APRIL 2005 CROW TRIBAL LEGISLATURE

BILL NO. CLB05-13

INTRODUCED BY CARL E. VENNE, CHAIRMAN
CROW TRIBAL EXECUTIVE BRANCH

A BILL FOR AN ACT ENTITLED "CROW TRIBAL LANDFARM ACT" TO ADOPT AN ORDINACE FOR SAFE AND PROPER MANGEMENT OF CONTAMINATED SOIL TREATED BY LANDFARMING, THE PERMITTING OF LANDFARM TREATMENT FACILITIES AND SITING OF FACILITIES.

Pursuant to the authority vested in the Legislative Branch of the Crow Tribe by and through its organic document, the Constitution and Bylaws dated July 14, 2001, and particularly Article V Section 2 (a) and (c) and its authority to provide for the health, safety, morals and welfare of the Tribe, the Crow Tribal Legislative Branch of the Crow Tribe hereby adopts this Ordinance which shall establish a program of regulation to safely and properly manage contaminated soil to be treated by landfarm practices, permitting of landfarm treatment facilities and siting of facilities.

In any suit, action or proceeding involving the validity or enforcement of or relating to any of its contracts, the Crow Tribal Environmental Quality Council shall be conclusively deemed to have become established and authorized to transact business and exercise its powers upon proof of the adoption of this Ordinance by the Legislative Branch of the Crow Tribe and approved by the Chairman of the Crow Tribe. A copy of this Ordinance duly certified by the Secretary of the Executive Branch shall be admissible in evidence in any suit, action or proceeding.

ARTICLE I

DECLARATION OF NEED

It is hereby declared:

1. That within the exterior boundaries of the Crow Indian Reservation there is a responsibility and need for the Crow Tribe to protect the public health and safety, the health of living organisms, and the environment from the effects of the improper, inadequate, or unsound management of contaminated soils.
2. That there is need to develop a program of regulation over contaminated soils and the generation, storage, treatment and disposal of contaminated soils within the Crow Reservation.

3. That it should be the responsibility of the Crow Tribal Environmental Department to issue Licenses and Permits for landfarm practices and to enforce standards and procedures for the protection of the environment.
4. Any rules created to implement policy by the council shall be approved at the Legislative session or special session for approval including the signature of the Chairman prior to becoming enforceable.

CERTIFICATION

I hereby certify that the adoption of this Bill was duly approved by the Crow Tribal Legislature with a vote of 15 in favor, 0 opposed, and 0 abstained and that quorum was presented on this 19th day of April 2005.

Speaker of the House
Crow Tribal Legislature

ATTEST:

Secretary, Crow Tribal Legislature

EXECUTIVE ACTION

✓ I hereby
___ approve,
___ veto
this Bill, Crow Tribal Landfarm Act pursuant to the authority vested in the Chairman of the Crow Tribe by Article V, Section 8 of the Constitution and Bylaws of the Crow Tribe of Indians, on this 2 day of May, 2005.

Carl E. Venne, Chairman
Crow Tribal Executive Branch

Bill or Resolution Number CLBOS-13 Introduced by: Executive Date of Vote 4.19.05
Representative

	Yes	No	Abstain
B. Cloud	✓		
C. Goes Ahead	✓		
O. Costa	✓		
V. Crooked Arm			
R. Iron	✓		
J. Stewart	✓		
E. Fighter	✓		
L. Costa	✓		
L. Hogan	✓		
D. Old Elk	✓		
K. Real Bird			
E. Pease	✓		
S. Medicine Horse	✓		
L. Not Afraid	✓		
P. Real Bird	✓		
D. Wilson			
J. Stone *Secretary of the House*	✓		
W. Plain Feather *Speaker of the House*	✓		
Totals:	15	0	0

Results of Vote:

Passed | Not Passed | Tabled | Veto Override

Signature of Officer: [signature] Date: 4.19.05

Crow Tribal Landfarm Act

1_____ **Short Title.** This part shall be known and may cited as the "Crow Tribal Landfarm Act".

2_____ **Purpose.** (1) The Legislature finds that the safe and proper management of contaminated soil to be treated by landfarming, the permitting of landfarm treatment facilities, and the siting of facilities are matters for Crow Tribal regulation and are environmental issues that should properly be addressed and controlled by the tribe.

(2) It is the purpose of this part and it is the policy of this tribe to protect the public health and safety, the health of living organisms, and the environment from the effects of the improper, inadequate, or unsound management of contaminated soils; to establish a program of regulation over contaminated soils and the generation, storage, transportation, treatment, and disposal of contaminated soils; to ensure the safe and adequate management of contaminated soils within the boundaries of this tribe, and to authorize the department to adopt, administer, and enforce a Landfarm program.

3_____ **Non-Landfarm Soil Treatment Facilities.** (1) The licensee of a facility that uses non-landfarm remediation techniques (thermal, land application, biopile treatment technology, or other methods approved by the department) shall obtain department approval prior to accepting any contaminated soil for treatment or storage. Any non-landfarm remediation technique must protect human health and the environment at a level commensurate with the landfarm standards provided in this subchapter.

