, unless the permit holder or applicant can make the following demonstrations to the administrative authority:

i. where applicable under Section 404 of the Clean Water Act or applicable state wetlands laws, the presumption that a practicable alternative to the proposed landfill is available which does not involve wetlands is clearly rebutted;

ii. the construction and operation of the facility will not:

(a). cause or contribute to violations of any applicable state water-quality standard;

(b). violate any applicable toxic effluent standard or prohibition under Section 307 of the Clean Water Act;

(c). 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

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

iii. the facility will not cause or contribute to significant degradation of wetlands. The owner or operator must demonstrate the integrity of the facility and its ability to protect ecological resources by addressing the following factors:

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

(b). erosion, stability, and migration potential of dredged and fill materials used to support the facility;

(c). the volume and chemical nature of the waste managed in the facility;

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

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

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

iv. to the extent required under Section 404 of the Clean Water Act 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 Subsection A.4 of this Section; 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); and

v. sufficient information is available to make a reasonable determination with respect to these demonstrations.

e. Units of a facility which have not

received waste prior to October 9, 1993, shall not be located within 200 feet (60 meters) of a fault that has had displacement in Holocene time unless the permit holder or applicant demonstrates to the administrative authority that an alternative setback distance of less than 200 feet will prevent damage to the structural integrity of the unit and will be protective of human health and the environment.

f. Demographic Information. The estimated population density within a three-mile radius of the facility boundary, based on the latest census figures.

6. The following information regarding wells, faults and utilities:

a. Wells—map showing the locations of all known or recorded shot holes and seismic lines, private water wells, oil and/or gas wells, operating or abandoned, within the facility and within 2,000 feet of the facility perimeter and the locations of all public water systems, industrial water wells, and irrigation wells within one mile of the facility. A plan shall be provided to prevent adverse effects on the environment from the wells and shot holes located on the facility.

b. Faults—a scaled map showing the locations of all recorded faults within the facility and within one mile of the perimeter of the facility; and a demonstration, if applicable, of alternative fault set-back distance as provided in LAC 33:VII.709.A.5.

c. Utilities—a scale map showing the location of all pipelines, power lines, and right-of-ways within the site.

B. Facility Characteristics. A facility plan, including drawings and a narrative, describing the information required below must be provided.

1. Elements of the process or disposal system employed, including, as applicable, property lines, original contours (shown at not greater than five-foot intervals), buildings, units of the facility, drainage, ditches and roads;

2. Perimeter barriers, Security, and Signs.

a. Facilities must have a perimeter barrier around the facility that prevents unauthorized ingress or egress, except by willful entry.

b. Each facility entry point shall be continuously monitored, manned, or secured.

c. Facilities that receive wastes from off-site sources shall post readable signs that list the types of wastes that can be received at the facility.

3. Buffer Zones

a. Buffer zones of not less than 200 feet shall be provided between the facility and the property line. A reduction in this requirement shall be allowed only with the permission, in the form of a notarized affidavit, of the adjoining landowner(s) including all landowner(s) if in *in division*

. A copy of the notarized affidavit waiving the 200-foot buffer zone shall be entered in the mortgage and conveyance records of the parish for the adjoining landowner's property. Buffer zone requirements may be waived or modified by the administrative authority for areas of landfills which have been closed in accordance with these regulations and for existing facilities, or in accordance with LAC 33:VII.307.

b. No storage, processing, or disposal of solid waste shall occur within the buffer zone.

4. Fire Protection and Medical Care. Facilities shall have access to required fire protection and medical care, or such services shall be provided internally.

5. Landscaping and other beautification efforts. All proposed facilities, other than those which are located within the boundaries of a plant, industry, or business which generates the waste to be processed or disposed of, must provide landscaping to improve the aesthetics of the facility.

6. Devices or methods to determine, record, and monitor incoming waste.

a. Each facility shall be equipped with a device or method to determine quantity (by wet-weight tonnage); sources (whether the waste was generated in-state or out-of-state and, if it is industrial solid waste, where it was generated); and types of incoming waste. The facility shall also be equipped with a device or method to control entry of the waste and prevent entry of unrecorded or unauthorized deliverables (i.e., hazardous waste, PCB waste, and unauthorized or unpermitted solid waste).

b. Each facility shall be equipped with a central control and recordkeeping system for tabulating the information required in Subsection B.5.a. of this Section.

7. Permitted discharge points (existing and proposed).

8. Other features, as appropriate.

C. Facility Surface Hydrology.

1. Facilities located in a the 100-year flood plain must be filled to bring site elevation above flood levels or perimeter levees or other measures must be provided to maintain adequate protection against the 100-year flood elevation.

2. Facilities located in or within 1,000 feet of an aquifer recharge zone shall be designed to protect the areas from adverse impacts of operations at the facility.

a. The location of aquifer recharge areas in the site or within 1,000 feet of the site perimeter.

b. A description of the measures planned to protect those areas from the adverse impact of operations at the facility; and

3. Surface-runoff-diversion levees, canals, or devices shall be installed to prevent drainage from the units of the facility which have not received final cover to adjoining areas during a 24-hour/25-year storm event and to prevent surface drainage through the operating areas of the facility. Adequate freeboard shall be provided to prevent over-topping by wave action.

4. If the facility is located in a flood plain, a plan must be submitted to ensure that the facility does not restrict the flow of the 100-year base flood or significantly reduce the temporary water-storage capacity of the floodplain, and documentation indicating that the design of the facility is such that the flooding does not affect the integrity of the facility or result in the washout of solid waste so as to pose a threat to human health and the environment.

5. Runoff from operating areas which contain solid waste shall be considered contaminated and shall not be allowed to mix with noncontaminated surface runoff.

a. Provide a description of the facility runoff/run-on collection system.

b. Discharges from operating units of all facilities must be controlled and must conform to applicable state and federal laws including the federal Clean Water Act and Louisiana Water Pollution Control Law.

c. Applications for applicable state and federal discharge permits must be filed before a standard permit may be issued.

6. A run-on control system shall be installed to prevent run-on during the peak discharge from a 25-year storm event.

7. Existing surface impoundments, including existing ditches which receive solid waste, which are designed to collect or transport run-on (e.g., stormwater) are not required to comply with any of the requirements of LAC 33:VII.713.A.3, 4, and 5. This Subsection does not relieve such facilities from compliance with the Louisiana Water Quality Regulations (LAC 33:Part IX).

D. Facility Geology. The following must be submitted:

1. Isometric profile and cross-sections of soils, by type, thickness, and permeability;

2. Logs of all known soil borings taken on the facility and a description of the methods used to seal abandoned soil borings;

3. Results of tests for classifying soils (moisture contents, Atterberg limits, gradation, etc.), measuring soil strength, and determining the coefficients of permeability, and other applicable geotechnical tests;

4. representative cross-sections and geologic cross-sections showing original and final grades, approximate dimensions of daily fill and cover, drainage, the water table, groundwater conditions, the location and type of liner, and other pertinent information;

a. Except as provided in Subsection C.1.b. of this Section, facilities shall have natural soils of low permeability for the area occupied by the solid waste facility, including vehicle parking and turnaround areas, that should provide a barrier to prevent any penetration of surface spills into groundwater aquifers underlying the area or to a sand or other water-bearing strata that would provide a conduit to such aquifers.

b. A design for surfacing natural soils that do not meet the requirement in Subsection C.1.a of this Section shall be prepared and installed under the supervision of a registered engineer, licensed in the state of Louisiana, with expertise in geotechnical engineering and geohydrology. Written certification by the engineer that the surface satisfies the requirements of Subsection C.1.a. of this Section shall be provided.

