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## **CHAPTER 517. DISPOSAL OF COAL COMBUSTION RESIDUALS FROM ELECTRIC UTILITIES**

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## SUBCHAPTER 1. GENERAL PROVISIONS

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### **252:517-1-1. Scope and purpose**

(a) **Applicability.** This Chapter applies to owners and operators of new and existing landfills and surface impoundments, including any lateral expansions of such units that dispose or otherwise engage in solid waste management of CCR generated from the combustion of coal at electric utilities and independent power producers. Unless otherwise provided in this Chapter, these requirements also apply to disposal units located off-site of the electric utility or independent power producer. This Chapter also applies to any practice that does not meet the definition of a beneficial use of CCR.

(b) **Applicability to inactive CCR surface impoundments.** This Chapter also applies to inactive CCR surface impoundments at active electric utilities or independent power producers, regardless of the fuel currently used at the facility to produce electricity.

(c) **Cessation of landfill operations.** This Chapter does not apply to CCR landfills that have ceased receiving CCR prior to October 19, 2015.

(d) **Cessation of electricity production.** This Chapter does not apply to electric utilities or independent power producers that have ceased producing electricity prior to October 19, 2015.

(e) **Exceptions.** This Chapter does not apply to wastes, including fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated at facilities that are not part of an electric utility or independent power producer, such as manufacturing facilities, universities, and hospitals. This Chapter also does not apply to fly ash, bottom ash, boiler slag, and flue gas desulfurization materials, generated primarily from the combustion of fuels (including other fossil fuels) other than coal, for the purpose of generating electricity unless the fuel burned consists of more than fifty percent (50%) coal on a total heat input or mass input basis, whichever results in the greater mass feed rate of coal.

(f) **Beneficial use exception.** This Chapter does not apply to practices that meet the definition of a beneficial use of CCR.

(g) **Coal mine exception.** This Chapter does not apply to CCR placement at active or abandoned underground or surface coal mines.

(h) **Municipal solid waste landfill exception.** This Chapter does not apply to municipal solid waste landfills that receive CCR.

### **252:517-1-2. Applicability of other regulations**

Compliance with the requirements of this Chapter does not affect the need for the owner or operator of a CCR landfill, CCR surface impoundment, or lateral expansion of a CCR unit to comply with all other applicable federal, state, tribal, or local laws or other requirements.

### **252:517-1-3. Definitions**

The following words or terms, when used in this Chapter, shall have the following meaning, unless the context clearly indicates otherwise. Any term not defined in this Chapter shall be defined as set forth in OAC 252:517-1-4.

**"Acre foot"** means the volume of one acre of surface area to a depth of one foot.

**"Active facility"** or **"active electric utilities"** or **"independent power producers"** means any facility subject to the requirements of this Chapter in operation on October 19, 2015. An electric utility or independent power producer is in operation if it is generating electricity that is provided to electric power transmission systems or to electric power distribution systems on or after October 19, 2015. An off-site CCR unit is in operation if it is accepting or managing CCR on or after October 19, 2015.

**"Active life"** or **"in operation"** means the period of operation beginning with the initial placement of CCR in the CCR unit and ending at completion of closure activities in accordance with OAC 252:517-15-7.

**"Active portion"** means that part of the CCR unit that has received or is receiving CCR or non-CCR waste and that has not completed closure in accordance with OAC 252:517-15-7.

**"Aquifer"** means a geologic formation, group of formations, or portion of a formation capable of yielding usable quantities of groundwater to wells or springs.

**"Area-capacity curves"** means graphic curves which readily show the reservoir water surface area, in acres, at different elevations from the bottom of the reservoir to the maximum water surface, and the capacity or volume, in acre-feet, of the water contained in the reservoir at various elevations.

**"Areas susceptible to mass movement"** means those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where, because of natural or human-induced events, the movement of earthen material at, beneath, or adjacent to the CCR unit results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluctuation, block sliding, and rock fall.

**"Beneficial use of CCR"** means the CCR meet all of the following conditions:

- (A) The CCR must provide a functional benefit;
- (B) The CCR must substitute for the use of a virgin material, conserving natural resources that would otherwise need to be obtained through practices, such as extraction;
- (C) The use of the CCR must meet relevant product specifications, regulatory standards or design standards when available, and when such standards are not available, the CCR is not used in excess quantities; and
- (D) When unencapsulated use of CCR involving placement on the land of 12,400 tons or more in non-roadway applications, the user must demonstrate and keep records, and provide such documentation upon request, that environmental releases to groundwater, surface water, soil and air are comparable to or lower than those from analogous products made without CCR, or that environmental releases to groundwater, surface water, soil and air will be at or below relevant regulatory and health-based benchmarks for human and ecological receptors during use.

**"CLIMOCS"** means the following publication of the Oklahoma Climatological Survey: Shafer, Mark A., CLIMOCS: A Climatological Summary of 168 Oklahoma Cooperative Stations, Oklahoma Climatological Survey, February 1993, 184 pp.

**"Closed"** means placement of CCR in a CCR unit has ceased, and the owner or operator has completed closure of the CCR unit in accordance with OAC 252:517-15-7 and has initiated post-closure care in accordance with OAC 252:517-15-9.

**"Coal combustion residuals (CCR)"** means fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated from burning coal for the purpose of generating electricity by electric utilities and independent power producers.

**"CCR fugitive dust"** means solid airborne particulate matter that contains or is derived from CCR, emitted from any source other than a stack or chimney.

**"CCR landfill"** or **"landfill"** means an area of land or an excavation that receives CCR and which is not a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground or surface coal mine, or a cave. For purposes of this Chapter, a CCR landfill also includes sand and gravel pits and quarries that receive CCR, CCR piles, and any practice that does not meet the definition of a beneficial use of CCR.

**"CCR pile"** or **"pile"** means any non-containerized accumulation of solid, non-flowing CCR that is placed on the land. CCR that is beneficially used off-site is not a CCR pile.

**"CCR surface impoundment"** or **"impoundment"** means a natural topographic depression, man-made excavation, or diked area, which is designed to hold an accumulation of CCR and liquids, and the unit treats, stores, or disposes of CCR.

**"CCR unit"** means any CCR landfill, CCR surface impoundment, or lateral expansion of a CCR unit, or a combination of more than one of these units, based on the context of the paragraph(s) in which it is used. This term includes both new and existing units, unless otherwise specified.

**"Dike"** means an embankment, berm, or ridge of either natural or man-made materials used to prevent the movement of liquids, sludges, solids, or other materials.

**"Displacement"** means the relative movement of any two sides of a fault measured in any direction.

**"Disposal"** means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste as defined in Section 27A O.S. § 2-10-103 into or on any land or water so that such solid waste, or constituent thereof, may enter the environment or be emitted into the air or discharged into any waters, including groundwaters. For purposes of this Chapter, disposal does not include the storage or the beneficial use of CCR.

**"Downstream toe"** means the junction of the downstream slope or face of the CCR surface impoundment with the ground surface.

**"Encapsulated beneficial use"** means a beneficial use of CCR that binds the CCR into a solid matrix that minimizes its mobilization into the surrounding environment.

**"Existing CCR landfill"** means a CCR landfill that receives CCR both before and after October 19, 2015, or for which construction commenced prior to October 19, 2015 and receives CCR on or after October 19, 2015. A CCR landfill has commenced construction if the owner or operator has obtained the federal, state, and local approvals or permits necessary to begin physical construction and a continuous on-site, physical construction program had begun prior to October 19, 2015.

**"Existing CCR surface impoundment"** means a CCR surface impoundment that receives CCR both before and after October 19, 2015, or for which construction commenced prior to October 19, 2015 and receives CCR on or after October 19, 2015. A CCR surface impoundment has commenced construction if the owner or operator has obtained the federal, state, and local approvals or permits necessary to begin physical construction and a continuous on-site, physical construction program had begun prior to October 19, 2015.

**"Facility"** means all contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, disposing, or otherwise conducting solid waste management of CCR. A facility may consist of several treatment, storage, or disposal operational units (e.g., one or more landfills, surface impoundments, or combinations of them).

**"Factor of safety (Safety factor)"** means the ratio of the forces tending to resist the failure of a structure to the forces tending to cause such failure as determined by accepted engineering practice.

**"Fault"** means a fracture or a zone of fractures in any material along which strata on one side have been displaced with respect to that on the other side.

**"Flood hydrograph"** means a graph showing, for a given point on a stream, the discharge, height, or other characteristic of a flood as a function of time.

**"Freeboard"** means the vertical distance between the lowest point on the crest of the impoundment dike and the surface of the waste contained therein.

**"Free liquids"** means liquids that readily separate from the solid portion of a waste under ambient temperature and pressure.

**"Groundwater"** means water below the land surface in a zone of saturation.

**"Hazard potential classification"** means the possible adverse incremental consequences that result from the release of water or stored contents due to failure of the diked CCR surface impoundment or mis-operation of the diked CCR surface impoundment or its appurtenances. The hazardous potential classifications include high hazard potential CCR surface impoundment, significant hazard potential CCR surface impoundment, and low hazard potential CCR surface impoundment, which terms mean:

(A) High hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis-operation will probably cause loss of human life.

(B) Low hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the surface impoundment owner's property.

(C) Significant hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns.

**"Height"** means the vertical measurement from the downstream toe of the CCR surface impoundment at its lowest point to the lowest elevation of the crest of the CCR surface impoundment.

**"Holocene"** means the most recent epoch of the Quaternary period, extending from the end of the Pleistocene Epoch, at 11,700 years before present, to present.

**"Hydraulic conductivity"** means the rate at which water can move through a permeable medium (i.e., the coefficient of permeability).

**"Inactive CCR surface impoundment"** means a CCR surface impoundment that no longer receives CCR on or after October 19, 2015 and still contains both CCR and liquids on or after October 19, 2015.

**"Incised CCR surface impoundment"** means a CCR surface impoundment which is constructed by excavating entirely below the natural ground surface, holds an accumulation of CCR entirely below the adjacent natural ground surface, and does not consist of any constructed diked portion.

**"Inflow design flood"** means the flood hydrograph that is used in the design or modification of the CCR surface impoundments and its appurtenant works.

**"In operation"** means the same as active life.

**"Karst terrain"** means an area where karst topography, with its characteristic erosional surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terranes include, but are not limited to, dolines, collapse shafts (sinkholes), sinking streams, caves, seeps, large springs, and blind valleys.

**"Lateral expansion"** means a horizontal expansion of the waste boundaries of an existing CCR landfill or existing CCR surface impoundment made after October 19, 2015.

**"Liquefaction factor of safety"** means the factor of safety (safety factor) determined using analysis under liquefaction conditions.

**"Lithified earth material"** means all rock, including all naturally occurring and naturally formed aggregates or masses of minerals or small particles of older rock that formed by crystallization of magma or by induration of loose sediments. This term does not include man-made materials, such as fill, concrete, and asphalt, or unconsolidated earth materials, soil, or regolith lying at or near the earth surface.

**"Maximum horizontal acceleration in lithified earth material"** means the maximum expected horizontal acceleration at the ground surface as depicted on a seismic hazard map, with a 98% or greater probability that the acceleration will not be exceeded in 50 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

**"New CCR landfill"** means a CCR landfill or lateral expansion of a CCR landfill that first receives CCR or commences construction after October 19, 2015. A new CCR landfill has commenced construction if the owner or operator has obtained permits necessary to begin physical construction and a continuous on-site, physical construction program had begun after October 19, 2015. Overfills are also considered new CCR landfills.

**"New CCR surface impoundment"** means a CCR surface impoundment or lateral expansion of an existing or new CCR surface impoundment that first receives CCR or commences construction after October 19, 2015. A new CCR surface impoundment has commenced construction if the owner or operator has obtained the permits necessary to begin physical construction and a continuous on-site, physical construction program had begun after October 19, 2015.

**"Operator"** means the person(s) responsible for the overall operation of a CCR unit.

**"Overfill"** means a new CCR landfill constructed over a closed CCR surface impoundment.

**"Owner"** means the person(s) who owns a CCR unit or part of a CCR unit.

**"Permit boundary"** means the outermost edge of the area described by legal description in the owner/operator's permit. The permitted boundary includes the area in the buffer zone.

**"Poor foundation conditions"** mean those areas where features exist which indicate that a natural or human- induced event may result in inadequate foundation support for the structural components of an existing or new CCR unit. For example, failure to maintain static and seismic factors of safety as required in OAC 252:517-11-4(e) and OAC 252:517-11-5(e) would cause a poor foundation condition.

**"Probable maximum flood"** means the flood that may be expected from the most severe combination of critical meteorologic and hydrologic conditions that are reasonably possible in the drainage basin.

**"Qualified person"** means a person or persons trained to recognize specific appearances of structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety of the CCR unit by visual observation and, if applicable, to monitor instrumentation.

**"Qualified professional engineer"** means an individual who is licensed as a Professional Engineer in the state of Oklahoma by the State Board of Registration for Professional Engineers and Land Surveyors.

**"Recognized and generally accepted good engineering practices"** means engineering maintenance or operation activities based on established codes, widely accepted standards, published technical reports, or a practice widely recommended throughout the industry. Such practices generally detail approved ways to perform specific engineering, inspection, or mechanical integrity activities.

**"Representative sample"** means a sample of a universe or whole (e.g., waste pile, lagoon, and groundwater) which can be expected to exhibit the average properties of the universe or whole. See EPA publication SW-846, Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods, Chapter 9.

**"Retrofit"** means to remove all CCR and contaminated soils and sediments from the CCR surface impoundment, and to ensure the unit complies with the requirements in OAC 252:517-11-3.

**"Run-off"** means any rainwater, leachate, or other liquid that drains over land from any part of a CCR landfill or lateral expansion of a CCR landfill.

**"Run-on"** means any rainwater, leachate, or other liquid that drains over land onto any part of a CCR landfill or lateral expansion of a CCR landfill.

**"Sand and gravel pit or quarry"** means an excavation for the extraction of aggregate, minerals or metals. The term sand and gravel pit and/or quarry does not include subsurface or surface coal mines.

**"Seismic factor of safety"** means the factor of safety (safety factor) determined using analysis under earthquake conditions using the peak ground acceleration for a seismic event with a 2% probability of exceedance in 50 years, equivalent to a return period of approximately 2,500 years, based on the U.S. Geological Survey (USGS) seismic hazard maps for seismic events with this return period for the region where the CCR surface impoundment is located.

**"Seismic impact zone"** means an area having a 2% or greater probability that the maximum expected horizontal acceleration, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10 g in 50 years.

**"Slope protection"** means engineered or non-engineered measures installed on the upstream or downstream slope of the CCR surface impoundment to protect the slope against wave action

or erosion, including but not limited to rock riprap, wooden pile, or concrete revetments, vegetated wave berms, concrete facing, gabions, geotextiles, or fascines.

**"Solid waste management or management"** means the systematic administration of the activities which provide for the collection, source separation, storage, transportation, processing, treatment, or disposal of solid waste.

**"State Director"** means the Executive Director of the DEQ or designee.

**"Static factor of safety"** means the factor of safety (safety factor) determined using analysis under the long-term, maximum storage pool loading condition, the maximum surcharge pool loading condition, and under the end-of-construction loading condition.

**"Structural components"** mean liners, leachate collection and removal systems, final covers, run-on and run-off systems, inflow design flood control systems, and any other component used in the construction and operation of the CCR unit that is necessary to ensure the integrity of the unit and that the contents of the unit are not released into the environment.

**"Unstable area"** means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity, including structural components of some or all of the CCR unit that are responsible for preventing releases from such unit. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and karst terrains.

**"Uppermost aquifer"** means the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary. Upper limit is measured at a point nearest to the natural ground surface to which the aquifer rises during the wet season.

**"Waste boundary"** means a vertical surface located at the hydraulically downgradient limit of the CCR unit. The vertical surface extends down into the uppermost aquifer.

**"Wetlands"** means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

#### **252:517-1-4. Terms not defined by Act or rule**

Any term not defined in the Oklahoma Solid Waste Management Act, or in this Chapter shall be defined by:

- (1) the Dictionary of Geological Terms, Latest Revised Edition, American Geological Institute;
- (2) EPA RCRA Groundwater Monitoring Technical Enforcement Guidance Document;
- (3) its generally accepted scientific meaning; or
- (4) its standard dictionary meaning.

#### **252:517-1-5. Test methods and map scale**

(a) **Test methods.** All testing required for compliance with this Chapter shall utilize industry-standard methods and procedures, unless alternatives are approved in advance by the DEQ.

- (1) **Engineering test methods.** All engineering tests shall be in accordance with the latest published ASTM test procedures.
- (2) **Water sampling/analyses.** Water sampling and analyses methods shall be in



accordance with EPA approved procedures.

(b) **Map scales.** Map scale requirements of Subchapter 3, Parts 5 and 7 do not apply when the DEQ has approved the use of alternative map scales or published maps.

#### **252:517-1-6. Severability**

The provisions of this Chapter are severable. If any part or provision is held void by a court of competent jurisdiction, the decision of that court shall not affect or impair any of the remaining parts or provisions of this Chapter.

#### **252:517-1-7. Permits**

(a) **Permit required.** All CCR units must be permitted in accordance with the rules of this Chapter.

(b) **Existing CCR landfill permits.**

(1) **Existing permits.** Permits for active CCR landfills issued under previous rules, and those in the post-closure monitoring period on the effective date of this Chapter, remain in effect.

(2) **Permit upgrades.** Within 180 days of the effective date of this Chapter, or unless a specific date is provided, the owner/operator of the CCR landfill shall submit a permit modification application to the DEQ to ensure compliance with requirements of this Chapter.

(c) **Existing CCR impoundment permits.** Existing CCR impoundments permitted under OAC 252:616 must be permitted in accordance with the rules of this Chapter upon expiration of the existing permit or no later than October 19, 2018, whichever occurs first.

### **SUBCHAPTER 3. PERMIT PROVISIONS AND APPLICATIONS**

#### **PART 1. GENERAL PROVISIONS**

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- 252:517-3-2. Permit transfer
- 252:517-3-3. General requirements
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#### **PART 3. REQUIRED MAPS AND DRAWINGS**

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- 252:517-3-39. Surface geologic map
- 252:517-3-40. Highest groundwater contour map
- 252:517-3-41. Potentiometric surface map
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- 252:517-3-44. Excavation contour map
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- 252:517-3-46. Completion map

## **PART 1. GENERAL PROVISIONS**

### **252:517-3-1. Duration of permit**

- (a) **Life of site.** Permits shall be issued for the life of the CCR unit, subject to the limitations of (b) of this Section.
- (b) **Commencement of construction and operation.** DEQ may specify timelines within permits for commencement of construction and operation of new CCR units.
- (c) **Cessation of operations.** If a permitted active CCR unit ceases to accept waste for 30 days or more without prior notice to the DEQ, the facility is deemed to be in the process of final closure.
- (d) **Suspended operations.** Development or operations of a CCR unit may be suspended. To do so, the owner/operator must:
  - (1) provide prior written notice to the DEQ of the intent to suspend development or operations;
  - (2) renew such notice annually;
  - (3) if site development or operations remain suspended for more than one year, perform closure and post-closure activities in accordance with the approved closure and post-closure plans, and Subchapter 15 of this Chapter; and
  - (4) post full financial assurance in accordance with Subchapter 17 of this Chapter and the approved cost estimates.
- (e) **Resuming operations.** If facility operations cease pursuant to (c) or (d) of this Section, then prior to resuming such operations, the permit must be modified if, in the opinion of the DEQ, the permit does not comply with all current laws and regulations.

### **252:517-3-2. Permit transfer**

- (a) **Transfer required.** If the ownership of a CCR unit is assumed by a new entity, the permit must be transferred from the previous owner/operator ("transferor") to the new owner/operator ("transferee").
- (b) **Exception.** Changes in corporate ownership from majority stock transfers do not require a permit transfer. However, such changes require notice to DEQ and submittal of an approved disclosure statement meeting the requirements of OAC 252:517-3-3(g).
- (c) **Transfer requirements.** Permits may be transferred from the transferor to the transferee upon the following conditions:
  - (1) the transferor has submitted a written request to DEQ for transfer of the permit to the transferee;

- (2) the transferee has submitted an approved disclosure statement meeting the requirements of OAC 252:517-3-3(g);
  - (3) the transferee has, if required, established an approved financial assurance mechanism in an appropriate amount and appropriately funded;
  - (4) the transferee has agreed in writing to comply with:
    - (A) all permit conditions;
    - (B) approved plans and specifications;
    - (C) the Oklahoma Solid Waste Management Act, as applicable;
    - (D) the rules in this Chapter; and
    - (E) any final orders issued pursuant thereto;
  - (5) the transferee has complied with OAC 252:517-3-4; and
  - (6) the facility meets the compliance requirements of OAC 252:4-7-15. In lieu of demonstrating substantial compliance, the parties to the transfer may enter into a Consent Order with DEQ to schedule compliance.
- (d) **Transferor responsible.** Until such time as DEQ approves transfer of the permit to the transferee, the transferor shall remain responsible for the operation of the facility.

### **252:517-3-3. General requirements**

- (a) **All permit applications.** All permit applications are subject to the Oklahoma Uniform Environmental Permitting Act as well as the requirements of this Subchapter.
- (b) **New permit applications.** Applicants requesting a permit for a new CCR unit, lateral expansion of an existing CCR unit, or existing CCR surface impoundments without a solid waste permit shall submit a permit application to the DEQ meeting the requirements of this Subchapter.
- (c) **Modifications required.**
  - (1) The permit must be modified before making any changes to the approved design, construction, or operation of CCR units.
  - (2) The modification application shall contain any maps, drawings, plans or other documents identified in this Subchapter to ensure the modification will be in compliance with the applicable requirements of this Chapter.
- (d) **Administrative correction.** The DEQ may make administrative corrections to the permit.
- (e) **Tier I and II permit modifications.** Applicants requesting a Tier I or Tier II modification of an existing permit shall submit a permit modification application to the DEQ meeting the applicable requirements of this Subchapter, but are not required to comply with OAC 252:517-3-4, unless otherwise required by statute.
- (f) **Tier III permit modifications.** Applicants requesting a Tier III modification of an existing permit shall submit a permit modification application to the DEQ meeting the applicable requirements of this Subchapter, and comply with OAC 252:517-3-4.
- (g) **Disclosure statement.** Persons submitting a permit application for a new CCR unit, or the transfer of an existing solid waste permit, are subject to the disclosure statement requirements of 27A O.S. §§ 2-10-103 and 2-10-302.

### **252:517-3-4. Oath required**

The applicant shall sign the permit application under oath on forms provided by the DEQ.

**252:517-3-5. Legal right to property**

(a) **Right of access.** The permit application for a new CCR unit, or expansion of the permit boundaries of an existing CCR unit, must contain:

(1) a true and correct copy of a legal document filed in the county in which the facility is located, demonstrating that the applicant possesses a legal right to access and use the property in the manner for which the permit is sought, including any on- or off-site soil borrow areas, throughout the life of the site and the required post-closure monitoring period; and

(2) a certification, by affidavit, that the applicant owns the real property, has a current lease or easement which is given to accomplish the permitted purpose, or has provided legal notice to the landowner.

(b) **Option for use.** If an option for right of access is predicated upon the issuance of a permit prior to the exercise of that option, then the applicant must submit a copy of the option with the permit application. Once the permit has been issued, the applicant must comply with (a) of this Section prior to beginning construction.

(c) **Easement to the DEQ.** Unless the property owner is a unit of government, a temporary easement shall be executed allowing the DEQ and/or its contractors the right to access the property to perform closure, post-closure monitoring, or corrective action in the event of default by the owner/operator.

**252:517-3-6. Permit applications**

(a) **New applications.** A permit application for a new CCR unit and an existing surface impoundment without a solid waste permit shall include all information required by the Oklahoma Uniform Environmental Permitting Act, including:

(1) the owner/operator's name, mailing address and phone number;

(2) the name by which the facility will be known, the mailing address of the facility, the street address of the facility (if different from the mailing address), and the facility phone number;

(3) a disclosure statement completed in accordance with OAC 252:517-3-3(g);

(4) a legal description, by metes and bounds; section, township, and range, or parts thereof; or book and page number of plat records for platted property, of:

(A) the proposed permit boundary;

(B) the proposed waste processing and/or disposal areas; and

(C) both on- and off-site soil borrow areas, if applicable;

(5) latitude and longitude of all corners of the permit boundary and the facility entrance;

(6) the location of the site from the nearest town or city;

(7) a description of all processing, storage and disposal operations and units;

(8) the types of road construction and materials to be used to ensure that all access roads within the site are passable during inclement weather by normal vehicular traffic;

(9) a list of anticipated heavy equipment to be used in the construction and operation of the site;

(10) maps and drawings as required by Part 3 of this Subchapter; and

(11) data, plans, and specifications for the following:

- (A) a demonstration the proposed facility meets the location restrictions of Subchapter 5 of this Chapter;
  - (B) an operational plan describing how compliance with the operational requirements of Subchapter 13 of this Chapter, as applicable to the proposed facility, will be achieved;
  - (C) a plan describing how compliance with the stormwater management requirements of Subchapter 13 of this Chapter will be achieved;
  - (D) plans for closure of the facility in accordance with Subchapter 15 of this Chapter; and
  - (E) a plan for achieving compliance with the aesthetic enhancement requirements of OAC 252:517-3-7; and
- (12) establishment of financial assurance in accordance with Subchapter 17 of this Chapter.
- (b) **Information not identified.** The DEQ may require the applicant to submit additional data, revise design specifications or propose environmental safeguards as necessary to meet DEQ rules for the protection of human health and the environment.
- (c) **Permit modification applications.** An applicant requesting a modification to an existing permit shall submit information identified in this Part related to the proposed modification.

#### **252:517-3-7. Aesthetic enhancement**

Applications for new permits or expansions of an existing permit boundary, shall include plans to enhance the visual harmony of the new CCR unit or the expansion area with the surrounding area, and reduce the transmission of dust and noise from the facility. Such plans may include placement of berms, fences, shrubbery, trees, or other such materials to achieve the desired result.

### **PART 3. REQUIRED MAPS AND DRAWINGS**

#### **252:517-3-31. General requirements**

- (a) **Applicability.** The maps and designs identified in this Part shall be submitted with permit applications for:
- (1) all new CCR units;
  - (2) expansions of permit boundaries of existing CCR units;
  - (3) lateral expansions of existing CCR units; and
  - (4) any other modification to an existing permit where the data originally submitted would be made ambiguous, inaccurate, or out of date by the proposed modification.
- (b) **Illegible.** The permit application will be considered administratively incomplete if any maps or drawings submitted are not legible.
- (c) **Map sequence.** All maps and designs shall be submitted in the permit application in the sequence identified.
- (d) **Map scale.** Unless otherwise identified, all maps submitted as part of a permit application shall be prepared at a scale of one inch equals one hundred feet (1" = 100'). An alternative scale may be used with approval of the DEQ.
- (e) **Map details.**
- (1) All maps shall show as a minimum, legend, title, north arrow, permit boundary, buffer zone, and boundaries of waste disposal or processing areas.

- (2) If applicable, the locations of groundwater monitoring wells and gas monitoring probes shall be identified.

#### **252:517-3-32. General location map**

The permit application shall include a county highway map published by the Oklahoma Department of Transportation showing the facility location. If the facility is located within a municipality and a municipal map with better information is available, then it may be used.

#### **252:517-3-33. Flood plain map**

The permit application shall include a flood plain map from one of the following sources depicting the limits and elevations of any 100-year flood plain on or within one mile of the permit boundary of the proposed facility or expansion area:

- (1) Flood Insurance Rate maps published by the Federal Emergency Management Agency, or maps prepared by the U.S. Army Corps of Engineers, Flood Plain Management Services;
- (2) Maps of Flood Prone Areas published by the U.S. Geological Survey; or
- (3) Site specific determinations by the U.S. Army Corps of Engineers at the request of the applicant.

#### **252:517-3-34. Quadrangle topographic map**

(a) **Required map.** The permit application shall include an original U.S. Geological Survey 7.5 minute series topographic quadrangle map.

- (1) If 7.5 minute series maps have not been printed, then 15 minute series may be used.
- (2) If the CCR unit is located on the edge of the quadrangle, then adjoining maps shall be provided.

(b) **Required details.** The quadrangle topographic map shall clearly depict:

- (1) the location of the facility permit boundaries;
- (2) access routes within one mile of the facility;
- (3) homes and buildings within one mile of the facility;
- (4) public water and wastewater collection, treatment, and distribution facilities within one mile of the facility;
- (5) receiving waters and surface variations within one mile of the facility; and
- (6) water wells, including private and municipal, potable and irrigation water within one mile of the facility.

#### **252:517-3-35. Existing contour map**

(a) **Required map.** The permit application shall include a constructed map showing the topographic contours prior to any operations at the facility.

(b) **Contour intervals.** The contour interval on the map shall not be greater than two feet.

(c) **Required details.** The existing contour map shall show the location and quantities of surface drainage entering and exiting the facility, and the locations of all boreholes with their surface elevations.

#### **252:517-3-36. Site map**

(a) **Required map.** The permit application shall include a site map, which may be the existing contour map.

- (b) **Required details.** The site map shall show the following, as applicable to the facility:
- (1) the dimensions of the permit boundary as indicated by legal description;
  - (2) the receiving processing, storage or disposal areas;
  - (3) buffer zones;
  - (4) the locations and surface elevations of each borehole, monitor well, test well, monitoring site, test pit, sampling site and permanent benchmarks;
  - (5) the surface and top of casing elevations for each monitoring well;
  - (6) the surface drainage, including location of diversion ditches, dikes, dams, pits, ponds, lagoons, berms, terraces and other relevant information;
  - (7) the location of fencing and gates, utility lines, pipelines, and easements;
  - (8) the access roads into and on the site;
  - (9) employee and equipment shelters; and
  - (10) on- and off-site soil borrow areas.

**252:517-3-37. Design drawings**

The permit application shall include, as necessary, design drawings and specifications for:

- (1) receiving, processing, storage or disposal areas;
- (2) liner construction;
- (3) leachate collection systems;
- (4) typical well installation;
- (5) dike sections;
- (6) drainage channels;
- (7) groundwater monitoring wells and piezometers;
- (8) retention structures or other groundwater and surface water protection measures; and
- (9) any other design drawings or specifications necessary to describe the proposed activities for the facility.

**252:517-3-38. Groundwater resource and usage map**

(a) **Required map.** The permit application shall include a groundwater resource and usage map, made to a scale of 1:6000 (1 inch = 500 feet).

(b) **Required details.** The map shall show the following:

- (1) the location, total depth and ground water elevation of all known private water wells within a radius of one mile of the proposed site boundary;
- (2) the location, total depth and ground water elevation of all public water supply wells within a radius of two miles of the proposed site boundary; and
- (3) recharge and discharge areas and the description of ground water quality within a three mile radius of the proposed site boundary.

**252:517-3-39. Surface geologic map**

The permit application shall include a site-specific areal geologic map depicting the lithologic units of the ground surface, made to a scale of no smaller than 1:1200 (1 inch = 100 feet).

**252:517-3-40. Highest groundwater contour map**

- (a) **Required map.** The permit application shall include a groundwater contour map developed from the information obtained during the groundwater study required in Part 5 of OAC 252:517-7.
- (b) **Required details.** The groundwater contour map shall depict:
- (1) the groundwater contours, at two foot intervals, of the highest groundwater elevation ever recorded at each borehole, piezometer or well across the site. The highest elevation shall be based on the groundwater levels recorded during the subsurface investigation or any other record of groundwater elevation measurements; and
  - (2) the locations of all proposed monitoring wells, boreholes, and piezometers, and the surface elevations of each.

**252:517-3-41. Potentiometric surface map**

- (a) **Required map.** The permit application shall include an actual groundwater potentiometric surface map developed from the information obtained during the groundwater study required in Part 5 of OAC 252:517-7.
- (b) **Required details.** The potentiometric surface map shall depict:
- (1) groundwater elevation contours at two foot intervals as measured in a single time event reflecting the highest average water level elevation across the site during the 12-month monitoring period; and
  - (2) the locations of all proposed monitoring wells, boreholes, and piezometers, and surface elevations of each.

**252:517-3-42. Site-specific cross sections**

- (a) **Required map.** The permit application shall include two site-specific cross sections constructed from subsurface borehole logs and other site-specific information, such as water well logs, oil and gas well logs, outcrops at or near the site, and geophysical surveys.
- (b) **Orientation.** The first cross section shall be oriented parallel to the dip of the underlying strata and the second oriented perpendicular to the dip of the strata. If this is not possible, the cross- sections shall be oriented at 90 degrees from each other.
- (c) **Required details.** Each cross section shall include:
- (1) the borehole logs and other sources of information displayed relative to mean sea level on the cross section;
  - (2) the depth, thickness and areal extent of each stratigraphic unit;
  - (3) lithology of significant formations or strata, and unconsolidated sediment type;
  - (4) structural features (faults and folds);
  - (5) stratigraphic contact between formations or strata, and unconsolidated sediments;
  - (6) zones of hydraulic conductivity greater than  $1 \times 10^{-3}$  cm/sec;
  - (7) fracture zones;
  - (8) potentiometric surfaces of all confined and unconfined saturated zones;
  - (9) location, depth and producing zone of water wells that could be used in the construction of the cross section;
  - (10) the surface upon which the waste will be placed;
  - (11) soils or strata encountered by the boreholes suitable for use as liner material;
  - (12) intervals and results of both in-situ and laboratory hydraulic conductivity tests;
  - (13) surface water drainage features, such as: dikes, levees, or trenches;



- (14) the existing ground surface and final cover;
- (15) monitor wells or piezometers; and
- (16) a legend that includes vertical and horizontal scales and a map showing the location of the boreholes and other information used to construct the cross section.

#### **252:517-3-43. Fill cross section map**

- (a) **Required map.** The permit application shall include a fill cross section map.
- (b) **Required details.** A grid system shall be established and typical cross sections plotted along the principal axis and along the minor axis.
  - (1) A cross section locator map shall show the grid system superimposed over the site plan with each cross-section labeled. This drawing may be at any convenient scale and labeled accordingly.
  - (2) Cross section drawings shall depict the elevation(s) of the top of any dikes or levees, the final cover, wastes, ground surface, the top of liner, the bottom of excavations, the side slopes of trenches and fill areas, groundwater monitor wells, gas wells or vents, and recorded initial and static water levels.
  - (3) The scale shall be 1:600 (1 inch = 50 feet) horizontal and 1:60 (1 inch = 5 feet) vertical.
  - (4) Soil borings may also be shown on the profile.

#### **252:517-3-44. Excavation contour map**

The permit application shall include an excavation contour map showing:

- (1) contours, at two foot intervals, of the bottom of the proposed excavation;
- (2) the anticipated progression of the construction; and
- (3) the locations and final depth of the boreholes.

#### **252:517-3-45. Top of liner contour map**

- (a) **Required map.** The permit application shall include a top of liner contour map showing:
  - (1) contours, at two foot intervals, of the top of the liner; and
  - (2) the locations of the proposed monitor wells.
- (b) **Liner construction.** Details of liner construction may be provided on this map or as a separate drawing.