4_____ **Siting Standards For Landfarm Soil Treatment Facilities and One-Time Landfarms.** (1) The department may not issue a license for a landfarm facility unless it is located on a site meeting the following standards:

(a) a sufficient acreage of suitable land must be available to manage all contaminated soils on site;

(b) not located in a zoned residential area or other area where the facility is otherwise prohibited;

(c) not located within any 100 year floodplain;

(d) not located in a wetland;

(e) located in an area that will not result in the pollution of ground and surface waters or any public or private water supply system; Specifically, treatment cells:

(i) must be more than 1,000 feet away from domestic water wells;

(ii) must be more than 500 feet away from any residential property boundary;

(iii) may not be located within 100 feet from the mean high water mark of surface water, or within 100 feet from the centerline of an intermittent drainage;

(iv) must be at least 25 feet vertical separation between the bottom of the

treatment zone and the uppermost aquifer's seasonally high water level beneath the facility;

(f) a facility may not be located within 200 feet (60 meters) of an unstable area unless the licensee demonstrates to the department that an alternative setback distance of less than 200 feet (60 meters) will prevent damage to the structural integrity of the treatment unit and will be protective of human health and the environment;

(g) the soil below the treatment zone must not exceed a hydraulic conductivity of 1 x 10-5 cm\sec to a depth of 3 feet, and documentation of hydraulic conductivity must be provided by a department approved methodology; and

(h) a facility must be located and managed to allow for reclamation and reuse of the land.

(2) One-time landfarms may not be located within one mile of another landfarm facility.

5_____ **Design Criteria For Landfarm Soil Treatment Facilities.** (1) Facilities where the soil below treatment zone (BTZ) has not been documented to meet the standards set forth in **4(1)(g)** must be constructed with a composite or synthetic barrier layer meeting the design standards of **[5] (1) and (4).**

(2) Where the depth to the uppermost aquifer's seasonally high water level has been proven to be greater than 25 feet, but less than 50 feet, the licensee shall monitor groundwater according to a department approved plan.

(3) An intermediate or major landfarm facility must be designed to:

(a) restrict access to the facility through the use of fences and locking gates;

(b) establish a treatment cell slope gradient of 2% or less;

(c) prevent the flow of storm water run-on and contain storm water run-off as follows:

(i) berms must be constructed around the perimeter of each treatment cell;

(ii) berms and other surface water run-on and run-off controls must be designed to withstand a 24-hour, 25-year precipitation event; and

(iii) berms must be constructed of clay or suitable material that can be compacted to prevent storm water migration; and

(d) allow the sampling of soil and soil interstice below treatment zone ("BTZ") in a manner that protects the competency of the BTZ.

(4) Only an intermediate or major landfarm facility may accept liquid loads incapable of passing a paint filter test according to **EPA Method 9095**. Such a facility must have a surface impoundment that meets the following criteria:

(a) the liner and berms must be designed to meet a compacted soil standard of at least 2 feet of 1x10-7 cm\sec hydraulic conductivity; or

(i) the basin and berms must be lined with synthetic fabric meeting this requirement; or

(ii) the basin and berms must contain a composite liner meeting this requirement;

(b) construction of the surface impoundment liner and berms must be verified by means of construction quality control (CQC) and construction quality assurance (CQA) plans and testing for construction of these elements in accordance with submitted design specifications; and

(c) the licensee shall submit and obtain the department's approval for CQC and CQA plans, and a final report on the construction, prior to accepting liquid waste;

(5) A soil treatment facility that stockpiles or stores contaminated soils outside of the bermed treatment cell must meet the following criteria:

(a) there must be a specific storage area with a sufficient depth of low-permeability subsoils or liners to prevent potential migration of contaminants;

(b) the licensee shall identify the storage area on the facility map and in the plan of operations.

(c) the storage area must be bermed to prevent surface water run-on/run-off; and

(d) the subsurface of any unlined storage area must be sampled upon removal of the stockpiled soil to test for contaminant infiltration;

(e) the storage area must meet the requirements of (1) of this rule.

(6) A licensee of a minor landfarm shall restrict public access by a method approved by the department. Access may be restricted through a combination of natural and artificial barriers.

(7) A licensee of a minor landfarms shall prevent pollution of Crow Tribal waters through the use of appropriate run-on and run-off controls.

