

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

LAND DIVISION - SOLID WASTE PROGRAM

DIVISION 13

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**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
LAND DIVISION - SOLID WASTE PROGRAM**

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**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
LAND DIVISION - SOLID WASTE PROGRAM**

**CHAPTER 335-13-1
GENERAL PROVISIONS**

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335-13-1-.01 Purpose. The purpose of this Division is to establish minimum criteria for use under the Act, as amended, primarily for the disposal of solid waste and the design, location and operation of landfill and CCR units.

Author: Russell A. Kelly.

Statutory Authority: Code of Alabama 1975, § 22-27-7.

History: Effective: November 18, 1981.

Amended: Effective: July 21, 1988. **Amended:** Effective: November 2, 1993.

Amended: Effective: July 26, 1996. **Amended:** Filed: April, 24, 2018; Effective: June 8, 2018.

335-13-1-.02 Statutory Authority. The Department is authorized to promulgate these rules and regulations under and by virtue of authority granted in the Code of Alabama 1975, §§ 22-27-7, 22-27-9, 22-27-12, 22-22A-5 and 22-22A-8.

Author: Phillip D. Davis

Statutory Authority: Code of Alabama 1975, §§ 22-27-7, 22-27-9, 22-27-12, 22-22A-5 and 22-22A-8.

History: November 18, 1981.

Amended: July 21, 1988, August 3, 2010.

335-13-1-.03 Definitions. For the purpose of these rules and regulations, the following words and phrases shall have the meanings ascribed to them in this

335-13-1-.03

rule and as ascribed by law unless the context of the regulations indicate differently.

(1) Act - the "Solid Wastes and Recyclable Materials Management Act", Act No. 151, Regular Session 2008 as amended (formerly the "Solid Waste Disposal Act, Act No. 771 Regular Session, 1969, as amended by Act No. 2247 Regular Session, 1971) Code of Alabama 1975, § 22-27-1 et. seq.

(2) Active Life - the period of operation beginning with the initial receipt of solid waste and ending at completion of closure activities in accordance with the applicable requirements of rule 335-13-4-.20.

(3) Active Portion (or Active Footprint) - that part of a facility or unit that has received, is receiving, or is authorized and maintained as capable to receive wastes, and that has not been closed in accordance with the applicable requirements of rule 335-13-4-.20.

(4) Adjacent Property Owner - an owner whose property is adjacent to a proposed site.

(5) Agency - any controlling agency, public or private, elected, appointed or volunteer utilizing methods approved by the Health Department or the Department for the purpose of controlling and supervising the collection or management of solid wastes or recyclable materials.

(6) Airport - public-use airport open to the public without prior permission and without restrictions within the physical capacities of available facilities.

(7) Alternative cover – material other than earth used to cover a landfill or sanitary landfill. An alternative cover shall be approved by the Department in compliance with federal law and the USEPA rules for guidance to achieve a level of performance equal to or greater than earthen cover material.

(8) Ambient - normal atmospheric conditions.

(9) Annular Space of a Well - the space between the bore hole and the casing.

(10) Aquifer - a geologic formation, group of formations or part of a formation capable of yielding a significant amount of groundwater to wells, springs or waters of the State.

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

(12) Ashes - the solid residue from burning of wood, coal, coke or other combustible material used for heating, the burning or incineration of solid wastes, or for the production of electricity at electric generating plants.

(13) ASTM International - American Society for Testing and Materials International. A not-for-profit standards development company with headquarters located at 100 Barr Harbor Drive (PO Box C700) in West Conshohocken, Pennsylvania, 19428-2959, which develops and publishes technical standards for materials, products, systems, and services..

(14) Beach - for this definition, refer to Division 8 of the ADEM Administrative Code.

(15) Bird Hazard - an increase in the likelihood of bird/aircraft collisions that may cause damage to the aircraft or injury to its occupants.

(16) Bladeable - the physical condition of a sludge or similar waste. Physical conditions include, but are not limited to, the absence of free liquids and of a consistency that can be easily managed by heavy equipment normally utilized at a landfill unit.

(17) Bore Hole - a man-made hole in a geological formation which has been drilled, jetted, driven or made by other similar techniques.

(18) CCR unit – 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.

(19) Cell - a volume of compacted solid waste that is covered by means of compacted earth or some other approved alternative cover usually on a daily or weekly basis in a landfill unit.

(20) Certification - a statement of professional opinion based upon knowledge and belief.

(21) CFR - Code of Federal Regulations.

(22) Closure - the process by which a landfill unit permanently ceases to accept waste, to include those actions taken by the permittee or owner of the facility to prepare the site for post-closure monitoring and maintenance or to make it suitable for other uses.

(23) Coal Combustion By-products - fly ash, bottom ash, boiler slag, or flue gas emission control by-products which result primarily from the combustion of coal or other fossil fuels at electric generating plants.

(24) Coastal Area - for this definition, refer to Division 8 of the ADEM Administrative Code.

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(25) Coastal Waters - those waters adjacent to the shoreline, which contain a measurable quantity or percentage of seawater, including but not limited to, sounds, bays, lagoons, bayous, ponds and estuaries.

(26) Commercial Solid Waste - all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential and industrial wastes.

(27) Composite Liner - a system consisting of two components; the upper component must consist of a minimum 40 mil flexible membrane liner (FML), and the lower component must consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec. FML components consisting of High Density Polyethylene (HDPE) shall be at least 60 mil thick. The FML component must be installed in direct and uniform contact with the compacted soil component.

(28) Composting or Compost Plant - an officially controlled method or operation whereby putrescible solid wastes are broken down through microbic action to a material offering no hazard or nuisance factors to public health or well-being.

(29) Construction/Demolition-Inert Landfill Unit (C/DLF) - a discrete area of land or an excavation that receives construction/demolition waste, and/or rubbish and/or water treatment (alum) sludge, foundry waste meeting rule 335-13-4-.26(3), and that is not a land application unit, surface impoundment, or injection well as those terms are defined in this rule.

(30) Construction/Demolition Waste - waste building materials, packaging, and rubble resulting from construction, remodeling, repair, or demolition operations on houses, commercial buildings, and other structures. Such wastes include, but are not limited to, masonry materials, sheet rock, roofing waste, insulation (not including asbestos), scrap metal, and wood products. Uncontaminated concrete, soil, brick, waste asphalt paving, ash resulting from the combustion of untreated wood, rock, and similar materials are excluded from this definition.

(31) Contingency Plan - a document setting out an organized, planned and coordinated course of action to be followed in case of a fire, explosion or release of solid waste which could threaten human health or the environment.

(32) Cover - soil or alternative material approved by the Department that is used to cover compacted solid waste in a landfill unit.

(33) Decontamination - a process of reducing or eliminating the presence of harmful substances, such as infectious agents, so as to reduce the likelihood of disease transmission from those substances.

(34) Department - the Alabama Department of Environmental Management as established by Code of Alabama 1975, § 22-22A-4.

(35) Destruction or Adverse Modification - a direct or indirect alteration of critical habitat which appreciably diminishes the likelihood of the survival and recovery of threatened or endangered species using that habitat.

(36) Director - the Director of the Alabama Department of Environmental Management, appointed pursuant to Code of Alabama 1975, § 22-22A-4, or his or her designee.

(37) Discarded Material - material thrown away, abandoned, disposed of, or otherwise given up without intent to reuse, recycle or reclaim.

(38) Discharge - the accidental or intentional spilling, leaking, pumping, emitting, emptying, or dumping of solid waste, including leachate, into or on any land or water.

(39) Disease Vector - an organism that is capable of transmitting a disease from one host to another.

(40) Displacement - the relative movement of any two sides of a fault measured in any direction.

(41) Disposal - the discharge, deposit, injection, dumping, spilling, leaking or placing of any solid waste into or on any land or water so that the waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including, but not limited to, groundwaters.

(42) Disposal Area - that portion of the facility that is designated for disposal, as defined in 335-13-1-.03.

(43) Drill Cuttings - solid materials generated by subsurface drilling operations.

(44) Dune - see definition of primary dune system.

(45) Endangered or Threatened Species - any species listed as such pursuant to Section 4 of the Endangered Species Act of 1973, as amended.

(46) Electric Generating Plants - an industrial site, or that portion of an industrial site, that produces electricity, to be used either on-site or off-site.

(47) Engineer - a person currently registered as a professional engineer with the State of Alabama Board of Registration for Professional Engineers and Land Surveyors.

335-13-1-.03

(48) Explosive Gas - a gas that is explosive under ordinary conditions as used herein generally refers to methane (CH₄).

(49) Facility - all contiguous land, structures and other appurtenances used for the processing, treatment, storage or disposal of solid waste, or the recovery of recyclable materials from solid waste, whether or not authorized or permitted, including, but not limited to, waste disposal areas and waste disposed therein.

(50) Facility Structures - any buildings and sheds or utility or drainage lines on the facility.

(51) Fault - 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.

(52) Financial Assurance - a financial arrangement by the owner or operator of a municipal solid waste landfill which guarantees the availability of funds which may be used to close, provide post-closure care, or conduct corrective action at that facility if the owner or operator fails to properly execute his or her responsibilities under this article and any rules promulgated by the Department for closure, post-closure care, or corrective action and the terms of any permit issued for operation of that facility.

(53) Floodplain - the lowland and relatively flat areas adjoining inland and coastal waters, including flood prone areas of offshore islands, which are inundated by the 100-year flood.

(54) Foundry Waste - waste, including but not limited to, slag, sand, baghouse dust, etc. generated from foundry smelting and metal casting processes.

(55) Free Liquids - liquids which readily separate from the solid portion of a waste under ambient temperature and pressure as determined by the Paint Filter Test referenced in USEPA Publication SW-846, Method 9095B.

(56) Garbage - putrescible animal and vegetable waste resulting from the handling, preparation, cooking and consumption of food, including, but not limited to, waste from markets, storage facilities, handling and sale of produce and other food products and excepting such materials that may be serviced by garbage grinders and handled as household sewage.

(57) Gas Condensate - the liquid generated as a result of the gas collection and recovery process at the landfill unit.

(58) Generation - the act or process of producing solid waste. Solid waste shall be considered to be generated at the point that waste materials are first discarded or collected, regardless of any subsequent materials recovery or recycling.

(59) Generator - any person who utilizes any process or conducts any activity which results in the production of solid waste.

(60) Groundwater - water below the land surface in the zone of saturation.

(61) Hazardous constituents – those substances listed in 335-14-2 Appendix VIII and/or 335-14-5 Appendix IX and include hazardous constituents released from solid waste, hazardous waste, or hazardous waste constituents that are reaction by-products.

(62) Hazardous Waste - those wastes defined in, and regulated under, Division 14 of the ADEM Administrative Code. .

(63) Health Department - an approved county or district health department, including the Alabama State Department of Public Health and the affected state and county health department.

(64) Health Officer - the State or affected county health officer or his or her designee.

(65) Holocene - the most recent epoch of the Quaternary period, extending from the end of the Pleistocene Epoch, at 11,700 years before present, to the present.

(66) Household Waste - any solid waste, including, but not limited to, garbage, trash, and sanitary waste in septic tanks derived from households, including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas. Sanitary waste in septic tanks shall be considered as household waste only when it is disposed in a landfill or unauthorized dump and its inclusion as a household waste shall in no way prohibit or supersede the authority of the Department or the Health Department to regulate onsite sewage systems or the management of sanitary waste in septic tanks.