#### **252:517-3-46. Completion map**

- (a) **Required map.** The permit application shall include a completion map showing how the new CCR unit or lateral expansion of a CCR unit is expected to look when it is completed, including final contours.
- (b) **Required details.** The completion map shall include the permit boundary, disposal boundary, buffer zone, groundwater monitoring well locations, the leachate removal locations, permanent surface drainage structures and aesthetic enhancements.

### **SUBCHAPTER 5. LOCATION RESTRICTIONS**

#### **Section**

252:517-5-1. Placement above the uppermost aquifer

252:517-5-2. Wetlands

- 252:517-5-3. Fault areas
- 252:517-5-4. Seismic impact zones
- 252:517-5-5. Unstable areas
- 252:517-5-6. Scenic rivers
- 252:517-5-7. Recreation/preservation areas
- 252:517-5-8. Endangered or threatened species
- 252:517-5-9. 100-year floodplain
- 252:517-5-10. Public water supply
- 252:517-5-11. Wellhead protection area

**252:517-5-1. Placement above the uppermost aquifer**

(a) **Applicability.** New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must be constructed with a base that is located no less than 1.52 meters (five feet) above the upper limit of the uppermost aquifer, or must demonstrate that there will not be an intermittent, recurring, or sustained hydraulic connection between any portion of the base of the CCR unit and the uppermost aquifer due to normal fluctuations in groundwater elevations (including the seasonal high water table). The owner or operator must demonstrate by the dates specified in paragraph (c) of this Section that the CCR unit meets the minimum requirements for placement above the uppermost aquifer.

(b) **PE certification.** The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of paragraph (a) of this Section.

(c) **Compliance dates; DEQ approval required.** The owner or operator of the CCR unit must complete the demonstration required by paragraph (a) of this Section by the date specified in either paragraph (c)(1) or (2) of this Section.

(1) For an existing CCR surface impoundment, the owner or operator must complete the demonstration no later than October 17, 2018.

(2) For a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit, the owner or operator must complete the demonstration no later than the date of initial receipt of CCR in the CCR unit.

(3) The owner or operator has completed the demonstration required by paragraph (a) of this Section when the demonstration is approved by the DEQ and placed in the facility's operating record as required by OAC 252:517-19-1(e).

(4) An owner or operator of an existing CCR surface impoundment who fails to demonstrate compliance with the requirements of paragraph (a) of this Section by the date specified in paragraph (c)(1) of this Section is subject to the requirements of OAC 252:517-15-6(b)(1).

(5) An owner or operator of a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit who fails to make the demonstration showing compliance with the requirements of paragraph (a) of this Section is prohibited from placing CCR in the CCR unit.

(6) The owner or operator must submit the demonstrations to DEQ for approval.

(d) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(e), the notification requirements specified in OAC 252:517-19-2(e), and the internet requirements specified in OAC 252:517-19-3(e).

## **252:517-5-2. Wetlands**

(a) **Applicability.** New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located in wetlands, as defined in this Chapter, unless the owner or operator demonstrates by the dates specified in paragraph (c) of this Section that the CCR unit meets the requirements of paragraphs (a)(1) through (5) of this Section.

(1) Where applicable under Section 404 of the Clean Water Act or applicable state wetlands laws, a clear and objective rebuttal of the presumption that an alternative to the CCR unit is reasonably available that does not involve wetlands.

(2) The construction and operation of the CCR unit will not cause or contribute to any of the following:

(A) A violation of any applicable state or federal water quality standard;

(B) A violation of any applicable toxic effluent standard or prohibition under Section 307 of the Clean Water Act; and

(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;

(3) The CCR unit will not cause or contribute to significant degradation of wetlands by addressing all of the following factors:

(A) Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the CCR unit;

(B) Erosion, stability, and migration potential of dredged and fill materials used to support the CCR unit;

(C) The volume and chemical nature of the CCR;

(D) Impacts on fish, wildlife, and other aquatic resources and their habitat from release of CCR;

(E) The potential effects of catastrophic release of CCR 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.

(4) 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 reasonable as required by paragraphs (a)(1) through (3) of this Section, then minimizing unavoidable impacts to the maximum extent reasonable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and reasonable compensatory mitigation actions (e.g., restoration of existing degraded wetlands or creation of man-made wetlands); and

(5) Sufficient information is available to make a reasoned determination with respect to the demonstrations in paragraphs (a)(1) through (4) of this Section.

(b) **PE certification.** The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of paragraph (a) of this Section.

(c) **Compliance dates; DEQ approval required.** The owner or operator of the CCR unit must complete the demonstrations required by paragraph (a) of this Section by the date specified in either paragraph (c)(1) or (2) of this Section.

(1) For an existing CCR surface impoundment, the owner or operator must complete the demonstration no later than October 17, 2018.

(2) For a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit, the owner or operator must complete the demonstration no later than the date of initial receipt of CCR in the CCR unit.

(3) The owner or operator has completed the demonstration required by paragraph (a) of this Section when the demonstration is approved by the DEQ and placed in the facility's operating record as required by OAC 252:517-19-1(e).

(4) An owner or operator of an existing CCR surface impoundment who fails to demonstrate compliance with the requirements of paragraph (a) of this Section by the date specified in paragraph (c)(1) of this Section is subject to the requirements of OAC 252:517-15-6(b)(1).

(5) An owner or operator of a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit who fails to make the demonstrations showing compliance with the requirements of paragraph (a) of this Section is prohibited from placing CCR in the CCR unit.

(6) The owner or operator must submit the demonstrations to DEQ for approval.

(d) **Recordkeeping.** The owner or operator must comply with the recordkeeping requirements specified in OAC 252:517-19-1(e), the notification requirements specified in OAC 252:517-19-2(e), and the Internet requirements specified in OAC 252:517-19-3(e).

### **252:517-5-3. Fault areas**

(a) **Applicability.** New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located within 60 meters (200 feet) of the outermost damage zone of a fault that has had displacement in Holocene time unless the owner or operator demonstrates by the dates specified in paragraph (c) of this Section that an alternative setback distance of less than 60 meters (200 feet) will prevent damage to the structural integrity of the CCR unit.

(b) **PE certification.** The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of paragraph (a) of this Section.

(c) **Compliance dates; DEQ approval required.** The owner or operator of the CCR unit must complete the demonstration required by paragraph (a) of this Section by the date specified in either paragraph (c)(1) or (2) of this Section.

(1) For an existing CCR surface impoundment, the owner or operator must complete the demonstration no later than October 17, 2018.

(2) For a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit, the owner or operator must complete the demonstration no later than the date of initial receipt of CCR in the CCR unit.

(3) The owner or operator has completed the demonstration required by paragraph (a) of this Section when the demonstration is approved by the DEQ and placed in the facility's operating record as required by OAC 252:517-19-1(e).

(4) An owner or operator of an existing CCR surface impoundment who fails to demonstrate compliance with the requirements of paragraph (a) of this Section by the date specified in paragraph (c)(1) of this Section is subject to the requirements of OAC 252:517-15-6(b)(1).

(5) An owner or operator of a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit who fails to make the demonstration showing compliance with the requirements of paragraph (a) of this Section is prohibited from placing CCR in the CCR unit.

(6) The owner or operator must submit the demonstrations to DEQ for approval.

(d) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(e), the notification requirements specified in OAC 252:517-19-2(e), and the Internet requirements specified in OAC 252:517-19-3(e).

#### **252:517-5-4. Seismic impact zones**

(a) **Applicability.** New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must not be located in seismic impact zones unless the owner or operator demonstrates by the dates specified in paragraph (c) of this Section that all structural components including liners, leachate collection and removal systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.

(b) **PE certification.** The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of paragraph (a) of this Section.

(c) **Compliance dates; DEQ approval required.** The owner or operator of the CCR unit must complete the demonstration required by paragraph (a) of this Section by the date specified in either paragraph (c)(1) or (2) of this Section.

(1) For an existing CCR surface impoundment, the owner or operator must complete the demonstration no later than October 17, 2018.

(2) For a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit, the owner or operator must complete the demonstration no later than the date of initial receipt of CCR in the CCR unit.

(3) The owner or operator has completed the demonstration required by paragraph (a) of this Section when the demonstration is approved by the DEQ and placed in the facility's operating record as required by OAC 252:517-19-1(e).

(4) An owner or operator of an existing CCR surface impoundment who fails to demonstrate compliance with the requirements of paragraph (a) of this Section by the date specified in paragraph (c)(1) of this Section is subject to the requirements of OAC 252:517-15-6(b)(1).

(5) An owner or operator of a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit who fails to make the demonstration showing compliance with the requirements of paragraph (a) of this Section is prohibited from placing CCR in the CCR unit.

(6) The owner or operator must submit the demonstrations to DEQ for approval.

(d) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(e), the notification requirements

specified in OAC 252:517-19-2(e), and the Internet requirements specified in OAC 252:517-19-3(e).

#### **252:517-5-5. Unstable areas**

(a) **Applicability.** An existing or new CCR landfill, existing or new CCR surface impoundment, or any lateral expansion of a CCR unit must not be located in an unstable area unless the owner or operator demonstrates by the dates specified in paragraph (d) of this Section that recognized and generally accepted good engineering practices have been incorporated into the design of the CCR unit to ensure that the integrity of the structural components of the CCR unit will not be disrupted.

(b) **Considerations.** The owner or operator must consider all of the following factors, at a minimum, when determining whether an area is unstable:

- (1) On-site or local soil conditions that may result in significant differential settling;
- (2) On-site or local geologic or geomorphologic features; and
- (3) On-site or local human-made features or events (both surface and subsurface).

(c) **PE certification.** The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the demonstration meets the requirements of paragraph (a) of this Section.

(d) **Compliance dates; DEQ approval required.** The owner or operator of the CCR unit must complete the demonstration required by paragraph (a) of this Section by the date specified in either paragraph (d)(1) or (2) of this Section.

(1) For an existing CCR landfill or existing CCR surface impoundment, the owner or operator must complete the demonstration no later than October 17, 2018.

(2) For a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit, the owner or operator must complete the demonstration no later than the date of initial receipt of CCR in the CCR unit.

(3) The owner or operator has completed the demonstration required by paragraph (a) of this Section when the demonstration is approved by the DEQ and placed in the facility's operating record as required by OAC 252:517-19-1(e).

(4) An owner or operator of an existing CCR surface impoundment or existing CCR landfill who fails to demonstrate compliance with the requirements of paragraph (a) of this Section by the date specified in paragraph (d)(1) of this Section is subject to the requirements of OAC 252:517-15-6(b)(1) or (d)(1), respectively.

(5) An owner or operator of a new CCR landfill, new CCR surface impoundment, or any lateral expansion of a CCR unit who fails to make the demonstration showing compliance with the requirements of paragraph (a) of this Section is prohibited from placing CCR in the CCR unit.

(6) The owner or operator must submit the demonstrations to DEQ for approval.

(e) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(e), the notification requirements specified in OAC 252:517-19-2(e), and the Internet requirements specified in OAC 252:517-19-3(e).

#### **252:517-5-6. Scenic rivers**

(a) **Prohibition.** Except as provided in (b) of this Section, no area within the permit boundary of a new CCR unit, or expansion of the permit boundary of an existing CCR unit, shall be located within the drainage basin of any river designated under the Oklahoma Scenic Rivers Commission Act.

(b) **Exception.** This restriction may be waived if the Scenic Rivers Commission that manages the affected river, or in the absence of such commission, the Oklahoma Tourism and Recreation Department, provides a statement that the proposed facility is not expected to adversely affect the river or any of the public purposes for which it was designated. Such statement shall be provided to the DEQ.

#### **252:517-5-7. Recreation/preservation areas**

(a) **Prohibition.** Except as provided in (b) of this Section, no area within the permit boundary of a new CCR unit, or expansion of the permit boundary of an existing CCR unit, shall be located within one-half mile of any area formally dedicated and managed for public recreation or natural preservation by a federal, state, or local government agency.

(b) **Exception.** This restriction may be waived if the appropriate management agency provides a statement that the proposed facility is not expected to adversely affect the existing recreation or natural preservation area. Such statement shall be submitted to the DEQ.

#### **252:517-5-8. Endangered or threatened species**

For a new CCR unit, or expansion of the permit boundary of an existing CCR unit, a statement from the Oklahoma Department of Wildlife Conservation (ODWC) and from the Oklahoma Biological Survey (OBS), shall be submitted regarding current information about endangered or threatened wildlife or plant species listed in state and federal laws, that exist within one mile of the permit boundary or expansion area.

(1) **Address potential impacts.** If threatened or endangered species exist within, or periodically utilize any area within, or within one mile of, the permit boundary or expansion area, the projected impacts on the identified species shall be addressed, and measures specified to avoid or mitigate the impacts.

(2) **Mitigation plan required.** When impacts are unavoidable, a mitigation plan that has been approved by ODWC for wildlife or OBS for plants, shall be submitted to the DEQ.

#### **252:517-5-9. 100-year floodplain**

No waste management or disposal areas of a CCR unit shall be located within the 100-year floodplain, except as provided for by (1) and (2) of this Section.

(1) **CCR units permitted before April 9, 1994.** For areas of CCR units that received waste before April 9, 1994 and are located in the 100-year floodplain, the owner/operator must maintain in the operating record a demonstration that the waste disposal area will not:

- (A) restrict the flow of the 100-year flood;
- (B) reduce the temporary water storage capacity of the floodplain; or
- (C) result in the disturbance and/or carrying away of CCR by water so as to pose a hazard to human health or the environment.

(2) **Authorized variances.** The DEQ may grant a variance from the 100-year flood plain restriction for waste management or disposal areas of new CCR units, or expansions

of waste management or disposal areas of existing CCR units, provided the variance is conditioned upon the subsequent redefinition of the flood plain to not include the land area proposed by the variance.

**252:517-5-10. Public water supply**

No new CCR unit or lateral expansion of a CCR unit shall be located within:

- (1) one mile upgradient of an existing public water supply surface water intake, or one that is permitted for construction when a complete application has been filed with the DEQ; or
- (2) a one year time of travel of a public water supply well. A wellhead delineation shall be performed and submitted to the DEQ if one has not already been performed.

**252:517-5-11. Wellhead protection area**

If any new CCR unit or lateral expansion of a CCR unit will be located within two miles of a public water supply well, a wellhead protection area shall be identified, as specified by the State Wellhead Protection Plan, and such information submitted to the DEQ.

**SUBCHAPTER 7. SUBSURFACE INVESTIGATION**

**PART 1. GENERAL PROVISIONS**

- 252:517-7-1. Applicability
- 252:517-7-2. General
- 252:517-7-3. Compliance with OWRB rules
- 252:517-7-4. Drilling plan
- 252:517-7-5. Drilling

**PART 3. DATA COLLECTION**

- 252:517-7-31. Data collection
- 252:517-7-32. Borehole logs
- 252:517-7-33. Lithologic sample logs
- 252:517-7-34. Geophysical logs
- 252:517-7-35. Soil and rock sampling
- 252:517-7-36. Soil tests
- 252:517-7-37. Soils report
- 252:517-7-38. Regional hydrogeologic study

**PART 5. GROUNDWATER STUDY**

- 252:517-7-51. General
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## **PART 7. SURFACE PENETRATION PLUGGING**

252:517-7-71. Plugging requirements

### **PART 1. GENERAL PROVISIONS**

#### **252:517-7-1. Applicability**

(a) **CCR unit.** A subsurface investigation meeting the requirements of this Subchapter shall be completed prior to submitting a permit application for:

- (1) a new CCR unit; or
- (2) a lateral expansion of an existing CCR unit.

(b) **Part of permit application.** The results from the subsurface investigation shall be included as part of the permit application.

(c) **Exception.** Except as provided by OAC 252:517-7-2(c), a permit modification for a lateral expansion of a CCR unit may not require a subsurface investigation if the proposed expansion area has already had a subsurface investigation performed that meets the requirements of this Subchapter.

#### **252:517-7-2. General**

(a) **Purpose and design.** The subsurface investigation shall:

- (1) be performed to determine the location of the uppermost aquifer; and
- (2) be designed to protect all saturated zones encountered while drilling.

(b) **Methods.** Dry methods of subsurface exploration, such as auger, air rotary, or cable tool, shall be used. Other methods may be approved by the DEQ on a case-by-case basis.

(c) **Verification of previously submitted data.** When a significant period of time has elapsed between the initial investigation and actual construction that there is a reasonable likelihood subsurface conditions have changed, the DEQ may require verification of data contained in a previously submitted subsurface investigation.

#### **252:517-7-3. Compliance with OWRB rules**

All monitoring wells, borings, and/or piezometers shall be constructed and/or plugged in accordance with the applicable requirements of the OWRB at OAC 785:35.

- (1) **Flush mounting prohibited.** Flush-mounting of monitoring wells and piezometers is prohibited.
- (2) **Multi-zone completions prohibited.** Multi-zone completions of monitoring wells and piezometers are prohibited.
- (3) **Notch.** The well casing of monitoring wells shall be notched to mark the point of measurement for groundwater elevation.
- (4) **Latitude, longitude, surface elevation.** Latitude, longitude, and surface elevation, measured by a licensed surveyor, shall be permanently marked on the protective casing of each monitoring well.

#### **252:517-7-4. Drilling plan**

(a) **Drilling plan required.** Prior to initiating the subsurface investigation, a drilling plan meeting the requirements of this Section shall be submitted to the DEQ for approval.

(1) **Drilling plan revisions.** New hydrogeologic information collected as the investigation proceeds shall be used to revise the drilling plan and CCR unit design as necessary.

(2) **DEQ approval required.** Drilling shall not begin until the drilling plan has been approved in writing by the DEQ.

(b) **Drilling plan content.** The drilling plan shall include the following information at a minimum:

(1) the name, address, and telephone number of the owner/operator, the consulting firm, and the person in charge of the project;

(2) the following maps and drawings:

(A) general location map, flood plain map, and quadrangle topographic map in accordance with OAC 252:517-3-32 through 34;

(B) existing contour map in accordance with OAC 252:517-3-35, showing the locations, estimated elevations and total depths of any proposed or existing borings on the site;

(C) site specific maps showing any wetlands, fault areas, seismic impact zones, and alluvium or terrace deposits and their recharge areas; and

(D) drawings of proposed piezometers and/or monitoring wells to demonstrate their construction will be in accordance with the requirements of OAC 252:517-7-3;

(3) the locations of borings to be completed in accordance with the following:

(A) borings shall be spaced on a grid, or an alternative spacing approved in advance by the DEQ;

(B) for an area consisting of five acres or less, a minimum of four borings within the proposed permit boundary shall be completed on a new site or within the expansion area of an existing site;

(C) for areas larger than five acres, additional borings shall be placed in accordance with Appendix C;

(D) with prior approval of the DEQ, up to one-fourth of required borings may be replaced with existing borings located within 200 feet of the proposed boundary;

(E) the DEQ may require more borings at sites with complex hydrogeology, such as groundwater divides, shallow saturated zones, or hydraulic barriers; and

(4) the depths of borings to be completed as follows:

(A) all borings shall be drilled a minimum of thirty feet below the deepest proposed placement of waste, the elevation of which shall be reported in relation to mean sea level. A borehole depth calculation shall be completed for each boring in accordance with Appendix D;

(B) at least three borings shall be drilled two hundred feet deep or a minimum of ten feet into the uppermost saturated zone, whichever is less, in accordance with Appendix C;

(C) at least one boring shall be drilled to a depth of 100 feet, regardless of the depth at which groundwater is encountered.

#### **252:517-7-5. Drilling**

(a) **Notice of intent to drill.** After DEQ approval of the drilling plan, the DEQ shall be provided with written notice of intent to drill at least two (2) weeks prior to initiating drilling.

- (b) **Drilling.** Provided proper notification is given to the DEQ, drilling may proceed in accordance with the approved plan even if a representative of the DEQ is not present as scheduled.
- (c) **Qualified groundwater scientist.** A qualified groundwater scientist shall supervise all drilling operations.

### **PART 3. DATA COLLECTION**

#### **252:517-7-31. Data collection**

The information described in this Part shall be collected during the subsurface investigation and submitted as part of the permit application.

#### **252:517-7-32. Borehole logs**

- (a) Information shall be collected to prepare a lithologic sample log of each borehole drilled and a geophysical log of each borehole to be converted to a piezometer.
- (b) All pertinent information, such as the depth at which water was encountered, shall be included on the log.
- (c) Depth of water in boreholes shall be measured at the time of drilling and again 24 hours later.

#### **252:517-7-33. Lithologic sample logs**

Lithologic sample logs shall be made for each borehole for its entire depth. Each log shall include the following information:

- (1) geotechnical information about drilling, such as penetration rates, hydraulic conductivity test intervals and results, and drill bit changes;
- (2) identification of all soil and rock layers encountered during drilling describing:
  - (A) color, texture, thickness, degree of compaction or consolidation and amount of moisture present in each layer;
  - (B) soil classifications based on the Unified Soil Classification System along with the geological classification; and
  - (C) rock classifications as defined in the American Geological Institute Dictionary of Geological Terms; and
- (3) the depths at which groundwater was encountered and stabilized groundwater elevations.

#### **252:517-7-34. Geophysical logs**

- (a) **Minimum number.** For CCR units of 20 acres or less, at least three boreholes shall be logged by geophysical tools, one of which must be run on the deepest drilled borehole.
- (b) **Additional logs.**
- (1) For each additional 20 acres of a CCR unit, one additional borehole shall be logged by geophysical tools.
  - (2) In geologically complex areas, the DEQ may require additional boreholes.
- (c) **Logging method.** Geophysical logs shall be obtained using:
- (1) gamma ray/neutron logs from total depth to the surface in either open hole or behind casing; or
  - (2) alternative geophysical logs approved by the DEQ if it provides equivalent information.

### **252:517-7-35. Soil and rock sampling**

- (a) **Sample collection.** For each borehole drilled, soil and rock samples shall be collected at five-foot intervals, and at soil or rock changes, from the surface to the total depth drilled.
- (b) **Sample storage.** Samples shall be stored until final action on the permit application is taken by the DEQ.
- (c) **Sampling methods.** Drilling techniques and the types of samples to be collected shall determine the method of sampling.
  - (1) **Split-barrel.** Split-barrel samples shall be taken according to the specifications of ASTM D1586.
  - (2) **Core barrel.** Consolidated rock samples shall be taken by core barrel according to the specifications of ASTM D2113.
  - (3) **Thin-walled tube.** When soil samples of silts and clays are required for physical tests, thin-walled tube samples shall be taken according to the specifications of ASTM D1587.
  - (4) **Other methods.** Other sampling methods may be approved in advance by the DEQ on a case-by-case basis.

### **252:517-7-36. Soil tests**

Soils proposed to be used as liner or intermediate or final cover material shall be tested as follows:

- (1) **Sample collection.** At least one sample shall be collected for each type of material proposed for use as liner or intermediate or final cover material.
- (2) **Laboratory requirement.** The soil samples shall be tested by a soils laboratory under the direction of a licensed professional engineer.
- (3) **Required tests.** The following tests shall be conducted on each type of soil sampled:
  - (A) soil classification according to the specifications of ASTM D2487;
  - (B) particle-size analysis of soil according to the specifications of ASTM D422;
  - (C) sieve analysis for the following screen sizes: #4, #10, #40, #200;
  - (D) percent fines (#200 sieve) according to the specifications of ASTM D1140;
  - (E) Atterberg limits according to the specifications of ASTM D4318;
  - (F) moisture content according to the specifications of either the oven drying method of ASTM D2216 or the microwave drying method of ASTM D4643;
  - (G) moisture-density relationship according to the specifications of the standard proctor test of ASTM D698 or the modified proctor test of ASTM D1557; and
  - (H) hydraulic conductivity according to the specifications of ASTM D5084 or any other method approved by the DEQ.

### **252:517-7-37. Soils report**

A laboratory report of the characteristics of soil and rock material proposed for liner or intermediate or final cover material shall be submitted.

- (1) **PE certification.** The report shall be stamped or sealed by the licensed professional engineer directing the soils laboratory; and
- (2) **Report requirements.** The report shall include all test results, the type of test used, the method of testing and the condition, preparation, and orientation of each sample.

### **252:517-7-38. Regional hydrogeologic study**

Information on the geology and hydrogeology of the proposed site or expansion area shall be collected. Such information shall, at a minimum, include:

- (1) the formation underlying the deepest formation penetrated by the boreholes and/or monitor wells;
- (2) all formations exposed in the outcrop on or within 1/4 mile of the proposed permitted boundary;
- (3) a geologic column and structural information of all rock formations occurring from surface to a depth of 500 feet;
- (4) a regional surface geological map;
- (5) illustrations of the regional stratigraphic column and geologic or hydrogeologic cross-sections;
- (6) a description of regional groundwater quality; and
- (7) references indicating the sources of information.

## **PART 5. GROUNDWATER STUDY**

### **252:517-7-51. General**

(a) **Groundwater study required.** A groundwater study completed in accordance with this Part shall be performed as part of the subsurface investigation required by this Subchapter, and the results included with the permit application.

(b) **As-built drawings required.** As-built drawings, surveyed locations, and casing elevations of each piezometer installed shall be included with the permit application.

### **252:517-7-52. Piezometers required**

Boreholes and screens shall be installed in the uppermost saturated zone at locations approved by the DEQ so that data collected will be representative of the entire site or expansion area.

### **252:517-7-53. Piezometer details**

(a) **Minimum number.** For CCR units of 20 acres or less, at least three piezometers shall be installed.

(b) **Additional piezometers.**

- (1) For each additional 20 acres of a CCR unit, one additional piezometer shall be installed.
- (2) In geologically complex areas, the installation of additional piezometers may be required.

(c) **Piezometer construction.** In addition to the requirements of OAC 252:517-7-3, piezometer construction shall include the following.

- (1) **Casing material.** The casing must be made of material selected according to groundwater geochemistry, anticipated lifetime of the monitoring program, well depth, parameters to be monitored and other site specific considerations.
- (2) **Rigidity.** The casing must be rigid enough to support the borehole and shall have a protective cap over the bottom end.

- (3) **Unconfined aquifer.** For an unconfined aquifer, the tops of screens shall be placed at, or no more than two feet above, the water table, and the screen shall extend into the saturated zone.
- (4) **Confined aquifer.** For a confined aquifer, screens shall be placed in the saturated zone.
- (5) **Screen length.** Screens shall be 5 feet in length, unless otherwise approved by the DEQ.
- (d) **Conversion of piezometers to monitoring wells.** If any piezometers are to be converted to groundwater monitoring wells, the piezometers must be converted to meet the standards of OAC 252:517-7-3.

#### **252:517-7-54. Groundwater elevation measurements**

- (a) **Groundwater/waste separation.** Separation from groundwater shall meet the requirements of OAC 252:517-5-1.
- (b) **Continuous water level monitoring.** A continuous water level monitor system shall be installed in at least one piezometer that has water in it. Water levels in all other piezometers shall be monitored once each month for 12 months at approximately the same date each month.
- (c) **Measurements after heavy rainfall.** If significant changes in the water level in the continuous monitor are identified following heavy rainfall events, the DEQ may require additional measurements in other piezometers to further define the level of highest groundwater elevation.
- (d) **Method defined.** The elevation of groundwater in piezometers and monitor wells shall be measured according to the specifications of ASTM D4750.

#### **252:517-7-55. Area rainfall**

- (a) **Rainfall measurements.** Daily and monthly precipitation data shall be obtained from the climatological station closest to the proposed site or expansion area, for the months in which the on-site measurements were taken and for the preceding 12 months.
- (b) **Average rainfall.** CLIMOCS shall be used to obtain the 30-year mean precipitation from the climatological station closest to the proposed site or expansion area.

#### **252:517-7-56. Shallow saturated zone investigation**

- (a) **Shallow saturated zone encountered.** If a saturated zone is encountered above the depth where groundwater was anticipated, drilling shall cease and the following actions taken:
  - (1) note on the borehole lithologic sample log, the initial depth at which the shallow zone was encountered;
  - (2) install and screen a piezometer in the shallow zone; and
  - (3) drill a new boring, to the original proposed total depth, within ten feet of the piezometer.
- (b) **Additional shallow zones encountered.** If a shallow saturated zone is encountered in the next three adjacent borehole locations in the approved drilling plan:
  - (1) the drilling plan and preliminary landfill design shall be revised to take into consideration the shallow water table;
  - (2) the subsurface investigation shall be updated and revised as hydrogeologic information becomes available; and
  - (3) a revised drilling plan shall be submitted to the DEQ for approval, with explanation of any changes made to the original plan.

## **PART 7. SURFACE PENETRATION PLUGGING**

### **252:517-7-71. Plugging requirements**

- (a) **Boreholes.** Unless it is to be converted to a piezometer or monitor well within thirty days of drilling, all boreholes shall be plugged in accordance with the requirements of OAC 252:517-7-3.
- (b) **Piezometers and monitoring wells.** All piezometers and monitoring wells that will not become part of the groundwater monitoring system shall be plugged according to the requirements of OAC 252:517-7-3.
- (c) **Other subsurface penetrations.** All water wells, oil and gas wells and other borings located within the proposed disposal boundary shall be plugged if they will not be utilized.
- (d) **Casing extraction.** The casing of monitoring wells and piezometers shall be extracted prior to plugging.
  - (1) **Piezometers.** The surface seal and casing shall be removed from the borehole and a tremie pipe shall be used to fill the hole from the bottom to four feet (4') below ground surface.
  - (2) **Monitoring wells.**
    - (A) The protective bollards and concrete pad shall be removed.
    - (B) The surface seal and well casing shall be removed by perforating the bottom cap and filling the casing with appropriate plugging material as the casing is being pulled from the borehole, or the casing may be extracted by over-drilling.
- (e) **Alternative.** In areas where all or part of the well's casing and other components of the well cannot be removed and plugged in accordance with this Part, the DEQ may allow the placement of a cement-bentonite grout inside the wells casing, from the bottom of the well to the ground surface. In this event, the owner/operator must demonstrate that the annular seal is adequately sealed and must submit documentation, prior to plugging the well, that demonstrates removal of all or part of the well's casing and other components.

## **SUBCHAPTER 9. GROUNDWATER MONITORING/CORRECTIVE ACTION**

### **Section**

- 252:517-9-1. General Provisions
- 252:517-9-2. Groundwater monitoring systems
- 252:517-9-3. [Reserved]
- 252:517-9-4. Groundwater sampling and analysis requirements
- 252:517-9-5. Detection monitoring program
- 252:517-9-6. Assessment monitoring program
- 252:517-9-7. Assessment of corrective measures
- 252:517-9-8. Selection of remedy
- 252:517-9-9. Implementation of the corrective action program

### **252:517-9-1. General provisions**

- (a) **Applicability.** All CCR landfills, CCR surface impoundments, and lateral expansions of CCR units are subject to the groundwater monitoring and corrective action requirements under OAC 252:517-9-1 through OAC 252:517-9-9.

(b) **Initial timeframes.**

(1) **Existing CCR landfills and existing CCR surface impoundments.** No later than October 17, 2017, the owner or operator of the CCR unit must be in compliance with the following groundwater monitoring requirements:

(A) Install the groundwater monitoring system as required by OAC 252:517-9-2;

(B) Develop the groundwater sampling and analysis program to include selection of the statistical procedures to be used for evaluating groundwater monitoring data as required by OAC 252:517-9-4;

(C) Initiate the detection monitoring program to include obtaining a minimum of eight independent samples for each background and downgradient well as required by OAC 252:517-9-5(b); and

(D) Begin evaluating the groundwater monitoring data for statistically significant increases over background levels for the constituents listed in Appendix A of this Chapter as required by OAC 252:517-9-5.

(2) **New CCR landfills, new CCR surface impoundments, and all lateral expansions of CCR units.** Prior to initial receipt of CCR by the CCR unit, the owner or operator must be in compliance with the groundwater monitoring requirements specified in paragraph (b)(1)(A) and (B) of this Section. In addition, the owner or operator of the CCR unit must initiate the detection monitoring program to include obtaining a minimum of eight independent samples for each background well as required by OAC 252:517-9-5(b).

(c) **Groundwater monitoring and corrective action.** Once a groundwater monitoring system and groundwater monitoring program has been established at the CCR unit as required by this Chapter, the owner or operator must conduct groundwater monitoring and, if necessary, corrective action throughout the active life and post-closure care period of the CCR unit.

(d) **Control releases.** In the event of a release from a CCR unit, the owner or operator must immediately take all necessary measures to control the source(s) of releases so as to reduce or eliminate, to the maximum extent feasible, further releases of contaminants into the environment. The owner or operator of the CCR unit must comply with all applicable requirements in OAC 252:517-9-7, OAC 252:517-9-8, and OAC 252:517-9-9.

(e) **Annual groundwater monitoring and corrective action report.** For existing CCR landfills and existing CCR surface impoundments, no later than January 31, 2018, and annually thereafter, the owner or operator must prepare an annual groundwater monitoring and corrective action report. For new CCR landfills, new CCR surface impoundments, and all lateral expansions of CCR units, the owner or operator must prepare the initial annual groundwater monitoring and corrective action report no later than January 31 of the year following the calendar year a groundwater monitoring system has been established for such CCR unit as required by this Chapter, and annually thereafter. For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. For purposes of this Section, the owner or operator has prepared the annual report when the report is placed in the facility's operating record as required by OAC 252:517-19-1(h)(1). At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:



- (1) A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;
  - (2) Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;
  - (3) In addition to all the monitoring data obtained under OAC 252:517-9-1 through OAC 252:517-9-9, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;
  - (4) A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and
  - (5) Other information required to be included in the annual report as specified in OAC 252:517-9-1 through OAC 252:517-9-9.
- (f) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(h), the notification requirements specified in OAC 252:517-19-2(h), and the internet requirements specified in OAC 252:517-19-3(h).
- (g) **DEQ approval required.** The annual groundwater monitoring and corrective action report shall be submitted to the DEQ for approval.

## **252:517-9-2. Groundwater monitoring systems**

- (a) **Performance standard.** The owner or operator of a CCR unit must install a groundwater monitoring system that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples from the uppermost aquifer that:
- (1) Accurately represent the quality of background groundwater that has not been affected by leakage from a CCR unit. A determination of background quality may include sampling of wells that are not hydraulically upgradient of the CCR management area where:
    - (A) Hydrogeologic conditions do not allow the owner or operator of the CCR unit to determine what wells are hydraulically upgradient; or
    - (B) Sampling at other wells will provide an indication of background groundwater quality that is as representative or more representative than that provided by the upgradient wells; and
  - (2) Accurately represent the quality of groundwater passing the waste boundary of the CCR unit. The downgradient monitoring system must be installed at the waste boundary that ensures detection of groundwater contamination in the uppermost aquifer. All potential contaminant pathways must be monitored.
- (b) **Site-specific considerations.** The number, spacing, and depths of monitoring systems shall be determined based upon site-specific technical information that must include thorough characterization of:
- (1) Aquifer thickness, groundwater flow rate, groundwater flow direction including seasonal and temporal fluctuations in groundwater flow; and

(2) 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, thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

(c) **Minimum number.** The groundwater monitoring system must include the minimum number of monitoring wells necessary to meet the performance standards specified in paragraph (a) of this Section, based on the site-specific information specified in paragraph (b) of this Section. The groundwater monitoring system must contain:

- (1) A minimum of one upgradient and three downgradient monitoring wells; and
- (2) Additional monitoring wells as necessary to accurately represent the quality of background groundwater that has not been affected by leakage from the CCR unit and the quality of groundwater passing the waste boundary of the CCR unit.