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c. The subsurface soils and groundwater conditions shall be characterized by a registered engineer, licensed in the state of Louisiana, with expertise in geotechnical engineering and geohydrology or by a geologist with expertise in geohydrology. The characterization shall meet the following guidelines, unless otherwise approved of by the administrative authority with proper justification provided:

i. For new facilities or lateral expansions of existing facilities, geotechnical boreholes shall be drilled in a grid pattern that extends to the point of compliance of the facility. Geotechnical borehole spacing shall be no greater than 450 feet (minimum of four borings required) unless otherwise approved by the administrative authority. Sufficient justification must be provided for spacing greater than 450 feet to be acceptable. (Surface geophysical technologies may be used to justify an increase in

boring spacing.)

ii. all boreholes shall extend to a depth of at least 30 feet below the lowest point of the excavation unless otherwise approved by the administrative authority. At least 10 percent of the borings (minimum of three borings) shall extend to 100 feet below grade level unless otherwise approved by the administrative authority.

iii. all borings shall be continuously sampled to at least 30 feet below the lowest point of excavation. After 30 feet, samples shall be collected at a maximum of five foot intervals. The use of remote sensing technologies may be used in lieu of coring devices with prior approval from the Administrative Authority. However, unless otherwise approved by the administrative authority, the use of remote sensing technologies will typically require that site specific demonstrations be made that show that the technique will provide adequate logging of the subsurface strata. (Remote sensing devices include cone penetrometer, borehole geophysical technologies, or other related technologies.

iv. borings, geotechnical field tests, and laboratory tests shall be conducted according to the standards of the American Society for Testing and Materials (ASTM) or the Environmental Protection Agency (EPA), or other applicable standards approved by the administrative authority.

v. Geotechnical boreholes shall not be placed through areas of previous disposal in an existing facility unless otherwise approved by the administrative authority.

5. geologic cross-section from available published information depicting the stratigraphy to a depth of at least 200 feet below the ground surface;

6. For faults mapped as existing through the facility, verification of their presence by geophysical mapping or stratigraphic correlation of boring logs. If the plane of the fault is verified within the facility's boundaries, a discussion of measures that will be taken to mitigate adverse effects on the facility and the environment;

7. for units of a facility located in a seismic impact zone which did not receive waste before October 9, 1993, a

report with calculations demonstrating that the facility will be designed and operated so that all containment structures, including liners, leachate collection systems, and surface water control systems, can withstand the stresses caused by the maximum horizontal acceleration in lithified earth material for the site.

8. Facilities shall not be located in an unstable area unless the permit holder or applicant can demonstrate that the facility is designed to ensure the integrity of structural components, such as liners, leak-detection systems, leachate collection, treatment and removal systems, final covers, run-on/runoff systems (or any other component used in the construction and operation of the facility that is necessary for the protection of human health or the environment). In determining whether an area is unstable, the permit holder or applicant must consider, at a minimum, the following factors:

a. on-site or local soil conditions that may result in significant differential settling;

b. on-site or local geologic or geomorphological features; and

c. on-site or local human-made features or events (both surface and subsurface).

E. Facility Subsurface Hydrology.

1. Delineation of the following information for the water table and all permeable zones from the ground surface to a depth of at least 30 feet below the base of excavation:

a. areal extent beneath the facility;

b. thickness and depth of the permeable zones and fluctuations;

c. direction(s) and rate(s) of groundwater flow based on information obtained from piezometers and shown on potentiometric maps; and

d. A minimum of three piezometers or monitoring wells in the same zone must be provided in order to determine groundwater flow direction.

e. any change in groundwater flow direction anticipated to result from any facility activities.

2. Delineation of the following, from all available information, for all recognized aquifers which have their upper surfaces within 200 feet of the ground surface:

- a. areal extent;
- b. thickness and depth to the upper surface;
- c. any interconnection of aquifers; and
- d. direction(s) and rate(s) of groundwater flow shown on potentiometric maps.

F. Facility Plans and Specifications.

1. Certification—Plans, specifications, and operations represented and described in the permit application or permit modifications for all facilities must be prepared under the supervision of and certified by a registered engineer, licensed in the state of Louisiana. The person who prepared the permit application must provide the following certification:

"I certify under penalty of law that I have personally examined and I am familiar with the information submitted in this permit application and that the facility as described in this permit application meets the requirements of the Solid Waste Rules and Regulations. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment."

2. The following information on plans and specifications is required:

a. detailed plan-view drawing(s) showing original contours, proposed elevations of the base of units prior to installation of the liner system, and boring locations;

b. detailed drawings of slopes, levees, and other pertinent features; and

c. the type of material and its source for levee construction. Calculations shall be submitted demonstrating that an adequate volume of material is available for the required levee construction.

d. Surface impoundments shall be designed, constructed, maintained, and operated to prevent overtopping by overfilling, wave action, or action of storms.

3. Levee Construction

a. Levees or other protective measures must be provided in order to protect the facility against the 100-year flood so as to prevent the washout of solid waste.

b. If levees are required to protect the

facility against the 100-year flood, such perimeter levees shall be engineered to minimize wind and water erosion and shall have a grass cover or other protective cover to preserve structural integrity and shall provide adequate freeboard above the 100-year flood elevation.

4. Liners

a. The standards in Subsection B.4 of this Section apply to liners for Type I proposed surface impoundments and for surface impoundments constructed subsequent to the required upgrade date specified in LAC 33:VII.315.G. (Units of surface impoundments on which construction is completed prior to the upgrade date specified in LAC 33:VII.315.G and which have received a temporary permit or standard permit prior to February 1, 1993, are not governed by these liner standards.)

b. The permit holder or applicant must provide and implement a quality-control and quality-assurance plan for liner construction and maintenance that will ensure that liners are designed, constructed, installed, and maintained properly. All facilities must have quality-control plans for the excavations. All excavations and liners shall be inspected and certified by a registered engineer, licensed in the state of Louisiana, with the appropriate expertise.

c. The permit holder or applicant must demonstrate that the liner is placed upon a base that provides the following:

i. adequate support for the contents;

ii. maximum resistance to settlement of a magnitude sufficient to affect the integrity of the liner or the proper positioning of the leachate-collection or leak-detection system;

iii. maximum resistance to hydrostatic heave on the sides or bottom of the excavation; and

iv. maximum resistance to desiccation.

d. Units of surface impoundments shall be lined along the sides and bottom with a composite liner consisting of a geomembrane liner at least 30-mil thick installed directly above and in uniform contact with a three-foot recompacted clay liner having a hydraulic conductivity no greater than  $1 \times 10^{-7}$  cm/sec which has been installed under the supervision of a registered engineer, licensed in

the state of Louisiana and with the appropriate expertise. (If the geomembrane component is high-density polyethylene, then the geomembrane component must be at least 60-mil thick. Any geomembrane liner used must be compatible with the solid waste and leachate in the unit.) An alternative liner system which will provide equivalent or greater groundwater protection at the site as compared to the composite liner, as demonstrated by generally accepted modeling techniques and based on factors specific to the site and to the solid wastes received, may be used. The burden of proof of adequacy of the alternate liner design shall be on the permit holder or applicant.

e. Secondary liners may be constructed below and in addition to the required composite liner. The specifications of secondary liners must be approved by the administrative authority on an individual basis.

f. A leak-detection system may be constructed between the required composite liner and any secondary liner. The specifications of the leak-detection system must be approved by the administrative authority on an individual basis.

g. Special design conditions may be required in areas where the groundwater table is high or where other circumstances warrant such conditions as determined by the administrative authority. These special design standards may include more protective or stringent standards such as secondary liners (described in Subsection B.3.e of this Section) or leak-detection systems, or other conditions.