(67) Incinerator or Combustion Unit - a device designed to burn that portion of garbage and rubbish which will be consumed at temperatures generally ranging 1600 degrees Fahrenheit or over. The unburned residue from an incinerator, including metal, glass, and the like shall be called ashes.

(68) Industrial Landfill (ILF) Unit - a discrete area of land or an excavation that receives industrial solid waste and may in addition receive construction/demolition waste and/or rubbish and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined in this rule.

(69) Industrial Solid Waste - solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under Chapters 22

335-13-1-.03

to 30, inclusive, of Title 22, Code of Alabama 1975, and the regulations promulgated thereunder.

(70) Infectious Agent - any organism (such as a virus or a bacterium) that is capable of causing disease or adverse health impacts in humans by invasion and multiplication in body tissues, fluids or secretions.

(71) Injection Well - a bored, drilled, or driven shaft or dug hole which is used for the injection of pollutants.

(72) Innocent Landowner - an owner of real property upon which there is located an unauthorized dump and who meets all of the following conditions:

(a) The solid waste was disposed of on the property after the owner acquired title to the property or the waste was disposed of before the owner acquired title to the property and the owner lacked actual knowledge of the waste after conducting reasonable due diligence or title was acquired by bequest or devise.

(b) The owner did not have knowledge that the waste was being disposed of on the property or the owner took steps, including, but not limited to, posting signs to prevent disposal on the property.

(c) The owner did not participate in or consent to the disposal of solid waste on the property.

(d) The owner did not receive any financial benefit from the disposal of solid waste on the property.

(e) Title to the property was not transferred to the owner for the purpose of evading liability for operating an unauthorized dump.

(f) The person or persons responsible for disposing of the solid waste on the property, in doing so, was not acting as an agent for the owner.

(73) Karst Terrains - areas where karst topography, with its characteristic surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terrains include, but are not limited to, sinkholes, sinking streams, caves, large springs, and blind valleys.

(74) Land Application Unit - an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for agricultural purposes or for treatment and disposal.

(75) Landfill (LF) - a method of compaction and earth or alternative cover of solid wastes other than those containing garbage or other putrescible wastes, including, but not limited to, tree limbs and stumps, demolition materials, incinerator residues, and like materials not constituting a health or nuisance hazard, where cover need not be applied on a per day used basis.

(76) Landfill (LF) Unit - this term shall include MSWLF, C/DLF, ILF units.

(77) Land Surveyor - a person currently registered as a land surveyor with the State of Alabama Board of Registration for Professional Engineers and Land Surveyors.

(78) Lateral Expansion - a horizontal expansion of the waste boundaries of an existing landfill unit.

(79) Leachate - any liquid, including any soluble, suspended or miscible components in the liquid, that has percolated through or emerged from solid waste other than construction/demolition waste and or rubbish.

(80) Leachate Recirculation - the recycling or reintroduction of leachate into or on a landfill unit constructed with liners and leachate collection systems.

(81) Lift - the compacted vertical thickness of a horizontal series of cells which have been accumulated and covered with earth or some other approved alternative cover. The cover may be either daily, weekly, intermediate, or final as required.

(82) Liquid Waste - any waste material that is determined to contain "free liquids" as defined by Method 9095B (Paint Filter Liquids Test), as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Pub. No. SW-846), and is not considered bladeable.

(83) Lithified Earth Material - 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.

(84) Lower Explosive Limit (LEL) - the lowest percent by volume of a mixture of explosive gases which will propagate a flame in air at 25°C and atmospheric pressure. For methane (CH₄) the LEL is considered to be 5 percent.

(85) Materials Recovery Facility - a solid waste management facility that provides for the extraction from solid waste of recyclable materials, materials suitable for use as a fuel or soil amendment, or any combination of those materials. A materials recovery facility shall be deemed to be a solid waste treatment facility.

(86) Maximum Contaminant Level (MCL) - the maximum permissible level of a contaminant allowed in the saturated zone unless occurring naturally or found to already exist during background sampling.

335-13-1-.03

(87) Maximum Horizontal Acceleration in Lithified Earth Material - the maximum expected horizontal acceleration depicted on a seismic hazard map, with a 90 percent or greater probability that the acceleration will not be exceeded in 250 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

(88) Medical Waste - any infectious solid or liquid waste from a medical waste generator, as defined in chapter 335-17-1.

(89) Municipal Solid Waste Landfill (MSWLF) Unit - a discrete area of land or an excavation that receives household waste and that is not a land application unit, surface impoundment, injection well, or waste pile. A municipal solid waste landfill may also receive other types of solid wastes, such as commercial solid waste, nonhazardous sludge, very small quantity generator waste, industrial solid waste, construction/demolition waste, and rubbish. A municipal solid waste landfill is a sanitary landfill. Such a landfill may be publicly or privately owned. A MSWLF unit may be a new MSWLF unit, an existing MSWLF unit or a lateral expansion.

(90) Off-site - not a part of what is defined as on-site.

(91) On-site - the same or geographically contiguous property which may be divided by public or private right-of-way. Non-contiguous properties owned by the same person or entity connected by a right-of-way which he controls and to which the public does not have access, is also considered on-site property.

(92) One Hundred Year Flood - a flood that has a one percent or greater chance of recurring in any given year or a flood of a magnitude equaled or exceeded once in 100 years on the average over a significantly long period.

(93) Open Burning - the combustion of any material without the following characteristics:

(a) Control of combustion air to maintain adequate temperature for efficient combustion.

(b) Containment of the combustion-reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion, and

(c) Control of emission of the gaseous combustion products.

(94) Operating Record - a collection of documents relating to the permitting or operation of any landfill unit as listed in rule 335-13-4-.29.

(95) Operator - the person(s) having direct supervision over and responsibility for the daily operation of a landfill unit or part of a landfill unit.

(96) Owner - the person(s) who owns a facility or part of a facility.

(97) Partial Closure - the closure of a discrete part of a facility in accordance with the applicable closure requirements of rule 335-13-4-.20. For example, partial closure may include the closure of a trench, a unit operation, a landfill cell or a pit, while other parts of the same facility continue in operation or will be placed in operation in the future.

(98) Permit - written authorization granted to a person by the Department to operate a solid waste management facility for the disposal of solid waste.

(99) Permittee - any person possessing a valid permit issued by the Department to dispose of solid waste. This person is responsible for the overall operation of a solid waste facility.

(100) Person - any individual, trust, firm, joint stock company, corporation (including a government corporation), partnership, agent, agency, association, State, municipality, commission, political subdivision of a state, any interstate body, or any other private or public legal entity.

(101) Personnel - all persons who work at or supervise the operations of a solid waste facility, and whose actions or inactions may be responsible for achieving compliance with the requirements of this Division.

(102) Petroleum Contaminated Waste (PCW) - any material, including but not limited to soil, debris, absorbent pads/booms, oil dry, etc., that has been exposed to petroleum products in such a manner that the petroleum product can be detected by a total petroleum hydrocarbon (TPH) analysis using Standard Method 503 D & E, EPA Methods 9071 or 418.1 (Spectrophotometric, Infrared), and that analysis exceeds 100 ppm TPH.

(103) Poor Foundation Conditions - those areas where features exist which indicate that a natural or man-induced event may result in inadequate foundation support for the structural components of a landfill unit.

(104) Post Closure - the activities, including monitoring and maintenance at the site, following completion of closure activities if solid waste will remain at the site after closure.

(105) Practice - any operating method, technique or procedure for the management of solid waste.

(106) Primary Dune System - for this definition, refer to Division 8 of the ADEM Administrative Code.

(107) Private Solid Waste Management Facility - a solid waste management facility that is operated exclusively by and for a private solid waste generator for the purpose of accepting solid waste generated on-site or by the permittee.

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(108) Product - any material which is an intended output or result of a fabrication, manufacturing or production process, and is sold and distributed in the stream of commerce for consumption, use, or further processing into another desired commodity. A product must be managed as an item of value in a controlled manner and is not to be managed as a discarded material.

(109) Proposed Site - total acreage as identified by the legal survey included in the application submitted to the Department.

(110) Public Solid Waste Management Facility - a solid waste management facility that accepts solid waste from the public generally or for a fee, or any solid waste management facility that is not a private solid waste management facility.

(111) Qualified Groundwater Scientist - a scientist or engineer who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields as may be demonstrated by state registration, professional certifications, or completion of accredited university programs that enable that individual to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action.

(112) Recovered Materials - those materials which have known recycling potential; which can be feasibly recycled; which have been diverted or removed from the solid waste stream for recycling, whether or not requiring subsequent separation and processing; and which have a substantial portion that are consistently used in the manufacture of products which may otherwise be produced from raw or virgin materials. Recovered materials shall not include solvents or materials, except sawdust, bark, and paper materials that are destined for incineration, energy recovery, or any use which constitutes disposal. Recovered materials shall only be those materials for which during the calendar year (commencing on January 1), the amount of material recycled or diverted from the solid waste stream for recycling and transferred to a different site for recycling equals at least 75 percent by weight or volume of the amount of that material accumulated at the beginning of the period.

(113) Recovered Materials Processing Facility - a facility primarily engaged in the storage, processing, and resale or reuse of recovered materials. A recovered materials processing facility is not a solid waste management facility; however, any solid waste resulting from the operation of a facility shall be subject to all applicable laws and regulations relating to solid waste and shall be deemed to be generated for purposes of reporting pursuant to solid waste reduction goals, at the point of collection of the recovered materials from which the solid waste resulted.

(114) Recyclable Materials - those materials which are capable of being recycled, whether or not the materials have been diverted or removed from the solid waste stream.

(115) Recycling - any process by which materials are collected, separated, stored, recovered, or processed and reused or returned to use in the form of raw materials or products, but does not include the use of materials as a fuel, or for any use which constitutes disposal.

(116) Relevant Point of Compliance - that point within the first saturated zone at which groundwater quality must be in compliance with water quality standards set forth by rule 335-13-4-.27. Groundwater monitoring wells are to be located in order to yield samples that are representative of the quality of groundwater passing the relative point of compliance.

(117) Representative Sample - 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 for a discussion and examples of representative samples.

(118) Rubbish - nonputrescible solid wastes, excluding ashes, consisting of both combustible and noncombustible wastes. Combustible rubbish includes paper, rags, cartons, wood, furniture, rubber, plastics, and similar materials. Noncombustible rubbish includes glass, crockery, metal cans, metal furniture and like materials which will not burn at ordinary incinerator temperatures, not less than 1600 degree F. Uncontaminated concrete, soil, brick, waste asphalt paving, ash resulting from the combustion of untreated wood, rock, yard trimmings, leaves, stumps, limbs and similar materials are excluded from this definition.

(119) Run-Off - any rainwater, leachate, or other liquid that drains over land from any part of a facility.

(120) Run-On - any rainwater, leachate, or other liquid that drains over land onto any part of a facility.

(121) Salvaging - the controlled removal for reuse of material from a solid waste landfill unit.

(122) Sanitary Landfill - a controlled area of land upon which solid waste is deposited and is compacted and covered with compacted earth or an alternative cover each day as deposited, with no on-site burning of wastes, and so located, contoured and drained that it will not constitute a source of water pollution as determined by the Department. See definition of "Municipal Solid Waste Landfill Unit."

(123) Sanitary Sewer - any device or system used in the treatment of municipal sewage or industrial waste of a liquid nature. This includes sewers, pipes or other conveyances only if they convey wastewater to a facility providing treatment.

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(124) Saturated Zone - that part of the earth's crust in which all voids are filled with water.

(125) Scavenging - the unauthorized removal of solid waste from a landfill unit permitted under these regulations.