6_____ **Application For Landfarm Facility Licence.** (1) An applicant for a landfarm facility license shall submit the application materials specified; any owner or operator wishing to establish a solid waste management system shall first submit an original application and 3 copies for a license to the department. The application must be signed by the person responsible for the overall operation of the facility. The department shall furnish application forms to interested persons. Such forms shall require at least the following information:

(1) name and business address of applicant;

(2) legal and general description and ownership status of the proposed locations, including the land owner's name and address;

(3) documentation of ownership of the property or documentation demonstrating that the applicant has the right to operate a solid waste management system on the property;

(4) total acreage of proposed facility;

(5) population size and centers to be served by the proposed facility;

(6) name, address, and location of any public airports within 5 miles of the proposed facility;

(7) location of any lakes, rivers, streams, springs, or bogs, onsite or within 2 miles of the facility boundary;

(8) facility location in relation to the base floodplain of nearby drainages;

(9) pertinent water quality information;

(10) geological, hydrological, and soil information, including at least the following:

(a) Class II disposal facilities must submit geological, hydrological, and soil information that includes the following at a minimum:

(i) a hydrogeological and soils study as specified in **[12];**

(ii) types and regional thickness of unconsolidated soils materials;

(iii) types and regional thickness of consolidated bedrock materials;
(iv) regional and local geologic structure, including bedrock strike and dip, and fracture patterns;
(v) geological hazards including but not limited to slope stability, faulting, folding, rockfall, landslides, subsidence, or erosion potential, that may affect the design and operation of the facility for solid waste management;
(vi) depth to and thickness of perched ground water zones and uppermost aquifers;
(vii) information regarding any domestic wells within one mile of the site boundary, including well location, well depth, depth to water, screened intervals, yields and aquifers tapped;
(viii) an evaluation of the potential for impacts to existing surface water and ground water quality from the proposed facility for solid waste management;
(b) transfer station and Class III and Class IV disposal facility applications must include sufficient soils, hydrologic and geologic information so that the department can evaluate the proposed safety and environmental impact of the proposed design;
(c) a ground water monitoring plan or a demonstration meeting the requirements of the following must be submitted for Class IV disposal facilities;
(i) Ground water monitoring at a facility may be waived by the department if the facility owner or operator can demonstrate there is no potential for hazardous constituents to contaminate the uppermost aquifer.
(ii) No-migration petitions must be accompanied by facility specific data and studies and must be certified by a qualified ground water scientist. No-migration demonstrations must be based on:
(1) Site-specific field collected measurements, sampling, and analysis of physical, chemical, and biological processes affecting contaminant fate and transport; and
(2) Contaminant fate and transport predictions that maximize contaminant migration and consider impacts on human health and environment.
(iii) No-migration petitions must demonstrate that ground water will not become contaminated for at least 30 years after the entire facility is closed.
(iv) The department may deny any no-migration petition or variance if the department determines that insufficient data and studies exist to demonstrate no potential for migration of contaminants or leachate at a facility.
(vii) The department may require the installation of vadose zone monitoring devices, piezometers or saturated zone monitor wells as part of a ongoing no-migration demonstration.

(11) present uses of adjacent lands and the owner's name and current address;
(12) zoning information;
(13) site maps and plans, drawn to a convenient common scale, that show the location and dimensions of any planned excavations, buildings, roads, fencing, access, or other structures proposed on-site;
(14) in addition to the above required site plan, all facilities which manage Group II waste must submit technical design specifications and a site plan that includes the following:
(a) the type, quantity, and location of any material that will be required for use as a daily and intermediate cover over the life of the site and facility;

(b) the type and quantity of any material that will be required for use as liner material or final cover, including its compaction density and moisture content specifications, the design permeability, and construction quality control and construction quality assurance plans;
(c) the location and depth of cut for any liners;
(d) the location and depths of any proposed fill or processing areas;
(e) the location, dimensions, and grades of any surface water diversion structures;
(f) the location and dimensions of any surface water containment structures, including those designed to impound contaminated runoff leachate, sludge, or liquids for evaporative treatment;
(g) the location of any proposed monitoring points for surface water, ground water quality, and explosive gases;
(h) the location, type, and dimensions of any fencing to be placed on-site;
(i) the final contours and grades of any fill surface after closure;
(j) the location of each discrete phase of development;
(k) the design details and specifications of any final cap, liner, and leachate collection and removal system, including construction quality control and assurance plans and testing for construction of these elements of design;
(l) a location map showing all the proposed structures and areas for unloading, baling, compacting, storage, and loading, including the dimensions, elevations, and floor plans for these structures and areas, including the general process flow; and
(m) the design details and specifications of the facility's drainage, septic and water supply systems;

(15) other maps, drawings related to the design or environmental impact of the proposed facility;

(16) name and address of individual operator;

(17) proposed operation and maintenance plan;

(18) other information necessary for the department to comply with the Crow Tribal Environmental Policy Act chapter 1, parts 1-3;

(19) closure and post-closure care plans; and

(20) Reserved.

(2) An applicant for an intermediate or major landfarm facility license shall also provide the following information for department review and approval:
(a) information regarding liability insurance and any other insurance relating to the facility; and
(b) technical design specifications, construction plans, and a detailed site plan that contain the following:
(i) the location and logs for any soil sample, test pit, boring, or well used to determine site characteristics;
(ii) the type, quantity and source of any material that will be used as liner and berm material, including its compaction density and moisture content specifications, the design permeability, and construction quality control and construction quality assurance plans;
(iii) the design and location of any proposed storage or treatment areas;

(iv) the design and location of any liquid containment or storage structures, including those designed to impound or recirculate run-off, leachate, or other liquids for evaporative treatment or irrigation;
(v) the location, dimensions, and grades of any surface water diversion and drainage structures;
(vi) monitoring system design specifications, and the proposed location of monitoring points for contaminant migration;
(vii) the location, type, and dimensions of any fencing to be placed on-site;
(viii) the projected final contours and grades of all treatment cells after closure;
(ix) the location of each discrete phase of development; and
(x) the design details and specifications of any septic or water supply systems.