(d) **Multi-unit groundwater monitoring system.** The owner or operator of multiple CCR units may install a multiunit groundwater monitoring system instead of separate groundwater monitoring systems for each CCR unit.

(1) The multiunit groundwater monitoring system must be equally as capable of detecting monitored constituents at the waste boundary of the CCR unit as the individual groundwater monitoring system specified in paragraphs (a) through (c) of this Section for each CCR unit based on the following factors:

- (A) Number, spacing, and orientation of each CCR unit;
- (B) Hydrogeologic setting;
- (C) Site history; and
- (D) Engineering design of the CCR unit.

(2) If the owner or operator elects to install a multiunit groundwater monitoring system, and if the multiunit system includes at least one existing unlined CCR surface impoundment as determined by OAC 252:517-11-2(a), and if at any time after October 19, 2015 the owner or operator determines in any sampling event that the concentrations of one or more constituents listed in Appendix B to this Chapter are detected at statistically significant levels above the groundwater protection standard established under OAC 252:517-9-6(h) for the multiunit system, then all unlined CCR surface impoundments comprising the multiunit groundwater monitoring system are subject to the closure requirements under OAC 252:517-15-6(a) to retrofit or close.

(e) **Monitoring wells.** Monitoring wells must be constructed in accordance with OAC 252:517-7-3.

(1) The owner or operator of the CCR unit must document and include in the operating record the design, installation, development, and decommissioning of any monitoring wells, piezometers and other measurement, sampling, and analytical devices. The qualified professional engineer must be given access to this documentation when completing the groundwater monitoring system certification required under paragraph (f) of this Section.

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

(f) **PE certification.** The owner or operator must obtain a certification from a qualified professional engineer stating that the groundwater monitoring system has been designed and

constructed to meet the requirements of this Section. If the groundwater monitoring system includes the minimum number of monitoring wells specified in paragraph (c)(1) of this Section, the certification must document the basis supporting this determination.

(g) **DEQ approval required.** A plan meeting the requirements of this section must be submitted to DEQ for approval prior to installation of the groundwater monitoring system.

(h) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(h), the notification requirements specified in OAC 252:517-19-2(h), and the internet requirements specified in OAC 252:517-19-3(h).

### **252:517-9-3. [RESERVED]**

### **252:517-9-4. Groundwater sampling and analysis requirements**

(a) **DEQ approval required.** A groundwater monitoring program shall be established and a plan submitted to the DEQ for approval. The plan must include information required by (b) through (j) of this Section.

(b) **Sampling and analysis procedures.** The groundwater monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide an accurate representation of groundwater quality at the background and downgradient wells required by OAC 252-517-9-2. The owner or operator of the CCR unit must develop a sampling and analysis program that includes procedures and techniques for:

- (1) Sample collection;
- (2) Sample preservation and shipment;
- (3) Analytical procedures;
- (4) Chain of custody control; and
- (5) Quality assurance and quality control.

(c) **Sampling and analytical methods.** The groundwater monitoring program must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure hazardous constituents and other monitoring parameters in groundwater samples. For purposes of OAC 252:517-9-1 through OAC 252:517-9-9, the term constituent refers to both hazardous constituents and other monitoring parameters listed in either Appendix A or B of this Chapter.

(d) **Groundwater elevation.** Groundwater elevations must be measured in each well immediately prior to purging, each time groundwater is sampled. The owner or operator of the CCR unit must determine the rate and direction of groundwater flow each time groundwater is sampled. Groundwater elevations in wells which monitor the same CCR management area must be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater flow rate and direction.

(e) **Establish background.** The owner or operator of the CCR unit must establish background groundwater quality in a hydraulically upgradient or background well(s) for each of the constituents required in the particular groundwater monitoring program that applies to the CCR unit as determined under OAC 252:517-9-5(a) or OAC 252:517-9-6(a). Background groundwater quality may be established at wells that are not located hydraulically upgradient from the CCR unit if it meets the requirements of OAC 252-517-9-2(a)(1).

(f) **Number of samples.** The number of samples collected when conducting detection monitoring and assessment monitoring (for both downgradient and background wells) must be consistent with the statistical procedures chosen under paragraph (g) of this Section and the performance standards under paragraph (h) of this Section. The sampling procedures shall be those specified under OAC 252:517-9-5(b) through (d) for detection monitoring, OAC 252:517-9-6(b) through (d) for assessment monitoring, and OAC 252:517-9-7(b) for corrective action.

(g) **Statistical method.** The owner or operator of the CCR unit must select one of the statistical methods specified in paragraphs (g)(1) through (5) of this Section to be used in evaluating groundwater monitoring data for each specified constituent. The statistical test chosen shall be conducted separately for each constituent in each monitoring well.

(1) A parametric analysis of variance followed by multiple comparison 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 constituent.

(2) An analysis of variance based on ranks followed by multiple comparison 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 constituent.

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

(4) A control chart approach that gives control limits for each constituent.

(5) Another statistical test method that meets the performance standards of paragraph (h) of this Section.

(6) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the selected statistical method is appropriate for evaluating the groundwater monitoring data for the CCR management area. The certification must include a narrative description of the statistical method selected to evaluate the groundwater monitoring data.

(h) **Statistical method performance standard.** Any statistical method chosen under paragraph (g) of this Section shall comply with the following performance standards, as appropriate, based on the statistical test method used:

(1) The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of constituents. Normal distributions of data values shall use parametric methods. Non-normal distributions shall use non-parametric methods. If the distribution of the constituents is shown by the owner or operator of the CCR unit to be inappropriate for a normal theory test, then the data must be transformed or a distribution-free (non-parametric) theory test must be used. If the distributions for the constituents differ, more than one statistical method may be needed.

(2) If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background 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 comparison procedure is used, the Type I experiment wise 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.

(3) If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter values shall be such that this approach is at least as effective as any other approach in this Section for evaluating groundwater data. The parameter values 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 constituent of concern.

(4) 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 such that this approach is at least as effective as any other approach in this Section for evaluating groundwater data. These parameters 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 constituent of concern.

(5) The statistical method must account for data below the limit of detection with one or more statistical procedures that shall be at least as effective as any other approach in this Section for evaluating groundwater data. Any practical quantitation limit 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.

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

(i) **Statistically significant increase.** The owner or operator of the CCR unit must determine whether or not there is a statistically significant increase over background values for each constituent required in the particular groundwater monitoring program that applies to the CCR unit, as determined under OAC 252:517-9-5(a) or OAC 252:517-9-6(a).

(1) In determining whether a statistically significant increase has occurred, the owner or operator must compare the groundwater quality of each constituent at each monitoring well designated pursuant to OAC 252-517-9-2(a)(2) or (d)(1) to the background value of that constituent, according to the statistical procedures and performance standards specified under paragraphs (f) and (g) of this Section.

(2) Within 90 days after completing sampling and analysis, the owner or operator must determine whether there has been a statistically significant increase over background for any constituent at each monitoring well.

(j) **Filtering prohibition.** The owner or operator must measure "total recoverable metals" concentrations in measuring groundwater quality. Measurement of total recoverable metals captures both the particulate fraction and dissolved fraction of metals in natural waters. Groundwater samples shall not be field- filtered prior to analysis.

(k) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(h), the notification requirements specified in OAC 252:517-19-2(h), and the Internet requirements specified in OAC 252:517-19-3(h).

## **252:517-9-5. Detection monitoring program**

(a) **Detection monitoring required.** The owner or operator of a CCR unit must conduct detection monitoring at all groundwater monitoring wells consistent with this Section. At a minimum, a detection monitoring program must include groundwater monitoring for all constituents listed in Appendix A to this Chapter.

(b) **Monitoring frequency.** Except as provided in paragraph (d) of this Section, the monitoring frequency for the constituents listed in Appendix A to this Chapter shall be at least semiannual during the active life of the CCR unit and the post-closure period. For existing CCR landfills and existing CCR surface impoundments, a minimum of eight independent samples from each background and downgradient well must be collected and analyzed for the constituents listed in Appendix A and B to this Chapter no later than October 17, 2017. For new CCR landfills, new CCR surface impoundments, and all lateral expansions of CCR units, a minimum of eight independent samples for each background well must be collected and analyzed for the constituents listed in Appendices A and B to this Chapter during the first six months of sampling.

(c) **Number of samples.** The number of samples collected and analyzed for each background well and downgradient well during subsequent semiannual sampling events must be consistent with OAC 252:517-9-4(e), and must account for any unique characteristics of the site, but must be at least one sample from each background and downgradient well.

(d) **Alternative monitoring frequency.** The owner or operator of a CCR unit may demonstrate the need for an alternative monitoring frequency for repeated sampling and analysis for constituents listed in Appendix A to this Chapter during the active life and the post-closure care period based on the availability of groundwater. If there is not adequate groundwater flow to sample wells semiannually, the alternative frequency shall be no less than annual. The need to vary monitoring frequency must be evaluated on a site-specific basis and approved by the DEQ. The demonstration must be supported by, at a minimum, the information specified in paragraphs (d)(1) and (2) of this Section.

(1) Information documenting that the need for less frequent sampling. The alternative frequency must be based on consideration of the following factors:

- (A) Lithology of the aquifer and unsaturated zone;
- (B) Hydraulic conductivity of the aquifer and unsaturated zone; and
- (C) Groundwater flow rates.

(2) Information documenting that the alternative frequency will be no less effective in ensuring that any leakage from the CCR unit will be discovered within a timeframe that will not materially delay establishment of an assessment monitoring program.

(3) The owner or operator must obtain a certification from a qualified professional engineer stating that the demonstration for an alternative groundwater sampling and analysis frequency meets the requirements of this Section. The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer in the annual groundwater monitoring and corrective action report required by OAC 252:517-9-1(e).

(e) **Statistically significant increase.** If the owner or operator of the CCR unit determines, pursuant to OAC 252:517-9-4(h) that there is a statistically significant increase over background levels for one or more of the constituents listed in Appendix A to this Chapter at any monitoring well at the waste boundary specified under OAC 252-517-9-2(a)(2), the owner or operator must:

(1) Except as provided for in paragraph (e)(2) of this Section, within 90 days of detecting a statistically significant increase over background levels for any constituent, establish an

assessment monitoring program meeting the requirements of OAC 252:517-9-6, and have the assessment monitoring program approved by the DEQ.

(2) The owner or operator may demonstrate that a source other than the CCR unit caused the statistically significant increase over background levels for a constituent or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. The owner or operator must complete the written demonstration within 90 days of detecting a statistically significant increase over background levels to include obtaining a certification from a qualified professional engineer verifying the accuracy of the information in the report. A report documenting this demonstration shall be submitted to the DEQ for approval. If a successful demonstration is completed within the 90-day period, the owner or operator of the CCR unit may continue with a detection monitoring program under this Section. If a successful demonstration is not completed within the 90-day period, the owner or operator of the CCR unit must initiate an assessment monitoring program as required under OAC 252:517-9-6. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by OAC 252:517-9-1(e), in addition to the certification by a qualified professional engineer.

(3) The owner or operator of a CCR unit must prepare a notification stating that an assessment monitoring program has been established. The owner or operator has completed the notification when the notification is placed in the facility's operating record as required by OAC 252:517-19-1(h)(5).

(f) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(h), the notification requirements specified in OAC 252:517-19-2(h), and the Internet requirements specified in OAC 252:517-19-3(h).

#### **252:517-9-6. Assessment monitoring program**

(a) **Assessment monitoring required.** Assessment monitoring is required whenever a statistically significant increase over background levels has been detected for one or more of the constituents listed in Appendix A to this Chapter.

(b) **Initiation and number of samples.** Within 90 days of triggering an assessment monitoring program, and annually thereafter, the owner or operator of the CCR unit must sample and analyze the groundwater for all constituents listed in Appendix B to this Chapter. The number of samples collected and analyzed for each well during each sampling event must be consistent with OAC 252:517-9-4(e), and must account for any unique characteristics of the site, but must be at least one sample from each well.

(c) **Alternative monitoring frequency.** The owner or operator of a CCR unit may demonstrate the need for an alternative monitoring frequency for repeated sampling and analysis for constituents listed in Appendix B to this Chapter during the active life and the post-closure care period based on the availability of groundwater. If there is not adequate groundwater flow to sample wells semiannually, the alternative frequency shall be no less than annual. The need to vary monitoring frequency must be evaluated on a site-specific basis and approved by the DEQ. The demonstration must be supported by, at a minimum, the information specified in paragraphs (c)(1) and (2) of this Section.

(1) The alternative sampling frequency must be based on consideration of the following factors:

- (A) Lithology of the aquifer and unsaturated zone;
- (B) Hydraulic conductivity of the aquifer and unsaturated zone; and
- (C) Groundwater flow rates.

(2) Information documenting that the alternative frequency will be no less effective in ensuring that any leakage from the CCR unit will be discovered within a timeframe that will not materially delay the initiation of any necessary remediation measures.

(3) The owner or operator must obtain a certification from a qualified professional engineer stating that the demonstration for an alternative groundwater sampling and analysis frequency meets the requirements of this Section. The owner or operator must include the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer in the annual groundwater monitoring and corrective action report required by OAC 252:517-9-1(e).

(d) **Action required.** After obtaining the results from the initial and subsequent sampling events required in paragraph (b) of this Section, the owner or operator must:

(1) Within 90 days of obtaining the results, and on at least a semiannual basis thereafter, resample all wells that were installed pursuant to the requirements of OAC 252:517-9-2, conduct analyses for all parameters in Appendix A to this Chapter and for those constituents in Appendix B to this Chapter that are detected in response to paragraph (b) of this Section, and record their concentrations in the facility operating record. The number of samples collected and analyzed for each background well and downgradient well during subsequent semiannual sampling events must be consistent with OAC 252:517-9-4(e), and must account for any unique characteristics of the site, but must be at least one sample from each background and downgradient well;

(2) Establish groundwater protection standards for all constituents detected pursuant to paragraph (b) or (d) of this Section. The groundwater protection standards must be established in accordance with paragraph (h) of this Section; and

(3) Include the recorded concentrations required by paragraph (d)(1) of this Section, identify the background concentrations established under OAC 252:517-9-5(b), and identify the groundwater protection standards established under paragraph (d)(2) of this Section in the annual groundwater monitoring and corrective action report required by OAC 252:517-9-1(e).

(e) **Concentrations below background.** If the concentrations of all constituents listed in Appendices A and B to this Chapter are shown to be at or below background values, using the statistical procedures in OAC 252:517-9-4(g), for two consecutive sampling events, the owner or operator may return to detection monitoring of the CCR unit, with DEQ approval. The owner or operator must prepare a notification stating that detection monitoring is resuming for the CCR unit. The owner or operator has completed the notification when the notification is placed in the facility's operating record as required by OAC 252:517-19-1(h)(7).

(f) **Concentrations above background.** If the concentrations of any constituent in Appendices A and B to this Chapter are above background values, but all concentrations are below the groundwater protection standard established under paragraph (h) of this Section, using the statistical procedures in OAC 252:517-9-4(g), the owner or operator must continue assessment monitoring in accordance with this Section.



(g) **Concentration above groundwater protection standard.** If one or more constituents in Appendix B to this Chapter are detected at statistically significant levels above the groundwater protection standard established under paragraph (h) of this Section in any sampling event, the owner or operator must prepare a notification identifying the constituents in Appendix B to this Chapter that have exceeded the groundwater protection standard and submit to DEQ , a proposed plan and schedule for analyzing the environmental release from the facility and for developing appropriate corrective action. The owner or operator has completed the notification when the notification is placed in the facility's operating record as required by OAC 252:517-19-1(h)(8). The owner or operator of the CCR unit also must:

(1) Characterize the nature and extent of the release and any relevant site conditions that may affect the remedy ultimately selected. The characterization must be sufficient to support a complete and accurate assessment of the corrective measures necessary to effectively clean up all releases from the CCR unit pursuant to OAC 252:517-9-7. Characterization of the release includes the following minimum measures:

- (A) Install additional monitoring wells necessary to define the contaminant plume(s);
- (B) Collect data on the nature and estimated quantity of material released including specific information on the constituents listed in Appendix B of this Chapter and the levels at which they are present in the material released;
- (C) Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well in accordance with paragraph (d)(1) of this Section; and
- (D) Sample all wells in accordance with paragraph (d)(1) of this Section to characterize the nature and extent of the release.

(2) 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 if indicated by sampling of wells in accordance with paragraph (g)(1) of this Section. The owner or operator has completed the notifications when they are placed in the facility's operating record as required by OAC 252:517-19-1(h)(8).

(3) Within 90 days of finding that any of the constituents listed in Appendix B to this Chapter have been detected at a statistically significant level exceeding the groundwater protection standards the owner or operator must either:

- (A) Initiate an assessment of corrective measures as required by OAC 252:517-9-7; or
- (B) Demonstrate that a source other than the CCR unit caused the contamination, or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. Any such demonstration must be supported by a report that includes the factual or evidentiary basis for any conclusions, must be certified to be accurate by a qualified professional engineer, and submitted to DEQ for approval. If a successful demonstration is made, the owner or operator must continue monitoring in accordance with the assessment monitoring program pursuant to this Section, and upon DEQ approval may return to detection monitoring if the constituents in Appendices A and B to this Chapter are at or below background as specified in paragraph (e) of this Section. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by OAC 252:517-9-1(e), in addition to the certification by a qualified professional engineer.

(4) If a successful demonstration has not been made at the end of the 90 day period provided by paragraph (g)(3)(B) of this Section, the owner or operator of the CCR unit must initiate the assessment of corrective measures requirements under OAC 252:517-9-7.

(5) If an assessment of corrective measures is required under OAC 252:517-9-7 by either paragraph (g)(3)(i) or (g)(4) of this Section, and if the CCR unit is an existing unlined CCR surface impoundment as determined by OAC 252:517-11-2(a), then the CCR unit is subject to the closure requirements under OAC 252:517-15-6(a) to retrofit or close. In addition, the owner or operator must prepare a notification stating that an assessment of corrective measures has been initiated.

(h) **Groundwater protection standard.** The owner or operator of the CCR unit must establish a groundwater protection standard for each constituent in Appendix B to this Chapter detected in the groundwater. The groundwater protection standard shall be:

(1) For constituents for which a maximum contaminant level (MCL) has been established under 40 CFR 141.62 and 141.66, the MCL for that constituent;

(2) For constituents for which an MCL has not been established, the background concentration for the constituent established from wells in accordance with OAC 252-517-9-2; or

(3) For constituents for which the background level is higher than the MCL identified under paragraph (h)(1) of this Section, the background concentration.

(i) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(h), the notification requirements specified in OAC 252:517-19-2(h), and the Internet requirements specified in OAC 252:517-19-3(h).

#### **252:517-9-7. Assessment of corrective measures**

(a) **Assessment of corrective measures required.** Within 90 days of finding that any constituent listed in Appendix B to this Chapter has been detected at a statistically significant level exceeding the groundwater protection standard defined under OAC 252:517-9-6(h), or immediately upon detection of a release from a CCR unit, the owner or operator must initiate an assessment of corrective measures to prevent further releases, to remediate any releases and to restore affected area to original conditions. A proposed plan and schedule for analyzing the release from the facility into the environment and for developing appropriate corrective action must be submitted to DEQ. The assessment of corrective measures must be completed within 90 days, unless the owner or operator demonstrates the need for additional time to complete the assessment of corrective measures due to site-specific conditions or circumstances. The owner or operator must obtain a certification from a qualified professional engineer attesting that the demonstration is accurate. The 90-day deadline to complete the assessment of corrective measures may be extended for no longer than 60 days. The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by OAC 252:517-9-1(e), in addition to the certification by a qualified professional engineer.

(b) **Continued monitoring.** The owner or operator of the CCR unit must continue to monitor groundwater in accordance with the assessment monitoring program as specified in OAC 252:517-9-6.

(c) **Effectiveness of corrective measures.** The assessment under paragraph (a) of this Section must include an analysis of the effectiveness of potential corrective measures in meeting all of

the requirements and objectives of the remedy as described under OAC 252:517-9-8 addressing at least the following:

- (1) 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;
- (2) The time required to begin and complete the remedy;
- (3) 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(s).

(d) **DEQ approval required.** The owner or operator must submit the completed assessment of corrective measures to DEQ for approval and place the approved assessment in the facility's operating record. The assessment has been completed when it is placed in the facility's operating record as required by OAC 252:517-19-1(h)(10).

(e) **Public meeting.** The owner or operator must discuss the results of the corrective measures assessment at least 30 days prior to the selection of remedy, in a public meeting with interested and affected parties. The requirements of public notice are as follows:

(1) **Public meeting required.** Prior to the selection of a remedy, the results of the corrective measures assessment must be discussed in a public meeting.

(2) **Mail notifications required.** By certified mail, return receipt requested, notice of the public meeting shall be given at least 30 calendar days prior to the date of the meeting to the following:

(A) all persons who own the land or minerals or who reside on the land that directly overlies any part of the plume of contamination and within one year time of travel if contaminants have migrated off-site; and

(B) boards of County Commissioners, incorporated municipalities, rural water districts and conservation districts within a three-mile radius of the facility.

(C) Legal notice of the public meeting shall be published at least 10 calendar days prior to the date of the meeting in accordance with forms and instructions provided by the DEQ.

(3) **Copies to DEQ.** Prior to the public meeting, the DEQ shall be provided with:

(A) an affidavit from the publisher (accompanied by a copy of the published notice), showing the date of publication;

(B) copies of certified mail receipts for those persons identified in (b) of this Section; and

(C) a cadastral (property ownership) map and a mineral ownership map covering the area within a two (2) mile radius of the facility.

(f) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(h), the notification requirements specified in OAC 252:517-19-2(h), and the Internet requirements specified in OAC 252:517-19-3(h).

### **252:517-9-8. Selection of remedy**

(a) **Remedy selection.** Based on the results of the corrective measures assessment conducted under OAC 252:517-9-7, the owner or operator must, as soon as feasible, select a remedy that, at

a minimum, meets the standards listed in paragraph (b) of this Section. This requirement applies to, not in place of, any applicable standards under the Occupational Safety and Health Act. The owner or operator must prepare, and submit to DEQ for approval, a semiannual report describing the progress in selecting and designing the remedy. Upon selection of a remedy, the owner or operator must prepare, and submit to DEQ for approval, a final report describing the selected remedy and how it meets the standards specified in paragraph (b) of this Section. The owner or operator must obtain a certification from a qualified professional engineer that the remedy selected meets the requirements of this Section. The report has been completed when it is placed in the operating record as required by OAC 252:517-19-1(h)(12).

(b) **Remedy requirements.** The remedy must:

- (1) Be protective of human health and the environment;
- (2) Attain the groundwater protection standard as specified pursuant to OAC 252:517-9-6(h);
- (3) Control the source(s) of releases so as to reduce or eliminate, to the maximum extent feasible, further releases of constituents in Appendix B to this Chapter into the environment;
- (4) Remove from the environment as much of the contaminated material that was released from the CCR unit as is feasible, taking into account factors such as avoiding inappropriate disturbance of sensitive ecosystems;
- (5) Comply with standards for management of wastes as specified in OAC 252:517-9-9(d).

(c) **Evaluation factors.** In selecting a remedy that meets the standards of paragraph (b) of this Section, the owner or operator of the CCR unit shall consider the following evaluation factors:

- (1) The 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:
  - (A) Magnitude of reduction of existing risks;
  - (B) Magnitude of residual risks in terms of likelihood of further releases due to CCR remaining following implementation of a remedy;
  - (C) The type and degree of long-term management required, including monitoring, operation, and maintenance;
  - (D) Short-term risks that might be posed to the community or the environment during implementation of such a remedy, including potential threats to human health and the environment associated with excavation, transportation, and re-disposal of contaminant;
  - (E) Time until full protection is achieved;
  - (F) 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, re-disposal, or containment;
  - (G) Long-term reliability of the engineering and institutional controls; and
  - (H) Potential need for replacement of the remedy.
- (2) The effectiveness of the remedy in controlling the source to reduce further releases based on consideration of the following factors:
  - (A) The extent to which containment practices will reduce further releases; and
  - (B) The extent to which treatment technologies may be used.
- (3) The ease or difficulty of implementing a potential remedy(s) based on consideration of the following types of factors:
  - (A) Degree of difficulty associated with constructing the technology;

- (B) Expected operational reliability of the technologies;
  - (C) Need to coordinate with and obtain necessary approvals and permits from other agencies;
  - (D) Availability of necessary equipment and specialists; and
  - (E) Available capacity and location of needed treatment, storage, and disposal services.
- (4) The degree to which community concerns are addressed by a potential remedy(s).
- (d) **Schedule for implementation and completion.** The owner or operator must specify as part of the selected remedy a schedule(s) for implementing and completing remedial activities. Such a schedule must require the completion of remedial activities within a reasonable period of time taking into consideration the factors set forth in paragraphs (d)(1) through (6) of this Section. The schedule shall be submitted to the DEQ for approval. The owner or operator of the CCR unit must consider the following factors in determining the schedule of remedial activities:
- (1) Extent and nature of contamination, as determined by the characterization required under OAC 252:517-9-6(g);
  - (2) Reasonable probabilities of remedial technologies in achieving compliance with the groundwater protection standards established under OAC 252:517-9-6(h) and other objectives of the remedy;
  - (3) Availability of treatment or disposal capacity for CCR managed during implementation of the remedy;
  - (4) Potential risks to human health and the environment from exposure to contamination prior to completion of the remedy;
  - (5) Resource value of the aquifer including:
    - (A) Current and future uses;
    - (B) Proximity and withdrawal rate of users;
    - (C) Groundwater quantity and quality;
    - (D) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to CCR constituents;
    - (E) The hydrogeologic characteristic of the facility and surrounding land; and
    - (F) The availability of alternative water supplies; and
  - (6) Other relevant factors.
- (e) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(h), the notification requirements specified in OAC 252:517-19-2(h), and the Internet requirements specified in OAC 252:517-19-3(h).

### **252:517-9-9. Implementation of the corrective action program**

- (a) **Requirements.** Within 90 days of selecting a remedy under OAC 252:517-9-8, the owner or operator must initiate remedial activities. Based on the schedule established under OAC 252:517-9-8(d) for implementation and completion of remedial activities the owner or operator must:
- (1) Establish and implement a corrective action groundwater monitoring program that:
    - (A) At a minimum, meets the requirements of an assessment monitoring program under OAC 252:517-9-6;
    - (B) Documents the effectiveness of the corrective action remedy; and

- (C) Demonstrates compliance with the groundwater protection standard pursuant to paragraph (c) of this Section.
- (2) Implement the corrective action remedy selected under OAC 252:517-9-8; and
- (3) Take any interim measures necessary to reduce the contaminants leaching from the CCR unit, and/or potential exposures to human or ecological receptors. Interim measures must, to the greatest extent feasible, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to OAC 252:517-9-8. The following factors must be considered by an owner or operator in determining whether interim measures are necessary:
- (A) Time required to develop and implement a final remedy;
  - (B) Actual or potential exposure of nearby populations or environmental receptors to any of the constituents listed in Appendix B of this Chapter;
  - (C) Actual or potential contamination of drinking water supplies or sensitive ecosystems;
  - (D) Further degradation of the groundwater that may occur if remedial action is not initiated expeditiously;
  - (E) Weather conditions that may cause any of the constituents listed in Appendix B to this Chapter to migrate or be released;
  - (F) Potential for exposure to any of the constituents listed in Appendix B to this Chapter as a result of an accident or failure of a container or handling system; and
  - (G) Other situations that may pose threats to human health and the environment.
- (b) **Compliance not achieved.** If an owner or operator of the CCR unit, determines, at any time, that compliance with the requirements of OAC 252:517-9-8(b) is not being achieved through the remedy selected, the owner or operator must provide a certification from a qualified groundwater scientist and submit proposed alternative methods for DEQ approval prior to implementing other methods or techniques that could feasibly achieve compliance with the requirements.
- (c) **Remedies complete.** Remedies selected pursuant to OAC 252:517-9-8 shall be considered complete when:
- (1) The owner or operator of the CCR unit demonstrates compliance with the groundwater protection standards established under OAC 252:517-9-6(h) has been achieved at all points within the plume of contamination that lie beyond the groundwater monitoring well system established under OAC 252-517-9-2.
  - (2) Compliance with the groundwater protection standards established under OAC 252:517-9-6(h) has been achieved by demonstrating that concentrations of constituents listed in Appendix B to this Chapter have not exceeded the groundwater protection standard(s) for a period of three consecutive years using the statistical procedures and performance standards in OAC 252:517-9-4(f) and (g).
  - (3) All actions required to complete the remedy have been satisfied.
- (d) **Compliance with RCRA.** All CCR that are managed pursuant to a remedy required under OAC 252:517-9-8, or an interim measure required under paragraph (a)(3) of this Section, shall be managed in a manner that complies with all applicable RCRA requirements.
- (e) **Certification of completion.** Upon completion of the remedy, the owner or operator must prepare a notification stating that the remedy has been completed. The owner or operator must obtain a certification from a qualified professional engineer attesting that the remedy has been completed in compliance with the requirements of paragraph (c) of this Section and submit to

DEQ for approval. The report has been completed when it has been approved by DEQ and is placed in the operating record as required by OAC 252:517-19-1(h)(13).

(f) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(h), the notification requirements specified in OAC 252:517-19-2(h), and the Internet requirements specified in OAC 252:517-19-3(h).

## **SUBCHAPTER 11. DESIGN CRITERIA**

### **Section**

252:517-11-1. Design criteria for new CCR landfills and any lateral expansion of a CCR landfill

252:517-11-2. Liner design criteria for existing CCR surface impoundments

252:517-11-3. Liner design criteria for new CCR surface impoundments and any lateral expansion of a CCR surface impoundment

252:517-11-4. Structural integrity criteria for existing CCR surface impoundments

252:517-11-5. Structural integrity criteria for new CCR surface impoundments and any lateral expansion of a CCR surface impoundment

### **252:517-11-1. Design criteria for new CCR landfills and any lateral expansion of a CCR landfill**

#### **(a) Applicability.**

(1) New CCR landfills and any lateral expansion of a CCR landfill must be designed, constructed, operated, and maintained with either a composite liner that meets the requirements of paragraph (b) of this Section or an alternative composite liner that meets the requirements in paragraph (c) of this Section, and a leachate collection and removal system that meets the requirements of paragraph (d) of this Section.

(2) Prior to construction of an overfill the underlying surface impoundment must meet the requirements of OAC 252:517-15-7(d).

(b) **Liner components.** A composite liner must consist of two components; the upper component consisting of, at a minimum, a 30-mil geomembrane liner (GM), and the lower component consisting of at least a two foot layer of compacted soil with a hydraulic conductivity of no more than  $1 \times 10^{-7}$  centimeters per second (cm/sec). GM components consisting of high density polyethylene (HDPE) must be at least 60-mil thick. The GM or upper liner component must be installed in direct and uniform contact with the compacted soil or lower liner component. The composite liner must be:

(1) Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the CCR or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;

(2) Constructed of materials that provide appropriate shear resistance of the upper and lower component interface to prevent sliding of the upper component including on slopes;

(3) Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift; and

(4) Installed to cover all surrounding earth likely to be in contact with the CCR or leachate.

(c) **Alternative composite liner.** If the owner or operator elects to install an alternative composite liner, all of the following requirements must be met:

(1) An alternative composite liner must consist of two components; the upper component consisting of, at a minimum, a 30-mil GM, and a lower component, that is not a geomembrane, with a liquid flow rate no greater than the liquid flow rate of two feet of compacted soil with a hydraulic conductivity of no more than  $1 \times 10^{-7}$  cm/sec. GM components consisting of high density polyethylene (HDPE) must be at least 60-mil thick. If the lower component of the alternative liner is compacted soil, the GM must be installed in direct and uniform contact with the compacted soil.

(2) The owner or operator must obtain certification from a qualified professional engineer that the liquid flow rate through the lower component of the alternative composite liner is no greater than the liquid flow rate through two feet of compacted soil with a hydraulic conductivity of  $1 \times 10^{-7}$  cm/sec. The hydraulic conductivity for the two feet of compacted soil used in the comparison shall be no greater than  $1 \times 10^{-7}$  cm/sec. The hydraulic conductivity of any alternative to the two feet of compacted soil must be determined using recognized and generally accepted methods. The liquid flow rate comparison must be made using Equation 1 of this Section,  $Q \div A = q = k((h \div t) + 1)$ , which is derived from Darcy's Law for gravity flow through porous media. Where, Q = flow rate (cubic centimeters/second); A = surface area of the liner (squared centimeters); q = flow rate per unit area (cubic centimeters/second/squared centimeter); k = hydraulic conductivity of the liner (centimeters/second); h = hydraulic head above the liner (centimeters); and t = thickness of the liner (centimeters).

(3) The alternative composite liner must meet the requirements specified in paragraphs (b)(1) through (4) of this Section.

(d) **Leachate collection system.** The leachate collection and removal system must be designed, constructed, operated, and maintained to collect and remove leachate from the landfill during the active life and post-closure care period. The leachate collection and removal system must be:

(1) Designed and operated to maintain less than a 30-centimeter depth of leachate over the composite liner or alternative composite liner;

(2) Constructed of materials that are chemically resistant to the CCR and any non-CCR waste managed in the CCR unit and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying waste, waste cover materials, and equipment used at the CCR unit; and

(3) Designed and operated to minimize clogging during the active life and post-closure care period.

(e) **Pre-construction requirements.** Prior to construction of the CCR landfill or any lateral expansion of a CCR landfill, the owner or operator must:

(1) Obtain a certification from a qualified professional engineer that the design of the composite liner (or, if applicable, alternative composite liner) and leachate collection and removal system meets the requirements of this Section, and submit the certification along with design plans to DEQ for approval.

(2) Submit a Quality Assurance/Quality Control (QA/QC) plan to DEQ for review and approval, to demonstrate the liner system will be installed in accordance with this Subchapter and the approved design plans. The plan shall include all information required for the applicable liner design, placement, construction, and testing, and describe how independent, third-party, QA and QC will be conducted during all phases of construction of the liner.