(126) Seismic Impact Zone - an area with a ten percent or greater probability that the maximum horizontal acceleration in lithified earth material, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10 g in 250 years.

(127) Service Area - the geographical area serviced by a solid waste facility from which solid waste is generated and collected, including any interim points, (i.e., transfer stations) at which the solid waste is repacked or reloaded onto vehicles or other methods of transport for delivery to that facility. For public solid waste management facilities, the service area is established as part of the local host government approval process, as described in Code of Alabama 1975, §22-27-48 and 48.1.

(128) Sludge - any nonhazardous, solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant.

(129) Solid Waste - any garbage, rubbish, construction or demolition debris, ash, or sludge from a waste treatment facility, water supply plant, or air pollution control facility, and any other discarded materials, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, or agricultural operations or community activities, or materials intended for or capable of recycling, but which have not been diverted or removed from the solid waste stream. The term "solid waste" does not include recovered materials, solid or dissolved materials in domestic sewage, solid or dissolved material in irrigation return flows, or industrial discharges which are point sources subject to the National Pollutant Discharge Elimination System permits under the Federal Water Pollution Control Act, as amended, or the Alabama Water Pollution Control Act, as amended, or source, special, nuclear, or by-product materials as defined by the Atomic Energy Act of 1954, as amended. Also excluded from this definition are land applications of crop residues, animal manure, and ash resulting exclusively from the combustion of wood during accepted agricultural operations, waste from silvicultural operations, or refuse as defined and regulated pursuant to the Alabama Surface Mining Act of 1969 (Article 1, Chapter 16, Title 9, Sections 9-16-1 to 9-16-15, Code of Alabama 1975).

(130) Solid Waste Boundary - the outermost perimeter of the solid waste, projected in the horizontal plane, as it would exist at completion of the disposal activity.

(131) Solid Waste Disposal Facility - any landfill or part of a facility where final disposition of solid waste occurs and at which waste may remain after closure.

(132) Solid Waste Management - the systematic control of solid waste including its storage, processing, treatment, recovery of materials from solid waste, or disposal.

(133) Solid Waste Management Facility - any solid waste volume reduction plant, transfer station, material recovery facility, or other facility, the purpose of which is the storage, treatment, utilization, processing, disposal, or recovery of materials from solid waste, or any combination thereof.

(134) Special Waste - those wastes requiring specific processing, handling or disposal techniques as determined necessary by the Department which are different from the techniques normally utilized for handling or disposal. Examples of such waste types may include, but are not limited to: mining waste, fly ash, bottom ash, sludges, friable asbestos, industrial waste, liquid waste, large dead animals or large quantities of dead animals and residue, medical waste, foundry waste, petroleum contaminated wastes, municipal solid waste ash, or contaminated soil and water from the cleanup of a spill.

(135) Spill - the unplanned, accidental or unpermitted discharge, deposit, injection, leaking, pumping, pouring, emitting, dumping, placing or releasing of solid or medical waste, or materials which when spilled become solid or medical waste, into or on the land, the air or the water.

(136) State - the State of Alabama.

(137) State Health Department - the Alabama Department of Public Health as defined by § 22-1-1, Code of Alabama 1975.

(138) State Health Officer - the Health Officer for the State of Alabama as set out in § 22-2-8, Code of Alabama 1975, or his or her designee provided by law.

(139) Structural Components - liners, leachate collection systems, final covers, run-on/run-off systems, and any other component used in the construction and operation of the landfill unit that is necessary for protection of human health and the environment.

(140) Surface Impoundment or Impoundment - a facility or part of a facility that is a natural topographic depression, human-made excavation, or diked area formed primarily of earthen materials (although it may be lined with human-made materials), that is designed to hold an accumulation of liquid wastes or wastes containing free liquids and that is not an injection well. Examples of surface impoundments are holding, storage, settling, and aeration pits, ponds and lagoons.

(141) Twenty-Four Hour, Twenty-Five Year Storm (24 hour, 25 year Storm) - the maximum 24 hour precipitation event with a probable reoccurrence interval of once in twenty-five years as defined by the National Weather Service and Technical Paper No. 40, "Rainfall Frequency Atlas of the U. S.", May 1961, and subsequent amendments or equivalent regional or rainfall probability information developed therefrom.

(142) Unauthorized Dump - any collection of solid wastes either dumped or caused to be dumped or placed on any public or private property, whether or not regularly used, and not having a permit from the Department. Abandoned automobiles, large appliances or similar large items of solid waste shall be considered as forming an unauthorized dump within the meaning of this Division. The careless littering of a relatively few, smaller individual items such as tires, bottles, cans and the like shall not be considered an unauthorized dump, unless the accumulation of the solid waste poses a threat to human health or the environment. An unauthorized dump shall also mean any solid waste disposal site which does not meet the regulatory provisions of this Division.

(143) Unstable Area - a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the landfill structural components responsible for preventing releases from a landfill. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and karst terrains.

(144) Uppermost Aquifer - 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.

(145) Washout - the carrying away of solid waste or cover by waters of a 100-year flood.

(146) Waste Management Unit Boundary - a vertical surface located at the hydraulically downgradient limit of the unit. This vertical surface extends down into the uppermost aquifer.

(147) Waste Pile or Pile - any noncontainerized accumulation of solid, non-flowing waste that is used for treatment or storage.

(148) Waters of the State (Waters) - all waters of any river, stream, watercourse, pond, lake, coastal, ground or surface water, wholly or partially within the State, natural or artificial. This does not include waters which are entirely confined and retained completely upon the property of a single individual, partnership or corporation unless such waters are used in interstate commerce.

(149) Wetlands - those areas as defined by the U.S. Army Corps of Engineers regulations.

(150) Wood Ash Waste – solid waste resulting from the burning of untreated wood with minimal amounts (<10% of total fuel based on a mass input basis) of other non-coal permitted solid fuels. Ash resulting exclusively from the combustion of non-processed and untreated wood is excluded from the definition of wood ash waste.

(151) Working Face – the area within a solid waste disposal facility that is actively receiving solid waste for compaction and cover.

Author: Russell A. Kelly; Phillip D. Davis; James L. Bryant, Eric L. Sanderson, S. Scott Story, Heather M. Jones.

Statutory Authority: Code of Alabama 1975, §§ 22-27-2, 22-27-7, 22-27-9, and 22-27-12.

History: Effective: November 18, 1981.

Amended: Effective: July 21, 1988. **Amended:** Effective: October 2, 1990.

Amended: Effective: November 2, 1993. **Amended:** Effective: July 26, 1996.

Amended: Effective: August 3, 2010. **Amended:** Effective: January 16, 2012.

Amended: Effective: April 8, 2016. **Amended:** Filed: April 24, 2018; Effective: June 8, 2018. **Amended:** Filed: June 25, 2019; Effective: August 9, 2019.

Amended: Filed: October 29, 2021; Effective: December 13, 2021.

335-13-1-.04 Limitations. Nothing in these rules and regulations shall be construed to limit the authority of municipal and county governments, solid waste authorities, Local Health Officer or State Health Department from adopting more stringent solid waste management requirements than those set forth in this Division.

Author: Phillip D. Davis

Statutory Authority: Code of Alabama 1975, §§ 22-22A-4, 22-27-3, 22-27-5, 22-27-6, 22-27-7, 22-27-9, 22-27-10, 22-27-11, 22-27-12, 22-27-13, and 22-27-14.

History: November 18, 1981.

Amended: July 21, 1988; October 2, 1990; August 3, 2010.

335-13-1-.05 Communications. All official communications, reports, and correspondence concerning this Division shall be addressed to the ADEM, Land Division, 1400 Coliseum Boulevard, Montgomery, Alabama 36110-2400 or P. O. Box 301463, Montgomery, Alabama 36130-1463.

Author: Russell A. Kelly; Phillip D. Davis; S. Scott Story.

Statutory Authority: Code of Alabama 1975, §§ 22-27-7, 22-27-11, and 22-27-12.

History: Effective: July 26, 1996.

Amended: Effective: August 3, 2010. **Amended:** Filed: April 24, 2018; Effective: June 8, 2018.

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335-13-1-.06 Penalty for Violations. No person shall violate any of the provisions of these rules and regulations. Violation of these rules and regulations shall be deemed to be a violation of the Act, Code of Alabama 1975, §§ 22-27-7 and 22-27-11, and shall be punishable as provided therein or by other applicable penalties which may be more stringent.

Author: Russell A. Kelly; Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-5, 22-27-7, 22-27-11 and 22-27-12.

History: July 26, 1996.

Amended: August 3, 2010.

335-13-1-.07 Appeals. Any person aggrieved by any administrative action of the Department, with respect to these regulations, is entitled to a hearing before the Commission and has the right of appeal in accordance with procedures established in chapter 335-2-1 of the ADEM Administrative Code.

Author: Russell A. Kelly; Phillip D. Davis, Heather M. Jones.

Statutory Authority: Code of Alabama 1975, § 22-27-7, 22-27-12, and 22-22A-7.

History: Effective: July 26, 1996.

Amended: Effective: August 3, 2010. **Amended:** Filed: April 24, 2018; Effective: June 8, 2018. **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-1-.08 Severability. The chapters, rules, paragraphs and provisions of this Division are severable. Should any portion thereof be ruled unconstitutional or unenforceable by any court, the said ruling shall not affect any other provisions of this Division not ruled upon.

Author: Russell A. Kelly; S. Scott Story

Statutory Authority: Code of Alabama 1975, §§ 22-22A-5, 22-27-6, 22-22A-8.

History: Effective: July 26, 1996.

Amended: Filed: April 24, 2018; Effective: June 8, 2018.

335-13-1-.09 [Reserved]

335-13-1-.10 [Reserved]

335-13-1-.11 General.

(1) All solid waste shall be disposed of in a manner consistent with the requirements of this Division.

(2) Duty to provide information. Any owner or operator subject to the requirements of this Division shall furnish to the Department, within a reasonable time, any relevant information which the Department may request to determine compliance with this Division. The owner or operator shall also furnish to the Department, upon request, copies of records required to be kept by any requirement of this Division.

Author: Russell A. Kelly, Heather M. Jones.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-4, 22-22A-5, 22- 27-7.

History: November 18, 1981.

Amended: July 21, 1988; October 2, 1990; November 2, 1993. **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-1-.12 [Reserved]

335-13-1-.13 Unauthorized Dumps.

(1) Prohibition.

(a) Unauthorized dumps are prohibited by this Division, and are a violation of the Act.

(b) Unpermitted solid waste landfill units failing to satisfy the Division 13 regulations constitute unauthorized dumps, which are prohibited, and must be closed in accordance with rule 335-13-1-.13(2) or rule 335-13-4-.20.

(2) Closure. An agency or person discontinuing the use of an unauthorized dump, whether on his or her own initiative or at the direction of the Department, shall take one of the following actions as determined to be necessary by the Department:

(a) Remove all the solid waste from the site and place in an approved landfill unit, a registered recycling facility or an otherwise appropriate beneficial reuse in accordance with a clean-up, site restoration and monitoring plan, as approved by the Department. In accordance with Division 335-6 , Water Quality Program, the Department may also require monitoring of the site for unpermitted discharges to waters of the state as defined by the Alabama Water Pollution Control Act and other sources as may be necessary to protect public health and the environment; or,

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(b) Undertake closure of the unauthorized dump subject to any or all of the following actions as determined necessary by the Department:

1. Prepare and submit a site closure plan, subject to approval by the Department.

2. Barricade and secure entrance.

3. Implement effective rodent or vector controls, including baiting for at least two weeks after closing, to prevent rodent migration to adjacent properties and spraying of containers to control mosquitoes, or other measures as determined necessary by the Department.