7_____ **Requirements For The Operation And Maintenance of Landfarm Facilities.** (1) A person operating an intermediate or major landfarm facility within the Crow Reservation boundaries shall:
(a) submit a quality assurance/quality control (QA/QC) plan and protocol for waste, soil and water sampling events;
(i) the analytical test methods must be consistent for each treatment cell and the wastes placed in the cell.
(ii) The Massachusetts Method for Extractable Petroleum Hydrocarbons (EPH)/Volatile Petroleum Hydrocarbons (VPH); or
(iii) Gasoline Range Organics (GRO)/Diesel Range Organics (DRO)/Total Petroleum Hydrocarbons (TPH) may be used for waste analysis; or
(iv) other Department-approved methods.
(b) collect background soil samples from the proposed treatment cell location(s) before contaminated soil is placed in the treatment cell, as follows:
(i) one composite soil sample consisting of 5 sub-samples taken from 1 to 3 feet below the treatment zone must be collected for each acre of the proposed treatment cell;
(ii) each background sample must, at a minimum, be analyzed for volatile petroleum hydrocarbons (VPH) or total petroleum hydrocarbons (TPH), depending on the method proposed for use by the facility, methyl tertiary-butyl ether(MTBE), benzene, toluene, ethylbenzene, xylene (BTEX), and napthylene (collectively known as MBTEXN),and total RCRA metals.
Sampling and analysis shall be done according to department-approved sampling and analytical methodology;
(iii) additional analyses of background samples may be required if soils accepted for treatment may potentially have constituents not referenced in (ii), above;
(iv) sample holes must be back-filled and compacted with clean soil of the same or lower permeability of the existing soil, or bentonite;
(v) the department reserves the right to diminish the frequency of background sampling based on the applicant's demonstration that sufficient characterization has been achieved.

(2) The licensee of a facility where groundwater monitoring is required shall construct monitoring wells in accordance with [12];

(3) The licensee of a facility that is required to monitor groundwater by subchapter **[5]**, or this rule, shall take background water samples and have them analyzed by department-approved analytical methodologies for conductivity, the constituents required in (1)(b)(ii) of this rule, and any other constituent that may be required by the department before the facility may accept contaminated soils.

(4) The department may require a licensee to conduct groundwater monitoring at a facility if contaminant migration is detected in the below treatment zone area of the treatment cell. If monitoring is required, a licensee shall submit a detection monitoring plan meeting the requirements of Subchapter 9 of this Chapter for department review and approval and then conduct groundwater monitoring pursuant to the approved plan, as follows:

(a) groundwater must be sampled for those contaminant constituents detected in the BTZ; and

(b) groundwater monitoring must continue until contaminants are no longer detected in the BTZ and/or groundwater.

(5) If groundwater monitoring indicates the presence of contaminants, the licensee shall verbally notify the department of the contaminants detected within 48-hours and provide a subsequent written sampling report to the department within 30 days.

(6) If groundwater detection monitoring indicates the presence of contaminant constituents in 2 consecutive sampling events, the licensee shall continue to monitor in accordance with the approved detection monitoring plan and within 90 days prepare and submit an assessment of corrective measures pursuant to;

(a) 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 under (d) of this rule, addressing at least the following:

(b) The 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;

(ii) The time required to begin and complete the remedy;

(iii) The costs of remedy implementation; and

(iv) The institutional requirements such as state or local permit requirements or other environmental or public health requirements that may substantially affect implementation of the remedy(ies).

(c) The owner or operator must discuss the results of the corrective measures assessment, prior to the selection of remedy, in a public meeting with interested and affected parties.

(d) Based on the results of the corrective measures assessment conducted under (a-b) of this rule, the owner or operator must select a remedy that, at a minimum, meets the standards listed in (b) below. The owner or operator must notify the department, within 14 days of selecting a remedy, that a report has been placed in the operating record describing the selected remedy and how it meets the standards in (b) below.

(b) Remedies must:

(i) Be protective of human health and the environment;

(ii) Attain the ground water protection standard as specified pursuant to (5) of this rule;

(7) Once the department approves the assessment of corrective measures, the licensee shall implement the selected remedy.

(8) Before a facility may discharge storm water to tribal waters, or disturb more than one acre of ground during construction or operation, the licensees shall obtain a permit from the department.

(9) The licensee of a facility shall document the initial characterization of contaminated soils prior to application in the treatment cell as follows:

(a) the licensee shall create a waste acceptance form to document source, volume, type and concentration of contaminants within incoming soils.