- (3) Obtain written approval from DEQ to construct.
- (4) Provide written notification of construction. The DEQ shall be notified at least two weeks before liner construction begins. The notification shall:
  - (A) define the area to be constructed; and
  - (B) include the names of the contractors and third party QA and QC officials.
- (5) A pre-construction meeting shall be held at the facility with the design engineer and QA and QC officials before liner construction begins. The DEQ shall be notified at least 48 hours in advance of the meeting.
- (f) **LIT report.** Upon completion of construction of the CCR landfill or any lateral expansion of a CCR landfill, the owner or operator must obtain a certification from a qualified professional engineer that the composite liner (or, if applicable, alternative composite liner) and the leachate collection and removal system has been constructed in accordance with the requirements of this Section. The certification shall be submitted to the DEQ for review and approval as part of a Liner Installation and Testing (LIT) report. The LIT report shall include:
  - (1) summaries of all construction activities;
  - (2) testing data sheets and summaries;
  - (3) changes from design and material specifications; and
  - (4) all QA/QC documentation.
- (g) **DEQ inspection required.** Waste shall not be placed on a new liner system until the DEQ inspects the liner system and provides written authorization to commence disposal.
- (h) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(f), the notification requirements specified in OAC 252:517-19-2(f), and the Internet requirements specified in OAC 252:517-19-3(f).

## **252:517-11-2. Liner design criteria for existing CCR surface impoundments**

### **(a) Applicability.**

- (1) No later than October 17, 2016, the owner or operator of an existing CCR surface impoundment must document whether or not such unit was constructed with any one of the following:
  - (A) A liner consisting of a minimum of two feet of compacted soil with a hydraulic conductivity of no more than  $1 \times 10^{-7}$  cm/sec;
  - (B) A composite liner that meets the requirements of OAC 252:517-11-1(b); or
  - (C) An alternative composite liner that meets the requirements of OAC 252:517-11-1(c).
- (2) The hydraulic conductivity of the compacted soil must be determined using recognized and generally accepted methods.
- (3) An existing CCR surface impoundment is considered to be an existing unlined CCR surface impoundment if either:
  - (A) The owner or operator of the CCR unit determines that the CCR unit is not constructed with a liner that meets the requirements of paragraphs (a)(1)(A), (B), or (C) of this Section; or
  - (B) The owner or operator of the CCR unit fails to document whether the CCR unit was constructed with a liner that meets the requirements of paragraphs (a)(1)(A), (B), or (C) of this Section.

(4) All existing unlined CCR surface impoundments are subject to the requirements of OAC 252:517-15-6.

(b) **PE certification.** The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer attesting that the documentation as to whether a CCR unit meets the requirements of paragraph (a) of this Section is accurate. Documentation and certification shall be submitted to the DEQ.

(c) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(f), the notification requirements specified in OAC 252:517-19-2(f), and the Internet requirements specified in OAC 252:517-19-3(f).

### **252:517-11-3. Liner design criteria for new CCR surface impoundments and any lateral expansion of a CCR surface impoundment**

(a) **Applicability.** New CCR surface impoundments and lateral expansions of existing and new CCR surface impoundments must be designed, constructed, operated, and maintained with either a composite liner or an alternative composite liner that meets the requirements of OAC 252:517-11-1(b) or (c).

(b) **Liner coverage.** Any liner specified in this Section must be installed to cover all surrounding earth likely to be in contact with CCR. Dikes shall not be constructed on top of the composite liner.

(c) **Pre-construction requirements.** Prior to construction of the CCR surface impoundment or any lateral expansion of a CCR surface impoundment, the owner or operator must:

(1) Obtain a certification from a qualified professional engineer that the design of the composite liner (or, if applicable, alternative composite liner) system meets the requirements of this Section, and submit the certification along with design plans to DEQ for approval.

(2) Submit a QA/QC plan to DEQ for review and approval to demonstrate the liner system will be installed in accordance with this Subchapter and the approved design plans. The plan shall include all information required for the applicable liner design, placement, construction, and testing, and describe how independent, third-party, QA and QC will be conducted during all phases of construction of the liner.

(3) Obtain written approval from DEQ to construct.

(4) Provide written notification of construction. The DEQ shall be notified at least two weeks before liner construction begins. The notification shall:

(A) define the area to be constructed; and

(B) include the names of the contractors and third party QA and QC officials.

(5) A pre-construction meeting shall be held at the facility with the design engineer and QA and QC officials before liner construction begins. The DEQ shall be notified at least 48 hours in advance of the meeting.

(d) **LIT report.** Upon completion, the owner or operator must obtain certification from a qualified professional engineer that the composite liner or if applicable, the alternative composite liner has been constructed in accordance with the requirements of this Section. The certification shall be submitted to the DEQ for review and approval as part of a Liner Installation and Testing (LIT) report. The LIT report shall include:

(1) summaries of all construction activities;

(2) testing data sheets and summaries;

- (3) changes from design and material specifications; and
- (4) all QA/QC documentation.
- (e) **DEQ inspection required.** Waste shall not be placed in a new surface impoundment until the DEQ inspects the liner system and provides written authorization to commence disposal.
- (f) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(f), the notification requirements specified in OAC 252:517-19-2(f), and the Internet requirements specified in OAC 252:517-19-3(f).

#### **252:517-11-4. Structural integrity criteria for existing CCR surface impoundments**

(a) **Applicability; criteria.** The requirements of paragraphs (a)(1) through (4) of this Section apply to all existing CCR surface impoundments, except for those existing CCR surface impoundments that are incised CCR units. If an incised CCR surface impoundment is subsequently modified (e.g., a dike is constructed) such that the CCR unit no longer meets the definition of an incised CCR unit, the CCR unit is subject to the requirements of paragraphs (a)(1) through (4) of this Section.

(1) **Permanent marker.** The owner or operator of the CCR unit must place on or immediately adjacent to the CCR unit a permanent identification marker, at least six feet high showing the permit number of the CCR unit, the name associated with the CCR unit and the name of the owner or operator of the CCR unit.

(2) **Periodic hazard potential classification assessments.**

(A) The owner or operator of the CCR unit must conduct initial and periodic hazard potential classification assessments of the CCR unit according to the timeframes specified in paragraph (f) of this Section. The owner or operator must document the hazard potential classification of each CCR unit as either a high hazard potential CCR surface impoundment, a significant hazard potential CCR surface impoundment, or a low hazard potential CCR surface impoundment. The owner or operator must also document the basis for each hazard potential classification.

(B) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the initial hazard potential classification and each subsequent periodic classification specified in paragraph (a)(2)(A) of this Section was conducted in accordance with the requirements of this Section.

(C) The owner or operator of the CCR unit must submit the initial hazard potential classification and each subsequent periodic classification to the DEQ for approval.

(3) **Emergency Action Plan (EAP).**

(A) **Development of the plan.** No later than April 17, 2017, the owner or operator of a CCR unit determined to be either a high hazard potential CCR surface impoundment or a significant hazard potential CCR surface impoundment under paragraph (a)(2) of this Section must prepare and maintain a written EAP. At a minimum, the EAP must:

- (i) Define the events or circumstances involving the CCR unit that represent a safety emergency, along with a description of the procedures that will be followed to detect a safety emergency in a timely manner;
- (ii) Define responsible persons, their respective responsibilities, and notification procedures in the event of a safety emergency involving the CCR unit;
- (iii) Provide contact information of emergency responders;

- (iv) Include a map which delineates the downstream area which would be affected in the event of a CCR unit failure and a physical description of the CCR unit; and
- (v) Include provisions for an annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR unit and the local emergency responders.

**(B) Amendment of the plan.**

- (i) The owner or operator of a CCR unit subject to the requirements of paragraph (a)(3)(A) of this Section may amend the written EAP at any time provided the revised plan is placed in the facility's operating record as required by OAC 252:517-19-1(f)(6). The owner or operator must amend the written EAP whenever there is a change in conditions that would substantially affect the EAP in effect.
- (ii) The written EAP must be evaluated, at a minimum, every five years to ensure the information required in paragraph (a)(3)(A) of this Section is accurate. As necessary, the EAP must be updated and a revised EAP placed in the facility's operating record as required by OAC 252:517-19-1(f)(6).

**(C) Changes in hazard potential classification.**

- (i) If the owner or operator of a CCR unit determines during a periodic hazard potential assessment that the CCR unit is no longer classified as either a high hazard potential CCR surface impoundment or a significant hazard potential CCR surface impoundment, then the owner or operator of the CCR unit is no longer subject to the requirement to prepare and maintain a written EAP beginning on the date the periodic hazard potential assessment documentation is placed in the facility's operating record as required by OAC 252:517-19-1(f)(5).
- (ii) If the owner or operator of a CCR unit classified as a low hazard potential CCR surface impoundment subsequently determines that the CCR unit is properly re-classified as either a high hazard potential CCR surface impoundment or a significant hazard potential CCR surface impoundment, then the owner or operator of the CCR unit must prepare a written EAP for the CCR unit as required by paragraph (a)(3)(i) of this Section within six months of completing such periodic hazard potential assessment.

**(D) PE certification.** The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the written EAP, and any subsequent amendment of the EAP, meets the requirements of paragraph (a)(3) of this Section.

**(E) DEQ approval required.** The owner or operator of the CCR unit must submit the written EAP, and any subsequent amendment of the EAP, to the DEQ for approval.

**(F) Activation of the EAP.** The EAP must be implemented once events or circumstances involving the CCR unit that represent a safety emergency are detected, including conditions identified during periodic structural stability assessments, annual inspections, and inspections by a qualified person.

**(4) Slope protection.** The CCR unit and surrounding areas must be designed, constructed, operated, and maintained with vegetated slopes of dikes not to exceed a height of 6 inches above the slope of the dike, except for slopes which are protected with an alternate form(s) of slope protection.

**(b) Additional requirements.** The requirements of paragraphs (c) through (e) of this Section apply to an owner or operator of an existing CCR surface impoundment that either:

- (1) Has a height of five feet or more and a storage volume of 20 acre-feet or more; or
- (2) Has a height of 20 feet or more.

**(c) History of construction.**

(1) No later than October 17, 2016, the owner or operator of the CCR unit must compile a history of construction, which shall contain, to the extent feasible, the information specified in paragraphs (c)(1)(A) through (K) of this Section. The history of construction shall be submitted to the DEQ.

(A) The name and address of the person(s) owning or operating the CCR unit; the name associated with the CCR unit; and the identification number of the CCR unit if one has been assigned by the state.

(B) The location of the CCR unit identified on the most recent U.S. Geological Survey (USGS) 7 ½ minute or 15 minute topographic quadrangle map, or a topographic map of equivalent scale if a USGS map is not available.

(C) A statement of the purpose for which the CCR unit is being used.

(D) The name and size in acres of the watershed within which the CCR unit is located.

(E) A description of the physical and engineering properties of the foundation and abutment materials on which the CCR unit is constructed.

(F) A statement of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR unit; the method of site preparation and construction of each zone of the CCR unit; and the approximate dates of construction of each successive stage of construction of the CCR unit.

(G) At a scale that details engineering structures and appurtenances relevant to the design, construction, operation, and maintenance of the CCR unit, detailed dimensional drawings of the CCR unit, including a plan view and cross sections of the length and width of the CCR unit, showing all zones, foundation improvements, drainage provisions, spillways, diversion ditches, outlets, instrument locations, and slope protection, in addition to the normal operating pool surface elevation and the maximum pool surface elevation following peak discharge from the inflow design flood, the expected maximum depth of CCR within the CCR surface impoundment, and any identifiable natural or manmade features that could adversely affect operation of the CCR unit due to malfunction or mis-operation.

(H) A description of the type, purpose, and location of existing instrumentation.

(I) Area-capacity curves for the CCR unit.

(J) A description of each spillway and diversion design features and capacities and calculations used in their determination.

(K) The construction specifications and provisions for surveillance, maintenance, and repair of the CCR unit.

(L) Any record or knowledge of structural instability of the CCR unit.

(2) If there is a significant change to any information compiled under paragraph (c)(1) of this Section, the owner or operator of the CCR unit must update the relevant information, submit it to DEQ, and place it in the facility's operating record as required by OAC 252:517-19-1(f)(9).

**(d) Periodic structural stability assessments.**

(1) The owner or operator of the CCR unit must conduct initial and periodic structural stability assessments and document whether the design, construction, operation, and

maintenance of the CCR unit is consistent with recognized and generally accepted good engineering practices for the maximum volume of CCR and CCR wastewater which can be impounded therein. The assessment must, at a minimum, document whether the CCR unit has been designed, constructed, operated, and maintained with:

- (A) Stable foundations and abutments;
  - (B) Adequate slope protection to protect against surface erosion, wave action, and adverse effects of sudden drawdown;
  - (C) Dikes mechanically compacted to a density sufficient to withstand the range of loading conditions in the CCR unit;
  - (D) Vegetated slopes of dikes and surrounding areas not to exceed a height of six inches above the slope of the dike, except for slopes which have an alternate form or forms of slope protection;
  - (E) A single spillway or a combination of spillways configured as specified in paragraph (d)(1)(E)(i) of this Section. The combined capacity of all spillways must be designed, constructed, operated, and maintained to adequately manage flow during and following the peak discharge from the event specified in paragraph (d)(1)(E)(ii) of this Section.
    - (i) All spillways must be either:
      - (I) Of non-erodible construction and designed to carry sustained flows; or
      - (II) Earth- or grass-lined and designed to carry short-term, infrequent flows at non-erosive velocities where sustained flows are not expected.
    - (ii) The combined capacity of all spillways must adequately manage flow during and following the peak discharge from a:
      - (I) Probable maximum flood (PMF) for a high hazard potential CCR surface impoundment; or
      - (II) 1000-year flood for a significant hazard potential CCR surface impoundment; or
      - (III) 100-year flood for a low hazard potential CCR surface impoundment.
  - (F) Hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit that maintain structural integrity and are free of significant deterioration, deformation, distortion, bedding deficiencies, sedimentation, and debris which may negatively affect the operation of the hydraulic structure; and
  - (G) For CCR units with downstream slopes which can be inundated by the pool of an adjacent water body, such as a river, stream or lake, downstream slopes that maintain structural stability during low pool of the adjacent water body or sudden drawdown of the adjacent water body.
- (2) The periodic assessment described in paragraph (d)(1) of this Section must identify any structural stability deficiencies associated with the CCR unit in addition to recommending corrective measures. If a deficiency or a release is identified during the periodic assessment, the owner or operator unit must remedy the deficiency or release as soon as feasible and prepare documentation detailing the corrective measures taken.
  - (3) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the initial assessment and each subsequent periodic assessment was conducted in accordance with the requirements of this Section.
  - (4) The owner or operator of the CCR unit must submit the initial assessment and each subsequent periodic assessment to the DEQ for approval.

(e) **Periodic safety factor assessments.**

(1) The owner or operator must conduct an initial and periodic safety factor assessments for each CCR unit and document whether the calculated factors of safety for each CCR unit achieve the minimum safety factors specified in paragraphs (e)(1)(A) through (D) of this Section for the critical cross section of the embankment. The critical cross section is the cross section anticipated to be the most susceptible of all cross sections to structural failure based on appropriate engineering considerations, including loading conditions. The safety factor assessments must be supported by appropriate engineering calculations.

(A) The calculated static factor of safety under the long-term, maximum storage pool loading condition must equal or exceed 1.50.

(B) The calculated static factor of safety under the maximum surcharge pool loading condition must equal or exceed 1.40.

(C) The calculated seismic factor of safety must equal or exceed 1.00.

(D) For dikes constructed of soils that have susceptibility to liquefaction, the calculated liquefaction factor of safety must equal or exceed 1.20.

(2) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the initial assessment and each subsequent periodic assessment specified in paragraph (e)(1) of this Section meets the requirements of this Section.

(3) The owner or operator of the CCR unit must submit the initial assessment and each subsequent periodic assessment to the DEQ for approval.

(f) **Timeframes for periodic assessments.**

(1) **Initial assessments.** Except as provided by paragraph (f)(2) of this Section, the owner or operator of the CCR unit must complete the initial assessments required by paragraphs (a)(2), (d), and (e) of this Section no later than October 17, 2016. The owner or operator has completed an initial assessment when the owner or operator has placed the assessment required by paragraphs (a)(2), (d), and (e) of this Section in the facility's operating record as required by OAC 252:517-19-1(f)(5), (10), and (12).

(2) **Use of a previously completed assessment(s) in lieu of the initial assessment(s).** The owner or operator of the CCR unit may elect to use a previously completed assessment to serve as the initial assessment required by paragraphs (a)(2), (d), and (e) of this Section provided that the previously completed assessment(s):

(A) Was completed no earlier than 42 months prior to October 17, 2016; and

(B) Meets the applicable requirements of paragraphs (a)(2), (d), and (e) of this Section.

(3) **Frequency for conducting periodic assessments.** The owner or operator of the CCR unit must conduct and complete the assessments required by paragraphs (a)(2), (d), and (e) of this Section every five years. The date of completing the initial assessment is the basis for establishing the deadline to complete the first subsequent assessment. If the owner or operator elects to use a previously completed assessment(s) in lieu of the initial assessment as provided by paragraph (f)(2) of this Section, the date of the report for the previously completed assessment is the basis for establishing the deadline to complete the first subsequent assessment. The owner or operator may complete any required assessment prior to the required deadline provided the owner or operator places the completed assessment(s) into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing subsequent assessments is based on the date of completing the

previous assessment. For purposes of this paragraph (f)(3), the owner or operator has completed an assessment when the relevant assessment(s) required by paragraphs (a)(2), (d), and (e) of this Section has been placed in the facility's operating record as required by OAC 252:517-19-1(f)(5), (10), and (12).

(4) **Closure of the CCR unit.** An owner or operator of a CCR unit who either fails to complete a timely safety factor assessment or fails to demonstrate minimum safety factors as required by paragraph (e) of this Section is subject to the requirements of OAC 252:517-15-6(b)(2).

(g) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(f), the notification requirements specified in OAC 252:517-19-2(f), and the internet requirements specified in OAC 252:517-19-3(f).

#### **252:517-11-5. Structural integrity criteria for new CCR surface impoundments and any lateral expansion of a CCR surface impoundment**

(a) **Applicability; criteria.** The requirements of paragraphs (a)(1) through (4) of this Section apply to all new CCR surface impoundments and any lateral expansion of a CCR surface impoundment, except for those new CCR surface impoundments that are incised CCR units. If an incised CCR surface impoundment is subsequently modified (e.g., a dike is constructed) such that the CCR unit no longer meets the definition of an incised CCR unit, the CCR unit is subject to the requirements of paragraphs (a)(1) through (4) of this Section.

(1) **Permanent marker.** No later than the initial receipt of CCR, the owner or operator of the CCR unit must place on or immediately adjacent to the CCR unit a permanent identification marker, at least six feet high showing the permit number of the CCR unit, the name associated with the CCR unit and the name of the owner or operator of the CCR unit.

(2) **Periodic hazard potential classification assessments.**

(A) The owner or operator of the CCR unit must conduct initial and periodic hazard potential classification assessments of the CCR unit according to the timeframes specified in paragraph (f) of this Section. The owner or operator must document the hazard potential classification of each CCR unit as either a high hazard potential CCR surface impoundment, a significant hazard potential CCR surface impoundment, or a low hazard potential CCR surface impoundment. The owner or operator must also document the basis for each hazard potential classification.

(B) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the initial hazard potential classification and each subsequent periodic classification specified in paragraph (a)(2)(i) of this Section was conducted in accordance with the requirements of this Section.

(C) The owner or operator of the CCR unit must submit the initial hazard potential classification and each subsequent periodic classification to the DEQ for approval.

(3) **Emergency Action Plan (EAP).**

(A) **Development of the plan.** Prior to the initial receipt of CCR in the CCR unit, the owner or operator of a CCR unit determined to be either a high hazard potential CCR surface impoundment or a significant hazard potential CCR surface impoundment under



paragraph (a)(2) of this Section must prepare and maintain a written EAP. At a minimum, the EAP must:

- (i) Define the events or circumstances involving the CCR unit that represent a safety emergency, along with a description of the procedures that will be followed to detect a safety emergency in a timely manner;
- (ii) Define responsible persons, their respective responsibilities, and notification procedures in the event of a safety emergency involving the CCR unit;
- (iii) Provide contact information of emergency responders;
- (iv) Include a map which delineates the downstream area which would be affected in the event of a CCR unit failure and a physical description of the CCR unit; and
- (v) Include provisions for an annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR unit and the local emergency responders.

**(B) Amendment of the plan.**

- (i) The owner or operator of a CCR unit subject to the requirements of paragraph (a)(3)(A) of this Section may amend the written EAP at any time provided the revised plan is placed in the facility's operating record as required by OAC 252:517-19-1(f)(6). The owner or operator must amend the written EAP whenever there is a change in conditions that would substantially affect the EAP in effect.
- (ii) The written EAP must be evaluated, at a minimum, every five years to ensure the information required in paragraph (a)(3)(A) of this Section is accurate. As necessary, the EAP must be updated and a revised EAP placed in the facility's operating record as required by OAC 252:517-19-1(f)(6).

**(C) Changes in hazard potential classification.**

- (i) If the owner or operator of a CCR unit determines during a periodic hazard potential assessment that the CCR unit is no longer classified as either a high hazard potential CCR surface impoundment or a significant hazard potential CCR surface impoundment, then the owner or operator of the CCR unit is no longer subject to the requirement to prepare and maintain a written EAP beginning on the date the periodic hazard potential assessment documentation is placed in the facility's operating record as required by OAC 252:517-19-1(f)(5).
- (ii) If the owner or operator of a CCR unit classified as a low hazard potential CCR surface impoundment subsequently determines that the CCR unit is properly re-classified as either a high hazard potential CCR surface impoundment or a significant hazard potential CCR surface impoundment, then the owner or operator of the CCR unit must prepare a written EAP for the CCR unit as required by paragraph (a)(3)(A) of this Section within six months of completing such periodic hazard potential assessment.

**(D) PE certification.** The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the written EAP, and any subsequent amendment of the EAP, meets the requirements of paragraph (a)(3) of this Section.

**(E) DEQ approval required.** The owner or operator of the CCR unit must submit the written EAP, and any subsequent amendment of the EAP to the DEQ for approval.

**(F) Activation of the EAP.** The EAP must be implemented once events or circumstances involving the CCR unit that represent a safety emergency are detected,

including conditions identified during periodic structural stability assessments, annual inspections, and inspections by a qualified person.

(4) **Slope protection.** The CCR unit and surrounding areas must be designed, constructed, operated, and maintained with vegetated slopes of dikes not to exceed a height of six inches above the slope of the dike, except for slopes which are protected with an alternate form(s) of slope protection.

(b) **Additional requirements.** The requirements of paragraphs (c) through (e) of this Section apply to an owner or operator of a new CCR surface impoundment and any lateral expansion of a CCR surface impoundment that either:

- (1) Has a height of five feet or more and a storage volume of 20 acre-feet or more; or
- (2) Has a height of 20 feet or more.

(c) **Design and construction plans.**

(1) No later than the initial receipt of CCR in the CCR unit, the owner or operator unit must compile the design and construction plans for the CCR unit, which must include, to the extent feasible, the information specified in paragraphs (c)(1)(A) through (K) of this Section.

(A) The name and address of the person(s) owning or operating the CCR unit; the name associated with the CCR unit; and the identification number of the CCR unit if one has been assigned by the state.

(B) The location of the CCR unit identified on the most recent U.S. Geological Survey (USGS) 7 ½ minute or 15 minute topographic quadrangle map, or a topographic map of equivalent scale if a USGS map is not available.

(C) A statement of the purpose for which the CCR unit is being used.

(D) The name and size in acres of the watershed within which the CCR unit is located.

(E) A description of the physical and engineering properties of the foundation and abutment materials on which the CCR unit is constructed.

(F) A statement of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR unit; the method of site preparation and construction of each zone of the CCR unit; and the dates of construction of each successive stage of construction of the CCR unit.

(G) At a scale that details engineering structures and appurtenances relevant to the design, construction, operation, and maintenance of the CCR unit, detailed dimensional drawings of the CCR unit, including a plan view and cross sections of the length and width of the CCR unit, showing all zones, foundation improvements, drainage provisions, spillways, diversion ditches, outlets, instrument locations, and slope protection, in addition to the normal operating pool surface elevation and the maximum pool surface elevation following peak discharge from the inflow design flood, the expected maximum depth of CCR within the CCR surface impoundment, and any identifiable natural or manmade features that could adversely affect operation of the CCR unit due to malfunction or mis-operation.

(H) A description of the type, purpose, and location of existing instrumentation.

(I) Area-capacity curves for the CCR unit.

(J) A description of each spillway and diversion design features and capacities and calculations used in their determination.

(K) The construction specifications and provisions for surveillance, maintenance, and repair of the CCR unit.

(L) Any record or knowledge of structural instability of the CCR unit.

(2) If there is a significant change to any information compiled under paragraph (c)(1) of this Section, the owner or operator of the CCR unit must update the relevant information and place it in the facility's operating record as required by OAC 252:517-19-1(f)(13).

**(d) Periodic structural stability assessments.**

(1) The owner or operator of the CCR unit must conduct initial and periodic structural stability assessments and document whether the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering practices for the maximum volume of CCR and CCR wastewater which can be impounded therein. The assessment must, at a minimum, document whether the CCR unit has been designed, constructed, operated, and maintained with:

(A) Stable foundations and abutments;

(B) Adequate slope protection to protect against surface erosion, wave action, and adverse effects of sudden drawdown;

(C) Dikes mechanically compacted to a density sufficient to withstand the range of loading conditions in the CCR unit;

(D) Vegetated slopes of dikes and surrounding areas not to exceed a height of six inches above the slope of the dike, except for slopes which have an alternate form or forms of slope protection;

(E) A single spillway or a combination of spillways configured as specified in paragraph (d)(1)(E)(i) of this Section. The combined capacity of all spillways must be designed, constructed, operated, and maintained to adequately manage flow during and following the peak discharge from the event specified in paragraph (d)(1)(E)(ii) of this Section.

(i) All spillways must be either:

(I) Of non-erodible construction and designed to carry sustained flows; or

(II) Earth- or grass-lined and designed to carry short-term, infrequent flows at non-erosive velocities where sustained flows are not expected.

(ii) The combined capacity of all spillways must adequately manage flow during and following the peak discharge from a:

(I) Probable maximum flood (PMF) for a high hazard potential CCR surface impoundment; or

(II) 1000-year flood for a low hazard potential CCR surface impoundment.

(III) 100-year flood for a low hazard potential CCR surface impoundment.

(F) Hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit that maintain structural integrity and are free of significant deterioration, deformation, distortion, bedding deficiencies, sedimentation, and debris which may negatively affect the operation of the hydraulic structure; and

(G) For CCR units with downstream slopes which can be inundated by the pool of an adjacent water body, such as a river, stream or lake, downstream slopes that maintain structural stability during low pool of the adjacent water body or sudden drawdown of the adjacent water body.

(2) The periodic assessment described in paragraph (d)(1) of this Section must identify any structural stability deficiencies associated with the CCR unit in addition to

recommending corrective measures. If a deficiency or a release is identified during the periodic assessment, the owner or operator unit must remedy the deficiency or release as soon as feasible and prepare documentation detailing the corrective measures taken.

(3) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the initial assessment and each subsequent periodic assessment was conducted in accordance with the requirements of this Section.

(4) The owner or operator of the CCR unit must submit the initial assessment and each subsequent periodic assessment to the DEQ for approval.

**(e) Periodic safety factor assessments.**

(1) The owner or operator must conduct an initial and periodic safety factor assessments for each CCR unit and document whether the calculated factors of safety for each CCR unit achieve the minimum safety factors specified in paragraphs (e)(1)(A) through (E) of this Section for the critical cross section of the embankment. The critical cross section is the cross section anticipated to be the most susceptible of all cross sections to structural failure based on appropriate engineering considerations, including loading conditions. The safety factor assessments must be supported by appropriate engineering calculations.

(A) The calculated static factor of safety under the end-of-construction loading condition must equal or exceed 1.30. The assessment of this loading condition is only required for the initial safety factor assessment and is not required for subsequent assessments.

(B) The calculated static factor of safety under the long-term, maximum storage pool loading condition must equal or exceed 1.50.

(C) The calculated static factor of safety under the maximum surcharge pool loading condition must equal or exceed 1.40.

(D) The calculated seismic factor of safety must equal or exceed 1.00.

(E) For dikes constructed of soils that have susceptibility to liquefaction, the calculated liquefaction factor of safety must equal or exceed 1.20.

(2) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the initial assessment and each subsequent periodic assessment specified in paragraph (e)(1) of this Section meets the requirements of this Section.

(3) The owner or operator of the CCR unit must submit the initial assessment and each subsequent periodic assessment to the DEQ for approval.

**(f) Timeframes for periodic assessments.**

(1) **Initial assessments.** Except as provided by paragraph (f)(2) of this Section, the owner or operator of the CCR unit must complete the initial assessments required by paragraphs (a)(2), (d), and (e) of this Section prior to the initial receipt of CCR in the unit. The owner or operator has completed an initial assessment when the owner or operator has placed the assessment required by paragraphs (a)(2), (d), and (e) of this Section in the facility's operating record as required by OAC 252:517-19-1(f)(5), (10), and (12).

(2) **Frequency for conducting periodic assessments.** The owner or operator of the CCR unit must conduct and complete the assessments required by paragraphs (a)(2), (d), and (e) of this Section every five years. The date of completing the initial assessment is the basis for establishing the deadline to complete the first subsequent assessment. The owner or operator may complete any required assessment prior to the required deadline provided the owner or operator places the completed assessment(s) into the facility's operating record within a

reasonable amount of time. In all cases, the deadline for completing subsequent assessments is based on the date of completing the previous assessment. For purposes of this paragraph (f)(2), the owner or operator has completed an assessment when the relevant assessment(s) required by paragraphs (a)(2), (d), and (e) of this Section has been placed in the facility's operating record as required by OAC 252:517-19-1(f)(5), (10), and (12).

(3) **Failure to document minimum safety factors during the initial assessment.** Until the date an owner or operator of a CCR unit documents that the calculated factors of safety achieve the minimum safety factors specified in paragraphs (e)(1)(A) through (E) of this Section, the owner or operator is prohibited from placing CCR in such unit.

(4) **Closure of the CCR unit.** An owner or operator of a CCR unit who either fails to complete a timely periodic safety factor assessment or fails to demonstrate minimum safety factors as required by paragraph (e) of this Section is subject to the requirements of OAC 252:517-15-6(c).

(g) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(f), the notification requirements specified in OAC 252:517-19-2(f), and the internet requirements specified in OAC 252:517-19-3(f).

### SUBCHAPTER 13. OPERATIONAL REQUIREMENTS

#### Section

252:517-13-1. Air criteria

252:517-13-2. Run-on and run-off controls for CCR landfills

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252:517-13-7. Leachate collection and management for CCR landfills

#### **252:517-13-1. Air criteria**

(a) **Minimizing airborne CCR.** The owner or operator of a CCR landfill, CCR surface impoundment, or any lateral expansion of a CCR unit must adopt measures that will effectively minimize CCR from becoming airborne at the facility, including CCR fugitive dust originating from CCR units, roads, and other CCR management and material handling activities.

(b) **CCR fugitive dust control plan.** The owner or operator of the CCR unit must prepare and operate in accordance with a CCR fugitive dust control plan as specified in paragraphs (b)(1) through (7) of this Section. This requirement applies in addition to, not in place of, any applicable standards under the Occupational Safety and Health Act.

(1) The CCR fugitive dust control plan must identify and describe the CCR fugitive dust control measures the owner or operator will use to minimize CCR from becoming airborne at the facility. The owner or operator must select, and include in the CCR fugitive dust control plan, the CCR fugitive dust control measures that are most appropriate for site conditions, along with an explanation of how the measures selected are applicable and appropriate for site conditions. Examples of control measures that may be appropriate include: Locating CCR inside an enclosure or partial enclosure; operating a water spray or fogging system;

reducing fall distances at material drop points; using wind barriers, compaction, or vegetative covers; establishing and enforcing reduced vehicle speed limits; paving and sweeping roads; covering trucks transporting CCR; reducing or halting operations during high wind events; or applying a daily cover.

(2) If the owner or operator operates a CCR landfill or any lateral expansion of a CCR landfill, the CCR fugitive dust control plan must include procedures to emplace CCR as conditioned CCR. Conditioned CCR means wetting CCR with water to a moisture content that will prevent wind dispersal, but will not result in free liquids. In lieu of water, CCR conditioning may be accomplished with an appropriate chemical dust suppression agent.

(3) The CCR fugitive dust control plan must include procedures to log citizen complaints received by the owner or operator involving CCR fugitive dust events at the facility.

(4) The CCR fugitive dust control plan must include a description of the procedures the owner or operator will follow to periodically assess the effectiveness of the control plan.

(5) The owner or operator of a CCR unit must have prepared an initial CCR fugitive dust control plan for the facility no later than October 19, 2015, or by initial receipt of CCR in any CCR unit at the facility if the owner or operator becomes subject to this Chapter after October 19, 2015. The owner or operator has completed the initial CCR fugitive dust control plan when the plan has been placed in the facility's operating record as required by OAC 252:517-19-1(g)(1).

(6) The owner or operator of a CCR unit subject to the requirements of this Section may amend the written CCR fugitive dust control plan at any time provided the revised plan is placed in the facility's operating record as required by OAC 252:517-19-1(g)(1). The owner or operator must amend the written plan whenever there is a change in conditions that would substantially affect the written plan in effect, such as the construction and operation of a new CCR unit.

(7) The owner or operator must obtain a certification from a qualified professional engineer that the initial CCR fugitive dust control plan, or any subsequent amendment of it, meets the requirements of this Section.

(8) The owner or operator must submit the initial CCR fugitive dust control plan, and any subsequent amendment of it, to the DEQ for approval.

(c) **Annual CCR fugitive dust control report.** The owner or operator of a CCR unit must prepare and submit to DEQ an annual CCR fugitive dust control report that includes a description of the actions taken by the owner or operator to control CCR fugitive dust, a record of all citizen complaints, and a summary of any corrective measures taken. The initial annual report must be completed no later than 14 months after placing the initial CCR fugitive dust control plan in the facility's operating record. The deadline for completing a subsequent report is one year after the date of completing the previous report. For purposes of this paragraph (c), the owner or operator has completed the annual CCR fugitive dust control report when the plan has been placed in the facility's operating record as required by OAC 252:517-19-1(g)(2).

(d) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(g), the notification requirements specified in OAC 252:517-19-2(g), and the internet requirements specified in OAC 252:517-19-3(g).