4. Compact and cover existing solid waste. Final cover for the entire area shall be two feet or more of compacted earth or as otherwise determined by the Department. Earth cover shall be of a quality to be easily managed and with sufficient clay content to provide an adequate seal on the waste. The uppermost 6" of cover shall support an adequate stand of vegetation.

5. The establishment of a vegetative or some other appropriate cover to minimize erosion and, when applicable, maximize evapotranspiration shall be established. Within 30 days after completion of final grading, the owner or operator of the dump shall prepare the final cover for the establishment of a vegetative or approved alternative cover. For the establishment of a vegetative cover, such preparation shall include, but not be limited to:

(i.) Placement of appropriate species of grass seed, fertilizer and mulch; and

(ii.) Watering and maintenance necessary such that germination can reasonably be anticipated.

6. Implement and maintain erosion control measures by grading and re-establishing vegetative cover as needed or determined necessary.

7. Post signs indicating the dump site closure and location of the nearest approved disposal site when deemed necessary by the Department.

8. Based on site geology, hydrology or waste types, the Department may require additional measures, which may include but shall not be limited to, groundwater monitoring.

9. For all unauthorized dumps closed in accordance with the requirements of rule 335-13-1-.13(2)(b), the landowner shall enter into an Environmental Covenant in accordance with Division 335-5, Uniform Environmental Covenants Program.

(c) If all solid wastes are removed from the site according to subparagraph (a) of this rule, the environmental covenant in subparagraph (b)9 of this rule will not be required.

Author: Russell A. Kelly; Phillip D. Davis; S. Scott Story.

Statutory Authority: Code of Alabama 1975, §§ 22-27-4, 22-27-7, 22-27-10, 22-27-11, and 22-27-12.

History: Effective: November 18, 1981.

Amended: Effective: July 21, 1988. **Amended:** Effective: October 2, 1990.

Amended: Effective: November 2, 1993. **Amended:** Effective: July 26, 1996.

Amended: Effective: August 3, 2010. **Amended:** Filed: April 24, 2018. Effective: June 8, 2018

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
LAND DIVISION - SOLID WASTE PROGRAM**

**CHAPTER 335-13-2
COLLECTION AND TRANSPORTATION**

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335-13-2-.01 Collection and Transportation. Pursuant to the provisions of Code of Alabama 1975, §22-22A-4(i), regulations addressing the collection and transportation of solid waste remain within the function of the State Health Department pursuant to Code of Alabama 1975, §§ 22-22A-5 and 22-22A-8.

Author: Russell A. Kelly.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-4 and 22-22A-5, and 22-27-7.

History: November 18, 1981.

Amended: July 21, 1988; October 2, 1990; July 26, 1996.

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
LAND DIVISION - SOLID WASTE PROGRAM**

**CHAPTER 335-13-3
PROCESSING AND RECYCLING**

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335-13-3-.01 Purpose and Applicability. This regulation establishes the operating standards applicable to Materials Recovery Facilities, Recoverable Materials Processing Facilities, and other facilities that receive, store, process and sale recovered materials that are not used on any on-site, end-use manufacturing process. These regulations further establish the minimum reporting and recordkeeping requirements necessary for subject facilities. Subject facilities are those that initially obtain recyclable materials which have been removed from the solid waste stream and determined to be recycled by the generator of those materials. The requirements of this chapter are not applicable to end-use facilities where recyclable or recovered materials are received by the facility strictly for use in its manufacturing process as a fuel, raw material or as a substitute for a commercial product.

Author: Phillip D. Davis, M. Gavin Adams.

Statutory Authority: Code of Alabama 1975, §§ 22-27-12, 22-27-15 and 22-27-16.

History: August 3, 2010.

335-13-3-.02 Facility Registration.

(1) No person may receive, store, process or transfer recyclable material without being properly registered with the Department, except as described in rule 335-13-3-.02(3). Any person who operates a Materials Recovery Facility or a Recovered Materials Processing Facility, without having applied for registration with the Department shall be considered to be operating an unpermitted solid waste facility and shall be subject to enforcement action in accordance with this division.

(2) The owner or operator of each facility in existence on the effective date of this rule shall file an application for registration with ADEM not later than October 1, 2010. The owner or operator of each new Materials Recovery Facility

or Recovered Materials Processing Facility desiring to begin operation after the effective date of this chapter shall file an application for registration at least forty-five (45) days prior to receiving materials, or by October 1, 2010, whichever is later.

(a) Each owner or operator of a subject facility shall register with ADEM utilizing a form designated by the Department. In addition to the designated form, the following information shall be submitted:

1. An initial listing of the types of material or materials to be received, stored, processed or transferred by the facility in a manner to be specified by the Department.

2. A general description of the plans for end-market uses of all materials to be collected, stored and processed. Such plans are not required to include specific information on quantities to be shipped to specific facilities, names of facilities or other information that may be deemed business confidential by the registrant.

3. Statement that the siting of the facility is on property whose local zoning permits such use, if applicable.

4. Site access controls to be utilized at the facility.

5. A site plan map which identifies and plots the location of all equipment, buildings, activities and areas related to the receipt, storage, processing, and transferring of all unprocessed and processed recyclable materials.

6. A statement that the facility is in compliance with the applicable requirements of ADEM Administrative Code division 335-6, including but not limited to, permitting and best management practices (BMP).

7. An operations plan which shall include, at a minimum, the following:

(i) Days and hours of operation of the facility and a description of when facility personnel will be on-site during hours of operation. If the facility is to include a drop-off point for after-hours operation or periods when facility will be unstaffed, a description of methods to prevent drop-off of non-acceptable or non-recoverable materials must be included.

(ii) A general listing of material types and anticipated tonnages to be received by the facility on a monthly basis and any size, weight or other restrictions placed on materials to be accepted.

(iii) A written narrative description of facility operation from receipt of recyclable materials to the point of transfer to end-users.

(iv) The maximum amount of each material to be stored or stockpiled at the facility. Owners/operators maintaining this information in volume shall convert and indicate the conversion methodology to weight.

(v) A description of major equipment to be utilized for the receipt, storage, processing or transfer of each material type.

(vi) Methods utilized to weigh or estimate weight of materials received.

(vii) A description of the storage areas utilized for recovered materials to include indoor or outdoor, surfaces of storage areas, and methods to segregate materials to facilitate end-use.

(viii) A statement indicating that the facility meets local fire codes, where applicable.

(ix) A description of methods used to control vectors of public health importance which shall include, but not be limited to, rodents, flies and mosquitoes, and dust and litter at the facility. Such control shall be consistent with the administrative rules of the Health Department and the Department.

(b) Registrations are not transferable.

1. If a registered facility has a change in ownership, the prospective new owner shall register with the Department at least thirty (30) days prior to assuming ownership of the facility.

2. Changes in the name of a facility also require notification to the Department thirty (30) days prior to the effect of the name change, and may require the payment of fees associated with such change that are required by Departmental regulations.

(c) If a materials recovery facility is found to be in significant noncompliance with the requirements of this division, the registration for the facility may be revoked or the application for registration denied by the Director.

1. The facility may request an informal conference with ADEM to discuss the revocation or denial by ADEM. Following this informal conference, the Director shall advise the facility of the final determination on the registration.

2. The registrant shall be responsible for the compliance of the registered facility with all applicable rules notwithstanding the performance of compliance-related duties by independent contractors or agents.

(d) A registered facility that discontinues receiving, processing or utilizing recovered materials shall notify ADEM within thirty (30) days of a change in operations and request that their registration be terminated. A closure plan for the facility must be submitted in accordance with rule 335-13-3-.07. All

recovered materials and solid wastes shall be removed from the facility before ADEM will terminate the registration. Such removal shall be in accordance with all applicable regulations regarding recycling or disposal.

(e) The Department may specify in the registration for a facility the quantity and nature of recovered materials to be managed, in accordance with the application.

(3) Exemptions. The following activities are exempt from the registration requirements imposed by this chapter. A facility engaged only in these activities is not required to register with ADEM under this chapter.

(a) The receipt of source-separated recyclable asphalt and pre-consumer asphalt shingles or other asphalt based roofing, or a combination thereof by an asphalt manufacturing plant prior to its introduction into the asphalt manufacturing process.

(b) The recycling or reuse of materials which are generated, processed, and reused as a product, raw material or fuel exclusively at the point of generation by facility personnel or on-site contractor operations which are directly related to the operation of the facility.

(c) The receipt, storage, processing or transfer of grass clippings or other yard wastes, branches, stumps, limbs, brush, wood chips derived from tree parts, and/or other non-putrescible, non-food wastes which is regulated separately by ADEM under regulations regarding composting facilities and/or is specifically exempted from solid waste regulations.

(d) Scrap tire processing regulated under division 335-4 regulations.

(e) The processing and/or recycling of used oil and/or wastes regulated under division 335-14 regulations, to include universal waste, provided only used oil and or wastes regulated under division 335-14 are processed.

(f) Construction or contracting activities which, through the course of such activities generate source-separated recyclable materials to include asphalt, concrete, brick, may store, process, or transfer the material provided all the following apply:

1. The company or contractor is the generator of the materials.
2. Materials are stored in compliance with all applicable laws and regulations, including stormwater BMP.
3. Materials are stored on-site for a period not to exceed the shorter of one-year from generation or the completion of the construction project.

(g) Solid waste incinerators and waste-to-energy facilities that are regulated subject to the requirements of division 3 of the ADEM Administrative

Code, or similar local air pollution control regulations. These facilities shall be subject to the requirements of rule 335-13-3-.04.

(4) Variances.

(a) Requests for variances from the requirements of this chapter must be made in writing to ADEM and shall include sufficient documentation and information to all ADEM to make a final determination on the variance request. Such documentation and information may include, but not be limited to:

1. A clear and complete statement of the precise extent of the relief sought including specific identification of the particular provisions of the regulations from which the variance is sought.

2. A concise factual statement with supporting evidence, environmental, economic and/or otherwise that establishes the need for the variance.

3. A statement of the impact that the variance will impose on public health and the environment.

4. A description of how granting of the variance will affect operations at the facility.

5. Any additional information as may be requested by the Department as necessary to evaluate the variance request.

6. The timeframe for which the variance is sought, if less than applicable 3 year period as specified in rule 335-13-3-.02(4)(d).

(b) ADEM will terminate review of the request if sufficient information is not submitted with the application.

(c) After review of the variance request, ADEM shall notify the applicant of its final decision regarding the request.

(d) A variance granted by ADEM shall be valid for a period of three (3) years. Application for renewal shall be made in writing and submitted to ADEM at least thirty (30) days prior to the expiration date of the current exemption.

(e) If processes or conditions that warranted the variance for the facility change during the term, the facility shall notify ADEM within thirty (30) days of the change. ADEM may terminate the variance on substantive changes to conditions upon which the original variance was granted.

(5) Certification. All applications, reports, requests for variances or exemptions shall be signed by a responsible official or representative as follows:

(a) For a corporation, by a principal executive officer of at least the level of vice president, or his designee through a written delegation of this authority

(b) For a partnership or limited partnership, by a general partner.

(c) For a sole proprietorship, by the proprietor.

(d) For a municipality, State, federal or other public agency to include governmental non-profit organizations, by either a principal executive or ranking elected official.

(e) For a limited liability company, by a manager designated by the members of the limited liability company to manage the limit liability company as provided in the articles of organization.