Analytical documentation for incoming contaminated soils in the form of laboratory reports from a department-approved laboratory must be attached to acceptance forms;

(b) at least 1 composite sample consisting of 5 sub-samples per composite must be collected per each 200 cubic yards of contaminated soil from the same contaminant source;

(i) composite samples must be analyzed for contaminants suspected to be within the soil by analytical methodology approved by the department;

(ii) if the source of contamination within the soil is unknown, the licensee shall consult with the department for preferred analytical methodology; and

(iii) the department may reduce soil characterization sampling frequency for large volumes of soils where it has been demonstrated that the contamination is from one known source and the contaminated soils are naturally homogeneous.

(10) A licensee shall place contaminated soils that do not have analytical documentation upon arrival at the facility within a bermed treatment cell or designed stockpile area for analytical sampling and characterization.

(11) The department may require greater sampling frequency and treatability studies in cases where the contaminant may be complex or difficult to treat.

(12) Incoming volumes of contaminated soils may be placed in the treatment cell with similar types of contaminants (i.e., gasoline, diesel), however:

(a) individual volumes from particular occurrences must be segregated by treatment zone within a treatment cell; and

(b) the licensee shall create a system to identify the boundaries of the individual treatment zone undergoing treatment within the cell.

(13) The licensee of any landfarm facility shall manage each treatment zone within the treatment cell to provide the most efficient and environmentally sound remediation for the type of contaminated soil(s) undergoing treatment as follows:

(a) contaminated soil must be applied in lifts less than or equal to 1 foot;

(b) contaminated soil must be tilled twice during the first month on the treatment cell and at least monthly thereafter, when soils are not frozen;

(c) tillage must occur at the full depth of the treatment zone;

(d) cobbles, boulders, rocks or other consolidated materials and debris that may impede soil mixing and passage of air or water through the soil or damage tillage equipment must be removed and treated separately; and

(e) no more than 1600 cubic-yards of material may be treated per acre at any time.

(14) A licensee may apply liquids into the treatment cells under the following conditions:

(a) the soils undergoing treatment may not be saturated above the field capacity of the soil;

(b) liquid wastes may only be applied to soils containing similar contaminants.

(14) A licensee may use non-naturally occurring bioremediation agents only if approved by the department prior to application to the treatment zone.

(15) Reserved for permits for air when there is a potential to emit air pollutants in excess of the limits set by the Crow Tribe.

(16) The licensee of a landfarm facility shall employ best management practices to control fugitive dust emissions from the facility.

(17) In addition to baseline sampling, a licensee shall take soil treatment samples from the lower half of each treatment cell during April, July, and October, or according to an alternative schedule approved by the department.

(18) A licensee shall have treatment samples analyzed using the same methodology as was performed to determine baseline conditions.

(a) If new contaminants have been added to the treatment zone after baseline sampling, all contaminants need analysis.

(b) The department may approve alternative methodologies.

(19) The licensee shall regularly monitor the following treatment parameters and make any necessary adjustment to maintain optimum bioremediation conditions for all types of contaminated soils under
treatment:

(a) organic carbon to available nitrogen to phosphorous ratio (C:N:P);

(b) moisture content;

(c) soil pH;

(d) temperature (if applicable).

(20) The licensee of an intermediate or major landfarm facility shall collect and analyze 1 composite samples per ½ acre from 1 to 3 feet below the treatment zone of the treatment cell at the end of each treatment season.

(a) Each sample must be composed of 5 sub-samples.

(b) All sub-samples must be from the same treatment cell.

(c) At least one composite sample must be taken for each treatment cell.

(d) Below treatment zone samples must be analyzed using the same methodology as was performed to determine background, or a department approved alternative.

(e) Below treatment zone sampling must be done in a manner protective to the liner of the treatment cell, and must not open a contaminant migration pathway.

(21) If contaminant migration or leaching is indicated by changes in the background chemistry of the below treatment zone:

(a) the licensee must notify the department;

(b) additional contaminated soils may not be brought to the facility without department approval;

(c) facility operations must be modified under corrective measures approved by the department until contaminant migration is no longer indicated; and

(d) the department may require the licensee to clean-up and close the facility if the licensee cannot document that contaminant migration has been corrected.

(22) The following chart defines the maximum allowable metals content in applied wastes and the treatment zone of landfarm facilities:

ELEMENT	MAXIMUM TCLP CONCENTRATION (in ppm)
Arsenic (As)	5.0
Barium (Ba)	100
Cadmium (Cd)	1.0
Chromium (Cr)	5.0
Lead (Pb)	5.0
Mercury (Hg)	0.2
Selenium (Se)	1.0
Silver (Ag)	5.0

(23) Minor landfarms may only accept or possess petroleum contaminated soils.

8_____ **Landfarm Facility Record Keeping Requirements.** (1) The licensee of a landfarm facility shall maintain an operating record at the facility or at an alternative location approved by the department.