7. Groundwater monitoring

a. At each facility, a groundwater-monitoring system that is capable of detecting releases from the regulated unit, must be installed that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples from the uppermost aquifer (and the uppermost water-bearing permeable zone which will yield sufficient quantities of water for sampling if different from the uppermost aquifer and if deemed necessary by the administrative authority for adequate groundwater monitoring at the facility) that:

i. represent the quality of the background groundwater that has not been affected by leakage from a unit; and

ii. represent the quality of groundwater passing the relevant point of compliance. For the purposes of these regulations, the relevant point of compliance is the vertical surface which is located no more than 150 meters downgradient from the unit(s) being monitored and extends down into the uppermost aquifer underlying the facility and any other permeable zones being monitored. The relevant point of compliance must be on property owned or controlled by the permit holder and must be selected and subject to the approval of the administrative authority based on at least the following factors:

- (a). hydrological characteristics of the facility and the surrounding land;
- (b). volume and physical and chemical characteristics of the leachate;
- (c). quantity, quality, and direction of flow of groundwater;
- (d). proximity and withdrawal rate of the groundwater users;
- (e). availability of alternative drinking water supplies;
- (f). existing quality of the groundwater, including other sources of contamination and their cumulative impacts on the groundwater, and whether the groundwater is currently used or reasonably expected to be used for drinking water;
- (g). public health, safety, and welfare effects; and
- (h). practicable capability of the owner or operator.

b. Location of Wells—a scaled map indicating well locations and the relevant point of compliance,

i. Enough monitoring wells must be located hydraulically upgradient of the facility to yield samples that represent background groundwater quality as required in Subsection E.1.a of this Section.

ii. A minimum of one upgradient well per zone monitored is required.

iii. Monitoring wells other than upgradient of the facility may be sampled for background groundwater quality if:

(a). hydrologic conditions do not allow the permit holder to determine which wells are hydraulically upgradient; or

(b). sampling at other wells will provide an indication of background groundwater quality that is more representative than sampling of upgradient wells.

iv. Enough monitoring wells must be located hydraulically downgradient of the facility to yield samples that are representative of the groundwater passing the relevant point of compliance. At least two downgradient wells per zone monitored must be provided. The downgradient wells must be screened in the same zone as the upgradient well(s). The downgradient wells must be located and screened such that they monitor the most likely contaminant pathway at the point of compliance for each zone monitored. Spacing between downgradient wells shall not exceed 800 feet unless otherwise approved by the Administrative Authority.

v. The number, spacing, and depths of monitoring wells shall be determined based upon site-specific technical information that must include thorough characterization of:

(a). aquifer thickness, groundwater flow rate, groundwater flow direction including seasonal and temporal fluctuations in groundwater flow; and

(b). saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer; including, but not limited to: thickness, stratigraphy, lithology, hydraulic conductivities, porosities, and effective porosities.

vi. The administrative authority will consider for approval multi-unit groundwater monitoring systems, provided these systems meet the requirements of Subsection E.1 of this Section and will be as protective of human health and the environment as groundwater monitoring systems for individual units.

vii. The administrative authority may modify the requirements of Subsection E.1.b of this Section for site-specific considerations in approving groundwater monitoring

systems for ditches.

c. Well Construction

i. Well construction shall be in accordance with the "Water Wells Rules, Regulations, and Standards, State of Louisiana" (LAC 70:XIII) as adopted by the Louisiana Department of Transportation and Development, Water Resources Section.

ii. Construction of monitoring wells for facilities regulated by the Solid Waste Division shall require approval of the administrative authority prior to construction.

iii. In addition to the construction standards set forth in the "Water Wells Rules and Regulations," the following is required:

(a). all wells must have protective casing with locking covers and a secure locking device in place;

(b). all wells must have guard posts firmly anchored outside the well slab, but not in contact with the slab;

(c). the maximum allowable screen length must not exceed 10 feet;

(d). the borehole diameter must allow at least three inches between the well casing and the borehole wall;

(e). a sign or plate must be permanently affixed to the protective well casing and must prominently display:

(1). well identification number;

(2). identification of well as upgradient or downgradient;

(3). elevation of top of well casing in relation to mean sea level;

iv. Cross-sections illustrating construction of wells, and pertinent data on each well, presented in tabular form, including drilled depth, the depth to which the well is cased, screen interval, slot size, elevations of the top and bottom of the screen, casing size, type of grout, ground surface elevation, etc.

d. Post Construction. Within 90 days

after construction of the wells, the permit holder or applicant must submit well-completion details to verify that the wells were constructed according to the approved specifications and to document construction procedures. A permit modification fee will not be required. Well-completion details should include but are not limited to:

i. daily field notes documenting construction procedures and any unusual occurrences such as grout loss, etc.;

ii. boring log for each well including the surface elevation(s) with respect to mean sea level or comparable reference points;

iii. as-built diagrams for each well showing all pertinent features such as elevation of reference point for measuring groundwater levels, screen interval, and ground surface. If features change from the approved plans, then a permit-modification request must be submitted in accordance with LAC 33:VII.517.

e. Plugging and Abandonment of Monitoring Wells and Geotechnical Borings.

i. The "Water Wells Rules and Regulations, State of Louisiana" (LAC 70:XIII), as adopted by the Louisiana Department of Transportation and Development, Water Resource Section, shall apply to all plugging and abandonment of wells and holes including, but not limited to, observation wells, monitoring wells, piezometer wells, leak-detection wells, assessment wells, recovery wells, abandoned pilot holes, test holes, and geotechnical boreholes.

ii. In addition to the standards in LAC 70:XIII, the following standards shall apply to plugging and abandonment:

(a). For any well, the primary method of plugging and abandonment shall be removal of the well's casing and other components of the well including but not limited to the screen, grout, bentonite seal, filter pack, concrete slab, protective casing, guard posts, and native soil in immediate contact with the grout and subsequent installation of cement-bentonite grout, from the bottom of the resulting borehole to the ground surface using the tremie method.

(b). In areas where all or a part of the well's casing and other components of the well cannot be plugged and abandoned in accordance with the procedure stated in Subsection E.1.e.ii.(a) of this Section, the well shall be plugged and abandoned by installation of cement-bentonite grout inside the well's casing, from the bottom of the well to the ground surface, provided that the annular seal is demonstrated to be adequately sealed and the following items are submitted:

(c). supporting documentation, prior to plugging the well that demonstrates that removal of all or part of the well's casing and other components of the well in accordance with the procedure stated in this Section, will be detrimental to the environment; and/or

(d). certification and supporting documentation by a qualified professional that shows that removal of the well's casing was attempted and that continued attempts to remove all or a part of the well's casing and other components of the well as stated in this Section, would have been detrimental to the environment.

iii. After plugging and abandoning a well, all surface features of the well including but not limited to the concrete slab, guard posts and protective casing, shall be dismantled and disposed of in an environmentally sound manner and the surface shall be restored to its original condition.

iv. The permit holder must notify the Solid Waste Division of the plugging and abandonment of monitoring wells or geotechnical borings and keep records of such abandonments.

v. Monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design specifications throughout the life of the monitoring program.

f. A groundwater monitoring program including a sampling and analysis plan that includes consistent sampling and analysis procedures and that meet the requirements of Appendix C to ensure that monitoring results are representative of groundwater quality at the background and downgradient well locations.

i. sample collection which ensures that collected samples are representative of the zone(s) being

monitored and prevents cross-contamination of or tampering with samples;

ii. sample preservation and shipment which ensure the integrity and reliability of the sample collected for analysis;

iii. chain of custody control; and  
iv. quality-assurance/quality-control, including detection limits, precision and accuracy of analyses, field blanks, and laboratory spikes and blanks.

v. The sampling and analysis plan must also include the:

(a). selection of parameters or constituents to be sampled and analyzed during detection monitoring and justification for parameters or constituents where applicable;

(b). identification of analytical procedures to be followed (reference source of analytical method);

(c). sampling frequency during the detection monitoring program;

(d). statistical method to be used in evaluating the groundwater-monitoring data for each groundwater parameter or constituent sampled at each monitoring well; and

(e). practical quantitation limit (PQL) for each parameter or constituent. Note: The PQL shall be equal to or lower than the maximum contamination level (MCL) for those constituents that have MCLs promulgated under the primary drinking water standards. The PQL for parameters or constituents other than those that have MCLs promulgated shall be as low as practicable. If appropriate, the administrative authority may increase PQLs for those constituents that have an MCL promulgated. However, the PQLs shall not be above the groundwater protection standards set by the Department for each parameter or constituent of concern.

g. Background groundwater quality must be established for the facility in a hydraulically upgradient well(s), or other well(s) as provided in Subsection E.1.b.iii of this Section, for each groundwater parameter or constituent.

h. Statistical Methods

i. The number of samples collected to establish groundwater quality data must be consistent with the appropriate statistical procedures used.

ii. One of the following statistical methods to be used in evaluating groundwater data for each parameter or constituent to be monitored. Intra-well comparisons such as control charts, tolerance intervals, and prediction intervals may be used but are only appropriate for uncontaminated wells. When intra-well comparisons are used at existing facilities, it must be demonstrated to the satisfaction of the administrative authority that the groundwater quality at the downgradient well locations reflects background groundwater quality that has not been affected by leakage from the unit being monitored. The statistical test chosen shall be conducted separately for each parameter or constituent in each well:

(a). a parametric analysis of variance (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each parameter or constituent.