(f) All applications, reports, requests for variance or exemption shall contain the following statement, to be signed by a responsible official or representative:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted us, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Author: Phillip D. Davis, M. Gavin Adams.

Statutory Authority: Code of Alabama 1975, §§ 22-27-12, 22-27-15 and 22-27-16.

History: August 3, 2010.

335-13-3-.03 Facility Design and Operation.

(1) Facility Design and Operation. Registered Materials Recovery and Recovered Materials Processing Facilities shall be designed and operated according to this section in order to remain a properly registered facility. Registered facilities that hold a valid NPDES permit shall be exempt from the facility design requirements of this Section.

(a) Failure to maintain minimum standards and operational requirements may result in revocation of registration and may cause the facility to be subject to and regulated under this chapter as a Solid Waste Disposal Facility.

(b) Ant facility in existence prior to the effective date of these regulations has one (1) year from the effective date of these regulations to comply with provisions for facility design and operation.

(2) Acceptance of Recyclable Materials. A facility may accept materials in accordance with the terms of this registration and in accordance with the materials listing provided by the facility with its registration application.

(a) Each facility shall notify the Department upon accepting any materials not previously approved in the registration. Such notification shall be made in writing and be signed by the owner/operator or other responsible official as designated in the registration application. Notification is not required before accepting materials not designated in the registration application, but should be made as soon as practicable after materials acceptance.

(b) A facility regulated under this chapter shall not accept recyclable materials without the proper receipt and documentation as required under 335-13-3-.05.

(c) No facility may accept, receive, purchase, or acquire any charred metal wire unless the registrant can demonstrate through receipts or other documentation that the material originated from a facility properly operating in accordance with applicable air pollution control requirements, including necessary permits and processing equipment with appropriate emission control devices.

(3) Recyclable Materials – Material Segregation and Storage. Recyclable materials accepted by a facility must be properly segregated according to material type and stored in accordance with this section. Storage of materials shall be in a manner to prevent migration of materials off-site due to stormwater runoff, wind or track-out by vehicles entering or leaving the facility site.

(a) All receptacles or storage areas utilized for the storage of recyclable and waste materials should be separated from other receptacles or storage areas by a buffer such that all equipment for the movement of such materials may operate without migration of materials away from receptacle or storage areas.

1. Buffers between storage and/or processing areas should be sufficient to minimize the commingling or combining of segregated material types to the extent that would adversely impact the ability to recycle the materials.

2. Unless specified differently in a facility's BMP plan, a buffer of no less than fifty (50) feet in width should be established and maintained between areas utilized for facility operations and the property boundaries in order to minimize migration of recyclable materials off-site. This buffer requirement shall not apply to materials located within enclosed warehouses or other buildings, nor to materials to be utilized on-site in the facility's manufacturing or processing activities.

(b) Materials received by the facility shall be moved to the appropriate segregated storage areas within seven (7) days of receipt.

(4) Recyclable Materials – Receptacles. Each facility should store materials in receptacles where necessary to protect the integrity and/or marketability of accepted materials and to prevent migration of materials off-site.

(a) If necessary, all loose, unbaled newsprint, paper, and corrugated paper and cardboard should be stored in closed container unless stored under a structure suitable to prevent intrusion of rainwater and stormwater, and protected from the elements.

(b) All receptacles utilized to store recyclable materials and those utilized to store contaminated and/or non-recyclable materials generated or received by the facility as a small portion of recyclable shipments or drop-offs shall be clearly marked with the type of material to be deposited. No material other than that specified shall be deposited or stored therein.

(c) Exceptions to the requirement for receptacle storage may include the storage of materials which have been baled or otherwise bound to prevent migration of materials off-site.

(5) Storage Areas. Storage areas shall be maintained to prevent contamination of segregated materials. Materials not intended for recycling and destined for disposal shall be stored separately. Materials received or to be shipped shall be segregated and stored to prevent track-off and migration off-site.

(6) Signage. Each facility shall have and maintain at least one sign, clearly visible and legible from off-site, which states the name, address and telephone number of the registrant or owner/operator if different than the registrant contact, the types of materials accepted by the facility, the hours during which the facility shall be open to the public, and the name of the nearest permitted solid waste disposal facility and/or alternate materials recovery facility.

(7) Storage Areas to Be Kept Clean. The area surrounding receptacles or storage areas whether indoors or outdoors, should at all times be maintained in a clean manner. No receptacle or waste materials of any kind be allowed to overflow from or accumulate around any receptacles or storage areas.

(8) Inspection by Owner/Operator or Responsible Person. The owner, operator or designated responsible person of each facility regulated under this chapter shall inspect the facility at least weekly. Such inspections shall be documented in an inspection log by date of inspection, person performing the inspection, areas of concern and corrective actions. Inspections shall include the following items:

(a) Existence of contamination in segregated storage areas. Include shall be material storage areas containing more than one recyclable material type, and contamination of recyclables by solid waste intended for disposal.

(b) Existence or the potential for recyclable material, or solid wastes intended for disposal, to migrate off-site either through stormwater runoff, wind or track-off by vehicular or equipment traffic.

(c) Unauthorized drop-off of wastes or materials not properly delivered to the facility such as those placed outside the facility boundary or any existing secured areas, and materials not accepted by the facility for recycling.

(d) Documentation of inspection findings requiring corrective action, including a description of the action taken and the date and time of the corrective action. Such corrective actions should be initiated within 48 hours or discovery.

(9) Fencing and Security. Facilities registered pursuant to this chapter shall be secured by fencing or utilize other means of access control as necessary to prevent unauthorized disposal or removal of recyclable materials or solid wastes.

Author: Phillip D. Davis, M. Gavin Adams.

Statutory Authority: Code of Alabama 1975, §§ 22-27-12, 22-27-15 and 22-27-16.

History: August 3, 2010.

335-13-3-.04 Storage and Accumulation Limitations.

(1) Storage Limit. As determined on a yearly basis, each registered facility shall transfer at least 75% of the amount of material accumulated that is diverted from the solid waste stream or processed for recycling. Each facility in operation on the effective date of these regulations shall demonstrate through sufficient documentation that it is in compliance with the 75% requirement for the year of the effective date of these regulations. Each new facility beginning operation after the effective date of these regulations shall meet this storage limit for that portion of the year in which the facility begins receiving materials for recycling or processing.

(a) Each facility shall maintain records of all materials received by and shipped from the facility regardless of material type, origin or destination, in accordance with the requirements of rule 335-13-3-.04.

(b) Such records shall be available for inspection by the Department. Upon written notice, copies of these records shall be submitted to the Department.

(c) For the purposes of this section the term “year” shall be the calendar year commencing on January 1 and ending on December 31.

(2) A registered facility may request a temporary exemption from this requirement, by submitting such a written request to the Department within forty-five (45) days after the accumulation time-frame has been exceeded. Such request shall contain the following:

(a) Material(s) type, quantity, and current method of segregation and storage.

(b) Efforts to move material to an end-use destination including names and phone numbers of end-user contacts.

(c) Estimate of additional quantities of material(s) type to be accepted.

(d) The following statement, certified by the responsible official or representative:

“I hereby certify as an owner, operator or responsible person associated with the named facility, that the information supplied and statements made in this request are true and accurate, and that failure to comply with the 75% requirement is not due to speculative accumulation or in violation of other requirements of this chapter. Furthermore, I understand that continued non-compliance with the 75% requirement may result in the facility registration being revoked, and/or enforcement action by the Department, including substantial civil penalties being imposed.”

(3) Such exemption shall be valid for a period determined by the Department, but not to exceed one year. Extensions of the exemption beyond one year are subject to review and approval by the Department and must be requested in writing by the registered facility in accordance with the requirements of rule 335-13-3-.04(2).

(4) Continued non-compliance with the storage time limit requirement may result in the revocation of the facility registration and/or enforcement action by the Department which may include civil penalties and/or a requirement for disposal of the accumulated materials in accordance with this chapter.

(5) Records must be maintained in a sufficient manner as to be used to verify facility compliance with the seventy-five percent (75%) rate required by this section.

Author: Phillip D. Davis, M. Gavin Adams.

Statutory Authority: Code of Alabama 1975, §§ 22-27-12, 22-27-15 and 22-27-16.

History: August 3, 2010.

335-13-3-.05 Recordkeeping and Reporting Requirements.

(1) Except as provided in rule 335-13-3-.05(3), no materials may be accepted by a facility registered under this chapter from any person or entity without the completion of a receipt documenting the material acceptance. A receipt must be completed for each shipment of materials received by the registered facility. A copy of each receipt shall be provided to the person or entity delivering the materials, and a copy maintained by the registered facility. Copies of all receipts maintained by the facility shall be available for inspection by the Department, and shall be utilized to generate semi-annual reports as required by this section. All receipts must contain the following information:

- (a) Description of materials received listed by material type.
- (b) Weight of each material type in 335-13-3-.04(1)(b) above, expressed in tons.

(2) A receipt shall be completed for the total shipment of materials where:

(a) Materials are delivered by a contractual waste or recycling hauler.

(b) Materials are delivered where collected from drop-off boxes or publicly accessible drop-off centers.

(c) Materials are delivered where collected during public recycling events.

(3) The requirement for a receipt shall not apply to recyclable materials accepted in the following cases:

(a) Materials delivered by a person in quantities as can be expected from normal individual household generation.

(b) Materials delivered to an unmanned drop-off or collection box location where no personnel would be available to complete a receipt.

(4) Each facility subject to this chapter shall prepare semi-annual reports of all recyclable materials or recovered materials transferred, sold, or conveyed out of state, to materials brokers in the State of Alabama, or to end-use manufacturers in Alabama who use the materials as a fuel, raw material, or as a substitution for a commercial product. These reports shall indicate the following:

(a) A record of the amounts of each material accepted from the initial generators by type and quantity, expressed in tons. Owners/operators maintaining this information in cubic yards shall convert and indicate the conversion methodology to tons for the purposes of the semi-annual report.

(b) The amount of each material type expressed in tons transported to further processors or end-market users. End-Market users which recycle or re-process their own materials generated on-site or materials received from generators in quantities as can be expected from normal individual household generation, shall report the amounts of each material type recycled. Owners/operators maintaining this information in cubic yards shall convert and indicate the conversion methodology to tons for the purposes of the semi-annual report.

(c) The type and quantity of material, expressed in tons, to include residues or non-recyclable materials removed from the facility by a solid waste collector/hauler and destined for disposal, and the name, address and telephone number of the hauler. Owners/operators maintaining the quantity information in cubic yards shall convert and indicate the conversion methodology to tons for the purposes of the semi-annual report.

(5) Each facility registered pursuant to this chapter shall submit a semi-annual report containing the totals and monthly summaries of the information provided in subparagraphs (a), (b), and (c) of rule 335-13-3-.05(4)

above to the Department on or before February 15 and August 15 of each year for the preceding six month periods of July 1 – December 31 and January 1 – June 30, respectively. Semi-annual reports must be signed by the responsible official or representative of the facility and shall include a statement that all materials accepted or generated by the facility which were not sent to an end-user or reused on-site were properly disposed of in accordance with this division.

(6) Each facility exempt from registration in accordance with rule 335-13-3-.02(3) shall submit a semi-annual report containing the applicable information as specified in subparagraphs (a) and (b) of rule 335-13-3-.05(4) above. These reports shall be submitted to the Department in accordance with the requirements of rule 335-13-3-.05(5).

(7) Information submitted by a facility may be considered confidential by the Department in accordance with the requirements of rule 335-1-1-.06, if requested by the facility in writing. Information submitted to the Department which is requested to be held confidential in nature may be utilized by the Department in conjunction with other submitted data such that the information is not attributable to a specific facility. Such use may include the generation of Departmental reports or other summaries of a regional or statewide nature.