(2) The licensee shall keep the operating record up-to-date and it must be available for department inspection during normal business hours or by previous arrangement. The operating record must contain the following information as it becomes available:

(a) background analytical documents for soils below the treatment zone and groundwater (if required);

(b) waste stream acceptance forms and analytical documentation;

(c) treatment zone application dates;

(d) treatment zone maintenance items, including appropriate maps and dates for:

(i) tillage events;

(ii) carbon to nitrogen to phosphorous (C:N:P) ratio and nutrient addition;

(iii) moisture content and irrigation;

(iv) soil pH and pH adjustments, if necessary;

(v) addition of bulking agents;

(vi) addition of bioremediation enhancers or amendments; or

(vii) other information relative to treatment zone maintenance;

(e) reports, dates and maps for remediation sampling events and analytical results;

(f) reports, dates and maps for below treatment zone sampling events and analytical results;

(g) groundwater sampling events and analytical results (if required);

(h) quarterly static water level measurements (if required);

(i) date and volume of treated soils removed from treatment cell; and

(j) disposition and end use for treated soils.

(3) The licensee shall maintain the following information in the operating record as it becomes available and send it to the department as part of the annual report required under **[13]**:

(a) dates and results of all remediation sampling events for each separate volume of contaminated soil under treatment, including generator tracking code, type of contaminant, test methodology, baseline concentration, volume being treated, and months under treatment;
(b) dates, types and results of all treatment maintenance activities such as BTZ sampling, C:N:P monitoring, tilling, irrigation, nutrient or bulking supplementation, and other pertinent activities;
(c) updates or changes to the site map and/or operational plan.

9_____ **Landfarm Facility Remediation Requirments.** (1) Contaminated soils may be considered remediated when:
(a) Total Petroleum Hydrocarbons,levels are permanently reduced to below 100 parts per million (ppm) and total BTEX concentrations are less than 10 ppm, of which benzene cannot be greater than 1 ppm, or
(b) Total Extractable Hydrocarbons and Total Purgeable Hydrocarbons levels are permanently reduced to below 100 parts per million (ppm) and total BTEX concentrations are less than 10 ppm, of which benzene cannot be greater than 1 ppm, or
(c) as set forth in (2) of this rule;
(d) soils contaminated with constituents other than petroleum hydrocarbons must be evaluated on a case by case basis. Department approval is required.

(2) Documented analytical results from at least 3 seasonal remediation sampling events must demonstrate contaminant concentrations have been stabilized and that:
(a) remediation levels have been achieved through demonstration that biodegradation has occurred to the maximum extent possible under proper operating conditions; and
(b) three consecutive seasonal sampling results have equal concentrations of contaminants being analyzed or are all within a 5% range.

(3) When remediation of contaminated soils within a treatment zone has been documented to be complete, the following may occur:
(a) the remediated material may be removed and replaced by additional contaminated soils for treatment;
(b) an additional lift may be applied to the treatment zone for treatment if:
(i) the maximum depth of remediated soil within the treatment cell does not exceed a depth of 5 feet;
(ii) the run-on/run-off berms are maintained and/or modified in a manner which accommodates the changes within the treatment cell(s);
(iii) below treatment zone sampling occurs at the appropriate depth necessary to reach the original 1 to 3 feet BTZ;
(c) the treatment cell may be closed and reclaimed.

(4) A licensee may not supply, and a person may not use, remediated soils in any situation that may threaten human health and the environment, for residential topsoil, or for any purpose in school playgrounds or day care centers.

(5) Appropriate end-uses for soils remediated according to (1) or (2), above, are as follows:

Major Contaminant	POST REMEDIATION USE LEVELS (ppm)			
	1	2	3	4
Heavy Fuel hydrocarbons (C24-30)	<60	60 200	200 2000	>2000
Diesel (C12-C24)	<10	10 200	200 500	>500
Gasoline (C6-C12)	<20	20 100	100 250	>250
Benzene	<0.005	0.005 to 0.5	<0.5	>0.5
Ethylbenzene	<0.005	.005 20	<20	>20
Toluene	<0.005	.005 40	<40	>40
Xylenes (Total)	<0.005	.005 20	<20	>20

POST REMEDIATION USE

Level 1: Any use not prohibited by (4) above, which will not threaten human health or the environment.
Level 2: Backfill at a cleanup site, fill in industrial areas, daily cover or fill at licensed landfills, road sub grade or road construction fill.
Level 3: Daily cover or disposal in a licensed Class II landfill, road sub grade that will be completly covered with impermeable road surface material, or re treatment at a licensed landfarm.
Level 4: Re treatment in a landfarm or disposal in a licensed Class II facility.
(a) A person may not use soils with contaminants other than those listed in this subsection until they have been evaluated by the Department on a case by case basis based on biodegradation performance and risk evaluation.
(b) Soils with concentrations of metals exceeding the limits specified in subchapter 7 of this chapter may be used only for Level 3 or 4 uses.

10_____ **Landfarm Facility Closure Requirements.** (1) A licensee shall close a facility under a plan approved by the department.