(b). an analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each parameter or constituent.

(c). a tolerance or prediction interval procedure in which an interval for each parameter or constituent is established from the distribution of the background data, and the level of each parameter or constituent in each compliance well is compared to the upper tolerance or prediction limit.

(d). a control chart approach that gives control limits for each parameter or constituent.

(e). another statistical test method that meets the performance standards of this Section. The permit holder must place a justification for this alternative in the operating record and notify the administrative authority of the use of

this alternative test. The justification must demonstrate that the alternative method meets the performance standards of this Section.

iii. Any statistical method chosen shall comply with the following performance standards, as appropriate:

(a). The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of the parameters or constituents. If the distribution of the chemical parameters or constituents or hazardous parameters or constituents is shown by the permit holder to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the parameters or constituents differ, more than one statistical method may be needed.

(b). If an individual well comparison procedure is used to compare an individual compliance well parameter or constituent concentration with background parameters or constituent concentrations or a groundwater protection standard, the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experimentwide error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals, or control charts.

(c). If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter or constituent values shall be protective of human health and the environment. The parameters or constituents shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each parameter or constituent of concern.

(d). If a tolerance interval or a predictional interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be protective of human health and the environment. These parameters or constituents shall be determined after considering the number of

samples in the background data base, the data distribution, and the range of the concentration values for each parameter or constituent of concern.

(e). The statistical method shall account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any practical quantitation limit (pql) that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

(f). If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

iv. The permit holder must determine whether or not there is a statistically significant increase over background values for each parameter or constituent required in the particular groundwater monitoring program that applies to the facility, as determined under this Section.

(a). In determining whether a statistically significant increase has occurred, the permit holder must compare the groundwater quality of each parameter or constituent at each monitoring well designated pursuant to this Section to the background value of that parameter or constituent, according to the statistical procedures and performance standards specified under this Section.

(b). Within 90 days after the date of sampling, the permit holder must determine whether there has been a statistically significant increase over background at each monitoring well.

i. for an existing facility, all data on samples taken from monitoring wells in place at the time of the permit application must be included. (If this data exists in the Solid Waste Division records, the administrative authority may allow references to the data in the permit application.) For an existing facility with no wells, groundwater data shall be submitted within 90 days after the installation of monitoring wells. For a new facility, groundwater data (one sampling event) shall be submitted before waste is accepted;

j. a plan for detecting, reporting, and verifying changes in groundwater.

8. Detection Monitoring Program

a. Initial Sampling

i. For a new facility, monitoring wells must be sampled and the analytical data for a sampling event must be submitted before waste is accepted.

ii. For an existing facility with no wells in place at the time of the application submittal or at the time at which the facility becomes subject to these regulations, the analytical data shall be submitted within 90 days after installation of the monitoring wells.

iii. For the collection of background groundwater quality data, the initial sampling event shall consist of a minimum of one independent sample collected quarterly from each well (upgradient and downgradient) and analyzed during the first year of sampling for a facility.

b. After completion of the initial sampling event, at least one sample must be collected and analyzed at each well (upgradient and downgradient) during each sampling event. Sampling events shall be conducted at a minimum of every six months (semi-annually).

c. The groundwater monitoring program must be conducted for the life of the facility and for the duration of the post-closure care period of the facility. Groundwater monitoring may be extended beyond the period specified if deemed necessary by the administrative authority.

d. The permit holder or applicant must submit two bound copies (8 1/2 by 11 inches) of a report of all groundwater sampling results to the Solid Waste Division's main office and one copy to the appropriate regional office no later than 90 days after each sampling event. The reports must be submitted on forms provided by the administrative authority and shall include at a minimum:

i. documentation of the chain of custody of all sampling and analyses;

ii. scaled potentiometric surface maps showing monitoring-well locations, groundwater elevations with respect to mean sea level for each stratum monitored;

iii. Plots by well of concentration of parameters or constituents versus time;

iv. a statement of whether a statistically significant difference in concentration over background concentrations is detected.

v. Justification that the statistical method used is the most appropriate method for the data set of each parameter or constituent required to be monitored.

e. If a statistically significant increase over background concentrations is determined for one or more parameters or constituents required to be monitored, the permit holder must:

i. notify the administrative authority in accordance with the Notification Regulations and Procedures for Unauthorized Discharge (LAC 33:I.Subpart 2);

ii. submit to the Solid Waste Division, within 14 days after the determination is made, a report that identifies which parameters or constituents were determined to have shown statistically significant changes from background levels; and

iii. within 90 days after the determination is made:

(a). initiate an assessment monitoring program for the facility meeting the requirements of Subsection E.4 or 8 of this Section; or

(b). submit a report to the Solid Waste Division demonstrating that a source other than the facility being sampled caused the contamination or that the statistically significant increase resulted from an error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

iv. If the administrative authority approves this demonstration in Subsection E.3.f.iii.(b) of this Section in writing, the permit holder may continue the detection monitoring program. If the administrative authority does not approve the demonstration in writing, the permit holder must establish an assessment monitoring program meeting the requirements of Subsection E.4 of this Section within 90 days after the determination in Subsection E.3.f of this Section is made.

f. Detection Monitoring Parameters or Constituents

i. The administrative authority may reduce or increase the number of parameters, if appropriate, based on site-specific and waste-specific consideration. Selection of these parameters or constituents is subject to the approval of the administrative authority and must be based on the following factors:

(a). types, quantities, and concentrations of constituents in the wastes disposed of at the facility;

(b). mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the facility;

(c). detectability of indicator parameters, waste constituents, or their reaction products in the groundwater; and

(d). concentrations or values and coefficients of variation of the proposed monitoring parameters or constituents in the background groundwater at the facility.

(e). The administrative authority may waive or require additional parameters or constituents, based on site-specific or waste-specific information.

ii. Type I landfills which receive off site waste shall be monitored for all the parameters or constituents listed in Appendix C, Table 1. The administrative authority may reduce the number of parameters if appropriate based on site-specific and waste-specific considerations.

9. Assessment Monitoring Program

a. An assessment monitoring program is required to be conducted at Type I landfills whenever a statistically significant increase over background concentrations is detected for one or more of the parameters or constituents sampled and analyzed during the detection monitoring program. For Type I landfills that receive on-site waste, the assessment monitoring parameters or constituents shall consist of the detection monitoring parameters or constituents. For Type I landfills that receive off-site waste, the assessment monitoring parameters shall consist of all the parameters and constituents identified in Appendix C, Table 2. The administrative authority may require that additional assessment monitoring parameters or constituents be sampled and analyzed based on site-specific and waste-specific considerations.

b. Within 90 days after triggering an assessment monitoring program, the permit holder must sample and analyze the groundwater at all wells for all the assessment monitoring parameters or constituents. A minimum of one sample from each downgradient well must be collected and analyzed during each sampling event. For any assessment monitoring

parameter or constituent that is detected in the downgradient wells other than those that are also detection monitoring parameters or constituents, a minimum of four independent samples from each well (background and downgradient) must be collected and analyzed to establish background for those parameters or constituents. The administrative authority:

i. may specify an appropriate subset of the wells to be sampled and analyzed for the assessment monitoring parameters and constituents during assessment monitoring; and

ii. may delete any of the assessment monitoring parameters or constituents for a facility if it can be shown that the omitted parameters or constituents are not reasonably expected to be in or derived from the waste contained in the unit.

iii. No later than 90 days after the completion of the initial or subsequent sampling events for the assessment monitoring parameters or constituents, the permit holder must submit a report to the Solid Waste Division identifying the assessment monitoring parameters or constituents that have been detected. No later than 180 days after completion of the initial or subsequent sampling events for all assessment monitoring parameters or constituents required, the permit holder must:

(a). re-sample all wells and analyze for all detection parameters or constituents and those assessment monitoring parameters or constituents that were detected. At least one sample must be collected from each well (background and downgradient) during these sampling events. This sampling must be repeated semiannually thereafter;

(b). establish background groundwater concentrations for any parameter or constituent detected; and

(c). establish groundwater protection standards for all parameters or constituents detected.

iv. If the concentrations of all

assessment monitoring parameters or constituents are shown to be at or below background values, using the statistical procedures in this Section, for two consecutive sampling events, the permit holder must notify the Solid Waste Division, and upon written approval of the administrative authority, may return to detection monitoring.