(8) Records required by this chapter shall be maintained at the facility for a minimum of three (3) years, and made available for inspection by ADEM personnel upon request.

Author: Phillip D. Davis, M. Gavin Adams.

Statutory Authority: Code of Alabama 1975, §§ 22-27-12, 22-27-15 and 22-27-16.

History: August 3, 2010.

335-13-3-.06 Inspection of Facilities.

(1) A facility registered under this chapter shall, upon request of a duly authorized representative of the Department, permit the representative to enter, at all reasonable times, property and buildings to inspect facility operations, records and equipment, and to conduct monitoring or sampling activities as necessary to evaluate the facility's compliance with the requirements of this chapter and the ADEM Administrative Code.

(2) The registrant, owner or operator shall assure that all records and documentation as may be required to determine compliance with this chapter are available for inspection and/or audit upon request by the Department.

(3) The Department may require the registrant to prepare materials for inspection. Such preparation may include, but not be limited to the disassembly of bales, or spreading of segregated materials to facilitate inspection.

Author: Phillip D. Davis, M. Gavin Adams.

Statutory Authority: Code of Alabama 1975, §§ 22-27-12, 22-27-15 and 22-27-16.

History: August 3, 2010.

335-13-3-.07 Closure of Facilities.

(1) No person shall close a registered facility without submitting written notification to the Department at least thirty (30) days in advance of the closure. Such written notification shall contain the following:

(a) Name, address and telephone number of the facility and the location of the owner, operator, or responsible person following facility closure.

(b) Reason for closure to include factor(s) leading to the closure decision.

(c) Written plans for notifying the facility's customers of the closure. Such notification to customers shall include the placement of signs of suitable size at the entrance to the facility indicating the closure date of the facility and/or last date materials to be accepted, if different than the closing date. Such notification shall also include the location of the nearest available recycling and/or solid waste disposal facility.

(d) Plans and methods for the prevention of recyclable materials and other solid wastes to accumulate at the facility following closure, and the plans for disposal of such materials in compliance with applicable regulatory requirements.

(2) All solid waste and recyclable materials shall be properly removed from the facility prior to closure, potential nuisance conditions shall be addressed, and, if necessary, the site shall be stabilized to prevent migration of sediment off-site due to stormwater runoff.

Author: Phillip D. Davis, M. Gavin Adams.

Statutory Authority: Code of Alabama 1975, §§ 22-27-12, 22-27-15 and 22-27-16.

History: August 3, 2010.

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
LAND DIVISION - SOLID WASTE PROGRAM**

**CHAPTER 335-13-4
PERMIT REQUIREMENTS**

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335-13-4-.01 Landfill Unit Siting Standards. New or existing landfill units shall comply with the following standards in order to prevent adverse effects on health or the environment. As part of the application, the owner/operator must submit documentation addressing to the satisfaction of the Department the following siting standards.

335-13-4-.01

(1) Location Standards.

(a) A facility located in a floodplain shall not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste, so as to pose a hazard to human health and the environment.

(b) A facility shall be located in consideration of the following:

1. A facility shall not jeopardize the continued existence of endangered or threatened species protected under the Endangered Species Act of 1973.

2. The facility shall not result in the destruction or adverse modification of critical habitats protected under the Endangered Species Act of 1973.

(c) A MSWLF unit shall not be sited within 10,000 feet of any airport runway end. Owners or operators proposing to renew existing or site new MSWLF units located within a five-mile radius of any airport runway must notify the affected airport and the Federal Aviation Administration (FAA).

(d) Zones of active faults, seismic impact zones, and unstable areas shall be avoided in locating facilities and practices unless a site specific evaluation as described below, demonstrates minimum potential for adverse effects upon waters of the State.

1. Site specific evaluations for geology and hydrology shall comply with 335-13-4-.11 through 335-13-4-.14.

2. Site specific evaluation shall include minimum design parameters necessary to protect the waters of the State and human health to include minimum requirements of 335-13-4-.15 through 335-13-4-.24.

3. Landfill units shall not be located within 200 feet of a fault that has had displacement within the Holocene epoch unless the owner or operator demonstrates to the Department that an alternative setback distance of less than 200 feet will not result in damage to the structural integrity of the facility and will be protective of human health and the environment.

4. Landfill units shall not be located in seismic impact zones, unless the owner or operator demonstrates to the Department that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.

5. Landfill units shall not be located in an unstable area unless engineering measures have been incorporated in the design of the facility to ensure that the integrity of the structural components of the facility will not be

disrupted. The following factors, at a minimum, must be considered when determining whether an area is unstable:

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

(e) Landfill units shall not be located on a site that is archaeologically or historically sensitive as determined by the Alabama Historical Commission. Written certification must be provided from the State Historic Preservation Officer.

(2) Water Quality Standards. A facility shall be located so as to not adversely impact water quality by complying with the following:

(a) A facility shall not cause a discharge of pollutants into waters of the State, including wetlands, that is in violation of the requirements of the National Pollutant Discharge Elimination System (NPDES), Alabama Water Pollution Control Act, Code of Alabama 1975, §§ 22-22-1 to 22-22-14 and/or section 404 of the Clean Water Act, as amended.

(b) A facility shall not cause non-point source pollution of waters of the State, including wetlands, that violates any requirements of an area wide and statewide water quality management plan that has been approved under the Alabama Water Pollution Control Act.

(c) Landfill units including buffer zones shall not be permissible in wetlands, beaches or dunes.

(d) Landfill units shall not be permissible in any location where the disposal of solid waste would significantly degrade wetlands, beaches or dunes.

(e) Landfill units shall be located outside the boundaries of the coastal area, unless no other reasonable alternative is available. If a site within the coastal area is proposed for development as a landfill unit, it shall be demonstrated to the satisfaction of the Department that siting, design, construction, and operation will ensure that present levels of coastal plants and animals will be maintained.

(3) Other Requirements. Solid Waste Disposal Facilities must comply with any other applicable State or Federal rules, laws, regulations or other requirements.

335-13-4-.11

Author: Russell A. Kelly; S. Scott Story.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-7.

History: Effective: November 18, 1981. **Amended:** Effective: July 21, 1988.

Amended: Effective: November 2, 1993. **Amended:** Effective: July 26, 1996.

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335-13-4-.02 [Reserved]

335-13-4-.03 [Reserved]

335-13-4-.04 [Reserved]

335-13-4-.05 [Reserved]

335-13-4-.06 [Reserved]

335-13-4-.07 [Reserved]

335-13-4-.08 [Reserved]

335-13-4-.09 [Reserved]

335-13-4-.10 [Reserved]

335-13-4-.11 General Design Standards for Disposal Facilities.

(1) General Standards. 335-13-4-.12 through 335-13-4-.20 provides standards for establishing a landfill unit providing that the siting standards of 335-13-4-.01 have been fully complied with to the satisfaction of the Department. Certain requirements contained in 335-13-4-.01 through 335-13-4-.20 may be enhanced or reduced by the Department as deemed necessary to comply with the Act and this Division.

(2) Hydrogeology Standards.

(a) For purposes of designing the bottom elevation of the proposed cell, the applicant shall measure the groundwater elevation at the location of the proposed cell or liner system. Such determinations shall be based on groundwater measurements taken in the area of the proposed cell or liner system as approved by the Department. At each measuring location, the applicant shall obtain a minimum of two measurements taken during each of the three consecutive months of February, March and April, or as otherwise approved by the Department, with no two measurements taken within any twelve-day period. Having obtained the measurements, the applicant shall design the facility so that the bottom elevation of the proposed cell or liner system shall be a minimum of five feet above the highest measured groundwater level. The applicant shall submit to the Department all data known to exist concerning groundwater

elevations at the landfill site and shall submit to the Department a location map showing all monitoring wells or piezometers and drilling logs for all monitoring wells or piezometers used to obtain any groundwater elevation data that is submitted. Nothing herein shall prevent the Department from requiring additional groundwater measurements or from requiring an additional buffer as it may deem appropriate with respect to a particular site.

(b) When the geological and hydrological data so indicate, the Department may specify greater separation distances, a liner(s), or a leachate collection system, or combination of the above to protect the groundwater.

(c) When the geological and hydrological data so indicate, the Department may allow engineering controls to remove, divert, drain, or otherwise modify zones of saturation above the uppermost aquifer.

Author: Russell A. Kelly, S. Scott Story.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-7.

History: November 18, 1981.

Amended: July 21, 1988; November 2, 1993; July 26, 1996; November 28, 1996.

Amended: Filed: October 29, 2021; Effective: December 13, 2021.

335-13-4-.12 Plans and Operational Reports.

(1) Compliance. Plans and operational reports for construction, operation, maintenance, closure, and post-closure care of landfill units shall be prepared and kept on site and shall comply with 335-13-5-.02(1) and this chapter.

(2) Plan Requirements. These plans and reports shall include the following as determined necessary by the Department:

(a) Sufficient control points on-site to provide for accurate horizontal and vertical control for facility construction, operation and closure and post-closure.

(b) Detail presentation of geological and hydrogeological units in the disposal site, with typical sections of disposal method and plan and profile sheets on all areas or trenches.

(c) Boundary plat and legal property description prepared, signed, and sealed by a land surveyor of the proposed boundary of the facility and disposal area of the facility.

(d) Initial and final topographical maps at contour intervals of five feet or as otherwise specified by the Department.

335-13-4-.13

(e) Existing and proposed surface drainage pattern to include control structures designed to handle run-on and run-off. Design calculations for sediment control basins, etc. should be provided.

(f) Buffer zones, screening and other aesthetic control measures. Buffer zones around the perimeter of the landfill unit shall be a minimum of 100 feet in width measured in a horizontal plane. No disposal or storage practices for waste shall take place in the buffer zone. Roads, access control measures, earth storage, and buildings may be placed in the buffer zone.

(g) Details of plans for permanent all weather access roads.

(h) A summary of 335-13-4-.01 standards and conclusions of action to be taken and implemented into facility design.

(i) Location of any areas of the facility used for disposal of solid wastes.

(j) Presentation of special engineering features or considerations which must be included or maintained in facility construction, operation, maintenance and closure. Items required in 335-13-4-.12 through 335-13-4-.20 shall be included.

(k) Quality assurance/quality control (QA/QC) plan for all components of the liner, leachate collection, and cap systems.

(l) Location of all explosive gas wells and/or monitoring points.

Author: Russell A. Kelly; S. Scott Story.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-7.

History: Effective: November 18, 1981. **Amended:** Effective: July 21, 1988;

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Amended: Filed: April 24, 2018 Effective: June 8, 2018; **Amended:** Filed: June 25, 2019; Effective: August 9, 2019.

335-13-4-.13 Site Geology and Hydrology.

(1) Site Hydrogeology. The site hydrogeology shall be established to the uppermost aquifer and subsequent interconnecting aquifers.

(2) Hydrogeological Evaluation. The hydrogeological evaluation for a specific site, as required by the Department, may be provided for as follows:

(a) A hydrogeological evaluation performed by a firm or individual having expertise in hydrogeology. The expense of this evaluation shall be borne

wholly by the applicant. The following shall be required on such evaluations made under this rule:

1. The installation of a minimum of three exploration borings to include sampling and geologic logging and completion of these borings as piezometers. Subsequent establishment of the first saturated zone, the uppermost aquifer and subsequent underlying and interconnected aquifers, piezometer measuring point elevations, water table elevations and an estimate of groundwater flow direction and rate will be required.