## **252:517-13-2. Run-on and run-off controls for CCR landfills**

- (a) **Run-on/run-off control systems.** The owner or operator of an existing or new CCR landfill or any lateral expansion of a CCR landfill must design, construct, operate, and maintain:
- (1) A run-on control system to prevent flow onto the active portion of the CCR unit during the peak discharge from a 24-hour, 25-year storm; and
  - (2) A run-off control system from the active portion of the CCR unit to collect and control at least the water volume resulting from a 24-hour, 25-year storm.
- (b) **Run-off from active portion of CCR unit.** Run-off from the active portion of the CCR unit must be handled in accordance with the surface water requirements under OAC 252:517-13-6.
- (c) **Run-on and run-off control system plan.**
- (1) **Content of the plan.** The owner or operator must prepare initial and periodic run-on and run-off control system plans for the CCR unit according to the timeframes specified in paragraphs (c)(3) and (4) of this Section. These plans must document how the run-on and run-off control systems have been designed and constructed to meet the applicable requirements of this Section. Each plan must be supported by appropriate engineering calculations. The owner or operator has completed the initial run-on and run-off control system plan when the plan has been placed in the facility's operating record as required by OAC 252:517-19-1(g)(3).
  - (2) **Amendment of the plan.** The owner or operator may amend the written run-on and run-off control system plan at any time provided the revised plan is placed in the facility's operating record as required by OAC 252:517-19-1(g)(3). The owner or operator must amend the written run-on and run-off control system plan whenever there is a change in conditions that would substantially affect the written plan in effect.
  - (3) **Timeframes for preparing the initial plan.**
    - (A) **Existing CCR landfills.** The owner or operator of the CCR unit must prepare the initial run-on and run-off control system plan no later than October 17, 2016.
    - (B) **New CCR landfills and any lateral expansion of a CCR landfill.** The owner or operator must prepare the initial run-on and run-off control system plan no later than the date of initial receipt of CCR in the CCR unit.
  - (4) **Frequency for revising the plan.** The owner or operator of the CCR unit must prepare periodic run-on and run-off control system plans required by paragraph (c)(1) of this Section every five years. The date of completing the initial plan is the basis for establishing the deadline to complete the first subsequent plan. The owner or operator may complete any required plan prior to the required deadline provided the owner or operator places the completed plan into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing a subsequent plan is based on the date of completing the previous plan. For purposes of this paragraph (c)(4), the owner or operator has completed a periodic run-on and run-off control system plan when the plan has been placed in the facility's operating record as required by OAC 252:517-19-1(g)(3).
  - (5) **PE certification.** The owner or operator must obtain a certification from a qualified professional engineer stating that the initial and periodic run-on and run-off control system plans meet the requirements of this Section.
  - (6) **DEQ approval required.** The owner or operator must submit the initial and periodic run-on and run-off control system plans, and any subsequent amendment of the plans, to the DEQ for approval.

(d) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(g), the notification requirements specified in OAC 252:517-19-2(g), and the internet requirements specified in OAC 252:517-19-3(g).

### **252:517-13-3. Hydrologic and hydraulic capacity requirements for CCR surface impoundments**

(a) **Inflow design flood control system.** The owner or operator of an existing or new CCR surface impoundment or any lateral expansion of a CCR surface impoundment must design, construct, operate, and maintain an inflow design flood control system as specified in paragraphs (a)(1) and (2) of this Section.

(1) The inflow design flood control system must adequately manage flow into the CCR unit during and following the peak discharge of the inflow design flood specified in paragraph (a)(3) of this Section.

(2) The inflow design flood control system must adequately manage flow from the CCR unit to collect and control the peak discharge resulting from the inflow design flood specified in paragraph (a)(3) of this Section.

(3) The inflow design flood is:

(A) For a high hazard potential CCR surface impoundment, as determined under OAC 252:517-11-4(a)(2) or OAC 252:517-11-5(a)(2), the probable maximum flood;

(B) For a significant hazard potential CCR surface impoundment, as determined under OAC 252:517-11-4(a)(2) or OAC 252:517-11-5(a)(2), the 1,000-year flood;

(C) For a low hazard potential CCR surface impoundment, as determined under OAC 252:517-11-4(a)(2) or OAC 252:517-11-5(a)(2), the 100-year flood; or

(D) For an incised CCR surface impoundment, the 25-year flood.

(b) **Discharges.** Discharge from the CCR unit must be handled in accordance with the surface water requirements under OAC 252:517-13-6.

(c) **Inflow design flood control system plan.**

(1) **Content of the plan.** The owner or operator must prepare initial and periodic inflow design flood control system plans for the CCR unit according to the timeframes specified in paragraphs (c)(3) and (4) of this Section. These plans must document how the inflow design flood control system has been designed and constructed to meet the requirements of this Section. Each plan must be supported by appropriate engineering calculations. The owner or operator of the CCR unit has completed the inflow design flood control system plan when the plan has been placed in the facility's operating record as required by OAC 252:517-19-1(g)(4).

(2) **Amendment of the plan.** The owner or operator of the CCR unit may amend the written inflow design flood control system plan at any time provided the revised plan is placed in the facility's operating record as required by OAC 252:517-19-1(g)(4). The owner or operator must amend the written inflow design flood control system plan whenever there is a change in conditions that would substantially affect the written plan in effect.

(3) **Timeframes for preparing the initial plan.**

(A) **Existing CCR surface impoundments.** The owner or operator of the CCR unit must prepare the initial inflow design flood control system plan no later than October 17, 2016.



- (B) **New CCR surface impoundments and any lateral expansion of a CCR surface impoundment.** The owner or operator must prepare the initial inflow design flood control system plan no later than the date of initial receipt of CCR in the CCR unit.
- (4) **Frequency for revising the plan.** The owner or operator must prepare periodic inflow design flood control system plans required by paragraph (c)(1) of this Section every five years. The date of completing the initial plan is the basis for establishing the deadline to complete the first periodic plan. The owner or operator may complete any required plan prior to the required deadline provided the owner or operator places the completed plan into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing a subsequent plan is based on the date of completing the previous plan. For purposes of this paragraph (c)(4), the owner or operator has completed an inflow design flood control system plan when the plan has been placed in the facility's operating record as required by OAC 252:517-19-1(g)(4).
- (5) **PE certification.** The owner or operator must obtain a certification from a qualified professional engineer stating that the initial and periodic inflow design flood control system plans meet the requirements of this Section.
- (6) **DEQ approval required.** The owner or operator must submit the initial and periodic inflow design flood control system plans, and any amendment to the plans, to the DEQ for approval.
- (d) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(g), the notification requirements specified in OAC 252:517-19-2(g), and the internet requirements specified in OAC 252:517-19-3(g).

#### **252:517-13-4. Inspection requirements for CCR surface impoundments**

(a) **Inspections by a qualified person.**

- (1) **Inspection intervals.** All CCR surface impoundments and any lateral expansion of a CCR surface impoundment must be examined by a qualified person as follows:
- (A) At intervals not exceeding seven days, inspect for any appearances of actual or potential structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety of the CCR unit;
  - (B) At intervals not exceeding seven days, inspect the discharge of all outlets of hydraulic structures which pass underneath the base of the surface impoundment or through the dike of the CCR unit for abnormal discoloration, flow or discharge of debris or sediment; and
  - (C) At intervals not exceeding 30 days, monitor all CCR unit instrumentation.
- (D) The results of the inspection by a qualified person must be recorded in the facility's operating record as required by OAC 252:517-19-1(g)(5).
- (2) **Timeframes for inspections by a qualified person.**
- (A) **Existing CCR surface impoundments.** The owner or operator of the CCR unit must have initiated the inspections required under paragraph (a) of this Section no later than October 19, 2015.
  - (B) **New CCR surface impoundments and any lateral expansion of a CCR surface impoundment.** The owner or operator of the CCR unit must initiate the inspections required under paragraph (a) of this Section upon initial receipt of CCR by the CCR unit.

(b) **Annual inspections by a qualified professional engineer.**

(1) **Inspection requirements.** If the existing or new CCR surface impoundment or any lateral expansion of the CCR surface impoundment is subject to the periodic structural stability assessment requirements under OAC 252:517-11-4(d) or OAC 252:517-11-5(d), the CCR unit must additionally be inspected on a periodic basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards. The inspection must, at a minimum, include:

(A) A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., CCR unit design and construction information required by OAC 252:517-11-4(c)(1) and OAC 252:517-11-5(c)(1), previous periodic structural stability assessments required under OAC 252:517-11-4(d) and OAC 252:517-11-5(d), the results of inspections by a qualified person, and results of previous annual inspections);

(B) A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit and appurtenant structures; and

(C) A visual inspection of any hydraulic structures underlying the base of the CCR unit or passing through the dike of the CCR unit for structural integrity and continued safe and reliable operation.

(2) **Inspection report.** The qualified professional engineer must prepare a report following each inspection that addresses the following:

(A) Any changes in geometry of the impounding structure since the previous annual inspection;

(B) The location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection;

(C) The approximate minimum, maximum, and present depth and elevation of the impounded water and CCR since the previous annual inspection;

(D) The storage capacity of the impounding structure at the time of the inspection;

(E) The approximate volume of the impounded water and CCR at the time of the inspection;

(F) Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit and appurtenant structures; and

(G) Any other change(s) which may have affected the stability or operation of the impounding structure since the previous annual inspection.

(3) **Timeframes for conducting the initial inspection.**

(A) **Existing CCR surface impoundments.** The owner or operator of the CCR unit must have completed the initial inspection required by paragraphs (b)(1) and (2) of this Section no later than January 19, 2016.

(B) **New CCR surface impoundments and any lateral expansion of a CCR surface impoundment.** The owner or operator of the CCR unit must complete the initial annual inspection required by paragraphs (b)(1) and (2) of this Section is completed no later than 14 months following the date of initial receipt of CCR in the CCR unit.

(4) **Frequency of inspections.**

(A) Except as provided for in paragraph (b)(4)(B) of this Section, the owner or operator of the CCR unit must conduct the inspection required by paragraphs (b)(1) and (2) of this Section on an annual basis. The date of completing the initial inspection report is the basis for establishing the deadline to complete the first subsequent inspection. Any required inspection may be conducted prior to the required deadline provided the owner or operator places the completed inspection report into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing subsequent inspection reports is based on the date of completing the previous inspection report. For purposes of this Section, the owner or operator has completed an inspection when the inspection report has been placed in the facility's operating record as required by OAC 252:517-19-1(g)(6).

(B) In any calendar year in which both the periodic inspection by a qualified professional engineer and the quinquennial (occurring every five years) structural stability assessment by a qualified professional engineer required by OAC 252:517-11-4(d) and OAC 252:517-11-5(d) are required to be completed, the annual inspection is not required, provided the structural stability assessment is completed during the calendar year. If the annual inspection is not conducted in a year as provided by this paragraph (b)(4)(B), the deadline for completing the next annual inspection is one year from the date of completing the quinquennial structural stability assessment.

(5) **Deficiency identified; corrective measures taken.** If a deficiency or release is identified during an inspection, the owner or operator must remedy the deficiency or release as soon as feasible and prepare documentation detailing the corrective measures taken.

(6) **DEQ notification.** The DEQ shall be notified if a deficiency is identified in (5) above and provided documentation of corrective measures.

(c) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(g), the notification requirements specified in OAC 252:517-19-2(g), and the internet requirements specified in OAC 252:517-19-3(g).

#### **252:517-13-5. Inspection requirements for CCR landfills**

##### **(a) Inspections by a qualified person.**

(1) **Applicability.** All CCR landfills and any lateral expansion of a CCR landfill must be examined by a qualified person as follows:

(A) At intervals not exceeding seven days, inspect for any appearances of actual or potential structural weakness and other conditions which are disrupting or have the potential to disrupt the operation or safety of the CCR unit; and

(B) The results of the inspection by a qualified person must be recorded in the facility's operating record as required by OAC 252:517-19-1(g)(8).

(2) **Timeframes.** Timeframes for inspections by a qualified person.

(A) **Existing CCR landfills.** The owner or operator of the CCR unit must have initiated the inspections required under paragraph (a) of this Section no later than October 19, 2015.

(B) **New CCR landfills and any lateral expansion of a CCR landfill.** The owner or operator of the CCR unit must initiate the inspections required under paragraph (a) of this Section upon initial receipt of CCR by the CCR unit.

(b) **Annual inspections by a qualified professional engineer.**

(1) **Inspection requirements.** Existing and new CCR landfills and any lateral expansion of a CCR landfill must be inspected on a periodic basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards. The inspection must, at a minimum, include:

- (A) A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., the results of inspections by a qualified person, and results of previous annual inspections); and
- (B) A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit.

(2) **Inspection report.** The qualified professional engineer must prepare a report following each inspection that addresses the following:

- (A) Any changes in geometry of the structure since the previous annual inspection;
- (B) The approximate volume of CCR contained in the unit at the time of the inspection;
- (C) Any appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit; and
- (D) Any other change(s) which may have affected the stability or operation of the CCR unit since the previous annual inspection.

(3) **Timeframes for conducting the initial inspection.**

(A) **Existing CCR landfills.** The owner or operator of the CCR unit must complete the initial inspection required by paragraphs (b)(1) and (2) of this Section no later than January 19, 2016.

(B) **New CCR landfills and any lateral expansion of a CCR landfill.** The owner or operator of the CCR unit must complete the initial annual inspection required by paragraphs (b)(1) and (2) of this Section no later than 14 months following the date of initial receipt of CCR in the CCR unit.

(4) **Frequency of inspections.** The owner or operator of the CCR unit must conduct the inspection required by paragraphs (b)(1) and (2) of this Section on an annual basis. The date of completing the initial inspection report is the basis for establishing the deadline to complete the first subsequent inspection. Any required inspection may be conducted prior to the required deadline provided the owner or operator places the completed inspection report into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing subsequent inspection reports is based on the date of completing the previous inspection report. For purposes of this Section, the owner or operator has completed an inspection when the inspection report has been placed in the facility's operating record as required by OAC 252:517-19-1(g)(9).

(5) **Deficiency identified; corrective measures taken.** If a deficiency or release is identified during an inspection, the owner or operator must remedy the deficiency or release as soon as feasible and prepare documentation detailing the corrective measures taken.

(6) **DEQ notification.** The DEQ shall be notified if a deficiency is identified in (5) above and provided documentation of corrective measures.

(c) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(g), the notification requirements

specified in OAC 252:517-19-2(g), and the internet requirements specified in OAC 252:517-19-3(g).

#### **252:517-13-6. Discharges**

- (a) **All CCR units.** All CCR units shall be operated to:
- (1) prevent the discharge of contaminated stormwater unless the proper permit is obtained from the DEQ's Water Quality Division;
  - (2) prevent the discharge of pollutants that violates any requirements of the federal Clean Water Act, including, but not limited to, the Oklahoma Pollutant Discharge Elimination System (OPDES) requirements;
  - (3) prevent the discharge of a non-point source of pollution that violates any requirement of an area-wide or State-wide water quality management plan that has been approved in accordance with the federal Clean Water Act; and
  - (4) comply with all requirements of their OPDES permit, if applicable. A copy of the OPDES permit shall be maintained in the operating record.
- (b) **Stormwater permit.** If required by OAC 252:606 (Oklahoma Pollutant Discharge Elimination System Standards - OPDES), active CCR units shall have:
- (1) a Stormwater Pollution Prevention Plan (SWPPP) and a General Permit for Stormwater Discharges. A copy of the SWPPP and General Permit shall be maintained in the operating record; and
  - (2) an OPDES stormwater permit for construction sites for any on- or off-site soil borrow areas of one acre or more.

#### **252:517-13-7. Leachate collection and management for CCR Landfills**

- (a) **Corrective action.**
- (1) **Plan.** In the event the leachate collection system fails to perform as designed, and approved by the DEQ, a corrective action plan shall be submitted to the DEQ within 30 days from the discovery of the failure.
  - (2) **Implementation.** The corrective action plan shall be implemented within 30 days of DEQ approval.
- (b) **Cleanout and maintenance of the leachate collection system.**
- (1) **Frequency.** The leachate collection header pipes shall be cleaned out after placement of the protective layer, again after placement of the first lift of waste, and once per year thereafter.
  - (2) **Routine inspections.** The leachate collection system shall be inspected at least quarterly to ensure proper operation.
- (c) **Leachate management.** Leachate shall be managed in accordance with a plan approved by DEQ in one or more of the methods identified in this Section and in a manner that will not cause contamination.
- (1) **Storage.**
    - (A) **Above-ground tanks.** Above-ground storage tanks used to store leachate shall be equipped with:
      - (i) adequate berming to contain the entire contents of the largest tank in the system; and either a composite liner made of two feet (2') of recompacted clay with the hydraulic conductivity of  $1.0 \times 10^{-7}$  cm/sec overlain by a 60 mil HDPE liner; or

- (ii) a DEQ approved alternative liner that will prevent infiltration of fluid.
- (B) **Underground tanks.** Underground tanks used to store leachate shall be constructed in accordance with the Oklahoma Corporation Commission's General Requirements for Underground Storage Tank Systems, OAC 165-25, Subchapter 1, Part 8.
- (C) **Surface impoundments.** A surface impoundment used to store leachate shall have a composite liner constructed in accordance with the liner requirements of this Section.
  - (i) **Run-on control.** Surface water run-on control measures shall be provided.
  - (ii) **Freeboard.** A minimum three feet of freeboard shall be maintained.
- (2) **POTW.**
  - (A) **POTW approval required.** Leachate may be discharged from the disposal facility into a POTW provided prior written approval from the POTW has been obtained.
  - (B) **Additional requirements.** Such discharges shall comply with any additional requirements of the POTW.
  - (C) **Recordkeeping.** A copy of the POTW approval shall be placed in the operating record.
- (3) **Oklahoma Pollutant Discharge Elimination System (OPDES).**
  - (A) **Permit required.** Leachate may be discharged from the disposal facility provided an OPDES permit from the Water Quality Division of the DEQ has been obtained for such discharge.
  - (B) **Copy of permit.** A copy of the OPDES permit shall be maintained in the operating record.
  - (C) **Comply with permit.** Such discharges shall comply with the provisions of the OPDES permit.
- (4) **Other.** Plans for alternative methods of leachate management may be approved by the DEQ.

## SUBCHAPTER 15. CLOSURE AND POST-CLOSURE CARE

### Section

- 252:517-15-1. Performance standard
- 252:517-15-2. DEQ Notification
- 252:517-15-3. Certification of final closure
- 252:517-15-4. Final closure
- 252:517-15-5. Inactive CCR surface impoundments
- 252:517-15-6. Closure or retrofit of CCR units
- 252:517-15-7. Criteria for conducting the closure or retrofit of CCR units
- 252:517-15-8. Alternative closure requirements
- 252:517-15-9. Post-closure care requirements
- 252:517-15-10. Post-closure use of property
- 252:517-15-11. Certification of post-closure performance
- 252:517-15-12. Land use restrictions

### **252:517-15-1. Performance standard**

The facility shall be closed in accordance with the approved closure plan and in a manner that minimizes the need for further maintenance and controls and minimizes post-closure escape of CCR into the environment.

#### **252:517-15-2. DEQ Notification**

The DEQ shall be notified in writing prior to beginning final closure of a CCR unit.

#### **252:517-15-3. Certification of final closure**

(a) **Certification requirements.** A Certification of Final Closure shall be submitted to the DEQ after completion of final closure. The Certification shall:

- (1) be signed by the owner/operator;
- (2) state that the facility was closed according to the approved closure plan, the permit, and applicable rules;
- (3) contain a closure report with related drawings, plans or specifications describing how closure was performed; and
- (4) indicate whether inspection of groundwater or surface water monitoring has shown the presence of elevated levels of any constituent or if any evidence of contamination related to site operations has been found and, if so, what corrective measures were taken.

(b) **Final closure map.** In addition to the requirements of (a) of this Section, a final closure map shall be included in the Certification of Final Closure. The final closure map shall show as-built conditions at the time of closure, including but not limited to:

- (1) final contours of the entire site;
- (2) the permit boundary and boundaries of CCR units;
- (3) the location of groundwater monitoring wells;
- (4) the location of leachate management systems or surface impoundments;
- (5) the location of any permanent surface drainage structures;
- (6) aesthetic enhancements; and
- (7) other relevant information.

(c) **PE certification.** The Certification of Final Closure shall be prepared and sealed by an independent qualified professional engineer licensed in the State of Oklahoma.

#### **252:517-15-4. Final closure**

(a) **DEQ approval required.** The DEQ must approve the final closure of a CCR unit before the post-closure period can begin.

(b) **Extension of closure period.** The DEQ may extend the closure period and require the posting of additional financial assurance if:

- (1) any testing shows the confirmed presence of elevated levels of any constituent;
- (2) any evidence of contamination related to site operations has been found; or
- (3) final closure of the site is found to be inadequate.

#### **252:517-15-5. Inactive CCR surface impoundments**

(a) **Applicability.** Inactive CCR surface impoundments are subject to all of the requirements of this Chapter applicable to existing CCR surface impoundments.

(b) [RESERVED]

(c) [RESERVED]

(d) [RESERVED]

(e) **Timeframes for certain inactive CCR surface impoundments.**

(1) **Alternative timeframes.** An inactive CCR surface impoundment for which the owner or operator has completed the actions by the deadlines specified in paragraphs (e)(1)(A) through (C) of this Section is eligible for the alternative timeframes specified in paragraphs (e)(2) through (6) of this Section. The owner or operator of the CCR unit must comply with the applicable recordkeeping, notification, and internet requirements associated with these provisions. For the inactive CCR surface impoundment:

(A) The owner or operator must have prepared and placed in the facility's operating record by December 17, 2015, a notification of intent to initiate closure of the inactive CCR surface impoundment pursuant to OAC 252:517-19-1(i)(1);

(B) The owner or operator must have provided notification to the State Director and/or appropriate Tribal authority by January 19, 2016, of the intent to initiate closure of the inactive CCR surface impoundment pursuant to OAC 252:517-19-2(h)(1); and

(C) The owner or operator must have placed on its CCR Web site by January 19, 2016, the notification of intent to initiate closure of the inactive CCR surface impoundment pursuant to OAC 252:517-19-3(i)(1).

(2) **Location restrictions.**

(A) No later than April 16, 2020, the owner or operator of the inactive CCR surface impoundment must:

(i) Complete the demonstration for placement above the uppermost aquifer as set forth by OAC 252:517-5-1(a), (b), and (c)(3);

(ii) Complete the demonstration for wetlands as set forth by OAC 252:517-5-2(a), (b), and (c)(3);

(iii) Complete the demonstration for fault areas as set forth by OAC 252:517-5-3(a), (b), and (c)(3);

(iv) Complete the demonstration for seismic impact zones as set forth by OAC 252:517-5-4(a), (b), and (c)(3); and

(v) Complete the demonstration for unstable areas as set forth by OAC 252:517-5-5(a), (b), (c), and (d)(3).

(B) An owner or operator of an inactive CCR surface impoundment who fails to demonstrate compliance with the requirements of paragraph (e)(2)(A) of this section is subject to the closure requirements of OAC 252:517-15-6(b)(1).

(3) **Design criteria.** The owner or operator of the inactive CCR surface impoundment must:

(A) No later than April 17, 2018, complete the documentation of liner type as set forth by OAC 252:517-11-2(a) and (b).

(B) No later than June 16, 2017, place on or immediately adjacent to the CCR unit the permanent identification marker as set forth by OAC 252:517-11-4(a)(1).

(C) No later than October 16, 2018, prepare and maintain an Emergency Action Plan as set forth by OAC 252:517-11-4(a)(3).

(D) No later than April 17, 2018, compile a history of construction as set forth by OAC 252:517-11-4(b) and (c).

(E) No later than April 17, 2018, complete the initial hazard potential classification, structural stability, and safety factor assessments as set forth by OAC 252:517-11-4(a)(2), (b), (d), (e), and (f).



(4) **Operating criteria.** The owner or operator of the inactive CCR surface impoundment must:

(A) No later than April 18, 2017, prepare the initial CCR fugitive dust control plan as set forth in OAC 252:517-13-1(b).

(B) No later than April 17, 2018, prepare the initial inflow design flood control system plan as set forth in OAC 252:517-13-3(c).

(C) No later than April 18, 2017, initiate the inspections by a qualified person as set forth by OAC 252:517-13-4(a).

(D) No later than July 19, 2017, complete the initial annual inspection by a qualified professional engineer as set forth by OAC 252:517-13-4(b).

(5) **Groundwater monitoring and corrective action.** The owner or operator of the inactive CCR surface impoundment must:

(A) No later than April 17, 2019, comply with groundwater monitoring requirements set forth in OAC 252:517-9-1(b) and 252:517-9-5(b); and

(B) No later than August 1, 2019, prepare the initial groundwater monitoring and corrective action report as set forth in OAC 252:517-9-1(e).

(6) **Closure and post-closure care.** The owner or operator of the inactive CCR surface impoundment must:

(A) No later than April 17, 2018, prepare an initial written closure plan as set forth in OAC 252:517-15-7(b); and

(B) No later than April 17, 2018, prepare an initial written post-closure care plan as set forth in OAC 252:517-15-9(d).

#### **252:517-15-6. Closure or retrofit of CCR units**

(a) **Existing unlined CCR surface impoundment.** The owner or operator of an existing unlined CCR surface impoundment, as determined under OAC 252:517-11-2(a), is subject to the requirements of paragraph (a)(1) of this Section.

(1) Except as provided by paragraph (a)(3) of this Section, if at any time after October 19, 2015 an owner or operator of an existing unlined CCR surface impoundment determines in any sampling event that the concentrations of one or more constituents listed in Appendix B to this Chapter are detected at statistically significant levels above the groundwater protection standard established under OAC 252:517-9-6(h) for such CCR unit, within six months of making such determination, the owner or operator of the existing unlined CCR surface impoundment must cease placing CCR and non-CCR wastestreams into such CCR surface impoundment and either retrofit or close the CCR unit in accordance with the requirements of OAC 252:517-15-7.

(2) An owner or operator of an existing unlined CCR surface impoundment that closes in accordance with paragraph (a)(1) of this Section must include a statement in the notification required under OAC 252:517-15-7(g) or (k)(5) that the CCR surface impoundment is closing or retrofitting under the requirements of paragraph (a)(1) of this Section.

(3) The timeframe specified in paragraph (a)(1) of this Section does not apply if the owner or operator complies with the alternative closure procedures specified in OAC 252:517-15-8.

(4) At any time after the initiation of closure under paragraph (a)(1) of this Section, the owner or operator may cease closure activities and initiate a retrofit of the CCR unit in accordance with the requirements of OAC 252:517-15-7(k).

**(b) Existing CCR surface impoundment.** The owner or operator of an existing CCR surface impoundment is subject to the requirements of paragraph (b)(1) of this Section.

(1) Except as provided by paragraph (b)(4) of this Section, within six months of determining that an existing CCR surface impoundment has not demonstrated compliance with any location standard specified in OAC 252:517-5-1(a), OAC 252:517-5-2(a), OAC 252:517-5-3(a), OAC 252:517-5-4(a), and OAC 252:517-5-5(a), the owner or operator of the CCR surface impoundment must cease placing CCR and non-CCR wastestreams into such CCR unit and close the CCR unit in accordance with the requirements of OAC 252:517-15-7.

(2) Within six months of either failing to complete the initial or any subsequent periodic safety factor assessment required by OAC 252:517-11-4(e) by the deadlines specified in OAC 252:517-11-4(f)(1) through (3) or failing to document that the calculated factors of safety for the existing CCR surface impoundment achieve the minimum safety factors specified in OAC 252:517-11-4(e)(1)(i) through (iv), the owner or operator of the CCR surface impoundment must cease placing CCR and non-CCR wastestreams into such CCR unit and close the CCR unit in accordance with the requirements of OAC 252:517-15-7.

(3) An owner or operator of an existing CCR surface impoundment that closes in accordance with paragraphs (b)(1) or (2) of this Section must include a statement in the notification required under OAC 252:517-15-7(g) that the CCR surface impoundment is closing under the requirements of paragraphs (b)(1) or (2) of this Section.

(4) The timeframe specified in paragraph (b)(1) of this Section does not apply if the owner or operator complies with the alternative closure procedures specified in OAC 252:517-15-8.

**(c) New CCR surface impoundment.** The owner or operator of a new CCR surface impoundment is subject to the requirements of paragraph (c)(1) of this Section.

(1) Within six months of either failing to complete the initial or any subsequent periodic safety factor assessment required by OAC 252:517-11-5(e) by the deadlines specified in OAC 252:517-11-5(f)(1) through (3) or failing to document that the calculated factors of safety for the new CCR surface impoundment achieve the minimum safety factors specified in OAC 252:517-11-5(e)(1)(i) through (v), the owner or operator of the CCR surface impoundment must cease placing CCR and non-CCR wastestreams into such CCR unit and close the CCR unit in accordance with the requirements of OAC 252:517-15-7.

(2) An owner or operator of a new CCR surface impoundment that closes in accordance with paragraph (c)(1) of this Section must include a statement in the notification required under OAC 252:517-15-7(g) that the CCR surface impoundment is closing under the requirements of paragraph (c)(1) of this Section.

**(d) Existing CCR landfill.** The owner or operator of an existing CCR landfill is subject to the requirements of paragraph (d)(1) of this Section.

(1) Except as provided by paragraph (d)(3) of this Section, within six months of determining that an existing CCR landfill has not demonstrated compliance with the location restriction for unstable areas specified in OAC 252:517-5-5(a), the owner or operator of the CCR unit must cease placing CCR and non-CCR waste streams into such CCR landfill and close the CCR unit in accordance with the requirements of OAC 252:517-15-7.

(2) An owner or operator of an existing CCR landfill that closes in accordance with paragraph (d)(1) of this Section must include a statement in the notification required under OAC 252:517-15-7(g) that the CCR landfill is closing under the requirements of paragraph (d)(1) of this Section.

- (3) The timeframe specified in paragraph (d)(1) of this Section does not apply if the owner or operator complies with the alternative closure procedures specified in OAC 252:517-15-8.

**252:517-15-7. Criteria for conducting the closure or retrofit of CCR units**

(a) **Closure of CCR unit; retrofit of CCR surface impoundment.** Closure of a CCR landfill, CCR surface impoundment, or any lateral expansion of a CCR unit must be completed either by leaving the CCR in place and installing a final cover system or through removal of the CCR and decontamination of the CCR unit, as described in paragraphs (b) through (j) of this Section. Retrofit of a CCR surface impoundment must be completed in accordance with the requirements in paragraph (k) of this Section.

(b) **Written closure plan.**

(1) **Content of the plan.** The owner or operator of a CCR unit must prepare a written closure plan that describes the steps necessary to close the CCR unit at any point during the active life of the CCR unit consistent with recognized and generally accepted good engineering practices. The written closure plan must include, at a minimum, the information specified in paragraphs (b)(1)(A) through (F) of this Section.

(A) A narrative description of how the CCR unit will be closed in accordance with this Section.

(B) If closure of the CCR unit will be accomplished through removal of CCR from the CCR unit, a description of the procedures to remove the CCR and decontaminate the CCR unit in accordance with paragraph (c) of this Section.

(C) If closure of the CCR unit will be accomplished by leaving CCR in place, a description of the final cover system, designed in accordance with paragraph (d) of this Section, and the methods and procedures to be used to install the final cover. The closure plan must also discuss how the final cover system will achieve the performance standards specified in paragraph (d) of this Section.

(D) An estimate of the maximum inventory of CCR ever on-site over the active life of the CCR unit.

(E) An estimate of the largest area of the CCR unit ever requiring a final cover as required by paragraph (d) of this Section at any time during the CCR unit's active life.

(F) A schedule for completing all activities necessary to satisfy the closure criteria in this Section, including an estimate of the year in which all closure activities for the CCR unit will be completed. The schedule should provide sufficient information to describe the sequential steps that will be taken to close the CCR unit, including identification of major milestones such as coordinating with and obtaining necessary approvals and permits from other agencies, the dewatering and stabilization phases of CCR surface impoundment closure, or installation of the final cover system, and the estimated timeframes to complete each step or phase of CCR unit closure. When preparing the written closure plan, if the owner or operator of a CCR unit estimates that the time required to complete closure will exceed the timeframes specified in paragraph (f)(1) of this Section, the written closure plan must include the site-specific information, factors and considerations that would support any time extension sought under paragraph (f)(2) of this Section.

(2) **Timeframes for preparing the initial written closure plan.**

(A) Existing CCR landfills and existing CCR surface impoundments. No later than October 17, 2016, the owner or operator of the CCR unit must prepare an initial written

closure plan consistent with the requirements specified in paragraph (b)(1) of this Section.

(B) New CCR landfills and new CCR surface impoundments, and any lateral expansion of a CCR unit. No later than the date of the initial receipt of CCR in the CCR unit, the owner or operator must prepare an initial written closure plan consistent with the requirements specified in paragraph (b)(1) of this Section.

(C) The owner or operator has completed the written closure plan when the plan, including the certification required by paragraph (b)(4) of this Section, has been placed in the facility's operating record as required by OAC 252:517-19-1(i)(4).

**(3) Amendment of a written closure plan.**

(A) The owner or operator may amend the initial or any subsequent written closure plan developed pursuant to paragraph (b)(1) of this Section at any time.

(B) The owner or operator must amend the written closure plan whenever:

(i) There is a change in the operation of the CCR unit that would substantially affect the written closure plan in effect; or

(ii) Before or after closure activities have commenced, unanticipated events necessitate a revision of the written closure plan;

(C) The owner or operator must amend the closure plan at least 60 days prior to a planned change in the operation of the facility or CCR unit, or no later than 60 days after an unanticipated event requires the need to revise an existing written closure plan. If a written closure plan is revised after closure activities have commenced for a CCR unit, the owner or operator must amend the current closure plan no later than 30 days following the triggering event.

(4) **PE certification.** The owner or operator of the CCR unit must obtain a written certification from a qualified professional engineer that the initial and any amendment of the written closure plan meets the requirements of this Section.

(5) **DEQ approval required.** The owner or operator of the CCR unit must submit the initial closure plan and any amendment of the closure plan to the DEQ for approval.

(c) **Closure by removal of CCR.** An owner or operator may elect to close a CCR unit by removing and decontaminating all areas affected by releases from the CCR unit. CCR removal and decontamination of the CCR unit are complete when constituent concentrations throughout the CCR unit and any areas affected by releases from the CCR unit have been removed and groundwater monitoring concentrations do not exceed the groundwater protection standard established pursuant to OAC 252:517-9-6(h) for constituents listed in Appendix B to this Chapter.