v. If the concentrations of any assessment monitoring parameters or constituents are above background values, but all concentrations are below the groundwater protection standard established under this Section, using the statistical procedures in this Section, the permit holder must continue assessment monitoring.

vi. If one or more assessment monitoring parameters or constituents are detected at statistically significant levels above the groundwater protection standard established under this Section, in any sampling event, using the statistical procedures in this Section, the permit holder must, within 14 days of the determination, notify all appropriate local government officials and submit a report to the Solid Waste Division identifying the assessment monitoring parameters or constituents which have exceeded the groundwater protection standard. The permit holder must also:

(a). within 90 days after the determination is made, submit four bound copies (8 1/2 x 11 inches) of an assessment plan, as well as any necessary permit modification, to the Solid Waste Division that provides for:

(1). characterization of the nature and extent of the release by installing and sampling additional monitoring wells as necessary;

(2). installation of at least one additional monitoring well at the facility boundary in the direction of the contaminant migration and sampling of this well in accordance with this Section; and

(3). a schedule for implementing the plan;

(b). notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off site as indicated by the sampling of the wells in accordance with this Section; and

(c). upon consultation with and approval of the administrative authority, implement any interim measures necessary to ensure the protection of human health and the environment. Interim measures should, to the greatest extent practicable, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to this Section. The following factors must be considered by a permit holder in determining whether interim measures are necessary:

(1). time required to develop and implement a final remedy;

(2). actual or potential exposure of nearby populations or environmental receptors to hazardous parameters or constituents;

(3). actual or potential contamination of drinking water supplies or sensitive ecosystems;

(4). further degradation of the groundwater that may occur if remedial action is not initiated expeditiously;

(5). weather conditions that may cause hazardous parameters or constituents to migrate or be released;

(6). risk of fire or explosion, or potential for exposure to hazardous parameters or constituents as a result of an accident or failure of a container or

handling system; and

(7). other situations that may pose threats to human health and the environment.

(d). initiate an assessment of corrective measures as required by this Section; or

(e). may submit a report to the Solid Waste Division demonstrating that a source other than the facility being sampled caused the contamination, or the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. If the administrative authority approves this demonstration in writing, the permit holder must continue assessment monitoring at the facility in accordance with this Section, or may return to detection monitoring if the assessment monitoring parameters or constituents are below background. Until such a written approval is given, the permit holder must comply with this Section, including initiating an assessment of corrective action measures.

vii. The permit holder must establish a groundwater protection standard for each assessment monitoring parameter or constituent detected in the groundwater. The groundwater protection standard shall be:

(a). for parameters or constituents for which a maximum contaminant level (MCL) has been promulgated under the federal Safe Drinking Water Act, the MCL for that parameter or constituent in accordance with the RECAP standards.

(b). for parameters or constituents for which the state of Louisiana has promulgated a MCL, the MCL for that parameter or constituent in accordance with the RECAP standards.

(c). for parameters or constituents for which MCLs have not been promulgated, the

background concentration for the parameter or constituent established from wells in accordance with this Section;

(d). for parameters or constituents for which the background level is higher than the MCL identified under this Section, the background concentration for the parameter or constituent established from wells in accordance with this Section; or

(e). the administrative authority may establish a more stringent groundwater protection standard if necessary to protect human health or the environment.

#### 10. Corrective Action

##### a. Assessment of Corrective Measures at Type I Surface Impoundments

i. Within 90 days of finding that any of the assessment monitoring parameters or constituents have been detected at a statistically significant level exceeding the groundwater protection standards defined under this Section, the permit holder must initiate an assessment of corrective measures.

ii. The permit holder must continue to monitor in accordance with the assessment monitoring program throughout the period of corrective action, as specified in this Section.

iii. The assessment shall include an analysis of the effectiveness of potential corrective measures in meeting all of the requirements and objectives of the remedy as described in this Section addressing at least the following:

(a). performance, reliability, ease of implementation, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;

(b). time required to begin and complete the remedy;

(c). costs of remedy implementation; and

(d). institutional requirements such as state or local permit requirements or other environmental or public health requirements that may substantially affect

implementation of the remedy.

iv. The results of the corrective measures assessment must be discussed by the permit holder, in a public meeting prior to the selection of remedy, with interested and affected parties.

b. Selection of Remedy and Corrective Action Plan at Type I Surface Impoundments

i. Based on the results of the corrective measures assessment conducted under this Section, the permit holder must select a remedy that, at a minimum, meets the standards of this Section. Within 180 days after initiation of the corrective measures assessment required in this Section, the permit holder must submit four bound copies (8 1/2 by 11 inches) of a corrective-action plan, describing the selected remedy, which will meet the requirements of this Section. The corrective-action plan must also provide for a corrective-action groundwater monitoring program as described in this Section.

ii. Remedies must:

(a). be protective of human health and the environment;

(b). attain the groundwater protection standard as specified

pursuant to this Section;

(c). control the source(s) of releases so as to reduce or eliminate, to the maximum extent practicable, further releases of assessment monitoring parameters or constituents into the environment that may pose a threat to human health or the environment; and

(d). comply with standards for management of wastes as specified in this Section;

iii. In selecting a remedy that meets the standards of this Section, the permit holder shall consider the following evaluation factors:

(a). long- and short-term effectiveness and protectiveness of the potential remedy(s), along with the degree of certainty that the remedy will prove successful based on consideration of the following:

(1). magnitude of reduction of existing risks;

(2). magnitude of residual risks in terms of likelihood of further releases due to waste remaining following implementation of a remedy;

(3). type and degree of long-term management required, including monitoring, operation, and maintenance;

(4). short-term risks that might be posed to the community, workers, or the environment during implementation of such a remedy, including potential threats to human health and the environment associated with excavation, transportation, and redisposal of containment;

(5). time until full protection is achieved;

(6). potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, redisposal, or containment;

(7). long-term reliability of the engineering and institutional controls; and

(8). potential need for replacement of the remedy.

(b). effectiveness of the remedy in controlling the source to reduce further releases based on consideration of the following factors:

(1). extent to which containment practices will reduce further releases;

(2). extent to which treatment technologies may be used.

(c). ease or difficulty of implementing a potential remedy(s) based on consideration of the following types of factors:

(1). degree of difficulty associated with constructing the technology;

(2). expected operational reliability of the technologies;

(3). need to coordinate with and obtain necessary approvals and permits from other agencies;

(4). availability of necessary equipment and specialists; and

(5). available capacity and location of needed treatment, storage, and disposal services.

(d). practicable capability of the permit holder, including a consideration of the technical and economic capability; and

(e). degree to which community concerns are addressed by a potential remedy(s).

iv. The permit holder shall specify as part of the selected remedy a schedule(s) for initiating and completing remedial activities. Such a schedule must require the initiation of remedial activities within a reasonable period of time. The permit holder must consider the following factors in determining the schedule of remedial activities:

(a). extent and nature of contamination;

(b). practical capabilities of remedial technologies in achieving compliance with groundwater protection standards established under this Section and other objectives of the remedy;

(c). availability of treatment or disposal capacity for wastes managed during implementation of the remedy;

(d). desirability of utilizing technologies that are not currently available, but which may offer significant advantages over already available technologies in terms of effectiveness, reliability, safety, or ability to achieve remedial objectives;

(e). potential risks to human

health and the environment from exposure to contamination prior to completion of the remedy;

aquifer including:

(f). resource value of the

future uses;

(1). current and

withdrawal rate of users;

(2). proximity and

quantity and quality;

(3). groundwater

to wildlife, crops, vegetation, and physical structures caused by exposure to parameters or constituents;

(4). potential damage

characteristic of the facility and surrounding land;

(5). hydrogeologic

removal and treatment costs; and

(6). groundwater

availability of alternative water supplies;

(7). cost and

the permit holder; and

(g). practicable capability of

(h). other relevant factors.

v. The administrative authority may determine that remediation of a release of an assessment monitoring parameter or constituent from a facility is not necessary if the permit holder demonstrates to the satisfaction of the administrative authority that:

(a). the groundwater is additionally contaminated by substances that have originated from a source other than a facility and those substances are present in such

concentrations that cleanup of the release from the facility would provide no significant reduction in risk to actual or potential receptors; or