(2) All contaminated soils under management must be documented to have achieved maximum remediation pursuant to **[9]**.

(3) Remediated soils that will be left at the facility must not contain RCRA metals above the limit specified in subchapter **[7](22),** or nitrates or phosphorous above the annual agronomic uptake rate for the proposed re-vegetation.

(4) closure options for remediated soils include:

(a) removing remediated soils to a location approved by the department in conformance with **[9]**; or
(b) spreading and contouring soils remediated to Level 1 of **[9](5)** in place; or
(c) covering soils remediated to Levels 2 or 3 of **[9](5)** with two feet of earthen cover capable of supporting native vegetation.

(5) Facility berms must be removed, leveled, or used for final cover. Access roads must be reclaimed if not necessary for post-closure use;

(6) Disturbed areas of the facility must be re-vegetated with native plant growth or other department approved species capable of survival and growth throughout the post-closure period.

(7) The final topography of the facility must not result in ponded areas and must prevent erosion.

(8) Any facility groundwater wells not intended for post-closure use must be properly abandoned.

(9) Reserved.

(10) Final closure is subject to department inspection and approval.

11_____ **Landfarm Facility Post-Closure Requirements.** (1) A licensee of a landfarm facility shall monitor the reclaimed site for vegetative success for a minimum of 2 years after closure, place documentation of the monitoring in the operating record, and submit the results annually to the department.

(2) The department may extend monitoring past the 2-year minimum if post-closure monitoring indicates a potential threat to human health or the environment.

(3) The department may require corrective action to mitigate possible environmental degradation resulting from facility operations and maintenance.

12_____ Monitoring Well Construction. (1) All ground water monitoring wells must be constructed by a licensed monitoring well constructor with approval of the department, to the standards approved by the department, and as required by this section, so as to obtain representative static water level data and ground water samples. An owner or operator may request from the department a waiver of the requirements listed in this rule for wells already constructed by the date of implementation of this rule. However, this waiver can only apply to wells previously approved by the department.

(2) Water samples may not be collected from piezometers unless constructed to specifications for standard monitoring wells.

(3) Drilling fluids and water may be used to drill monitoring wells only when there are no reasonable alternatives. If drilling fluids are used, the owner/operator shall document the type of fluids, any additives used and the chemical constituents of the mixture. If water is used, the source of water shall be identified.

(4) Drill rigs and all downhole equipment must be cleaned in accordance with technically accepted procedures prior to initiation of drilling on site. If site investigation is conducted at an existing landfill facility, then the rig and all downhole equipment must be decontaminated prior to the first borehole and between each borehole.

(5) When drilling equipment comes into contact with probable contaminants in the borehole or above ground, the driller shall thoroughly decontaminate the equipment prior to any additional drilling.

(6) A hydrogeologist, qualified ground water scientist, or other qualified person shall:

(a) observe and direct the drilling of all borings, the installation and development of all wells and all in-field hydraulic conductivity tests;

(b) demonstrate their competency in hydrogeology by submitting to the department a statement of qualifications before commencing work; and

(c) visually describe and classify all of the geologic samples derived from boring and well cuttings or samples.

(7) All monitoring wells must be constructed:

(a) to minimize the potential for contaminants to enter the ground water or to move from one major soil unit or bedrock formation to another;

(b) with a difference of 3 to 5 inches between the outer diameter of the casing/screen and the inner diameter of the surface of the borehole to facilitate placement of the filter pack, as well as annular sealants; and

(c) with grout or other seal material extended down to within 5 feet of the zone being monitored.

(8) All ground water monitoring wells shall have caps to prevent contaminants from entering the monitoring device. All monitoring wells shall have protective outer casings and locking lids. The lids shall be kept locked. The department may require additional protective devices such as rings of brightly colored posts around any monitoring device.

(9) All monitoring wells shall be clearly and permanently labeled and water level measuring points clearly marked. At a minimum, the label shall include the well name and number.

(10) All ground water monitoring wells must be properly developed to remove fine soil particles, drill cuttings and drilling fluids from the vicinity of the well screen. After development the ground water must be tested for pH, temperature, specific conductance and total suspended solids. If liquid drilling fluids were used during well construction, a sample must also be tested for chemical oxygen demand. After development, all wells must be repeatedly measured for static water level until stabilized measurements are obtained.