**(d) Closure performance standard when leaving CCR in place.**

(1) **Closure standards.** The owner or operator of a CCR unit must ensure that, at a minimum, the CCR unit is closed in a manner that will:

(A) Control, minimize or eliminate, to the maximum extent feasible, post-closure infiltration of liquids into the waste and releases of CCR, leachate, or contaminated run-off to the ground or surface waters or to the atmosphere;

(B) Preclude the probability of future impoundment of water, sediment, or slurry;

(C) Include measures that provide for major slope stability to prevent the sloughing or movement of the final cover system during the closure and post-closure care period;

(D) Minimize the need for further maintenance of the CCR unit; and

- (E) Be completed in the shortest amount of time consistent with recognized and generally accepted good engineering practices.
- (2) **Drainage and stabilization of CCR surface impoundments.** The owner or operator of a CCR surface impoundment or any lateral expansion of a CCR surface impoundment must meet the requirements of paragraphs (d)(2)(A) and (B) of this Section prior to installing the final cover system required under paragraph (d)(3) of this Section.
- (A) Free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues.
- (B) Remaining wastes must be stabilized sufficient to support the final cover system.
- (3) **Final cover system.** If a CCR unit is closed by leaving CCR in place, the owner or operator must install a final cover system that is designed to minimize infiltration and erosion, and at a minimum, meets the requirements of paragraph (d)(3)(A) of this Section, or the requirements of the alternative final cover system specified in paragraph (d)(3)(B) of this Section.
- (A) The final cover system must be designed and constructed to meet the criteria in paragraphs (d)(3)(A)(i) through (iv) of this Section. The design of the final cover system must be included in the written closure plan required by paragraph (b) of this Section.
- (i) The permeability of the final cover system must be less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than  $1 \times 10^{-5}$  cm/sec, whichever is less.
- (ii) The infiltration of liquids through the closed CCR unit must be minimized by the use of an infiltration layer that contains a minimum of 18 inches of earthen material.
- (iii) The erosion of the final cover system must be minimized by the use of an erosion layer that contains a minimum of six inches of earthen material that is capable of sustaining native plant growth.
- (iv) The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.
- (B) The owner or operator may select an alternative final cover system design, provided the alternative final cover system is designed and constructed to meet the criteria in paragraphs (d)(3)(B)(i) through (iv) of this Section. The design of the final cover system must be included in the written closure plan required by paragraph (b) of this Section.
- (i) The design of the final cover system must include an infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in paragraphs (d)(3)(A)(i) and (ii) of this Section.
- (ii) The design of the final cover system must include an erosion layer that provides equivalent protection from wind or water erosion as the erosion layer specified in paragraph (d)(3)(A)(iii) of this Section.
- (iii) The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.
- (C) The owner or operator of the CCR unit must obtain a written certification from a qualified professional engineer that the design of the final cover system meets the requirements of this Section.
- (e) **Initiation of closure activities.** Except as provided for in paragraph (e)(4) of this Section and OAC 252:517-15-8, the owner or operator of a CCR unit must commence closure of the

CCR unit no later than the applicable timeframes specified in either paragraph (e)(1) or (2) of this Section.

(1) **Commencing closure.** The owner or operator must commence closure of the CCR unit no later than 30 days after the date on which the CCR unit either:

(A) Receives the known final receipt of waste, either CCR or any non-CCR waste stream; or

(B) Removes the known final volume of CCR from the CCR unit for the purpose of beneficial use of CCR.

(2) **Conditions.**

(A) Except as provided by paragraph (e)(2)(B) of this Section, the owner or operator must commence closure of a CCR unit that has not received CCR or any non-CCR waste stream or is no longer removing CCR for the purpose of beneficial use within two years of the last receipt of waste or within two years of the last removal of CCR material for the purpose of beneficial use.

(B) Notwithstanding paragraph (e)(2)(A) of this Section, the owner or operator of the CCR unit may secure an additional two years to initiate closure of the idle unit provided the owner or operator provides written documentation that the CCR unit will continue to accept wastes or will start removing CCR for the purpose of beneficial use. The documentation must be supported by, at a minimum, the information specified in paragraphs (e)(2)(B)(i) and (ii) of this Section. The owner or operator may obtain two-year extensions provided the owner or operator continues to be able to demonstrate that there is reasonable likelihood that the CCR unit will accept wastes in the foreseeable future or will remove CCR from the unit for the purpose of beneficial use. The owner or operator must place each completed demonstration, if more than one time extension is sought, in the facility's operating record as required by OAC 252:517-19-1(i)(5) prior to the end of any two-year period.

(i) Information documenting that the CCR unit has remaining storage or disposal capacity or that the CCR unit can have CCR removed for the purpose of beneficial use; and

(ii) Information demonstrating that there is a reasonable likelihood that the CCR unit will resume receiving CCR or non-CCR waste streams in the foreseeable future or that CCR can be removed for the purpose of beneficial use. The narrative must include a best estimate as to when the CCR unit will resume receiving CCR or non-CCR waste streams. The situations listed in paragraphs (e)(2)(B)(ii)(I) through (IV) of this Section are examples of situations that would support a determination that the CCR unit will resume receiving CCR or non-CCR waste streams in the foreseeable future.

(I) Normal plant operations include periods during which the CCR unit does not receive CCR or non-CCR waste streams, such as the alternating use of two or more CCR units whereby at any point in time one CCR unit is receiving CCR while CCR is being removed from a second CCR unit after its dewatering.

(II) The CCR unit is dedicated to a coal-fired boiler unit that is temporarily idled (e.g., CCR is not being generated) and there is a reasonable likelihood that the coal-fired boiler will resume operations in the future.

(III) The CCR unit is dedicated to an operating coal-fired boiler (i.e., CCR is being generated); however, no CCR are being placed in the CCR unit because the CCR are being entirely diverted to beneficial uses, but there is a reasonable likelihood that the CCR unit will again be used in the foreseeable future.

(IV) The CCR unit currently receives only non-CCR waste streams and those non-CCR waste streams are not generated for an extended period of time, but there is a reasonable likelihood that the CCR unit will again receive non-CCR waste streams in the future.

(C) In order to obtain additional time extension(s) to initiate closure of a CCR unit beyond the two years provided by paragraph (e)(2)(A) of this Section, the owner or operator of the CCR unit must include with the demonstration required by paragraph (e)(2)(B) of this Section the following statement signed by the owner or operator or an authorized representative: I certify under penalty of law that I have personally examined and am familiar with the information submitted in this demonstration and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

(3) **Commencement activities.** For purposes of this Chapter, closure of the CCR unit has commenced if the owner or operator has ceased placing waste and completes any of the following actions or activities:

(A) Taken any steps necessary to implement the written closure plan required by paragraph (b) of this Section; or

(B) Taken any steps necessary to comply with any standards that are a prerequisite, or are otherwise applicable, to initiating or completing the closure of a CCR unit.

(4) **Timeline exceptions.** The timeframes specified in paragraphs (e)(1) and (2) of this Section do not apply to any of the following owners or operators:

(A) An owner or operator of an existing unlined CCR surface impoundment closing the CCR unit as required by OAC 252:517-15-6(a);

(B) An owner or operator of an existing CCR surface impoundment closing the CCR unit as required by OAC 252:517-15-6(b);

(C) An owner or operator of a new CCR surface impoundment closing the CCR unit as required by OAC 252:517-15-6(c); or

(D) An owner or operator of an existing CCR landfill closing the CCR unit as required by OAC 252:517-15-6(d).

(f) **Completion of closure activities.**

(1) **Closure timeframes.** Except as provided for in paragraph (f)(2) of this Section, the owner or operator must complete closure of the CCR unit:

(A) For existing and new CCR landfills and any lateral expansion of a CCR landfill, within six months of commencing closure activities.

(B) For existing and new CCR surface impoundments and any lateral expansion of a CCR surface impoundment, within five years of commencing closure activities.

(2) **Extensions of closure timeframes.**

(A) **Applicability.** The timeframes for completing closure of a CCR unit specified under paragraphs (f)(1) of this Section may be extended if the owner or operator can

demonstrate that it was not feasible to complete closure of the CCR unit within the required timeframes due to factors beyond the facility's control. If the owner or operator is seeking a time extension beyond the time specified in the written closure plan as required by paragraph (b)(1) of this Section, the demonstration must include a narrative discussion providing the basis for additional time beyond that specified in the closure plan. The owner or operator must place each completed demonstration, if more than one time extension is sought, in the facility's operating record as required by OAC 252:517-19-1(i)(6) prior to the end of any two-year period. Factors that may support such a demonstration include:

- (i) Complications stemming from the climate and weather, such as unusual amounts of precipitation or a significantly shortened construction season;
- (ii) Time required to dewater a surface impoundment due to the volume of CCR contained in the CCR unit or the characteristics of the CCR in the unit;
- (iii) The geology and terrain surrounding the CCR unit will affect the amount of material needed to close the CCR unit; or
- (iv) Time required or delays caused by the need to coordinate with and obtain necessary approvals and permits from a state or other agency.

**(B) Maximum time extensions.**

- (i) CCR surface impoundments of 40 acres or smaller may extend the time to complete closure by no longer than two years.
- (ii) CCR surface impoundments larger than 40 acres may extend the timeframe to complete closure of the CCR unit multiple times, in two-year increments. For each two-year extension sought, the owner or operator must substantiate the factual circumstances demonstrating the need for the extension. No more than a total of five two-year extensions may be obtained for any CCR surface impoundment.
- (iii) CCR landfills may extend the timeframe to complete closure of the CCR unit multiple times, in one-year increments. For each one-year extension sought, the owner or operator must substantiate the factual circumstances demonstrating the need for the extension. No more than a total of two one-year extensions may be obtained for any CCR landfill.

**(C) Certification statement.** In order to obtain additional time extension(s) to complete closure of a CCR unit beyond the times provided by paragraph (f)(1) of this Section, the owner or operator of the CCR unit must include with the demonstration required by paragraph (f)(2)(A) of this Section the following statement signed by the owner or operator or an authorized representative: I certify under penalty of law that I have personally examined and am familiar with the information submitted in this demonstration and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

**(3) PE certification.** Upon completion, the owner or operator of the CCR unit must obtain a certification from a qualified professional engineer verifying that closure has been completed in accordance with the closure plan specified in paragraph (b) of this Section and the requirements of this Section.



(g) **Notification of intent to close.** No later than the date the owner or operator initiates closure of a CCR unit, the owner or operator must prepare a notification of intent to close a CCR unit. The notification must include the certification by a qualified professional engineer for the design of the final cover system as required by OAC 252:517-15-7(d)(3)(iii), if applicable. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by OAC 252:517-19-1(i)(7).

(h) **Notification of closure.** Within 30 days of completion of closure of the CCR unit, the owner or operator must prepare a notification of closure of a CCR unit. The notification must include the certification by a qualified professional engineer as required by OAC 252:517-15-7(f)(3). The owner or operator has completed the notification when it has been placed in the facility's operating record as required by OAC 252:517-19-1(i)(8).

(i) **Deed notations.**

(1) Except as provided by paragraph (i)(4) of this Section, following closure of a CCR unit, the owner or operator must record a notation on the deed to the property, or some other instrument that is normally examined during title search.

(2) The notation on the deed must in perpetuity notify any potential purchaser of the property that:

(A) The land has been used as a CCR unit; and

(B) Its use is restricted under the post-closure care requirements as provided by OAC 252:517-15-9(d)(1)(C).

(3) Within 30 days of recording a notation on the deed to the property, the owner or operator must prepare a notification stating that the notation has been recorded. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by OAC 252:517-19-1(i)(9).

(4) An owner or operator that closes a CCR unit in accordance with paragraph (c) of this Section is not subject to the requirements of paragraphs (i)(1) through (3) of this Section.

(j) **Recordkeeping.** The owner or operator of the CCR unit must comply with the closure recordkeeping requirements specified in OAC 252:517-19-1(i), the closure notification requirements specified in OAC 252:517-19-2(i), and the closure Internet requirements specified in OAC 252:517-19-3(i).

(k) **Criteria to retrofit existing CCR surface impoundment.**

(1) **Retrofit existing CCR surface impoundment.** To retrofit an existing CCR surface impoundment, the owner or operator must:

(A) First remove all CCR, including any contaminated soils and sediments from the CCR unit; and

(B) Comply with the requirements in OAC 252:517-11-3.

(C) A CCR surface impoundment undergoing a retrofit remains subject to all other requirements of this Chapter, including the requirement to conduct any necessary corrective action.

(2) **Written retrofit plan.**

(A) **Content of the plan.** The owner or operator must prepare a written retrofit plan that describes the steps necessary to retrofit the CCR unit consistent with recognized and generally accepted good engineering practices. The written retrofit plan must include, at a minimum, all of the following information:

- (i) A narrative description of the specific measures that will be taken to retrofit the CCR unit in accordance with this Section.
  - (ii) A description of the procedures to remove all CCR and contaminated soils and sediments from the CCR unit.
  - (iii) An estimate of the maximum amount of CCR that will be removed as part of the retrofit operation.
  - (iv) An estimate of the largest area of the CCR unit that will be affected by the retrofit operation.
  - (v) A schedule for completing all activities necessary to satisfy the retrofit criteria in this Section, including an estimate of the year in which retrofit activities of the CCR unit will be completed.
- (B) Timeframes for preparing the initial written retrofit plan.**
- (i) No later than 60 days prior to date of initiating retrofit activities, the owner or operator must prepare an initial written retrofit plan consistent with the requirements specified in paragraph (k)(2) of this Section. For purposes of this Chapter, initiation of retrofit activities has commenced if the owner or operator has ceased placing waste in the unit and completes any of the following actions or activities:
    - (I) Taken any steps necessary to implement the written retrofit plan;
    - (II) Submitted a completed application for any required state or agency permit or permit modification; or
    - (III) Taken any steps necessary to comply with any state or other agency standards that are a prerequisite, or are otherwise applicable, to initiating or completing the retrofit of a CCR unit.
  - (ii) The owner or operator has completed the written retrofit plan when the plan, including the certification required by paragraph (k)(2)(D) of this Section, has been placed in the facility's operating record as required by OAC 252:517-19-1(j)(1).
- (C) Amendment of a written retrofit plan.**
- (i) The owner or operator may amend the initial or any subsequent written retrofit plan at any time.
  - (ii) The owner or operator must amend the written retrofit plan whenever:
    - (I) There is a change in the operation of the CCR unit that would substantially affect the written retrofit plan in effect; or
    - (II) Before or after retrofit activities have commenced, unanticipated events necessitate a revision of the written retrofit plan.
  - (iii) The owner or operator must amend the retrofit plan at least 60 days prior to a planned change in the operation of the facility or CCR unit, or no later than 60 days after an unanticipated event requires the revision of an existing written retrofit plan. If a written retrofit plan is revised after retrofit activities have commenced for a CCR unit, the owner or operator must amend the current retrofit plan no later than 30 days following the triggering event.
- (D) PE certification.** The owner or operator of the CCR unit must obtain a written certification from a qualified professional engineer that the activities outlined in the

written retrofit plan, including any amendment of the plan, meet the requirements of this Section.

(E) **DEQ approval required.** The owner or operator of the CCR unit must submit the written retrofit plan, and any amendment of the plan, to the DEQ for approval.

(3) **Deadline for completion.** Deadline for completion of activities related to the retrofit of a CCR unit. Any CCR surface impoundment that is being retrofitted must complete all retrofit activities within the same time frames and procedures specified for the closure of a CCR surface impoundment in OAC 252:517-15-7(f) or, where applicable, OAC 252:517-15-8.

(4) **PE certification; DEQ approval required.** Upon completion, the owner or operator must obtain a certification from a qualified professional engineer verifying that the retrofit activities have been completed in accordance with the retrofit plan specified in paragraph (k)(2) of this Section and the requirements of this Section. The certified report shall be submitted to DEQ for approval.

(5) **Notification of intent.** No later than the date the owner or operator initiates the retrofit of a CCR unit, the owner or operator must prepare a notification of intent to retrofit a CCR unit. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by OAC 252:517-19-1(j)(5).

(6) **Notification of completion.** Within 30 days of completing the retrofit activities specified in paragraph (k)(1) of this Section, the owner or operator must prepare a notification of completion of retrofit activities. The notification must include the certification by a qualified professional engineer as required by paragraph (k)(4) of this Section. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by OAC 252:517-19-1(j)(6).

(7) **Retrofit cessation.** At any time after the initiation of a CCR unit retrofit, the owner or operator may cease the retrofit and initiate closure of the CCR unit in accordance with the requirements of OAC 252:517-15-7.

(8) **Recordkeeping.** The owner or operator of the CCR unit must comply with the retrofit recordkeeping requirements specified in OAC 252:517-19-1(j), the retrofit notification requirements specified in OAC 252:517-19-2(j), and the retrofit Internet requirements specified in OAC 252:517-19-3(j).

#### **252:517-15-8. Alternative closure requirements**

(a) The owner or operator of a CCR landfill, CCR surface impoundment, or any lateral expansion of a CCR unit that is subject to closure pursuant to OAC 252:517-15-6(a), (b)(1), or (d) may continue to receive CCR in the unit provided the owner or operator meets the requirements of either paragraph (a) or (b) of this Section.

(1) **No alternative CCR disposal capacity.**

(A) Notwithstanding the provisions of OAC 252:517-15-6(a), (b)(1), or (d), a CCR unit may continue to receive CCR if the owner or operator of the CCR unit certifies that the CCR must continue to be managed in that CCR unit due to the absence of alternative disposal capacity both on-site and off-site of the facility. To qualify under this paragraph (a)(1), the owner or operator of the CCR unit must document that all of the following conditions have been met and approved by the DEQ:

(B) No alternative disposal capacity is available on-site or off-site. An increase in costs or the inconvenience of existing capacity is not sufficient to support qualification under this Section;

(C) The owner or operator has made, and continues to make, efforts to obtain additional capacity. Qualification under this Subsection lasts only as long as no alternative capacity is available. Once alternative capacity is identified, the owner or operator must arrange to use such capacity as soon as feasible;

(D) The owner or operator must remain in compliance with all other requirements of this Chapter, including the requirement to conduct any necessary corrective action; and

(E) The owner or operator must prepare an annual progress report documenting the continued lack of alternative capacity and the progress towards the development of alternative CCR disposal capacity.

(2) Once alternative capacity is available, the CCR unit must cease receiving CCR and initiate closure following the timeframes in OAC 252:517-15-7(e) and (f).

(3) If no alternative capacity is identified within five years after the initial certification, the CCR unit must cease receiving CCR and close in accordance with the timeframes in OAC 252:517-15-7(e) and (f).

**(b) Permanent cessation of a coal fired boiler(s) by a date certain.**

(1) Notwithstanding the provisions of OAC 252:517-15-6(a), (b)(1), and (d), a CCR unit may continue to receive CCR if the owner or operator certifies that the facility will cease operation of the coal-fired boilers within the timeframes specified in paragraphs (b)(2) through (4) of this Section, but in the interim period (prior to closure of the coal-fired boiler), the facility must continue to use the CCR unit due to the absence of alternative disposal capacity both on-site and off-site of the facility. To qualify under this paragraph (b)(1), the owner or operator of the CCR unit must document that all of the following conditions have been met and approved by the DEQ:

(A) No alternative disposal capacity is available on-site or off-site. An increase in costs or the inconvenience of existing capacity is not sufficient to support qualification under this Section.

(B) The owner or operator must remain in compliance with all other requirements of this Chapter, including the requirement to conduct any necessary corrective action; and

(C) The owner or operator must prepare an annual progress report documenting the continued lack of alternative capacity and the progress towards the closure of the coal-fired boiler.

(2) For a CCR surface impoundment that is 40 acres or smaller, the coal-fired boiler must cease operation and the CCR surface impoundment must have completed closure no later than October 17, 2023.

(3) For a CCR surface impoundment that is larger than 40 acres, the coal-fired boiler must cease operation, and the CCR surface impoundment must complete closure no later than October 17, 2028.

(4) For a CCR landfill, the coal-fired boiler must cease operation, and the CCR landfill must complete closure no later than April 19, 2021.

**(c) Required notices and progress reports.** An owner or operator of a CCR unit that closes in accordance with paragraphs (a) or (b) of this Section must complete the notices and progress reports specified in paragraphs (c)(1) through (3) of this Section.

(1) Within six months of becoming subject to closure pursuant to OAC 252:517-15-6(a), (b)(1), or (d), the owner or operator must prepare, submit to DEQ and place in the facility's operating record a notification of intent to comply with the alternative closure requirements of this Section. The notification must describe why the CCR unit qualifies for the alternative closure provisions under either paragraph (a) or (b) of this Section, in addition to providing the documentation and certifications required by paragraph (a) or (b) of this Section.

(2) The owner or operator must prepare the periodic progress reports required by paragraphs (a)(1)(D) or (b)(1)(C), in addition to describing any problems encountered and a description of the actions taken to resolve the problems. The annual progress reports must be completed according to the following schedule:

(A) The first annual progress report must be prepared no later than 13 months after completing the notification of intent to comply with the alternative closure requirements required by paragraph (c)(1) of this Section.

(B) The second annual progress report must be prepared no later than 12 months after completing the first annual progress report. Additional annual progress reports must be prepared within 12 months of completing the previous annual progress report.

(C) The owner or operator must submit the progress reports required in (A) and (B) above to the DEQ for approval.

(D) The owner or operator has completed the progress reports specified in paragraph (c)(2) of this Section when the reports are placed in the facility's operating record as required by OAC 252:517-19-1(i)(10).

(3) An owner or operator of a CCR unit must also prepare the notification of intent to close a CCR unit as required by OAC 252:517-15-7(g).

(d) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(i), the notification requirements specified in OAC 252:517-19-2(i), and the Internet requirements specified in OAC 252:517-19-3(i).

### **252:517-15-9. Post-closure care requirements**

#### **(a) Applicability.**

(1) Except as provided by either paragraph (a)(2) or (3) of this Section, OAC 252:517-15-9 applies to the owners or operators of CCR landfills, CCR surface impoundments, and all lateral expansions of CCR units that are subject to the closure criteria under OAC 252:517-15-7.

(2) An owner or operator of a CCR unit that elects to close a CCR unit by removing CCR as provided by OAC 252:517-15-7(c) is not subject to the post-closure care criteria under this Section.

(b) **Post-closure care maintenance requirements.** Following closure of the CCR unit, the owner or operator must conduct post-closure care for the CCR unit, which must consist of at least the following:

(1) Maintaining the integrity and effectiveness of the final cover system, including making repairs to the final cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover;

(2) If the CCR unit is subject to the design criteria under OAC 252:517-11-1, maintaining the integrity and effectiveness of the leachate collection and removal system and operating the leachate collection and removal system in accordance with the requirements of OAC 252:517-11-1; and

(3) Maintaining the groundwater monitoring system and monitoring the groundwater in accordance with the requirements of OAC 252:517-9-1 through OAC 252:517-9-9.

**(c) Post-closure care period.**

(1) Except as provided by paragraph (c)(2) and (3) of this Section, the owner or operator of the CCR unit must conduct post-closure care for 30 years.

(2) If at the end of the post-closure care period the owner or operator of the CCR unit is operating under assessment monitoring in accordance with OAC 252:517-9-6, the owner or operator must continue to conduct post-closure care until the owner or operator returns to detection monitoring in accordance with OAC 252:517-9-6.

(3) The DEQ may extend the post-closure monitoring and care period if:

(A) sampling shows the presence of elevated levels of any constituent;

(B) evidence of contamination resulting from site operations is found to exist;

(C) prior maintenance or monitoring of the site is found to be inadequate;

(D) the site is producing leachate that must be treated prior to discharge; or

(E) if other conditions are present that indicate a need for additional post-closure monitoring and care.

(4) When the post-closure period is extended, the DEQ may require the maintenance of existing financial assurance, the posting of additional assurance, and/or may require corrective action.

**(d) Written post-closure plan.**

(1) **Content of the plan.** The owner or operator of a CCR unit must prepare a written post-closure plan that includes, at a minimum, the information specified in paragraphs (d)(1)(A) through (C) of this Section.

(A) A description of the monitoring and maintenance activities required in paragraph (b) of this Section for the CCR unit, and the frequency at which these activities will be performed;

(B) the name, address, telephone number, and email address of the person or office to contact about the facility during the post-closure care period; and

(C) A description of the planned uses of the property during the post-closure period. Post-closure use of the property shall not disturb the integrity of the final cover, liner(s), or any other component of the containment system, or the function of the monitoring systems unless necessary to comply with the requirements in this Chapter. Any other disturbance is allowed if the owner or operator of the CCR unit demonstrates that disturbance of the final cover, liner, or other component of the containment system, including any removal of CCR, will not increase the potential threat to human health or the environment. The demonstration must be certified by a qualified professional engineer, and notification shall be provided to the State Director that the demonstration has been placed in the operating record and on the owners or operator's publicly accessible Internet site.

(2) **Deadline to prepare the initial written post-closure plan.**

- (A) **Existing CCR landfills and existing CCR surface impoundments.** No later than October 17, 2016, the owner or operator of the CCR unit must prepare an initial written post-closure plan consistent with the requirements specified in paragraph (d)(1) of this Section.
- (B) **New CCR landfills, new CCR surface impoundments, and any lateral expansion of a CCR unit.** No later than the date of the initial receipt of CCR in the CCR unit, the owner or operator must prepare an initial written post-closure plan consistent with the requirements specified in paragraph (d)(1) of this Section.
- (C) **Completion.** The owner or operator has completed the written post-closure plan when the plan, including the certification required by paragraph (d)(4) of this Section, has been placed in the facility's operating record as required by OAC 252:517-19-1(i)(4).
- (3) **Amendment of a written post-closure plan.**
- (A) The owner or operator may amend the initial or any subsequent written post-closure plan developed pursuant to paragraph (d)(1) of this Section at any time.
- (B) The owner or operator must amend the written closure plan whenever:
- (i) There is a change in the operation of the CCR unit that would substantially affect the written post-closure plan in effect; or
  - (ii) After post-closure activities have commenced, unanticipated events necessitate a revision of the written post-closure plan.
- (C) The owner or operator must amend the written post-closure plan at least 60 days prior to a planned change in the operation of the facility or CCR unit, or no later than 60 days after an unanticipated event requires the need to revise an existing written post-closure plan. If a written post-closure plan is revised after post-closure activities have commenced for a CCR unit, the owner or operator must amend the written post-closure plan no later than 30 days following the triggering event.
- (4) **PE certification.** The owner or operator of the CCR unit must obtain a written certification from a qualified professional engineer that the initial and any amendment of the written post-closure plan meets the requirements of this Section.
- (5) **DEQ approval required.** The owner or operator of the CCR unit must submit the initial post-closure plan and any amendment of the post-closure plan to the DEQ for approval.
- (e) **Notification of completion of post-closure care period.** No later than 60 days following the completion of the post-closure care period, the owner or operator of the CCR unit must prepare a notification verifying that post-closure care has been completed and submit it to the DEQ. The notification must include the certification by a qualified professional engineer verifying that post-closure care has been completed in accordance with the closure plan specified in paragraph (d) of this Section and the requirements of this Section. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by OAC 252:517-19-1(i)(13).
- (f) **Recordkeeping.** The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in OAC 252:517-19-1(i), the notification requirements specified in OAC 252:517-19-2(i), and the Internet requirements specified in OAC 252:517-19-3(i).

#### **252:517-15-10. Post-closure use of property**

(a) **Maintain integrity.** Use of the property during the post-closure period must not disturb the integrity of the final cover, the liner, or any other components of the containment system, or the function of the monitoring systems.

(b) **DEQ approval required.** The owner/operator shall not allow any other use of the property during the post-closure period unless it is approved by DEQ.

#### **252:517-15-11. Certification of post-closure performance**

(a) **Certification required.** At the conclusion of the post-closure period, a Certification of Post-closure Performance shall be submitted to the DEQ. The Certification shall:

- (1) state the facility was maintained and monitored in accordance with the approved post-closure plan, the permit, and applicable rules;
- (2) indicate whether monitoring throughout the post-closure period has shown the presence of elevated levels of any constituent or if any evidence of contamination related to site operations has been found and, if so, what corrective measures were taken; and
- (3) be maintained in the operating record.

(b) **PE certification.** The Certification of Post-closure Performance shall be prepared and sealed by an independent qualified professional engineer.

#### **252:517-15-12. Land use restrictions**

(a) **Ascertain wastes.** Any person contemplating using a closed CCR Unit shall ascertain the depth of waste units and the operating history of the site and shall avoid any activity that may pose increased threat to human health or the environment.

(b) **Considerations.** The following items are to be considered:

- (1) Irrigation, plowing or other activities that disturb materials below the topsoil could result in percolation of moisture into the buried waste.
- (2) Concentrated loadings can cause uneven settlement.
- (3) Pilings or foundation should not disturb or penetrate the final cover and/or bottom liner.

(c) **Utilities and pipelines.** Utilities and pipelines must be routed around the waste disposal area.

### **SUBCHAPTER 17. COST ESTIMATES AND FINANCIAL ASSURANCE**

#### **PART 1. GENERAL PROVISIONS**

252:517-17-1. Applicability

252:517-17-2. Effective date

252:517-17-3. Duty to maintain financial assurance

252:517-17-4. Updating

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252:517-17-6. Effect of non-renewal of, or failure to maintain or provide financial assurance

252:517-17-7. Substitute financial assurance

252:517-17-8. Economic life of CCR unit

#### **PART 3. COST ESTIMATES**



- 252:517-17-31. Cost estimates for closure
- 252:517-17-32. Cost estimates for post-closure care
- 252:517-17-33. Cost estimates for corrective action
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## **PART 5. DETERMINATION OF COST ESTIMATES**

- 252:517-17-51. Cost estimates for closure and post-closure
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## **PART 7. FINANCIAL ASSURANCE MECHANISMS**

- 252:517-17-71. General requirements for financial assurance mechanisms
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## **PART 1. GENERAL PROVISIONS**

### **252:517-17-1. Applicability**

All CCR units are subject to the requirements of this Subchapter.

### **252:517-17-2. Effective date**

- (a) **Closure and post-closure care.** DEQ approved financial assurance for closure and post-closure care must be established prior to the initial receipt of waste.
- (b) **Corrective action.** DEQ approved financial assurance for corrective action must be established no later than 120 days after the corrective action remedy has been selected in accordance with OAC 252:517-9-8, or an alternative corrective action plan has been approved.
- (c) **Permit modifications.** DEQ approved financial assurance must be established and appropriately funded before the DEQ will issue a permit modification that results in an increase in closure or post- closure cost estimates.

### **252:517-17-3. Duty to maintain financial assurance**

Financial assurance for closure, post-closure, and/or corrective action, as applicable, must be maintained continuously until released from the requirement to maintain such assurance by:

- (1) demonstrating compliance with the closure and/or post-closure requirements of Subchapter 15 of this Chapter; or
- (2) demonstrating compliance with the corrective action requirements of OAC 252:517-9-9, or an approved corrective action plan.

#### **252:517-17-4. Updating**

Provided they remain in effect, the worksheets in Appendices E and F shall be updated coinciding with the update of Appendices H and I in OAC 252:515.

#### **252:517-17-5. Permit transfers**

- (a) **Transfer of permit.** When the permit is transferred from one owner/operator ("transferor") to another owner/operator ("transferee"), the transferee shall either provide new financial assurance or assume the existing assurance, if adequate in amount.
- (b) **Release of transferor's financial assurance.** The DEQ will not release the transferor's financial assurance until the transferee has obtained approved financial assurance.

#### **252:517-17-6. Effect of non-renewal of, or failure to maintain or provide, financial assurance**

- The DEQ shall begin proceedings to summarily suspend or revoke the permit for failure to:
- (1) establish financial assurance in accordance with this Subchapter;
  - (2) renew or maintain an approved financial assurance mechanism as required; or
  - (3) provide acceptable substitute financial assurance when necessary.

#### **252:517-17-7. Substitute financial assurance**

- (a) **Substitutions allowed.** Substitute financial assurance may be provided as specified in this Subchapter.
- (b) **Release of previous instrument.** The DEQ will not release any current assurances until an approved substitute is in place.

#### **252:517-17-8. Economic life of CCR unit New CCR unit.**

The economic life of a new CCR unit shall be based on the area to be initially permitted for waste disposal, not on the total permitted area.

- (1) **Economic life.** For the purposes of determining the pay-in period for a trust fund or escrow account used as a financial assurance mechanism, or another approved mechanism that allows pay-in over a specified period of time, the economic life for a new CCR unit shall be the lesser of fifteen (15) years from the initial receipt of waste or the life as calculated in accordance with (b) of this Subsection.
- (2) **Calculation.** The life shall be calculated according to the following formula:  $L = (V \times D) \div W$ , where
  - (A) "**L**" equals the life of the CCR unit, in years;
  - (B) "**V**" equals the total volume of air space in cubic yards available for waste disposal and daily cover. V shall be calculated from the top of the protective layer to final contours minus the amount of air space taken up by final cover;

- (C) "**D**" is the anticipated density of waste compacted in place in pounds per cubic yard. Until an alternative value based on a history of operational practice can be documented, **D** must not be more than 1000 pounds per cubic yard (1000 lbs/cy); and
- (D) "**W**" is the amount of waste expected to be disposed during one year of operation in pounds per year, until the owner/operator can document actual waste disposed based on a history of operational practice.

### **PART 3. COST ESTIMATES**

#### **252:517-17-31. Cost estimates for closure**

- (a) **Closure cost estimate.** Closure cost estimates shall be submitted to the DEQ for approval. The estimate shall be a detailed written estimate, in current dollars, of the cost of hiring a third party to close the CCR unit in accordance with the permit, the approved closure plan, and the rules of this Chapter at any time during its active life.
- (b) **Amount.** The cost estimate shall be set by the DEQ and be equal to the cost of closing the facility when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan. The closure cost for a CCR unit must equal the cost of closing the largest area of the facility ever requiring a final cover at any time during the active life.
- (c) **Determination of closure cost estimate.**
- (1) Closure cost estimates shall be determined in accordance with OAC 252:517-17-51.
  - (2) A copy of the cost estimate shall be submitted to the DEQ for approval.
  - (3) A copy of the approved estimate shall be placed in the operating record.
- (d) **Increases required.** Closure cost estimates and the amount of financial assurance provided must be increased if, at any time during the active life, changes to the closure plan or facility conditions increase the maximum cost of closure.
- (e) **Reductions allowed.** Proposals for reduction of closure cost estimates and the amount of financial assurance required may be approved by the DEQ.
- (1) **Conditions.** To qualify for a reduction:
    - (A) part of the closure plan must have been completed and approved by the DEQ; or
    - (B) the cost estimate must be demonstrated to exceed the maximum cost of closure during the remaining life of the facility.
  - (2) **Adequate assurance remains.** The amount of security remaining after the reduction must adequately cover the estimated closure cost yet to be performed.
  - (3) **DEQ approval required.** Financial assurance shall not be reduced until DEQ approval has been granted.

#### **252:517-17-32. Cost estimates for post-closure care**

- (a) **Post-closure cost estimate required.** Post-closure cost estimates shall be submitted to the DEQ for approval. The estimate shall be a detailed written estimate, in current dollars, of the cost of hiring a third party to conduct post-closure care for the CCR unit in accordance with the permit, the approved post-closure plan, and the rules of this Chapter.
- (b) **Amount.** The cost estimate shall be set by the DEQ and equal the most expensive cost for post-closure care, as indicated by the post-closure plan.
- (c) **Determination of post-closure cost estimate.**
- (1) Post-closure cost estimates shall be determined in accordance with OAC 252:517-17-51.

- (2) A copy of the cost estimate shall be submitted to the DEQ for approval.
- (3) A copy of the approved estimate shall be placed in the operating record.
- (d) **Increases required.** Post-closure cost estimates and the amount of financial assurance provided must be increased if, at any time during the active life, changes to the post-closure plan or facility conditions increase the maximum cost of post-closure care.
- (e) **Reduction allowed.** Proposals for reduction of post-closure cost estimates and the amount of financial assurance required may be approved by the DEQ.
  - (1) **Estimate exceeds cost.** To qualify for a reduction, the cost estimate must be demonstrated to exceed the maximum cost of post-closure during the remaining life of the facility.
  - (2) **Adequate assurance remains.** The amount of security remaining after the reduction must adequately cover the estimated post-closure cost yet to be performed.
  - (3) **DEQ approval required.** Financial assurance shall not be reduced until DEQ approval has been granted.