(b). parameter or constituent is present in groundwater that:

(1). is not currently or reasonably expected to be a source of drinking water; and

(2). is not hydraulically connected with waters to which the parameters or constituents are migrating or are likely to migrate in a concentration that would exceed the groundwater protection standards established under this Section; or

(c). remediation of the release(s) is technically impracticable; or

(d). remediation results in unacceptable cross-media impacts.

vi. A determination by the administrative authority pursuant to this Section shall not affect the authority of the administrative authority to require the permit holder to undertake source control measures or other measures that may be necessary to eliminate or minimize further releases to the groundwater, to prevent exposure to the groundwater, or to remediate the groundwater to concentrations that are technically practicable and that significantly reduce threats to human health or the environment.

c. Implementation of the Corrective Action Programs at Type I Surface Impoundments

i. After the corrective action plan has been approved by the administrative authority and, based on the corrective action plan schedule established under this Section for initiation and completion of remedial activities, the permit holder must:

(a). implement a corrective-action groundwater monitoring program as described in the approved corrective-action plan that:

(1). at a minimum, meets the requirements of an assessment monitoring program under of this Section;

(2). indicates the effectiveness of the corrective action remedy; and

(3). demonstrates compliance with the groundwater protection standard pursuant to this Section;

(b). implement the corrective-action plan established under this Section.

ii. A permit holder may submit a report to the Solid Waste Division demonstrating, based on information developed after implementation of the corrective action plan has begun or other information, that compliance with requirements of this Section are not being achieved through the remedy selected. A revised corrective-action plan providing other methods or techniques that could practically achieve compliance with the requirements of this Section must accompany the demonstration.

iii. If the administrative authority approves, in writing, the demonstration and revised corrective action plan submitted pursuant to this Section, the permit holder must implement the revised corrective-action plan.

iv. The permit holder may submit a report to the department demonstrating that compliance with the requirements under this Section cannot be achieved with any currently available methods.

v. If the administrative authority approves, in writing, the demonstration submitted pursuant to this Section, the permit holder must, within 30 days of the approval,

submit a plan to the department (which includes an implementation schedule) to implement alternate measures:

(a). to control exposure of humans and the environment to residual contamination as necessary to protect human health and the environment; and

(b). for the control of the sources of contamination, or for the removal or decontamination of equipment, devices, or structures, that are technically practicable and consistent with the overall objective of the remedy.

vi. If the administrative authority approves the plan for alternate measures submitted pursuant to this Section, the permit holder must implement the plan.

vii. All solid wastes that are managed pursuant to a remedy required under this Section, or an interim measure required under this Section, shall be managed in a manner that is protective of human health and the environment; and

viii. Remedies selected pursuant to this Section shall be considered complete when:

(a). the permit holder complies with the groundwater protection standards established under this Section at all points within the plume of contamination that lie beyond the groundwater monitoring well system established under this Section; and

(b). compliance with the groundwater protection standards established under this Section has been achieved by demonstrating that concentrations of assessment monitoring parameters or constituents have not exceeded the groundwater protection standard(s) for a period of three consecutive years using the statistical procedures and performance standards in this Section. The administrative authority may specify an alternative length of time during which the permit holder must demonstrate that concentrations of assessment monitoring parameters or constituents

have not exceeded the groundwater protection standard(s) taking into consideration:

(1). extent and concentration of the release(s);

(2). behavior characteristics of the hazardous parameters or constituents in the groundwater;

(3). accuracy of monitoring or modeling techniques, including any seasonal, meteorological, or other environmental variabilities that may affect the accuracy; and

(4). characteristics of the groundwater;

(c). all actions required to complete the remedy have been satisfied.

(1). Upon completion of the remedy, the permit holder must submit to the administrative authority iii. If assessment monitoring parameters within 14 days a certification that the remedy has been completed in compliance with the requirements of this Section. The certification must be signed by the permit holder and approved by the administrative authority.

(2). When, upon completion of the certification, the administrative authority determines that the corrective action remedy has been completed in accordance with the requirements under this Section, the permit holder shall be released from the requirements for financial assurance for corrective action under LAC 33:VII.727.B.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:2001 et seq.

HISTORICAL NOTE: Promulgated by the Department of Environmental Quality, Office of Solid and Hazardous Waste, Solid

Waste Division, LR 19:187 (February 1993), repromulgated LR 19:1315 (October 1993).

11. Gas Collection and Treatment or Removal System. The following standards apply to Type I surface impoundments not performing clean closure:

a. Each unit of the facility with a potential for methane gas production and migration shall be provided with a methane gas collection and treatment or removal system.

b. The collection system shall be vented to the atmosphere or connected to a dispersal system or resource recovery system in accordance with accepted practices.

c. The gas collection and treatment or removal system shall be such that it limits methane gas to lower-explosive limits at the facility boundary and to 25 percent of the lower-explosive limits in facility buildings.

d. Sampling protocol, chain of custody, and test methods shall be established for all gas collection and treatment or removal systems.

e. Comply with Clean Air Act Amendments.

G. Facility Administrative Procedures.

1. Recordkeeping and Reports:

a. The permit holder shall submit annual reports to the administrative authority indicating quantities and types of solid waste (expressed in wet-weight tons per year), received from in-state generators and from out-of-state generators, during the reporting period. If applicable, the annual report shall also indicate the estimated remaining permitted capacity at the facility as of the end of the reporting period (expressed in wet-weight tons). All calculations used to determine the amounts of solid waste received for disposal and to determine remaining capacity during the annual-

reporting period shall be submitted to the administrative authority. A form to be used for this purpose must be obtained from the Solid Waste Division.

b. The reporting period for the processor and/or disposer annual report shall be from July 1 through June 30, and terminating upon closure of the facility in accordance with the permit.

c. Annual reports shall be submitted to the administrative authority by August 1 of each reporting year.

d. The annual report is to be provided for each individual permitted facility on a separate annual-reporting form.

e. A facility which receives industrial solid waste shall utilize, in its annual report, the seven-digit industrial waste number that has been assigned by the administrative authority or disposal facilities authorized to issue such numbers to the industrial solid waste generator.

f. The permit holder shall maintain at the facility all records specified in the application as necessary for the effective management of the facility and for preparing the required reports. These records shall be maintained for the life of the facility and shall be kept on file for at least three years after closure.

g. The permit holder shall maintain records of transporters transporting waste for processing or disposal at the facility. The records shall include the date of receipt of shipments of waste and the transporter's solid waste identification number issued by the administrative authority.

h. Records kept on site for all facilities shall include, but not be limited to:

i. copies of the applicable Louisiana solid waste rules and regulations;

- construction:
- ii. the permit;
- iii. the permit application;
- iv. permit modifications;
- v. certified field notes for
- control records:
- vi. operator training programs;
- vii. daily log;
- viii. quality-assurance/quality-
- or operator:
- ix. inspections by the permit holder
- x. records demonstrating that
- liners and leak-detection and cover systems are constructed or
- installed in accordance with appropriate assurance procedures;
- xi. monitoring, testing, or
- analytical data;
- xii. any other applicable or required
- data deemed necessary by the administrative authority;
- xiii. records on groundwater
- sampling results; and
- xiv. post-closure monitoring reports;
- and
- xv. copies of all documents
- received from or submitted to the Solid Waste Division.

2. Personnel. An estimate of the minimum personnel, listed by general job classification, required to operate the facility; and

- a. Facilities shall have the personnel

necessary to achieve the operational requirements of the facility.

b. All personnel involved in waste handling at the facility must be trained in procedures to recognize and exclude receipt or disposal of hazardous wastes and PCB wastes.

3. maximum days of operation per week and per facility operating day minimum hours of operation within a 24-hour period).

H. Facility Operations.

1. types of waste (including chemical, physical, and biological characteristics of industrial wastes generated on-site), maximum quantities of wastes per year, and sources of waste to be processed or disposed of at the facility;

2. waste-handling procedures from entry to final disposition, which could include shipment of recovered materials to a user;

3. minimum equipment to be maintained to meet the facilities' operational needs.