2. A report shall be submitted to the Department which includes all items, information and analyses contained in 335-13-4-.13(2)(a)1.

3. Resumes and references, as necessary, to establish the qualifications of the firm or individual preparing the evaluation.

(b) A review of the information submitted under 335-13-4-.13(2)(a) shall be conducted by the Department.

(c) The requirement for a hydrogeological evaluation may be waived by the Department based on specific geology, hydrology, or waste types proposed for disposal.

(3) Department Action. The Department will conduct a site background hydrogeological evaluation and review all other related reports, plans or submittals.

(a) Expense for the background hydrogeological evaluation and reviews conducted by the Department shall be borne by the applicant in accordance with established procedures of the Department.

(b) The expense for soil borings, soil tests, piezometers, and other data as needed by the Department shall be borne by the applicant.

Author: Russell A. Kelly; S. Scott Story.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-7.

History: Effective: November 18, 1981. **Amended:** Effective: July 21, 1988.

Amended: Effective: July 26, 1996. **Amended:** Filed: April 24, 2018; Effective: June 8, 2018.

335-13-4-.14 Groundwater Resources.

(1) Groundwater. Groundwater resources in the vicinity of the landfill unit shall be determined as a basis for facility design, groundwater protection, and groundwater monitoring required under 335-13-4-.27.

(a) The depth to the groundwater and the direction of flow shall be established during the hydrogeological evaluation.

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(b) The groundwater in the first saturated zone below the landfill unit shall be evaluated as follows:

1. A minimum of one hydraulically upgradient monitoring well for background data and two hydraulically downgradient monitoring wells shall be required.

2. The location and design of the monitoring wells shall be approved by the Department prior to installation and the upgradient well shall be located so as not to be affected by the landfill unit.

3. The monitoring wells shall be installed well in advance of projected facility opening so as to provide an undisputed background water quality sample from each well. Background water quality shall be established using the sampling and analysis procedures described in 335-13-4-.27.

4. Additional monitoring wells above the minimum may be required by the Department based on site hydrology, geology, topographical features and waste characteristics.

5. Groundwater monitoring wells shall be designed and constructed as described in 335-13-4-.27.

(c) The groundwater sampling and analysis plan shall be prepared in accordance with 335-13-4-.27.

(2) Soil Permeability. The permeability of on-site soils, specifically those underlying the disposal site, shall be determined by laboratory testing at a qualified soils laboratory and followed up by pump testing or slug testing of monitoring wells.

Author: Russell A. Kelly.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-7.

History: November 18, 1981.

Amended: July 21, 1988; November 2, 1993; July 26, 1996.

335-13-4-.15 Cover. Daily, weekly, or some other periodic cover shall be required at all landfill units, as determined by the Department.

(1) The suitability and volume of any soils for daily, intermediate and final cover requirements shall be determined by soil borings and analysis.

(2) Any proposal to use alternative cover systems shall be submitted to and approved by the Department prior to implementation.

(3) Alternative cover shall be approved by the Department in compliance with federal law and the USEPA rules for guidance to achieve a level of performance equal to or greater than earthen cover material.

Author: Russell A. Kelly, Heather M. Jones.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-7.

History: November 18, 1981.

Amended: July 21, 1988; November 2, 1993. **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-4-.16 Explosive Gases. The generation of explosive gases, especially methane (CH₄), at a landfill unit which accepts organic waste shall be considered in the design and operation of the facility. Special attention shall be given to control and monitoring of explosive gases as follows:

(1) Control.

(a) Explosive gases shall not exceed the lower explosive limit (LEL) at the facility boundary.

(b) Explosive gases shall not exceed 25 percent of the LEL in facility structures except for gas control or recovery system components.

(c) Facility structures shall be designed and constructed so as not to allow explosive gases to collect in, under or around structures in concentrations exceeding the requirements of this rule.

(2) Monitoring.

(a) Gas monitoring equipment as required by the Department shall be provided at the landfill unit by the operating agency.

(b) The Department, upon review of waste type, facility structures, site geology and surrounding land use, may require installation of permanent gas monitoring structures, gas vents, gas control or recovery systems.

(c) An explosive gas monitoring and reporting plan shall be prepared and filed at the facility for all landfill units receiving organic wastes. All sites required to monitor for explosive gases shall submit a plan which indicates permanent monitoring points. The plan shall also include what measures shall be taken by the permittee, landfill supervisor, and any operators present on-site to protect human health and property should explosive gases be detected which exceed the LEL. The plan must be prepared by a registered professional engineer and include seal or signature and registration number in accordance with rule 335-13-5-.02(1)(a)5.(i) of the ADEM Administrative Code.

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

(i) Soil conditions;

(ii) Hydrogeological conditions surrounding the landfill unit;

(iii) Hydraulic conditions surrounding the landfill unit;

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- (iv) Location of the facility structures and property boundaries;
- (v) Location of structures adjacent to facility.

2. The minimum frequency for monitoring shall be quarterly for MSWLF and yearly for C/DLF and ILF.

(i) All monitoring reports shall be submitted to the Department and placed in the operating record of the facility within 30 days of the monitoring event.

(ii) Levels of gas detected shall be expressed in percent LEL and percent volume.

3. If explosive gas levels exceeds the limits specified in this rule, the permittee shall:

(i) Immediately take all necessary steps to ensure protection of human health and property and notify the Department;

(ii) Within 7 days of detection, place in the operating record of the facility the explosive gas levels detected and the immediate steps taken to protect human health and property;

(iii) Within 20 days of detection, submit to the Department for approval a remedial plan for the explosive gas releases. This plan shall describe the nature and extent of the problem and the proposed remedy. The plan shall be implemented upon approval by the Department, but within 60 days of detection. Also, within 60 days of detection, a copy of the plan shall be placed in the operating record of the facility and the Department notified that the plan has been implemented.

4. Monitoring points shall be located every 300 feet along the landfill permit boundaries. In areas where a dwelling is within 1000 feet of the boundaries, the monitoring points shall be 100 feet apart or as otherwise directed by the Department.

(i) Monitoring shall be conducted in structures, culverts, under bridges, drop inlets, and any other place that is conducive to gas accumulation.

(ii) Permanent gas monitoring structures, or use of the bar hole punch method, are required by the Department.

(iii) A minimum depth of six feet must be obtained for permanent monitoring structures and four feet when using the bar hole punch method.

Author: Russell A. Kelly, Eric L. Sanderson, S. Scott Story.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-7.

History: Effective: November 18, 1981. **Amended:** Effective: July 21, 1988. **Amended:** Effective: November 2, 1993. **Amended:** Effective: July 26, 1996. **Amended:** Filed: April 24, 2018; Effective: June 8, 2018. **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-4-.17 Drainage. Owners or operators of all facilities must design, construct and maintain:

(1) A run-on control system to prevent flow onto the active and/or closed portions of the landfill during the peak discharge from a 25-year storm;

(2) A run-off control system from the active and/or closed portions of the landfill to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

(3) On-site drainage structures to carry incident precipitation from the disposal site so as to minimize the generation of leachate, erosion and sedimentation. Run-off from the active and/or closed portions of the landfill unit must be handled in accordance with 335-13-4-.01(2)(a), and (b) and shall be routed to a settling basin or other sedimentation control structure to remove sediment prior to release onto adjacent properties or waters.

Author: Russell A. Kelly.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-7.

History: November 18, 1981.

Amended: July 21, 1988; November 2, 1993; July 26, 1996.

335-13-4-.18 Liners and Leachate Collection.

(1) Liners. Where natural hydrogeologic conditions may be determined by the Department to be insufficient to minimize the impact of leachate on waters, the use of an appropriate liner(s) shall be used as approved by the Department. New MSWLF units and lateral expansions, at a minimum, shall be constructed with a composite liner, as defined in 335-13-1-.03, or an alternate design as specified in 335-13-4-.18(3)(h). Multiple liners, including composite liners, may be required if determined necessary by the Department.

(2) Leachate Collection System. A leachate collection system shall be required that is designed and constructed to maintain less than a 30 cm depth of leachate over the liner.

(3) Specifications. The composite liner(s) shall comply with the following minimum standards:

(a) The permeability shall be 1×10^{-7} cm/sec or less for soil liners.

(b) The synthetic liner(s) shall be resistant to physical and chemical attack by leachate.

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(c) The liner system shall be capable of maintaining integrity for the design life which must be determined on a site specific basis.

(d) The minimum allowable thickness of each layer of the composite liner shall be:

1. 40 mil for the flexible membrane liner component unless flexible membrane liner (FML) consists of high density polyethylene (HDPE) which requires 60 mil, and

2. Two feet, measured after compaction, for the natural soil liner component meeting the permeability requirements of 335-13-4-.18(3)(a).

(e) The installation of synthetic liners shall be as recommended by the manufacturer providing that:

1. The installation recommendations of the manufacturer to be used are provided to the Department for review.

2. The Department finds that the recommended installation procedures are consistent with the intent of the Act and this chapter.

3. The installation of the liner shall be under the supervision of an engineer who shall certify to the Department that the liner was installed and maintained in accordance with this Division, QA/QC plans, and approved design plans.

(f) The design and installation of soil liners and the properties of soils used in a soil liner shall meet the following minimum requirements:

1. Design of soil liner(s) shall be by a qualified soils engineer, or geotechnical engineer.

2. The soil liner must be compacted in lifts of 4 to 6 inches within 4 percent of optimum moisture content (or as approved by the Department) to a field density which correlates with a laboratory permeability of 1×10^{-7} cm/sec or less.

3. The installation of soil liner(s) shall be under the supervision of a soils engineer, geotechnical engineer or geologist who shall certify to the Department that the liner(s) was installed and maintained in accordance with this Division, QA/QC plans, and approved design plans.

4. The soils used in soil liners shall meet the minimum following criteria:

(i) Free of oversize particles, such as rocks, roots, limbs and other foreign substances which would alter the design integrity of the liner;

- (ii) Classified under the Unified Soil Classification System as CL, CH or SC (ASTM Standard D2 487-69);
- (iii) Allow greater than 30 percent passage through a No. 200 sieve (ASTM Test D-1140);
- (iv) Have a liquid limit equal to or greater than 30 units (ASTM Test D-423); and
- (v) Have a plasticity greater than or equal to 15 units (ASTM Test D-424).
- (g) For a composite liner system, the synthetic liner shall be installed in direct contact with the soil liner.
- (h) An alternate liner design may be approved by the Department provided that:
 1. The owner or operator demonstrates that the alternate design ensures the concentration values listed in Table 1 of this rule will not be exceeded in the first saturated zone at the relevant point of compliance, as specified by the Department under 335-13-4-.27(2)(a)3.
 2. When approving a design that complies with subparagraph (a) of this paragraph, the Department shall consider at least the following factors:
 - (i) The hydrogeologic characteristics of the facility and surrounding land;
 - (ii) The climatic factors of the area; and
 - (iii) The volume and physical and chemical characteristics of the leachate.

TABLE 1	
Chemical	MCL (mg/l)
Arsenic	0.05
Barium	1.0
Benzene	0.005
Cadmium	0.01
Carbon tetrachloride	0.005
Chromium (hexavalent)	0.05
2,4-Dichlorophenoxy acetic acid	0.1
1,4-Dichlorobenzene	0.075
1,2-Dichloroethane	0.005
1,1-Dichloroethylene	0.007
Endrin	0.0002

TABLE 1

Chemical	MCL (mg/l)
Fluoride	4
Lindane	0.004
Lead	0.015
Mercury	0.002
Methoxychlor	0.1
Nitrate	10
Selenium	0.01
Silver	0.05
Toxaphene	0.005
1,1,1-Trichloromethane	0.2
Trichloroethylene	0.005
2,4,5-Trichlorophenoxy acetic acid	0.01
Vinyl Chloride	0.002

Author: Russell A. Kelly; S. Scott Story.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-7.