#### **252:517-17-33. Cost estimates for corrective action**

- (a) **Corrective action cost estimate required.** When corrective action is required at a CCR unit, cost estimates for corrective action shall be submitted to the DEQ for approval. The cost estimates shall be a detailed written estimate, in current dollars, of the cost of hiring a third party to perform the corrective action in accordance with the approved corrective action plan.
- (b) **Amount.** The corrective action cost estimate shall be set by the DEQ and account for the total costs of corrective action activities as described in the approved corrective action plan for the entire corrective action period.
- (c) **Determination of corrective action cost estimate.**
  - (1) Corrective action cost estimates shall be determined in accordance with OAC 252:517-17-52.
  - (2) A copy of the cost estimate shall be submitted to the DEQ for approval.
  - (3) A copy of the approved estimate shall be placed in the operating record.
- (d) **Increases required.** The corrective action cost estimate and the amount of financial assurance provided must be increased at any time changes to the corrective action program or facility conditions increase the estimated cost of corrective action.
- (e) **Reduction allowed.** Proposals for reduction of corrective action cost estimates and the amount of financial assurance required may be approved by the DEQ.
  - (1) **Estimate exceeds cost.** To qualify for a reduction, the cost estimate must be demonstrated to exceed the maximum cost of corrective action at any time during the remaining life of the facility.
  - (2) **Adequate assurance remains.** The amount of security remaining after the reduction must adequately cover the estimated corrective action costs yet to be realized.
  - (3) **DEQ approval required.** Financial assurance shall not be reduced until DEQ approval has been granted.

#### **252:517-17-34. Annual adjustments to cost estimates**

- (a) **Adjustment required.** Except as provided in (b) of this Section, cost estimates for closure, post-closure, and/or corrective action shall be adjusted no later than April 9th of each year. The adjustment must be submitted to the DEQ for approval.

(1) **Recalculation of maximum costs.** The maximum costs of closure, post-closure, and/or corrective action may be recalculated in current dollars using the procedure in Part 5 of this Subchapter (relating to determination of cost estimates).

(2) **Use of inflation factor.** If there are no significant changes to the closure or post-closure plan, corrective action plan, or facility conditions, cost estimates may be adjusted by use of an inflation factor derived from the most recent annual "Implicit Price Deflator for Gross National Product" or the "Implicit Price Deflator for Gross Domestic Product" published by the U.S. Department of Commerce in its Survey of Current Business in the year for which the adjustment is being made.

(A) The first adjustment shall be made by multiplying the approved cost estimate by the inflation factor. The result is the adjusted cost estimate.

(B) Subsequent adjustments shall be made by multiplying the latest adjusted cost estimate by the latest inflation factor.

(3) **Place in operating record.** The approved adjusted cost estimates shall be placed in the operating record.

(b) **Corporate test or guarantee as financial assurance mechanism.** When the corporate test (OAC 252:517-17-81) or guarantee (OAC 252:517-17-82) is used as the financial assurance mechanism, the cost estimates for closure, post-closure, and/or corrective action shall be adjusted no later than 90 days after the close of the corporate fiscal year.

(1) **Required information.** The financial strength information specified in OAC 252:517-17-81(c) shall be submitted to the DEQ for approval.

(2) **Extension allowed.** The DEQ may provide up to an additional 45 days to submit the information upon demonstration that 90 days is insufficient time to acquire audited financial statements.

(3) **Place in operating record.** The approved adjusted cost estimates shall be placed in the operating record.

## **PART 5. DETERMINATION OF COST ESTIMATES**

### **252:517-17-51. Cost estimates for closure and post-closure**

(a) **Determine cost estimate from unit costs.** Cost estimate for closure and post-closure shall be determined by completing the worksheets in Appendix E and F, respectively.

(b) **Deviation from unit costs using bids.** Deviations from the unit costs for one or more individual tasks identified in Appendix E or F may be approved by using the average of three current bids. The following shall be submitted to the DEQ for approval:

(1) identification of the task(s) for which bids will be provided;

(2) a statement of work fully describing the actions necessary for completion of the task(s) identified; and

(3) written bids from three independent contractors not affiliated with the owner/operator.

The bids shall be dated within 30 days of submittal and be an estimate of the contractor's cost for performing the work identified in the statement of work on behalf of the State of Oklahoma.

(c) **Deviation from unit costs using actual costs.** Deviations from the unit costs for one or more of the individual tasks identified in Appendix E or F may be approved by using actual costs

paid within the previous six (6) months by the owner/operator for work performed. The following shall be submitted to the DEQ for approval:

- (1) identification of the task(s) for which actual costs will be provided;
- (2) a statement of work from the contractor, fully describing the work done to meet the requirements of the task(s); and
- (3) written documentation from the contractor identifying his cost to the owner/operator for performance of the task.

(d) **Tasks not specified in Appendix E or F.** If a CCR unit has unique tasks required under its approved closure or post-closure plan that are not identified in Appendix E or F, those tasks shall be identified and the costs estimated in accordance with (b)(1) through (b)(3) or (c)(1) through (c)(3) of this Section.

(e) **DEQ approval required.** The completed worksheets, bid documentation, and/or actual cost documentation shall be submitted to the DEQ for approval.

#### **252:517-17-52. Cost estimates for corrective action**

(a) **Equivalent tasks specified in Appendix E or F.** For those corrective action tasks in the approved corrective action plan for which there are equivalent tasks in Appendix E or F, applicable portions of Appendix E or F or the procedure in OAC 252:517-17-51 shall be used to determine cost estimates.

(b) **Equivalent tasks not specified in Appendix E or F.** For those corrective action tasks in the approved corrective action plan for which there are no equivalent tasks in Appendix E or F, the cost estimate shall be determined by using the procedure in OAC 252:517-17-51(b)(1) through (b)(3) or (c)(1) through (c)(3).

### **PART 7. FINANCIAL ASSURANCE MECHANISMS**

#### **252:517-17-71. General requirements for financial assurance mechanisms**

(a) **Requirements.** To qualify as financial assurance for the performance costs of closure, post-closure, and/or corrective action, a financial assurance mechanism must:

- (1) ensure that the amount of funds assured is sufficient to cover the costs of closure, post-closure care, and/or corrective action for known releases when needed;
- (2) ensure that funds will be available in a timely fashion when needed;
- (3) be legally valid, binding, and enforceable under State and Federal law;
- (4) be non-negotiable;
- (5) be in an amount approved by the DEQ;
- (6) indicate the purpose of the financial assurance is to provide funds for the adequate completion of closure, post-closure, and/or corrective action upon the failure of the owner/operator ("principal") to fully complete performance according to the terms of the permit and applicable law;
- (7) provide the name, address, telephone number(s), contact person(s), and organizational information for the principal and for the financial assurance issuer ("issuer");
- (8) provide information on financial responsibility and liability limits of the issuer;
- (9) provide a clause requiring payment to the State of Oklahoma, Department of Environmental Quality Revolving Fund, as the sole beneficiary upon the DEQ's certification

that the principal has not fully or satisfactorily performed required closure, post-closure, and/or corrective action activities;

(10) provide a clause addressing termination and stating that neither the principal nor issuer can revoke or cancel the financial assurance mechanism without notice to the DEQ 120 days before revocation or cancellation is effective;

(11) provide a clause requiring notice to the DEQ by issuer and to the principal prior to renewal date, if any;

(12) provide a clause requiring 30 day notice to the DEQ by issuer of principal's failure to pay renewal fee(s), if any;

(13) specify whether coverage is for the life of the facility through certified closure, the period of post-closure care required by law, and/or corrective action;

(14) include original signatures and typed names of authorized agents of the principal and the issuer; and

(15) contain evidence that the signatory for the issuer is empowered to commit the issuer to payment.

(b) **Submit to DEQ.** An original and one copy of the approved mechanism shall be submitted to the DEQ for deposit or filing in the State Treasurer's office.

#### **252:517-17-72. Use of multiple mechanisms**

(a) **Multiple mechanisms allowed.** Financial assurance requirements may be satisfied by establishing more than one approved financial assurance mechanism described in this Part.

(b) **Amount must be sufficient.** If multiple mechanisms are used, the amount of financial assurance for all mechanisms must total at least the current cost estimate for closure, post-closure care and/or corrective action.

(c) **Limitations on performance mechanisms.** Mechanisms guaranteeing performance rather than payment may not be combined with other mechanisms.

(d) **Limitations on corporate test or guarantee.** The financial test or a guarantee provided by a corporate parent, sibling, or grandparent may not be combined if the financial statements of the two firms are consolidated.

#### **252:517-17-73. Allowable financial assurance mechanisms**

(a) The owner/operator must choose from the financial assurance mechanisms specified in this Part.

(b) The mechanisms must ensure that the funds necessary to meet the costs of closure, post-closure care, and corrective action for known releases will be available whenever they are needed.

#### **252:517-17-74. Cash**

(a) **Cash authorized.** Financial assurance requirements may be satisfied by making a deposit, via cash, certified check, or money order, to the State Treasury, payable to the Department of Environmental Quality Revolving Fund, for the fully approved cost estimates for closure, post-closure, and/or corrective action.

(b) **Additional requirements.** Compliance with OAC 252:517-17-71(a)(5), (6), (7), and (13) is required.

(c) **Submit to DEQ.** Documentation demonstrating compliance with (a) and (b) of this Section shall be submitted to the DEQ and placed in the operating record.

**252:517-17-75. Certificate of deposit**

(a) **Certificate of deposit authorized.** Financial assurance requirements may be satisfied through a certificate of deposit payable to the Department of Environmental Quality Revolving Fund, for the fully approved cost estimates for closure, post-closure, and/or corrective action. Such certificate shall be filed with the Office of the State Treasurer.

(b) **Chartered bank.** The certificate of deposit shall be issued by a state or federally chartered bank, regulated and examined by a state or federal agency.

(c) **Additional requirements.** Compliance with OAC 252:517-17-71(a)(5), (6), (7), and (13) is required.

(d) **Submit to DEQ.** Documentation demonstrating compliance with (a) through (c) of this Section shall be submitted to the DEQ and placed in the operating record.

**252:517-17-76. Trust fund**

(a) **Trust fund authorized.** Financial assurance requirements may be satisfied by establishing a trust fund meeting the requirements of this Section.

(b) **Acceptable trustee.** The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency.

(c) **Additional requirements.** The trust must be in a format approved by the DEQ and contain an irrevocable assignment of the funds to the DEQ.

(d) **Submit trust agreement to DEQ.** A copy of the trust agreement must be submitted to the DEQ for approval and a copy of the approved trust agreement placed in the facility's operating record.

(e) **Pay-in period.** Payments into the trust fund must be made no later than April 9th of each year as follows:

(1) **Closure and/or post-closure.** For closure and/or post-closure care, the pay-in period shall be the economic life of the CCR unit, as determined in accordance with OAC 252:517-17-8(a)(1) or (b)(1), as applicable.

(2) **Corrective action.** For corrective action, the pay-in period shall be 15 years after the corrective action remedy has been selected, or one-half of the estimated length of the corrective action program, whichever is shorter.

(f) **Payments into trust for closure or post-closure.** Payments into the trust for closure and/or post-closure shall be made as follows:

(1) **First payment.** The first payment into the fund must be at least equal to the current cost estimate for closure or post-closure care, except as provided in OAC 252:517-17-72 (relating to the use of multiple mechanisms), divided by the number of years in the pay-in period.

(2) **Subsequent payments.** Subsequent payments shall be determined by the following formula:  $\text{Next Payment} = (\text{CE} - \text{CV}) \div \text{Y}$ , where

(A) "CE" is the current cost estimate for closure and/or post-closure care (updated for inflation or other changes); and

(B) "CV" is the current value of the trust fund; and

(C) "Y" is the number of years remaining in the pay-in period.



(g) **Payments into trust for corrective action.** Payments into the trust for corrective action shall be made as follows:

(1) **First payment.** The first payment into the trust fund must be at least equal to one-half of the current cost estimate for corrective action, except as provided in OAC 252:517-17-72 or the approved corrective action plan, divided by the number of years in the corrective action pay-in period.

(2) **Subsequent payments.** Subsequent payments shall be determined by the following formula:  $\text{Next Payment} = (\text{RB} - \text{CV}) \div \text{Y}$ , where

(A) "**RB**" is the most recent estimate of the required trust fund balance for corrective action (i.e., the total costs that will be incurred during the second half of the corrective action period); and

(B) "**CV**" is the current value of the trust fund; and

(C) "**Y**" is the number of years remaining in the corrective action pay-in period.

(h) **Trust fund after use of other mechanisms.** If a trust fund is established after having used one or more alternate mechanisms specified in this Part, the initial payment into the trust fund must be at least the amount that the fund would contain if the trust fund were established initially and annual payments made in accordance with (f) and/or (g) of this Section.

(i) **Requests for reimbursement from trust fund.** Persons authorized to conduct closure, post-closure care, or corrective action activities may request reimbursement from the trustee for these expenditures.

(1) **Sufficient funds available.** Requests for reimbursement will be granted by the trustee only if sufficient funds are remaining in the trust fund to cover the remaining costs of closure, post-closure care, or corrective action

(2) **Submit justification to DEQ.** Documentation of the justification for reimbursement must be submitted to the DEQ.

(3) **Place in operating record.** A copy of the approved documentation shall be placed in the operating record.

(4) **Document reimbursement received.** Documentation shall be provided to the DEQ to demonstrate reimbursement has been received.

#### **252:517-17-77. Escrow account**

(a) **Escrow account authorized.** Financial assurance requirements may be satisfied by establishing an escrow account in the name of the Department of Environmental Quality.

(b) **Chartered bank.** The escrow bank must be a state or national bank located within the State of Oklahoma authorized to receive and hold State funds.

(c) **Additional requirements.**

(1) **Escrow agreement.** The escrow agreement must contain an irrevocable assignment of the funds therein to the Department of Environmental Quality to be used in accordance with this Section.

(2) **Funds insured.** The funds placed in the escrow account must be fully insured and/or collateralized by the Bank's pledge of government securities.

(d) **DEQ approval required.** The form of the escrow agreement must be approved by the DEQ, and a copy of the approved escrow agreement submitted to the DEQ and placed in the operating record.

(e) **Pay-in period.** Payments into the escrow account must be made no later than April 9th of each year as follows:

(1) **Closure and/or post-closure.** For closure and/or post-closure care, the pay-in period shall be the economic life of the CCR unit, as determined in accordance with OAC 252:517-17-8(a)(1) or (b)(1), as applicable.

(2) **Corrective action.** For corrective action, the pay-in period shall be 15 years after the corrective action remedy has been selected, or one-half of the estimated length of the corrective action program, whichever is shorter.

(f) **Payments into escrow for closure or post-closure.** Payments into the escrow account for closure and/or post-closure shall be made as follows:

(1) **First payment.** The first payment must be at least equal to the current cost estimate for closure or post-closure care, except as provided in OAC 252:517-17-72 (relating to the use of multiple mechanisms), divided by the number of years in the pay-in period.

(2) **Subsequent payments.** Subsequent payments shall be determined by the following formula:  $\text{Next Payment} = (\text{CE} - \text{CV}) \div \text{Y}$ , where

(A) "CE" is the current cost estimate for closure and/or post-closure care (updated for inflation or other changes); and

(B) "CV" is the current value of the escrow account; and

(C) "Y" is the number of years remaining in the pay-in period.

(g) **Payments into escrow for corrective action.** Payments into the escrow account for corrective action shall be as follows:

(1) **First payment.** The first payment must be at least equal to one-half of the current cost estimate for corrective action, except as provided in OAC 252:517-17-72 or the approved corrective action plan, divided by the number of years in the corrective action pay-in period.

(2) **Subsequent payments.** Subsequent payments shall be determined by the following formula:  $\text{Next Payment} = (\text{RB} - \text{CV}) \div \text{Y}$ , where

(A) "RB" is the most recent estimate of the required trust fund balance for corrective action (i.e., the total costs that will be incurred during the second half of the corrective action period); and

(B) "CV" is the current value of the escrow account; and

(C) "Y" is the number of years remaining in the corrective action pay-in period.

(h) **Escrow after use of other mechanisms.** If an escrow account is established after having used one or more alternate mechanisms specified in this Part, the initial payment into the escrow account must be at least the amount that the account would contain if it were established initially and annual payments made in accordance with (f) and/or (g) of this Section.

(i) **Reimbursements authorized.** Persons authorized to conduct closure, post-closure care, or corrective action activities, may request the DEQ authorize reimbursement from the escrow account for these expenditures.

(1) **Sufficient funds available.** Requests for reimbursement will be granted by the DEQ only if sufficient funds are remaining in the escrow account to cover the remaining costs of closure, post-closure care, or corrective action.

(2) **Submit justification to DEQ.** Justification for the reimbursement must be submitted to the DEQ for approval.

- (3) **Place in operating record.** A copy of the approval and supporting documentation must be placed in the operating record.
- (4) **Document reimbursement received.** Documentation shall be provided to the DEQ to demonstrate reimbursement has been received.
- (5) **Principal protected.** The escrow bank shall not allow any withdrawal from the escrow account, except for interest once the account is fully funded, without written authorization from the Executive Director of the DEQ.

#### **252:517-17-78. Surety bond**

- (a) **Surety bond for closure and/or post-closure authorized.** Financial assurance requirements for closure or post-closure care may be satisfied by obtaining a payment or performance surety bond conforming to the requirements of this Section.
- (b) **Performance bond for corrective action authorized.** Financial assurance requirements for corrective action may be satisfied by obtaining a performance bond conforming to the requirements of this Section.
- (c) **Submit bond to DEQ.** A copy of the bond must be submitted to the DEQ for approval and a copy of the approved bond placed in the operating record.
- (d) **Acceptable bonds.** The surety company issuing the bond must, at a minimum, be among those listed as acceptable sureties on Federal bonds in Circular 570 of the U.S. Department of the Treasury.
- (e) **Penal sum.** The penal sum of the bond must be in an amount at least equal to the current closure, post-closure care or corrective action cost estimate, whichever is applicable, except as provided in OAC 252:517-17-72 (relating to the use of multiple mechanisms).
- (f) **Surety liable.** Under the terms of the bond, the surety will become liable on the bond obligation when the owner/operator fails to perform as guaranteed by the bond.
- (g) **Establish standby trust fund.** A standby trust to receive bond payments must be established that meets the requirements of OAC 252:517-17-76, except the requirements for initial payment and subsequent annual payments specified in OAC 252:517-17-76(e) through (g).
- (h) **Deposits into standby trust.** Payments made under the terms of the bond must be deposited by the surety directly into the standby trust fund.
- (i) **Payments from the trust.** Payments from the trust fund must first be approved by the DEQ and the trustee.
- (j) **Cancellation by surety.** Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner/operator and to the DEQ 120 days in advance of cancellation.
- (k) **New financial assurance required.** DEQ approved alternate financial assurance meeting the requirements of this Part must be established:
  - (1) prior to the effective date of cancellation of the bond by the surety, or
  - (2) within 60 days of receipt of notice the surety no longer meets the requirements of (d) of this Section.

#### **252:517-17-79. Letter of credit**

- (a) **Letter of credit authorized.** Financial assurance for closure, post-closure care, and/or corrective action may be satisfied by obtaining an irrevocable standby letter of credit that conforms to the requirements of this Section.

- (b) **Submit letter of credit to DEQ.** A copy of the letter of credit must be submitted to the DEQ for approval, and a copy of the approved letter of credit placed in the operating record.
- (c) **Acceptable issuing institutions.** The issuing institution must be an entity that has the authority to issue letters of credit and whose letter of credit operations are regulated and examined by a federal or state agency.
- (d) **Documents to include.** A letter from the owner/operator referring to the letter of credit by number and containing the following must be included with the letter of credit:
  - (1) the name of the issuing institution;
  - (2) the date the letter of credit was issued;
  - (3) the CCR unit name and address; and
  - (4) the amount of funds assured.
- (e) **Letter of credit requirements.** The letter of credit must:
  - (1) be irrevocable;
  - (2) be issued for a period of at least one year in an amount at least equal to the current cost estimate for closure, post-closure care and/or corrective action, except as provided in OAC 252:517-17-72; and
  - (3) provide that the expiration date will be automatically extended for a period of at least one year unless the issuing institution cancels the letter of credit.
- (f) **Cancellation by issuing institution.** The issuing institution may cancel the letter of credit by sending notice of cancellation by certified mail to the owner/operator and the DEQ 120 days in advance of cancellation.
- (g) **New financial assurance required.** If the letter of credit is canceled by the issuing institution, alternate financial assurance meeting the requirements of this Part must be obtained prior to the effective date of cancellation.

#### **252:517-17-80. Insurance**

- (a) **Insurance authorized.** Financial assurance for closure and/or post-closure care maybe satisfied by obtaining insurance that conforms to the requirements of this Section.
- (b) **Definition.** When used in this Section, the term "face amount" means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer will not change the face amount, although the insurer's future liability will be lowered by the amount of the payments.
- (c) **Acceptable insurers.** At a minimum, the insurer must be licensed to transact the business of insurance in the State of Oklahoma, or be eligible to provide insurance as an excess or surplus lines insurer, in one or more States.
- (d) **Submit to the DEQ.** A copy of the insurance policy must be submitted to the DEQ for approval, and a copy of the approved policy placed in the operating record.
- (e) **Policy requirements.** The insurance policy must include the following provisions.
  - (1) **Face amount.** The policy must be issued for a face amount at least equal to the current cost estimate for closure or post-closure care, whichever is applicable, except as provided in OAC 252:517-17-72 (relating to the use of multiple mechanisms).
  - (2) **Funds available.** The policy must guarantee that funds will be available to close the facility whenever final closure occurs or to provide post-closure care for the facility whenever the post- closure care period begins, whichever is applicable.

- (3) **Insurer responsible.** The policy must guarantee that once closure or post-closure care begins, the insurer will be responsible for the paying out of funds to the owner/operator or other person authorized to conduct closure or post-closure care, up to an amount equal to the face amount of the policy.
- (4) **Assignment of policy.** The policy must contain a provision allowing assignment of the policy to a successor owner/operator. Such assignment may be conditional upon consent of the insurer, provided that such consent is not unreasonably refused.
- (5) **Insurer may not cancel, terminate, or fail to renew.** The policy must include a provision that the insurer may not cancel, terminate or fail to renew the policy except for failure to pay the premium.
- (6) **Automatic renewal.** The policy must provide the insured with the option of automatic renewal of the policy at the face amount of the expiring policy.
- (f) **Reimbursements authorized.** Persons authorized to conduct closure or post-closure care may receive reimbursements from the insurer for closure or post-closure expenditures, whichever is applicable.
  - (1) **Sufficient value.** The remaining value of the policy must be sufficient to cover the remaining costs of closure or post-closure care.
  - (2) **Justification.** Justification for the reimbursement must be submitted to the DEQ for approval.
  - (3) **Place in operating record.** A copy of the approval and supporting documentation must be placed in the operating record.
  - (4) **Document reimbursement received.** Documentation shall be provided to the DEQ to demonstrate reimbursement has been received.
- (g) **Cancellation for non-payment.** If there is a failure to pay the premium, the insurer may cancel the policy by sending notice of cancellation by certified mail to the owner/operator and to the DEQ at least 120 days in advance of cancellation.
- (h) **New financial assurance required.** DEQ approved alternate financial assurance meeting the requirements of this Part must be established:
  - (1) prior to cancellation of the policy by the insurer; or
  - (2) within 60 days of receipt of notice the insurer no longer meets the requirements of (c) of this Section.
- (i) **Annual increases for policies for post-closure care.**
  - (1) For insurance policies providing coverage for post-closure care, commencing on the date that liability to make payments pursuant to the policy accrues, the insurer must thereafter annually increase the face amount of the policy.
  - (2) Such increase must be equivalent to the face amount of the policy, less any payments made, multiplied by an amount equivalent to 85 percent of the most recent investment rate or of the equivalent coupon-issue yield announced by the U.S. Treasury for 26-week Treasury securities.

## **252:517-17-81. Corporate financial test**

- (a) **Corporate test authorized.** A corporate owner/operator that satisfies the requirements of this Section may demonstrate financial assurance up to the amount specified in this Section.
- (b) **Financial component.** The following demonstrations must be submitted to the DEQ for approval and a copy of the approved demonstrations placed in the operating record.

- (1) The corporation must satisfy one of the following three conditions:
    - (A) a current rating for its senior unsubordinated debt of AAA, AA, A, or BBB as issued by Standard and Poor's or Aaa, Aa, A or Baa as issued by Moody's; or
    - (B) a ratio of less than 1.5 comparing total liabilities to net worth; or
    - (C) a ratio of greater than 0.10 comparing the sum of net income plus depreciation, depletion and amortization, minus \$10 million, to total liabilities.
  - (2) The corporation's tangible net worth must be greater than:
    - (A) The sum of the current closure, post-closure care, corrective action cost estimates and any other environmental obligations, including guarantees, covered by a financial test plus \$10 million except as provided in (B) of this paragraph.
    - (B) \$10 million in net worth plus the amount of any guarantees that have not been recognized as liabilities on the financial statements provided all of the current closure, post-closure care, and corrective action costs and any other environmental obligations covered by a financial test are recognized as liabilities on the corporation's audited financial statements, and subject to the approval of the DEQ.
  - (3) The corporation must have assets located in the United States amounting to at least the sum of current closure, post-closure care, corrective action cost estimates and any other environmental obligations covered by a financial test as described in (d) of this Section.
- (c) **Recordkeeping and reporting.** The following must be submitted to the DEQ for approval and a copy of the approved documents placed in the operating record.
- (1) a letter signed by the owner/operator's chief financial officer that:
    - (A) lists all the current cost estimates covered by a financial test, including, but not limited to:
      - (i) cost estimates required for municipal solid waste management facilities under this Chapter;
      - (ii) cost estimates required for UIC facilities under 40 CFR Part 144, if applicable;
      - (iii) cost estimates required for petroleum underground storage tank facilities under 40 CFR Part 280, if applicable;
      - (iv) cost estimates required for PCB storage facilities under 40 CFR Part 761, if applicable; and
      - (v) cost estimates required for hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, if applicable; and
    - (B) provides evidence demonstrating that the corporation meets the conditions of either (b)(1)(A), (b)(1)(B), or (b)(1)(C) of this Section, and (b)(2) and (b)(3) of this Section.
  - (2) a copy of an independent certified public accountant's unqualified opinion of the owner/operator's financial statements for the latest completed fiscal year. A corporate owner/operator may not use the corporate test as a financial assurance mechanism if it receives an adverse opinion, disclaimer of opinion, or other qualified opinion from the independent certified public accountant. In such case, alternate financial assurance meeting the requirements of this Part shall be provided.
  - (3) If the chief financial officer's letter providing evidence of financial assurance includes financial data showing that owner/operator satisfies (b)(1)(B) or (b)(1)(C) of this Section that are different from data in the audited financial statements referred to in (c)(2) of this Section or any other audited financial statement or data filed with the SEC, then a special report from the owner/operator's independent certified public accountant to the owner/operator is

required. The special report shall be based upon an agreed upon procedures engagement in accordance with professional auditing standards and shall describe the procedures performed in comparing the data in the chief financial officer's letter derived from the independently audited, year-end financial statements for the latest fiscal year with the amounts in such financial statements, the findings of that comparison, and the reasons for any differences.

(4) If the chief financial officer's letter provides a demonstration that the firm has assured for environmental obligations as provided in (b)(2)(B) of this Section, then the letter shall include a report from the independent certified public accountant that verifies that all of the environmental obligations covered by a financial test have been recognized as liabilities on the audited financial statements, how these obligations have been measured and reported, and that the tangible net worth of the firm is at least \$10 million plus the amount of any guarantees provided.

(d) **Calculation of costs to be assured.** When calculating the current cost estimates for closure, post-closure care, corrective action, or the sum of the combination of such costs to be covered, and any other environmental obligations assured by a financial test referred to in this Section, the owner/operator must include:

- (1) cost estimates required for municipal solid waste management facilities under this Chapter; and
- (2) cost estimates required for the following if it assures them through a financial test:
  - (A) obligations associated with UIC facilities under 40 CFR Part 144
  - (B) obligations associated with petroleum underground storage tank facilities under 40 CFR Part 280;
  - (C) obligations associated with PCB storage facilities under 40 CFR Part 761; and
  - (D) obligations associated with hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265.

(e) **New financial assurance required.** If the owner/operator no longer meets the requirements of (b) of this Section, the owner/operator must obtain DEQ approved alternative financial assurance that meets the requirements of this Part within 120 days following the close of the owner/operator's fiscal year.

(f) **DEQ may request financial information.** The DEQ may, based on a reasonable belief that the owner/operator may no longer meet the requirements of (b) of this Section, require the owner/operator to provide reports of its financial condition in addition to or including current financial test documentation as specified in (c) of this Section. If the DEQ finds that the owner/operator no longer meets the requirements of (b) of this Section, the owner/operator must comply with (e) of this Section.

## **252:517-17-82. Corporate guarantee**

(a) **Corporate guarantee authorized.** An owner/operator may satisfy his financial assurance requirements by obtaining a written guarantee from a corporate sponsor ("guarantor").

(b) **Relationship of guarantor to owner/operator.** The guarantor must be the direct or higher-tier parent corporation of the owner/operator, a firm whose parent corporation is also the parent corporation of the owner/operator, or a firm with a substantial business relationship with the owner/operator.

(c) **Requirements of guarantor.** The guarantor must meet the requirements for corporate owner/operators in OAC 252:517-17-81 and must comply with the terms of the guarantee.

(d) **Documentation required.** The owner/operator must submit to the DEQ for approval, a certified copy of the guarantee, along with copies of the information described in OAC 252:517-17-81(c). A copy of the approved documentation shall be placed in the operating record.

(1) If the guarantor's parent corporation is also the parent corporation of the owner/operator, the letter from the guarantor's chief financial officer must describe the value received in consideration of the guarantee.

(2) If the guarantor is a firm with a substantial business relationship with the owner/operator, this letter must describe this substantial business relationship and the value received in consideration of the guarantee.

(e) **Terms of guarantee.** The terms of the guarantee must include certain provisions.

(1) **Failure to perform.** If the owner/operator fails to perform closure, post-closure care, and/or corrective action of a facility covered by the guarantee, the guarantor will:

(A) perform, or pay a third party to perform, closure, post-closure care, and/or corrective action as required (performance guarantee); or

(B) establish a fully funded trust fund as specified in OAC 252:517-17-76 in the name of the owner/operator (payment guarantee).

(2) **Guarantee remains in force unless cancelled.** The guarantee will remain in force for as long as the owner/operator must comply with the applicable financial assurance requirements of this Subchapter unless the guarantor sends prior notice of cancellation by certified mail to the owner/operator and to the DEQ. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner/operator and the DEQ, as evidenced by the return receipts.

(3) **Obtain alternate financial assurance after cancellation.** If notice of cancellation is given, the owner/operator must, within 90 days following receipt of the cancellation notice by the owner/operator and the DEQ, obtain DEQ approved alternate financial assurance meeting the requirements of this Part.

(4) **Failure to provide alternate financial assurance.** If the owner/operator fails to provide alternate financial assurance within the 90-day period, the guarantor must provide DEQ approved alternate assurance within 120 days of receipt of the cancellation notice.

(f) **Corporate guarantor no longer qualifies.**

(1) **Obtain alternative financial assurance.** If a corporate guarantor no longer meets the requirements of OAC 252:517-17-81(b), the owner/operator must, within 90 days of receipt of such notice, obtain DEQ approved alternative financial assurance meeting the requirements of this Part.

(2) **Failure to provide alternate financial assurance.** If the owner/operator fails to provide alternate financial assurance within the 90-day period, the guarantor must provide DEQ approved alternate assurance within the next 30 days.

### **252:517-17-83. State approved mechanism**

An owner/operator may satisfy the requirements of this Part by obtaining any other financial assurance mechanism that meets the financial assurance mechanism criteria specified in OAC 252:517-17-71 and that is approved by the DEQ.

## **SUBCHAPTER 19. RECORD KEEPING, NOTIFICATION, AND POSTING OF INFORMATION TO THE INTERNET**



Section

252:517-19-1. Recordkeeping requirements

252:517-19-2. Notification requirements

252:517-19-3. Publicly accessible internet site requirements

**252:517-19-1. Recordkeeping requirements**

(a) **Applicability.** Each owner or operator of a CCR unit subject to the requirements of this Chapter must maintain files of all information required by this Section in a written operating record at their facility.

(b) **Records retention.** Unless specified otherwise, each file must be retained for at least five years following the date of each occurrence, measurement, maintenance, corrective action, report, record, or study.

(c) **Recordkeeping methods.** An owner or operator of more than one CCR unit subject to the provisions of this Chapter may comply with the requirements of this Section in one recordkeeping system provided the system identifies each file by the name of each CCR unit. The files may be maintained on microfilm, on a computer, on computer disks, on a storage system accessible by a computer, on magnetic tape disks, or on microfiche.

(d) **DEQ submittal.** The owner or operator of a CCR unit must submit to the DEQ any demonstration or documentation required by this Chapter, if requested, when such information is not otherwise available on the owner or operator's publicly accessible Internet site.

(e) **Location restrictions.** The owner or operator of a CCR unit subject to this Chapter must place the demonstrations documenting whether or not the CCR unit is in compliance with the requirements under OAC 252:517-5-1(a), OAC 252:517-5-2(a), OAC 252:517-5-3(a), OAC 252:517-5-4(a), and OAC 252:517-5-5(a), as it becomes available, in the facility's operating record.

(f) **Design criteria.** The owner or operator of a CCR unit subject to this Chapter must place the following information, as it becomes available, in the facility's operating record:

- (1) The design and construction certifications as required by OAC 252:517-11-1(e) and (f).
- (2) The documentation of liner type as required by OAC 252:517-11-2(a).
- (3) The design and construction certifications as required by OAC 252:517-11-3(c) and (d).
- (4) Documentation prepared by the owner or operator stating that the permanent identification marker was installed as required by OAC 252:517-11-4(a)(1) and OAC 252:517-11-5(a)(1).
- (5) The initial and periodic hazard potential classification assessments as required by OAC 252:517-11-4(a)(2) and OAC 252:517-11-5(a)(2).
- (6) The emergency action plan (EAP), and any amendment of the EAP, as required by OAC 252:517-11-4(a)(3) and OAC 252:517-11-5(a)(3), except that only the most recent EAP must be maintained in the facility's operating record irrespective of the time requirement specified in paragraph (b) of this Section.
- (7) Documentation prepared by the owner or operator recording the annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR unit and the local emergency responders as required by OAC 252:517-11-4(a)(3)(A)(v) and OAC 252:517-11-5(a)(3)(A)(v).