4. plan to segregate wastes, if applicable;

5. procedures planned in case of breakdowns, inclement weather, and other abnormal conditions (including detailed plans for wet-weather access and operations);

6. Emergency procedures, equipment, and contingency plans for protecting employees and the general public from accidents, fires, explosions, etc., and provisions for emergency care should an accident occur (including proximity to a hospital, fire and emergency services, and training programs); and

a. A plan outlining facility operations and emergency procedures to be followed in case of accident, fire, explosion, or other emergencies shall be developed and filed with the administrative authority and with the local fire department and the

closest hospital or clinic. The plans shall be updated annually or when implementation demonstrates that a revision is needed.

b. Training sessions concerning the procedures outlined in Subsection D.5.a of this Section shall be conducted annually for all employees working at the facility. A copy of the training program shall be filed with the administrative authority.

7. Provisions for controlling vectors, dust, litter, and odors.

8. Operational Plan. A comprehensive operational plan describing the total operation, including but not limited to inspection of incoming waste to ensure that only permitted wastes are accepted; traffic control; support facilities; equipment operation; personnel involvement; and day-to-day activities. A quality- assurance/quality-control [QA/QC] plan shall be provided for facilities receiving industrial waste; incinerator ash; nonhazardous petroleum- contaminated media; debris generated from underground storage tanks [UST]; friable asbestos; or other special wastes as determined by the administrative authority. The QA/QC plan shall include but not be limited to the necessary methodologies; analytical personnel; preacceptance and delivery restrictions; and appropriate responsibilities of the generator, transporter, processor, and disposer. The QA/QC plan shall ensure that only permitted, nonhazardous wastes are accepted;

a. Facility Limitations

i. The receipt of hazardous waste and PCB waste shall be strictly prohibited and prevented. Any other wastes that present special handling or disposal problems may be excluded by the administrative authority.

ii. Open burning shall not be practiced unless authorization is first obtained from the administrative authority and any other applicable federal, state, and

local authorities.

iii. Salvaging shall be prevented unless approved by the administrative authority.

iv. Scavenging shall be prevented.

b. Facility Operational Plans. Operational plans shall be provided which describe in specific detail how the waste will be managed during all phases of disposal operations. At a minimum, the plan shall address:

i. the route the waste will follow after receipt;

ii. the sequence in which the waste will be processed or disposed of within a unit;

iii. the method and operational changes that will be used during wet weather (particular attention should be given to maintenance of access roads and to water management);

iv. the recordkeeping procedures to be employed to ensure that all pertinent activities are properly documented;

v. the sampling protocol, chain of custody, and test methods that will be used in the gas-monitoring systems;

vi. the engineering protocols and testing frequencies that will be used to ensure that the grade and slope of both the on-site drainage system and the run-on diversion system are maintained and serve their intended functions;

vii. the engineering protocols and testing frequencies that will be used to ensure that the designed capacity of the impoundment remains unchanged; and

viii. the methods and inspection

frequencies that will be used to establish that the levees and required freeboards are maintained.

ix. Surface impoundments shall be inspected daily and after storms to detect evidence of deterioration of the dikes and levees, overtopping, malfunctions, or improper operation. Excessive vegetative growth that prevents proper access, inspection, or operation, or may provide a conduit for groundwater contamination shall be removed.

x. If a leak in an impoundment is found, the administrative authority shall be notified in accordance with LAC 33:I.Subpart 2.

c. Waste Testing. The following operational standards apply to waste testing for facilities receiving industrial solid waste, incinerator ash, or nonhazardous petroleum-contaminated media and debris generated by underground storage tanks (UST):

i. A comprehensive quality-assurance/quality-control plan shall be in place before the receipt of these wastes.

ii. Facilities which receive industrial waste (Type I) shall require testing for TCLP constituents prior to acceptance of the waste and annually thereafter, or documented process knowledge which confirms that the waste is not a characteristic or listed hazardous waste as defined in LAC 33:V.Subpart 1, or by federal regulations. Nonhazardous petroleum-contaminated media and debris generated from underground storage tanks (UST) will require testing for the appropriate constituents of TCLP prior to acceptance of the waste.

iii. Type I Facilities which receive incinerator ash shall require testing of the ash for TCLP metals prior to acceptance and thereafter annually unless the process changes.

9. The operational plans for facilities receiving

waste with a potential to produce gases must include a comprehensive air monitoring plan.

a. Air-monitoring Standards

i. Facilities receiving waste with a potential to produce methane gas shall be subject to the air-monitoring requirements.

ii. The permit holder or applicant subject to air-monitoring requirements shall submit to the administrative authority a comprehensive air-monitoring plan that will limit methane gas levels to less than the lower-explosive limits at the facility boundary and to 25 percent of the lower-explosive limits in facility buildings.

(a). The type and frequency of monitoring must be determined based on the following factors:

(i) soil conditions;

(ii). hydrogeologic conditions surrounding the facility;

(iii). hydraulic conditions surrounding the facility; and

(iv). the location of the facility structures and property boundaries.

(b). The minimum frequency of monitoring shall be quarterly.

iii. If methane gas levels exceeding the limits specified in Subsection D.3.a.ii of this Section are detected, the owner or operator must:

(a). immediately take all necessary steps to ensure protection of human health and notify the administrative authority;

(b). within seven days of detection, submit a report to the administrative authority that provides the methane gas levels detected and a description of the steps taken to protect human health; and

(c). within 30 days of detection, submit a remediation plan for the methane gas releases to the administrative authority. The plan shall describe the nature and extent of the problem and the proposed remedy, and shall include an implementation schedule. The plan must be implemented within 60 days of detection.

iv. The permit holder shall notify the administrative authority when strong odors occur at facility boundaries or when methane gas levels exceed the limit specified in Subsection D.3.a.ii of this Section.

v. Records of inspections, surveys, and gas monitoring results shall be maintained at the facility.

.vii. Facilities must ensure that the units not violate any applicable requirements developed under a state implementation plan (SIP) approved or promulgated pursuant to Section 110 of the Clean Air Act, as amended.

#### I. Implementation Plan.

1. A construction schedule for existing facilities which shall include beginning and ending time-frames and time-frames for the installation of all major features such as monitoring wells and liners. (Time-frames must be specified in days, with day one being the date of standard permit issuance); and

2. details on phased implementation if any proposed facility is to be constructed in phases.

3. The implementation plan must include a plan for closing and upgrading existing operating areas if the application is for expansion of a facility or construction of a replacement facility.

## J. Facility Closure Requirements

### 1. Notification of Intent to Close a Facility.

All permit holders shall notify the administrative authority in writing at least 90 days before closure or intent to close, seal, or abandon any individual units within a facility and shall provide the following information:

- a. date of planned closure;
- b. changes, if any, requested in the approved closure plan; and
- c. closure schedule and estimated cost.

2. Preclosure Requirements. The following standards apply to preclosure requirements for surface impoundments with on-site closure:

- a. All facilities with a potential for gas production or migration shall provide a gas collection and treatment or removal system.
- b. The runoff-diversion system shall be maintained and modified to prevent overflow of the facility to adjoining areas.

### 3. Closure Requirements

- a. Surface liquids and sludges containing free liquids shall be dewatered or removed.
- b. If a clean closure is achieved, there are no further post-closure requirements. The closure plan must reflect a method for determining that all waste has been removed and such a plan shall, at a minimum, include the following:
  - i. identification (waste analysis) of the wastes that have entered the facility;
  - ii. selection of the indicator

parameters to be sampled which are intrinsic to the waste that have entered the facility in order to establish clean-closure criteria. Justification of the parameters selected shall be provided in the closure plan;

iii. sampling and analyses of the uncontaminated soils in the general area of the facility for a determination of background levels using the indicator parameters selected. A diagram showing the location of the area proposed for the background sampling, along with a description of the sampling and testing methods, shall be provided;

iv. a discussion of the sampling and analyses of the "clean" soils for the selected parameters after the waste and contaminated soils have been excavated. Documentation regarding the sampling and testing methods (i.e., including a plan view of the facility, sampling locations, and sampling quality-assurance/quality-control programs) shall be provided;

v. a discussion of a comparison of the sample(s) from the area of the excavated facility to the background sample. Concentrations of the selected parameter(s) of the bottom and side soil samples of the facility must be equal to or less than the background sample to meet clean closure criteria;

vi. analyses to be sent to the administrative authority confirming that clean closure has been achieved;

vii. identification of the facility to be used for the disposal of the excavated waste; and

viii. a statement from the permit holder indicating that, after the closure requirements have been met, the permit holder will file a request for a closure inspection before backfilling takes place. The administrative authority will determine whether the facility has been closed properly.