(11) Ground water monitoring well information must be reported on department approved forms. The department will provide forms for reporting ground water monitoring well construction, boring log information, well development, and other ground water monitoring information as required by the department, including:

(a) the type, diameter, length and elevation of the top of the protective casing;

(b) the grout used as a surface seal between the well casing and the protective casing, including the depth and width of surface seal below the land surface, the height and width of the plug above the land surface;

(c) the type of cap and lock mechanism;

(d) the well casing material, length, diameter, schedule, and type of joints;

(e) the screen material, length, diameter, schedule, slot type and size, percent open area, and type of screen bottom;

(f) the distance the filter pack extends above the screen;
(g) the thickness of the filter/gravel pack (i.e. the spacing differential between the outer diameter of the casing/screen and the inner diameter of the surface of the borehole);
(h) local datum or mean sea level elevations of the top of casing and land surface to plus or minus 0.05 feet, depth from the land surface to an elevation of the bottom of the borehole, the bottom of the well screen, and top and bottom of all seals; and horizontal well locations identified by the landfill coordinate system to the nearest ten feet;
(i) the filter pack material, including grain size analysis, quantity of packing material used and manufacturer and product name or number;
(j) the drilling fluid including additives or water added during drilling;
(k) the drilling method used, type of drill rig, borehole diameter, inside diameter of the hollow stem auger, if used, cleaning procedures, and the date the well was drilled; and
(l) the date the well was developed, development method, time spent developing the well, volume of water removed and added during development, source of development water, the clarity of water before and after development, presence of sediment at the bottom of the well before and after development, and volume of water purged.

(12) Requirements for drilling are as follows:

(a) In order to create a stable, open, vertical well hole for installation of the well screen and riser, one of the following drilling methods must be utilized, listed in decreasing order of preference:
(i) Drilling with hollow stem augers is the most preferred method.
(ii) Air rotary drilling with an oil filter/trap.
(iii) Cable tool methods and other percussion tool drilling may be attempted in hard, consolidated formations.
(iv) Reverse circulation drilling is preferred to wet rotary drilling.
(v) Wet rotary drilling with clean water only and insertion of temporary flush-joint casing, with consideration being given to the procedures used to prevent mixing of upper zones with lower zones.
(b) Continuous soil sampling or sampling collection at five foot intervals and lithologic changes should be performed.
(c) All materials used in construction must be free of chemicals, paint, coatings, etc., that could leach. Decontamination of all downhole assemblies must be performed, using steam or an appropriate alternative.
(d) When assembling a well screen, riser, and sampler, there must be a stable borehole. The order of steps to complete the well must be:
(i) assembly of well screen and riser;
(ii) setting the well screen;
(iii) placement of the filter/gravel pack;
(iv) placement of the seal;
(v) grouting of the annular space;
(vi) well protector;
(vii) installation of the [dedicated] sampler.
(e) Well development must be continued until representative formation water, free of the effects of well construction, is obtained and the specific conductance, temperature, and pH have stabilized.

13 **Annual Reporting, Consolidated Operations, License Classifications.** (1) Any person owning or operating a facility that manages solid waste shall submit to the department by April 1 of each year, on a form provided by the department, the following information:

(a) service areas and population of those areas;

(b) total tonnage of solid waste received and disposed of during the previous year. Facilities that do not operate scales and that measure the volume of waste received and disposed of will use the following conversions to determine tonnage:

(i) loose refuse (residential and commercial) = 300 pounds per cubic yard;

(ii) compacted refuse (packer truck) = 700 pounds per cubic yard.

(c) for a landfarm facility, a report summarizing the total volume in cubic yards of contaminated soils accepted for treatment and under treatment during the previous year as demonstrated by compilation of waste acceptance forms, bills of lading, or trip tickets;

(d) for a large or small composter facility, a report summarizing:

(i) the kinds of materials accepted;

(ii) the total volume in cubic yards of material accepted; and

(iii) the tons of compost produced.

(e) for facilities licensed primarily for the storage, treatment, processing, or disposal of waste tires, the kind and number of tires received by the facility and the number of tires processed, treated, disposed of, or removed from the facility during the previous year.

(2) The department may not assess additional fees for composting, household hazardous waste collection, or landfarm operations conducted at a licensed facility that disposes of Group II wastes through landfilling if those operations are:

(a) conducted on the same site as the landfill; and

(b) included in the facility's approved plan of operation.

(3) Fees for the following special categories of Class IV units and facilities are as follows:

(a) for a Class IV unit at a Class II facility there is no additional fee. However the design and operation of the Class IV unit must be included in the facility's design and operation plan and the disposal fee per ton applies to wastes placed in the Class IV unit.

(b) for a Class III facility that applies to upgrade to Class IV, the application review fee is 50% of the respective fee specified for the appropriate Class IV facility in the following table;

APPLICATION REVIEW FEE SCHEDULE

FACILITY	REVIEW FEE
Major Class II facility	$12,000
Intermediate Class II facility	$ 9,000
Minor Class II facility	$ 6,000
Major Class III facility	$ 3,600
Minor Class III facility	$ 2,400
Major Class IV facility	$ 3,600
Minor Class IV facility	$ 2,400
Major incinerator	$12,000

Intermediate incinerator	$ 9,000
Minor incinerator	$ 600
Major landfarm facility	$ 3,600
Intermediate landfarm facility	$ 2,400
Minor landfarm facility	$ 1,200
One-time landfarm (³ 800 cubic yds)	$ 500
One-time landfarm (<800 cubic yds)	$ 200
Transfer station (³ 10,000 tons/yr)	$ 8,400
Transfer station (<10,000 tons/yr)	$ 4,800
Large composter operation	$ 3,600
Small composter operation	$ 0