- (8) Documentation prepared by the owner or operator recording all activations of the emergency action plan as required by OAC 252:517-11-4(a)(3)(F) and OAC 252:517-11-5(a)(3)(F).
- (9) The history of construction, and any revisions of it, as required by OAC 252:517-11-4(c), except that these files must be maintained until the CCR unit completes closure of the unit in accordance with OAC 252:517-15-7.
- (10) The initial and periodic structural stability assessments as required by OAC 252:517-11-4(d) and OAC 252:517-11-5(d).
- (11) Documentation detailing the corrective measures taken to remedy the deficiency or release as required by OAC 252:517-11-4(d)(2) and OAC 252:517-11-5(d)(2).
- (12) The initial and periodic safety factor assessments as required by OAC 252:517-11-4(e) and OAC 252:517-11-5(e).
- (13) The design and construction plans, and any revisions of it, as required by OAC 252:517-11-5(c), except that these files must be maintained until the CCR unit completes closure of the unit in accordance with OAC 252:517-15-7.
- (g) **Operating criteria.** The owner or operator of a CCR unit subject to this Chapter must place the following information, as it becomes available, in the facility's operating record:
  - (1) The CCR fugitive dust control plan, and any subsequent amendment of the plan, required by OAC 252:517-13-1(b), except that only the most recent control plan must be maintained in the facility's operating record irrespective of the time requirement specified in paragraph (b) of this Section.
  - (2) The annual CCR fugitive dust control report required by OAC 252:517-13-1(c).
  - (3) The initial and periodic run-on and run-off control system plans as required by OAC 252:517-13-2(c).
  - (4) The initial and periodic inflow design flood control system plan as required by OAC 252:517-13-3(c).
  - (5) Documentation recording the results of each inspection and instrumentation monitoring by a qualified person as required by OAC 252:517-13-4(a).
  - (6) The periodic inspection report as required by OAC 252:517-13-4(b)(2).
  - (7) Documentation detailing the corrective measures taken to remedy the deficiency or release as required by OAC 252:517-13-4(b)(5) and OAC 252:517-13-5(b)(5).
  - (8) Documentation recording the results of the weekly inspection by a qualified person as required by OAC 252:517-13-5(a).
  - (9) The periodic inspection report as required by OAC 252:517-13-5(b)(2).
- (h) **Groundwater monitoring and corrective action.** The owner or operator of a CCR unit subject to this Chapter must place the following information, as it becomes available, in the facility's operating record:
  - (1) The annual groundwater monitoring and corrective action report as required by OAC 252:517-9-1(e).
  - (2) Documentation of the design, installation, development, and decommissioning of any monitoring wells, piezometers and other measurement, sampling, and analytical devices as required by OAC 252-517-9-2(e)(1).
  - (3) The groundwater monitoring system certification as required by OAC 252-517-9-2(f).
  - (4) The selection of a statistical method certification as required by OAC 252:517-9-4(f)(6).

- (5) Within 30 days of establishing an assessment monitoring program, the notification as required by OAC 252:517-9-5(e)(3).
  - (6) The results of Appendices A and B to this Chapter constituent concentrations as required by OAC 252:517-9-6(d)(1).
  - (7) Within 30 days of returning to a detection monitoring program, the notification as required by OAC 252:517-9-6(e).
  - (8) Within 30 days of detecting one or more constituents in Appendix B to this Chapter at statistically significant levels above the groundwater protection standard, the notifications as required by OAC 252:517-9-6(g).
  - (9) Within 30 days of initiating the assessment of corrective measures requirements, the notification as required by OAC 252:517-9-6(g)(5).
  - (10) The completed assessment of corrective measures as required by OAC 252:517-9-7(d).
  - (11) Documentation prepared by the owner or operator recording the public meeting for the corrective measures assessment as required by OAC 252:517-9-7(e).
  - (12) The semiannual report describing the progress in selecting and designing the remedy and the selection of remedy report as required by OAC 252:517-9-8(a), except that the selection of remedy report must be maintained until the remedy has been completed.
  - (13) Within 30 days of completing the remedy, the notification as required by OAC 252:517-9-9(e).
- (i) **Closure and post-closure care.** The owner or operator of a CCR unit subject to this Chapter must place the following information, as it becomes available, in the facility's operating record:
- (1) The notification of intent to initiate closure of the CCR unit as required by OAC 252:517-15-5(c)(1).
  - (2) The annual progress reports of closure implementation as required by OAC 252:517-15-5(c)(2)(A) and (B).
  - (3) The notification of closure completion as required by OAC 252:517-15-5(c)(3).
  - (4) The written closure plan, and any amendment of the plan, as required by OAC 252:517-15-7(b), except that only the most recent closure plan must be maintained in the facility's operating record irrespective of the time requirement specified in paragraph (b) of this Section.
  - (5) The written demonstration(s), including the certification required by OAC 252:517-15-7(e)(2)(C), for a time extension for initiating closure as required by OAC 252:517-15-7(e)(2)(B).
  - (6) The written demonstration(s), including the certification required by OAC 252:517-15-7(f)(2)(C), for a time extension for completing closure as required by OAC 252:517-15-7(f)(2)(A).
  - (7) The notification of intent to close a CCR unit as required by OAC 252:517-15-7(g).
  - (8) The notification of completion of closure of a CCR unit as required by OAC 252:517-15-7(h).
  - (9) The notification recording a notation on the deed as required by OAC 252:517-15-7(i).
  - (10) The notification of intent to comply with the alternative closure requirements as required by OAC 252:517-15-8(c)(1).
  - (11) The annual progress reports under the alternative closure requirements as required by OAC 252:517-15-8(c)(2).

(12) The written post-closure plan, and any amendment of the plan, as required by OAC 252:517-15-9(d), except that only the most recent closure plan must be maintained in the facility's operating record irrespective of the time requirement specified in paragraph (b) of this Section.

(13) The notification of completion of post-closure care period as required by OAC 252:517-15-9(e).

(j) **Financial assurance.** The owner or operator of a CCR unit subject to this Chapter must follow the recordkeeping requirements of Subchapter 17 of this Chapter, as applicable to the facility.

(k) **Retrofit criteria.** The owner or operator of a CCR unit subject to this Chapter must place the following information, as it becomes available, in the facility's operating record:

(1) The written retrofit plan, and any amendment of the plan, as required by OAC 252:517-15-7(k)(2), except that only the most recent retrofit plan must be maintained in the facility's operating record irrespective of the time requirement specified in paragraph (b) of this Section.

(2) The notification of intent that the retrofit activities will proceed in accordance with the alternative procedures in OAC 252:517-15-8.

(3) The annual progress reports required under the alternative requirements as required by OAC 252:517-15-8.

(4) The written demonstration(s), including the certification in OAC 252:517-15-7(f)(2)(C), for a time extension for completing retrofit activities as required by OAC 252:517-15-7(k)(3).

(5) The notification of intent to initiate retrofit of a CCR unit as required by OAC 252:517-15-7(k)(5).

(6) The notification of completion of retrofit activities as required by OAC 252:517-15-7(k)(6).

## **252:517-19-2. Notification requirements**

(a) **DEQ notification.** The notifications required under paragraphs (e) through (i) of this Section must be sent to the DEQ before the close of business on the day the notification is required to be completed. For purposes of this Section, before the close of business means the notification must be postmarked or sent by electronic mail (email). If a notification deadline falls on a weekend or federal holiday, the notification deadline is automatically extended to the next business day. For those plans requiring approval by DEQ, submittal of the plan constitutes notification.

(b) **Combining notifications.** Notifications may be combined as long as the deadline requirement for each notification is met.

(c) **Notification required.** Unless otherwise required in this Section, the notifications specified in this Section must be sent to the DEQ within 30 days of placing in the operating record the information required by OAC 252:517-19-1.

(d) **Location restrictions.** The owner or operator of a CCR unit subject to the requirements of this Chapter must notify the DEQ that each demonstration specified under OAC 252:517-19-1(e) has been placed in the operating record and on the owner or operator's publicly accessible internet site.

(e) **Design criteria.** The owner or operator of a CCR unit subject to this Chapter must notify the DEQ when information has been placed in the operating record and on the owner or operator's publicly accessible internet site. The owner or operator must:

- (1) Within 60 days of commencing construction of a new CCR unit, provide notification of the availability of the design certification specified under OAC 252:517-19-1(f)(1) or (3). If the owner or operator of the CCR unit elects to install an alternative composite liner, the owner or operator must also submit to the DEQ a copy of the alternative composite liner design.
- (2) No later than the date of initial receipt of CCR by a new CCR unit, provide notification of the availability of the construction certification specified under OAC 252:517-19-1(f)(1) or (3).
- (3) Provide notification of the availability of the documentation of liner type specified under OAC 252:517-19-1(f)(2).
- (4) Provide notification of the availability of the initial and periodic hazard potential classification assessments specified under OAC 252:517-19-1(f)(5).
- (5) Provide notification of the availability of emergency action plan (EAP), and any revisions of the EAP, specified under OAC 252:517-19-1(f)(6).
- (6) Provide notification of the availability of documentation prepared by the owner or operator recording the annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR unit and the local emergency responders specified under OAC 252:517-19-1(f)(7).
- (7) Provide notification of documentation prepared by the owner or operator recording all activations of the emergency action plan specified under OAC 252:517-19-1(f)(8).
- (8) Provide notification of the availability of the history of construction, and any revision of it, specified under OAC 252:517-19-1(f)(9).
- (9) Provide notification of the availability of the initial and periodic structural stability assessments specified under OAC 252:517-19-1(f)(10).
- (10) Provide notification of the availability of the documentation detailing the corrective measures taken to remedy the deficiency or release specified under OAC 252:517-19-1(f)(11).
- (11) Provide notification of the availability of the initial and periodic safety factor assessments specified under OAC 252:517-19-1(f)(12).
- (12) Provide notification of the availability of the design and construction plans, and any revision of them, specified under OAC 252:517-19-1(f)(13).

(f) **Operating criteria.** The owner or operator of a CCR unit subject to this Chapter must notify the DEQ when information has been placed in the operating record and on the owner or operator's publicly accessible internet site. The owner or operator must:

- (1) Provide notification of the availability of the CCR fugitive dust control plan, or any subsequent amendment of the plan, specified under OAC 252:517-19-1(g)(1).
- (2) Provide notification of the availability of the annual CCR fugitive dust control report specified under OAC 252:517-19-1(g)(2).
- (3) Provide notification of the availability of the initial and periodic run-on and run-off control system plans specified under OAC 252:517-19-1(g)(3).
- (4) Provide notification of the availability of the initial and periodic inflow design flood control system plans specified under OAC 252:517-19-1(g)(4).

(5) Provide notification of the availability of the periodic inspection reports specified under OAC 252:517-19-1(g)(6).

(6) Provide notification of the availability of the documentation detailing the corrective measures taken to remedy the deficiency or release specified under OAC 252:517-19-1(g)(7).

(7) Provide notification of the availability of the periodic inspection reports specified under OAC 252:517-19-1(g)(9).

(g) **Groundwater monitoring and corrective action.** The owner or operator of a CCR unit subject to this Chapter must notify the DEQ when information has been placed in the operating record and on the owner or operator's publicly accessible internet site. The owner or operator must:

(1) Provide notification of the availability of the annual groundwater monitoring and corrective action report specified under OAC 252:517-19-1(h)(1).

(2) Provide notification of the availability of the groundwater monitoring system certification specified under OAC 252:517-19-1(h)(3).

(3) Provide notification of the availability of the selection of a statistical method certification specified under OAC 252:517-19-1(h)(4).

(4) Provide notification that an assessment monitoring programs has been established specified under OAC 252:517-19-1(h)(5).

(5) Provide notification that the CCR unit is returning to a detection monitoring program specified under OAC 252:517-19-1(h)(7).

(6) Provide notification that one or more constituents in Appendix B to this Chapter have been detected at statistically significant levels above the groundwater protection standard and the notifications to land owners specified under OAC 252:517-19-1(h)(8).

(7) Provide notification that an assessment of corrective measures has been initiated specified under OAC 252:517-19-1(h)(9).

(8) Provide notification of the availability of assessment of corrective measures specified under OAC 252:517-19-1(h)(10).

(9) Provide notification of the availability of the semiannual report describing the progress in selecting and designing the remedy and the selection of remedy report specified under OAC 252:517-19-1(h)(12).

(10) Provide notification of the completion of the remedy specified under OAC 252:517-19-1(h)(13).

(h) **Closure and post-closure care.** The owner or operator of a CCR unit subject to this Chapter must notify the DEQ when information has been placed in the operating record and on the owner or operator's publicly accessible Internet site. The owner or operator must:

(1) Provide notification of the intent to initiate closure of the CCR unit specified under OAC 252:517-19-1(i)(1).

(2) Provide notification of the availability of the annual progress reports of closure implementation specified under OAC 252:517-19-1(i)(2).

(3) Provide notification of closure completion specified under OAC 252:517-19-1(i)(3).

(4) Provide notification of the availability of the written closure plan, and any amendment of the plan, specified under OAC 252:517-19-1(i)(4).

(5) Provide notification of the availability of the demonstration(s) for a time extension for initiating closure specified under OAC 252:517-19-1(i)(5).

- (6) Provide notification of the availability of the demonstration(s) for a time extension for completing closure specified under OAC 252:517-19-1(i)(6).
  - (7) Provide notification of intent to close a CCR unit specified under OAC 252:517-19-1(i)(7).
  - (8) Provide notification of completion of closure of a CCR unit specified under OAC 252:517-19-1(i)(8).
  - (9) Provide notification of the deed notation as required by OAC 252:517-19-1(i)(9).
  - (10) Provide notification of intent to comply with the alternative closure requirements specified under OAC 252:517-19-1(i)(10).
  - (11) The annual progress reports under the alternative closure requirements as required by OAC 252:517-19-1(i)(11).
  - (12) Provide notification of the availability of the written post-closure plan, and any amendment of the plan, specified under OAC 252:517-19-1(i)(12).
  - (13) Provide notification of completion of post-closure care specified under OAC 252:517-19-1(i)(13).
- (i) **Retrofit criteria.** The owner or operator of a CCR unit subject to this Chapter must notify the DEQ when information has been placed in the operating record and on the owner or operator's publicly accessible Internet site. The owner or operator must:
- (1) Provide notification of the availability of the written retrofit plan, and any amendment of the plan, specified under OAC 252:517-19-1(j)(1).
  - (2) Provide notification of intent to comply with the alternative retrofit requirements specified under OAC 252:517-19-1(j)(2).
  - (3) The annual progress reports under the alternative retrofit requirements as required by OAC 252:517-19-1(j)(3).
  - (4) Provide notification of the availability of the demonstration(s) for a time extension for completing retrofit activities specified under OAC 252:517-19-1(j)(4).
  - (5) Provide notification of intent to initiate retrofit of a CCR unit specified under OAC 252:517-19-1(j)(5).
  - (6) Provide notification of completion of retrofit activities specified under OAC 252:517-19-1(j)(6).

### **252:517-19-3. Publicly accessible internet site requirements**

- (a) **Applicability.** Each owner or operator of a CCR unit subject to the requirements of this Chapter must maintain a publicly accessible Internet site (CCR Web site) containing the information specified in this Section. The owner or operator's Web site must be titled "CCR Rule Compliance Data and Information."
- (b) **Multiple CCR units.** An owner or operator of more than one CCR unit subject to the provisions of this Chapter may comply with the requirements of this Section by using the same Internet site for multiple CCR units provided the CCR Web site clearly delineates information by the name or identification number of each unit.
- (c) **Website records retention.** Unless otherwise required in this Section, the information required to be posted to the CCR Web site must be made available to the public for at least five years following the date on which the information was first posted to the CCR Web site.

(d) **Timeline for posting to website.** Unless otherwise required in this Section, the information must be posted to the CCR Web site within 30 days of placing the pertinent information required by OAC 252:517-19-1 in the operating record.

(e) **Location restrictions.** The owner or operator of a CCR unit subject to this Chapter must place each demonstration specified under OAC 252:517-19-1(e) on the owner or operator's CCR Web site.

(f) **Design criteria.** The owner or operator of a CCR unit subject to this Chapter must place the following information on the owner or operator's CCR Web site:

- (1) Within 60 days of commencing construction of a new unit, the design certification specified under OAC 252:517-19-1(f)(1) or (3).
- (2) No later than the date of initial receipt of CCR by a new CCR unit, the construction certification specified under OAC 252:517-19-1(f)(1) or (3).
- (3) The documentation of liner type specified under OAC 252:517-19-1(f)(2).
- (4) The initial and periodic hazard potential classification assessments specified under OAC 252:517-19-1(f)(5).
- (5) The emergency action plan (EAP) specified under OAC 252:517-19-1(f)(6), except that only the most recent EAP must be maintained on the CCR Web site irrespective of the time requirement specified in paragraph (c) of this Section.
- (6) Documentation prepared by the owner or operator recording the annual face-to-face meeting or exercise between representatives of the owner or operator of the CCR unit and the local emergency responders specified under OAC 252:517-19-1(f)(7).
- (7) Documentation prepared by the owner or operator recording any activation of the emergency action plan specified under OAC 252:517-19-1(f)(8).
- (8) The history of construction, and any revisions of it, specified under OAC 252:517-19-1(f)(9).
- (9) The initial and periodic structural stability assessments specified under OAC 252:517-19-1(f)(10).
- (10) The documentation detailing the corrective measures taken to remedy the deficiency or release specified under OAC 252:517-19-1(f)(11).
- (11) The initial and periodic safety factor assessments specified under OAC 252:517-19-1(f)(12).
- (12) The design and construction plans, and any revisions of them, specified under OAC 252:517-19-1(f)(13).

(g) **Operating criteria.** The owner or operator of a CCR unit subject to this Chapter must place the following information on the owner or operator's CCR Web site:

- (1) The CCR fugitive dust control plan, or any subsequent amendment of the plan, specified under OAC 252:517-19-1(g)(1) except that only the most recent plan must be maintained on the CCR Web site irrespective of the time requirement specified in paragraph (c) of this Section.
- (2) The annual CCR fugitive dust control report specified under OAC 252:517-19-1(g)(2).
- (3) The initial and periodic run-on and run-off control system plans specified under OAC 252:517-19-1(g)(3).
- (4) The initial and periodic inflow design flood control system plans specified under OAC 252:517-19-1(g)(4).
- (5) The periodic inspection reports specified under OAC 252:517-19-1(g)(6).



- (6) The documentation detailing the corrective measures taken to remedy the deficiency or release specified under OAC 252:517-19-1(g)(7).
- (7) The periodic inspection reports specified under OAC 252:517-19-1(g)(9).
- (h) **Groundwater monitoring and corrective action.** The owner or operator of a CCR unit subject to this Chapter must place the following information on the owner or operator's CCR Web site:
  - (1) The annual groundwater monitoring and corrective action report specified under OAC 252:517-19-1(h)(1).
  - (2) The groundwater monitoring system certification specified under OAC 252:517-19-1(h)(3).
  - (3) The selection of a statistical method certification specified under OAC 252:517-19-1(h)(4).
  - (4) The notification that an assessment monitoring programs has been established specified under OAC 252:517-19-1(h)(5).
  - (5) The notification that the CCR unit is returning to a detection monitoring program specified under OAC 252:517-19-1(h)(7).
  - (6) The notification that one or more constituents in Appendix B to this Chapter have been detected at statistically significant levels above the groundwater protection standard and the notifications to land owners specified under OAC 252:517-19-1(h)(8).
  - (7) The notification that an assessment of corrective measures has been initiated specified under OAC 252:517-19-1(h)(9).
  - (8) The assessment of corrective measures specified under OAC 252:517-19-1(h)(10).
  - (9) The semiannual reports describing the progress in selecting and designing remedy and the selection of remedy report specified under OAC 252:517-19-1(h)(12), except that the selection of the remedy report must be maintained until the remedy has been completed.
  - (10) The notification that the remedy has been completed specified under OAC 252:517-19-1(h)(13).
- (i) **Closure and post-closure care.** The owner or operator of a CCR unit subject to this Chapter must place the following information on the owner or operator's CCR Web site:
  - (1) The notification of intent to initiate closure of the CCR unit specified under OAC 252:517-19-1(i)(1).
  - (2) The annual progress reports of closure implementation specified under OAC 252:517-19-1(i)(2).
  - (3) The notification of closure completion specified under OAC 252:517-19-1(i)(3).
  - (4) The written closure plan, and any amendment of the plan, specified under OAC 252:517-19-1(i)(4).
  - (5) The demonstration(s) for a time extension for initiating closure specified under OAC 252:517-19-1(i)(5).
  - (6) The demonstration(s) for a time extension for completing closure specified under OAC 252:517-19-1(i)(6).
  - (7) The notification of intent to close a CCR unit specified under OAC 252:517-19-1(i)(7).
  - (8) The notification of completion of closure of a CCR unit specified under OAC 252:517-19-1(i)(8).
  - (9) The notification recording a notation on the deed as required by OAC 252:517-19-1(i)(9).

- (10) The notification of intent to comply with the alternative closure requirements as required by OAC 252:517-19-1(i)(10).
- (11) The annual progress reports under the alternative closure requirements as required by OAC 252:517-19-1(i)(11).
- (12) The written post-closure plan, and any amendment of the plan, specified under OAC 252:517-19-1(i)(12).
- (13) The notification of completion of post-closure care specified under OAC 252:517-19-1(i)(13).
- (j) **Retrofit criteria.** The owner or operator of a CCR unit subject to this Chapter must place the following information on the owner or operator's CCR Web site:
  - (1) The written retrofit plan, and any amendment of the plan, specified under OAC 252:517-19-1(j)(1).
  - (2) The notification of intent to comply with the alternative retrofit requirements as required by OAC 252:517-19-1(j)(2).
  - (3) The annual progress reports under the alternative retrofit requirements as required by OAC 252:517-19-1(j)(3).
  - (4) The demonstration(s) for a time extension for completing retrofit activities specified under OAC 252:517-19-1(j)(4).
  - (5) The notification of intent to retrofit a CCR unit specified under OAC 252:517-19-1(j)(5).
  - (6) The notification of completion of retrofit activities specified under OAC 252:517-19-1(j)(6).

## APPENDIX A. CONSTITUENTS FOR DETECTION MONITORING

Common Names <sup>1</sup>
Boron
Calcium
Chloride
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

<sup>1</sup> Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

## APPENDIX B. CONSTITUENTS FOR ASSESSMENT MONITORING

Common Name <sup>1</sup>
Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 and 228 combined

<sup>1</sup>Common names are those widely used in government regulations, scientific publications, and commerce; synonyms may exist for many chemicals.

### APPENDIX C. BORINGS IN DRILLING PLAN

Size of site	Total Number of Borings Required	Number of Borings Drilled at Least Ten Feet into the Uppermost Saturated Zone
5 acres or less	4	3
> 5-10	5	3
> 10-15	6	3
>15-20	7	3
>20-25	8	4
>25-30	9	4
>30-35	10	4
>35-40	11	4
>40-45	12	5
etc.		

## APPENDIX D. BOREHOLE DEPTH CALCULATION TABLE

Owner/Operator's Name \_\_\_\_\_

**Location or Name of Proposed Site**

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities related to the business. It emphasizes the need for transparency and accountability in financial reporting.

Date Prepared \_\_\_\_\_

By Whom \_\_\_\_\_

[illegible]

## Appendix E. Procedure for Calculating Closure Cost Estimates for Financial Assurance

This Appendix presents the worksheet for calculating final closure cost estimates. The tasks and services included in this worksheet are based on the more complex closure requirements for MSWLFs. Some tasks and services may not be required for construction/demolition and non-hazardous industrial waste landfills, nor for other types of solid waste facilities requiring financial assurance. Owner/operators will be able to input site-specific information to calculate the necessary financial assurance.

### Table E.1

All site data necessary to calculate estimates of closure and post-closure costs can be gathered by completing Table E.1. Data from Table E.1 should be inserted into Table E.2 of this Appendix and Table F.1 of Appendix F to complete calculations.

Table E.1 Site Data

FACILITY NAME:

PERMIT NUMBER:

DESCRIPTION	QUANTITY	UNITS
Total Permitted Area		acres
Active Portion		
Composite Lined		acres
Soil Lined		acres
Area of Largest Cell/Phase Requiring Final Cap		
Composite Lined		acres
Soil Lined		acres

Perimeter Fencing		linear feet
Groundwater Monitoring Wells		VLF
Methane Gas Probes		VLF
Terraces		linear feet
Letdown Channels		linear feet
Perimeter Drainage Ditches		linear feet
Average Daily Flow		tons/day
Landfill Disposal Cost		\$/ton

VLF = Vertical linear feet. The sum of the depths of all monitoring wells

### **Table E.2**

Table E.2 can be used to calculate closure cost estimates for landfills for which site specific data are available. The table is designed to be executed as a computer spreadsheet, but will work equally as well using hand calculations.

- Input site-specific quantities from Table E.1 into Table E.2, making sure the requisite units are used. Some quantities are already given by the table.
- Input current year unit costs obtained from the ODEQ website.\*
- For each line of Task/Service items 1 through 4, multiply the value input for quantity by the multiplier and current year unit cost, and enter the resultant value in the Subtotal column.
- Line 5. Identify each task required by the Closure Plan that is not identified in Table H.2. Calculate cost estimates in accordance with OAC 252:517-17-51(d), and input total in the Subtotal column.



- Line 6. Add Subtotals for Task/Service items 1 through 5.
- Lines 7, 8, and 9. Compute Administrative Services, Technical and Professional Services and Closure Contingency costs by multiplying Line 6 by the multiplier for each respective Item. Enter the resultant values.
- Line 10. Add lines 6 through 9.

\* Unit costs for use in completing this table will be updated for inflation by ODEQ on an annual basis. Current costs will be posted on the ODEQ website. Users of this chart shall use costs prepared by the ODEQ or adjust currently approved costs for inflation as of April 1<sup>st</sup> of each subsequent year using the procedure in OAC 252:517-17-34(a)(2).

**Table E.2 Closure Cost Estimate**

**FACILITY NAME:**

**PERMIT NUMBER:**

	Task/Service	Quantity	Units	Multiplier <sup>a</sup>	Unit Cost <sup>b</sup>	Subtotal
1	PRELIMINARY SITE WORK					
1.1	Conduct Site Evaluation	1	lump sum	1		
1.2	Dispose Final Wastes					
	Average Daily Flow	c <sup>c</sup>	tons/day			
	Disposal Cost	d <sup>d</sup>	tons/day	5 (5 days of waste)	e <sup>e</sup>	
1.3	Remove Temporary Building(s)	1	lump sum	1		
1.4	Remove Equipment	1	lump sum	1		

1.5	Repair/Replace		linear feet	0.25(25% of fencing)		
1.6	Clean Leachate Line(s)	1	lump sum	1		
2	<b>MONITORING EQUIPMENT</b>					
2.1	Rework/Replace Monitoring Well(s)		VLF	0.25(25% of wells)		
2.2	Plug Abandoned Monitoring Well(s)		VLF	0.25 (25% of wells)		
2.3	Rework/Replace Methane Probe(s)		VLF	0.25 (25% of probes)		
2.4	Plug Abandoned Methane Probe(s)		VLF	0.25 (25% of probes)		
2.5	Rework/Replace Remediation and/or Gas Control Equipment	1	lump sum	0.05(5% of equipment capital cost)	f <sup>f</sup>	
3	<b>CONSTRUCTION</b>					
3.1	Complete Site Grading to include on-and off-site borrow areas		acres	1		
3.2	Construct Final Cap					

	Compacted On-site Clay Cap or		cubic yards	1		
	Compacted Off-site Clay Cap or		cubic yards	1		
	Install Geosynthetic Clay Liner Cap		square feet	1		
3.3	Construct Landfill Gas Venting Layer					
	Place Sand or		acres	1		
	Install Net and Geotextile		square feet	1		
3.4	Install Passive Landfill Gas Vents		acres	1		
3.5	Install Flexible Membrane		square feet	1		
3.6	Drainage Layer					
	Place Sand or		acres	1		
	Install Net and Geonet		square feet	1		
3.7	Place On-site Topsoil		cubic yards	1		
	Place Off-site Topsoil		cubic yards	1		

3.8	Establish Vegetative Cover, including on-and off-site borrow areas		acres	1		
4	<b>DRAINAGE/EROSION CONTROL</b>					
4.1	Construct Terraces		linear feet	1		
4.2	Construct Letdown Channels		linear feet	1		
4.3	Clean Perimeter Drainage Ditches		linear feet	0.50 (50% of ditches)		
5	<b>TASKS NOT IDENTIFIED</b>					
6	<b>SUBTOTAL</b>					
7	<b>ADMINISTRATIVE SERVICES</b>	1	lump sum	0.10 (10%)	g <sup>g</sup>	
8	<b>TECHNICAL and PROFESSIONAL SERVICES</b>	1	lump sum	0.12 (12%)	g	
9	<b>CLOSURE CONTINGENCY</b>	1	lump sum	0.10 (10%)	g	
10	<b>TOTAL FINAL CLOSURE</b>					h <sup>h</sup>

a. Multipliers are determined by the *Solid Waste Financial Assurance Program Report*, December 22, 2000.

b. Unit costs for use in completing this table will be updated for inflation by ODEQ on an annual basis. Current costs will be posted on the ODEQ website. Users of this chart shall use costs

prepared by ODEQ or adjust currently approved costs for inflation as of April 1st each year using the procedure in OAC 252:517-17-34(a)(2).

c. New facilities: Insert the value for "W" in OAC 252:517-17-8(b). Existing facilities: Insert reported total tonnage for the previous year, divided by 312 operating days per year (52 weeks per year x 6 operating days per week).

d. Insert number of tons/day from above.

e. Insert landfill disposal cost per ton of waste (\$/ton).

f. Input capital cost for gas control/remediation equipment, if installed at the site.

g. Input Subtotal from line 6.

h. Add rows 6 through 9.

## **Appendix F. Procedure for Calculating Post-closure Cost Estimates for Financial Assurance**

This Appendix presents the worksheet for calculating final post-closure cost estimates. The tasks and services included in this worksheet are based on the more complex closure requirements for MSWLFs. Some tasks and services may not be required for construction/demolition and non-hazardous industrial waste landfills, nor for other types of solid waste facilities requiring financial assurance. Owner/operators will be able to input site-specific information to calculate the necessary financial assurance.

### **F.1 Calculating Post-closure Costs**

Table F.1 can be used to estimate Post-closure Costs. Table F.1 may be utilized in the same manner as Table E.2 of Appendix E.

- Input site-specific quantities from Table E.1 of Appendix E into Table F.1, making sure the requisite units are used. Some quantities are already given by the table.  
Input current year unit costs obtained from the ODEQ website.\*
- For each line of Task/Service items 1 through 5, multiply the value input for quantity by the multiplier and current year unit cost\*, and enter the resultant value in the subtotal column.
- Line 6. identify each task required by the Post-closure Plan that is not identified in Table F.2. Calculate cost estimates in accordance with OAC 252:517-17-51(d), and input total in the Subtotal column.
- Line 7. add Subtotals for Task/Service Items 1 through 6.
- Lines 8, 9, and 10. Compute Administrative Services, Technical and Professional Services and Post-closure Contingency costs by multiplying Line 7 by the multiplier for each respective Item. Enter the resultant values.
- Line 11. Add lines 7 through 10.

\* Unit costs for use in completing this table will be updated for inflation by ODEQ on an annual basis. Current costs will be posted on the ODEQ website. Users of this chart shall use costs prepared by the ODEQ or adjust currently approved costs for inflation as of April 1<sup>st</sup> of each subsequent year using the procedure in OAC 252:517-17-34(a)(2).

**Table F.1 Post-closure Estimate**

**FACILITY NAME:**

**PERMIT NUMBER:**

	Task/Service	Quantity	Units	Multiplier <sup>a</sup>	Unit Cost <sup>b</sup>	Subtotal
1	<b>SITE MAINTENANCE</b>					
1.1	Site Inspections	4	per year	30 (30 yrs) 8 (8 yrs)		
1.2	General Maintenance	1	per year	30 (30 yrs) 8 (8 yrs)		
1.3	Remediation and/or Gas Control Equipment	1	lump sum	0.3 <sup>c</sup>	d <sup>d</sup>	
2	<b>MONITORING EQUIPMENT</b>					
2.1	Rework/Replace Monitoring Well(s)		VLF	0.25 (25% of wells)		
2.2	Plug Abandoned Well(s)		VLF	0.25 (25% of wells)		

2.3	Final Plugging of Monitoring Wells		VLF	1		
2.4	Rework/Replace Methane Probe(s)		VLF	0.25 (25% of probes)		
2.5	Plug Abandoned Probe(s)		VLF	0.25 (25% of probes)		
2.6	Final Plugging of Methane Probes		VLF	1		
2.7	Final Plugging of Piezometer(s)		VLF	1		
<b>3</b>	<b>SAMPLING and ANALYSIS</b>					
3.1	Groundwater Monitoring Wells		wells	60 (2/yr x 30yrs) 16 (2/yr x 8 yrs)	MSWLF&NHIW e <sup>e</sup> C&D	
3.2	Methane Gas Probes		probes	60 (2/yr x 30yrs)		
3.3	Surface Water Monitoring Points		points	60 (2/yr x 30yrs)		



3.4	Leachate		sample	60 (2/yr x 30yrs)		
<b>4</b>	<b>FINAL COVER MAINTENANCE</b>					
4.1	Mow and Fertilize Vegetative Cover		acres	30 (30 yrs) 8 (8 yrs)		
4.2	Repair Erosion, Settlement, and Subsidence for On-site Soils		acres	60 (60 yrs) 16 (16 yrs)		
	Repair Erosion, Settlement, and Subsidence for Off- site Soils		acres	30 (30 yrs) 8 (8 yrs)		
4.3	Reseed Vegetative Cover		acres	0.20 (20% reseeded over post-closure period)		

<b>5</b>	<b>LEACHATE MANAGEMENT</b>					
5.1	Clean Leachate Line(s)	1	per year	30 (30 yrs)		
5.2	Maintain Leachate Collection System and Equipment	1	per year	30 (30 yrs)		
5.3	Collect, Treat, Transport, and Dispose Leachate		gal/yr	30 (30 yrs)		
<b>6</b>	<b>TASKS NOT IDENTIFIED</b>					
<b>7</b>	<b>SUBTOTAL</b>					
<b>8</b>	<b>ADMINISTRATIVE SERVICES</b>	1	lump sum	0.06 (6%)	<sup>f</sup>	
<b>9</b>	<b>TECHNICAL and PROFESSIONAL SERVICES</b>	1	lump sum	0.07 (7%)	<sup>f</sup>	
<b>10</b>	<b>POST-CLOSURE CONTINGENCY</b>	1	lump sum	0.10 (10%)	<sup>f</sup>	
<b>11</b>	<b>TOTAL POST CLOSURE</b>					<sup>g</sup>

a. Multipliers are determined by the *Solid Waste Financial Assurance Program Report*, December 22, 2000.

b. Unit costs for use in completing this table will be updated for inflation by ODEQ on an annual basis. Current costs will be posted on the ODEQ website. Users of this chart shall use costs prepared by ODEQ or adjust currently approved costs for inflation as of April 1st of each subsequent year using the procedure in OAC 252:517-17-34(a) (2).

c. 5% of equipment capital cost, maintenance performed once per 5 yrs for 30 years.

d. Input capital cost for gas control/remediation equipment, if installed at the site.

e. If the approved groundwater monitoring plan requires monitoring for alternative constituents, unit costs shall be calculated in accordance with OAC 252:517-17-52(b) or (c).

f. Input subtotal from line 7.

g. Add lines 7 through 10.