c. If solid waste remains at the facility,

the following closure and post-closure requirements shall apply:

i. Final cover shall be placed on top of the solidified waste that is used as the grading layer to provide a stable base for subsequent layers.

ii. Final cover shall be a minimum of 24 inches of recompacted clay with a permeability of less than  $1 \times 10^{-7}$  cm/sec or shall be at least as impermeable as the liner system beneath the cover, whichever is less.

iii. A minimum of six inches of topsoil, to support vegetative growth, shall be placed on top of the membrane when any synthetic membrane is used as part of the final cover.

iv. After a closure inspection and approval, the permit holder shall plant a ground cover to prevent erosion and to return the facility location to a more natural appearance.

v. Other covers that satisfy the purposes of minimizing infiltration of precipitation, fire hazards, odors, vector food and harborage, as well as discouraging scavenging and limiting erosion, may be submitted for consideration by the administrative authority.

vi. Synthetic material or a combination of clay and synthetic material approved by the administrative authority may also be used as a final cover.

vii. Alternate final cover used pursuant to Subsection E.3.a.iv and v of this Section must provide performance equivalent to or better than the final cover requirements in Subsection E.3.a.ii and iii of this Section.

viii. For effective drainage, the side slopes shall be no steeper than than 3(H):1(V) and the top of the final cap shall be at minimum a four percent slope.

b. Surface impoundments must be closed in a manner that minimizes the need for further maintenance and minimizes the post-closure release of leachate to ground or surface waters to the extent necessary to protect human health and the environment. Quality-control procedures must be developed and implemented to ensure that the final cover is designed, constructed, and installed properly

c. an estimate of the largest area of the facility ever requiring a final cover at any time during the active life;

d. an estimate of the maximum inventory of solid waste ever on-site over the active life of the facility; and

e. a schedule for completing all activities necessary for closure.

f. the sequence of final closure of each unit of the facility, as applicable;

g. a drawing showing final contours of the facility; and

h. a copy of the document that will be filed upon closure of the facility with the official parish recordkeeper indicating the location and use of the property for solid waste disposal, unless the closure plan specifies a clean closure.

i. the estimated cost of closure of the facility, based on the cost of hiring a third party to close the facility at the point in the facility's operating life when the extent and manner of its operation would make closure the most expensive.

j. The permit holder shall update the parish mortgage and conveyance records by entering the specific location of the facility and specifying that the property was used for the disposal of solid waste. The document shall identify the name and address of the person with knowledge of the contents of the facility. A form to be used for this purpose is provided in Appendix

F. The facility shall provide the Solid Waste Division with a true copy of the document filed and certified by the parish clerk of court.

k. Upon determination by the administrative authority that a facility has completed closure in accordance with an approved plan, the administrative authority shall release the closure fund to the permit holder.

4. If the permit holder demonstrates that removal of most of the solid waste to achieve an alternate level of contaminants based on indicator parameters in the contaminated soil will be adequately protective of human health and the environment (including groundwater), the administrative authority may decrease or eliminate the post-closure period. Within 90 days after such a closure is completed, the permit holder must have entered in the mortgage and conveyance records of the parish for the property, a notation stating that solid waste remains at the site and providing the indicator levels obtained during closure.

5. Upon determination by the administrative authority that a facility has completed closure in accordance with an approved plan, the administrative authority shall release the closure fund to the permit holder.

K. Facility Post-closure.

1. The post-closure plan must include the following:

a. specification of the long-term use of the facility after closure, as anticipated; and

b. the cost of conducting post closure of the facility, based on the estimated cost of hiring a third party to conduct post-closure activities in accordance with the closure plan.

c. the method for conducting post-closure activities, including a description of the monitoring and maintenance activities and the frequency at which they will be performed;

d. the method for abandonment of monitoring systems, leachate collection systems, gas-collection systems, etc.;

e. measures planned to ensure public safety, including access control and gas control; and

period.

f. a description of the planned uses of the facility during the post-closure

g. The anticipated length of post closure

2. Post-closure Care Length

a. Facilities which receive solid waste on or after October 9, 1993, must remain in post-closure care for 30 years after closure of the facility.

b. Existing facilities which do not receive waste on or after October 9, 1993, must remain in post-closure care for three years after closure of the facility.

c. However, if the facility received waste on or after October 9, 1991, the final cover must be maintained as specified in Subsection F.2.b of this Section for 30 years after closure.

d. The length of the post-closure care period for landfills may be:

i. decreased by the administrative authority if the permit holder demonstrates that the reduced period is sufficient to protect human health and the environment and this demonstration is approved by the administrative authority (Any demonstration must provide supporting data, including adequate groundwater monitoring data.); or

ii. increased by the administrative authority if the administrative authority determines that the lengthened period is necessary to protect human health and the environment.

3. The post-closure care, except as otherwise specified above, must consist of at least the following:

a. maintaining the integrity and effectiveness of the final cover (including making repairs to the cover as necessary to correct the effects of settling, subsidence, erosion, or other events), preventing run-on and runoff from eroding or otherwise damaging the final cover; and providing annual reports to the Solid Waste Division on the integrity of the final cap;

b. maintaining and operating, if applicable, the leak-detection system;

c. maintaining and operating the gas-collection, and treatment or, removal system and the gas-monitoring system; and

d. maintaining and monitoring the groundwater-monitoring system.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:2001 et seq.

HISTORICAL NOTE: Promulgated by the Department of Environmental Quality, Office of Solid and Hazardous Waste, Solid Waste Division, LR 19:187 (February 1993), repromulgated LR 19:1316 (October 1993).

1. The length of the post-closure care period for surface impoundments may be:

a. decreased by the administrative authority if the permit holder demonstrates that the reduced period is sufficient to protect human health and the environment and this demonstration is approved by the administrative authority (Any demonstration must provide supporting data, including adequate groundwater monitoring data.); or

b. increased by the administrative authority if the administrative authority determines that the lengthened period is necessary to protect human health and the environment.

#### L. Financial Responsibility.

1. the name and address of the person who currently owns the land and the name and address of the person who will own the land if the standard permit is granted (if different from the permit holder, provide a copy of the lease or document which evidences the permit holder's authority to occupy the property); or

2. the name of the agency or other public body that is requesting the standard permit; or, if the agency is a public corporation, its published annual report; or, if otherwise, the names of the principal owners, stockholders, general partners, or officers;

3. evidence of liability coverage, including:
  - a. personal injury, employees, and the public (coverage, carriers, and any exclusions or limitations);
  - b. property damage (coverage and carrier);
  - c. environmental risks; and
4. evidence of a financial assurance mechanism for closure and/or post-closure care and corrective action for known releases when needed.

M. Special Requirements. The administrative authority may require additional information for special processes or systems and for supplementary environmental analysis.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:2001 et seq.

HISTORICAL NOTE: Promulgated by the Department of Environmental Quality, Office of Solid and Hazardous Waste, Solid Waste Division, LR 19:187 (February 1993), amended LR 19:1143 (September 1993).

**§905. Part III: Additional Supplementary Information**

The following supplementary information is required for all solid waste processing and disposal facilities. All responses and exhibits must be identified in the following sequence to facilitate the evaluation:

- A. a discussion demonstrating that the potential and real adverse environmental effects of the facility have been avoided to the maximum extent possible;
- B. a cost-benefit analysis demonstrating that the social and economic benefits of the facility outweigh the environmental-impact costs;
- C. a discussion and description of possible alternative projects which would offer more protection to the environment without unduly curtailing nonenvironmental benefits;
- D. a discussion of possible alternative facilities which would offer more protection to the environment without unduly curtailing nonenvironmental benefits; and

E. a discussion and description of the mitigating measures which would offer more protection to the environment than the facility, as proposed, without unduly curtailing nonenvironmental benefits.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:2001 et seq.

HISTORICAL NOTE: Promulgated by the Department of Environmental Quality, Office of Solid and Hazardous Waste, Solid Waste Division, LR 19:187 (February 1993).