History: Effective: November 18, 1981. **Amended:** Effective: July 21, 1988.

Amended: Effective: November 2, 1993. **Amended:** Effective: July 26, 1996.

Amended: Filed April 24, 2018; Effective: June 8, 2018.

335-13-4-.19 Access. The owner or operator of the facility must control public access and prevent unauthorized vehicular traffic and illegal dumping of wastes by using artificial barriers, natural barriers, or both, as appropriate to protect human health and the environment.

Author: Russell A. Kelly.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-7.

History: November 18, 1981.

Amended: July 21, 1988; November 2, 1993.

335-13-4-.20 Closure and Post-Closure.

(1) Submittal. The owner or operator must submit a closure/post-closure plan to the Department and place in the operating record, no later than the effective date of these regulations or by the initial receipt of waste, whichever is later.

(2) Closure. The requirements for closure of existing and proposed landfill units shall include the following unless otherwise noted.

(a) The owner or operator must prepare a written closure plan that describes the steps necessary to close all existing and proposed landfill units at any point during their active life in accordance with the cover design requirements in 335-13-4-.20(2)(b). The owner or operator must submit the

closure plan as part of the permit application to the Department. The closure plan, at a minimum, must include the following information:

1. A description of the final cover, designed in accordance with 335-13-4-.20(2)(b) and the methods and procedures to be used to install the cover;
2. An estimate of the largest area of the landfill unit ever requiring a final cover as required under 335-13-4-.20(2)(b) at any time during the active life;
3. An estimate of the maximum inventory of wastes ever on-site over the active life of the facility; and
4. A schedule for completing all activities necessary to satisfy the closure criteria in this rule.

(b) A final cover system must be installed which is designed to minimize infiltration and erosion. The final cover system must be comprised of an erosion layer(s) underlain by an infiltration layer(s) as follows:

1. The infiltration layer for MSWLF and ILF must be comprised of a minimum of 18 inches of earthen material and/or a synthetic layer that has a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than 1×10^{-5} cm/sec, whichever is less. The infiltration layer for C/DLF must be comprised of a minimum of 18 inches of compacted earthen material excluding sands, and
2. The erosion layer must consist of a minimum 6 inches of earthen material that is capable of sustaining native plant growth, as specified in 335-13-4-.20(2)(d).
3. The Department may approve an alternative final cover design that includes:
 - (i) An infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in 335-13-4-.20(2)(b)1., and
 - (ii) An erosion layer that provides equivalent protection from wind and water erosion as the erosion layer specified in 335-13-4-.20(2)(b)2.
- (c) Final soil cover shall be graded so that:
 1. Surface water does not pond over the landfill unit.
 2. The maximum final grade of the final cover system shall not exceed 25 percent or as specified by the Department to minimize erosion.
 3. Slopes longer than 25 feet shall require horizontal terraces, of sufficient width for equipment operation, for every 20 feet rise in elevation or utilize other erosion control measures approved by the Department.

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4. The minimum final grade of the final cover system shall not be less than 5 percent or as specified by the Department to minimize ponding.

5. For a permitted facility utilizing the area fill method or the trench method, final grading of the infiltration layer shall be completed within 90 days after the unit has received the last known receipt of waste.

(d) A vegetative or some other appropriate cover must be established to minimize erosion and, when applicable, maximize evapotranspiration. Within 90 days after completion of final grading requirements on each phase or each trench as specified in 335-13-4-.20(2)(a), the permittee or owner of a permitted landfill unit shall prepare the final cover for the establishment of a vegetative cover or alternative cover. Deep rooted vegetation (roots that may grow below the 6 inch erosion layer) shall be prohibited as vegetative cover. Preparation of a vegetative cover shall include, but not be limited to, the following:

1. Placement of appropriate species of grass seed, fertilizer and mulch; and

2. Watering and maintenance necessary such that germination of grass will occur.

(e) Prior to beginning closure of each landfill unit as specified in this rule, an owner or operator must submit to the Department and place in the operating record a notice of the intent to close the unit.

(f) The owner or operator must begin closure activities of each LF unit no later than 30 days after the date of which the LF unit receives the known final receipt of wastes. If the LF unit has remaining capacity and there is reasonable likelihood that the LF unit will receive additional wastes, closure activities of each LF unit must begin no later than one year after the date of known final receipt of wastes. Extensions beyond the one-year deadline for beginning closure may be granted by the Department if the owner or operator demonstrates that the LF unit has the capacity to receive additional wastes and the owner or operator has taken and will continue to take all steps necessary to prevent threats to human health and the environment from the unclosed LF unit.

(g) The owner or operator of all LF units must complete closure activities of each LF unit in accordance with the closure plan within 180 days following the last known receipt of waste. Extensions of the closure period may be granted by the Department if the owner or operator demonstrates that closure will, of necessity, take longer than 180 days and the owner or operator has taken and will continue to take all steps necessary to prevent threats to human health and the environment from the unclosed LF unit. Extensions granted for closure of each LF unit shall not exceed a total of 180 days.

(h) Following closure of each LF unit, the owner or operator must submit to the Department a certification, signed by an independent registered

professional engineer verifying that closure has been completed in accordance with the closure plan, and a copy placed in the operating record. C/DLF and/or ILF owner or operator may submit certification signed by a registered professional engineer in lieu of an independent registered professional engineer.

(i) Within 90 days after permit expiration, revocation or when final closure requirements in 335-13-4-.20 are achieved as determined by the Department, the permittee or owner of a facility must provide documentation of compliance with the requirements of the Uniform Environmental Covenants Program in ADEM Admin. Code Division 335-5 and shall record a notation onto the land deed containing the property utilized for disposal, and/or some other legal instrument that is normally examined during a title search, that will in perpetuity, notify any potential purchaser of the property that:

1. The land has been used as a solid waste disposal facility landfill unit;
2. Its use is restricted by the items contained in 335-13-4-.20(3)(c) and 335-13-4-.20(3)(d);
3. The locations and dimensions of the landfill unit with respect to permanently surveyed benchmarks and section corners shall be on a plat prepared and sealed by a land surveyor;
4. Contain a note, prominently displayed, which states the name of the permittee or operating agency, the type of landfill unit and the beginning and closure dates of the disposal activity.
5. Certification by an engineer or land surveyor that all closure requirements have been completed as determined necessary by the Department.

(j) For a permitted facility, the permittee or land owner shall submit a certified copy of the recording instrument to the Department and place a copy in the operating record within 120 days after permit expiration, revocation or as otherwise directed by the Department.

(k) Detail design for the closure of existing and proposed LF units shall be shown on a final contour and drainage plan. Items required in 335-13-4-.20(2)(b) through (d), (i), (j), and (3)(a), (d), and (f) shall be included.

(3) Post-closure. The requirements for post-closure of existing and proposed landfill units shall include the following unless otherwise noted.

(a) Following closure of each LF unit, the owner or operator must conduct post-closure care. Post-closure care must be conducted for a minimum of 30 years; or a minimum of 5 years if closed prior to October 9, 1993, or the effective date of § 258.1 of 40 CFR 258, Solid Waste Disposal Criteria, whichever is later; except as provided under 335-13-4-.20(3)(b), and consist of at least the following:

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1. Eroded areas shall be filled with suitable soil cover, compacted, graded and appropriate cover established as described in 335-13-4-.20(2)(d).

2. Areas which provide for ponding of surface water shall be filled, graded and an appropriate cover established as described in 335-13-4-.20(2)(d).

3. Landfilled areas with extensive surface cracks in soil cover shall be corrected as necessary, or as determined by the Department, to prevent infiltration of surface water.

4. An appropriate cover shall be maintained on the facility at all times as described in 335-13-4-.20(2)(d).

5. Access control structures shall be maintained or erected and signs shall be posted stating that the facility is closed and giving the location of the nearest permitted landfill unit.

6. Any waste dumped at the landfill unit following closure shall be removed to an approved landfill unit by the permittee, operating agency, or owner.

7. Monitoring devices and pollution control equipment such as groundwater monitoring wells, explosive gas monitoring systems, erosion, and surface water control structures, and leachate facilities shall be maintained. Monitoring requirements shall continue in effect throughout the active life and post-closure care period as determined by the Department unless all solid waste is removed and no unpermitted discharge to waters has occurred.

8. Other deficiencies, such as vector control, which may be observed by the Department shall be corrected.

(b) The length of the post-closure care period may be:

1. Decreased by the Department if the owner or operator demonstrates that the reduced period is sufficient to protect human health and the environment and this demonstration is approved by the Department; or

2. Increased by the Department if the Department determines that the lengthened period is necessary to protect human health and the environment.

(c) The owner or operator of all LF units must submit to the Department and receive approval as part of the permit application, a written post-closure plan. A copy must also be placed in the operating record. The post-closure plan must include, at a minimum, the following information:

1. A description of the monitoring and maintenance activities required in 335-13-4-.20(3)(a) for each LF unit, and the frequency at which these activities will be performed;

2. Name, address, and telephone number of the person or office to contact about the facility during the post-closure period; and

3. A description of the planned uses of the property during the post-closure period.

(d) Post-closure use of the property used for the disposal operation must never be allowed to disturb the integrity of the final cover, liner(s), or any other component of the containment system, or the function of the monitoring systems necessary to comply with the requirements of these rules. The Department may approve any other disturbance if the owner or operator demonstrates that the disturbance, including any removal of waste, complies with the following:

1. The activities will not increase the potential threat to human health or the environment; or

2. The activities are necessary to reduce a threat to human health or the environment.

(e) Following completion of the post-closure care period for each LF unit, the owner or operator must submit to the Department a certification, signed by an independent registered professional engineer verifying that post-closure care has been completed in accordance with the post-closure plan, and a copy placed in the operating record. A C/DLF owner or operator may submit certification signed by a registered professional engineer in lieu of an independent registered professional engineer.

(f) If the permittee or owner, or any subsequent owner of the land upon which a landfill unit is located wishes to remove waste, waste residues, the liner, if any, or any contaminated soils, the owner must request approval from the Department. The owner may also ask permission to remove the notation from the recording instrument if all waste and contaminated soils are removed from the property and no unpermitted discharges to waters have occurred.

Author: Russell A. Kelly; S. Scott Story, Heather M. Jones.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-4, 22-27-7.

History: Effective: November 18, 1981. **Amended:** Effective: July 21, 1988.

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335-13-4-.21 General Operational Standards for Landfill Units. Any person or agency operating or planning to operate a landfill unit shall operate and maintain the facility consistent with this Division. General requirements for operating and maintaining an acceptable landfill unit shall be:

(1) General Operation.

(a) The operation and use of the landfill unit shall be as stipulated in the permit.

(b) Waste accepted at the facility shall be strictly controlled so as to allow only waste stipulated on the permit or otherwise as may be approved by the Department. The permittee of any facility permitted under these rules must have in the operating record a plan describing procedures the permittee will implement for detecting and preventing the disposal of free liquids, regulated hazardous wastes, regulated medical wastes, and regulated PCB wastes at the facility. This plan must include at a minimum:

1. Random inspections of incoming loads to ensure that incoming loads do not contain free liquids, regulated hazardous wastes, regulated medical wastes, or regulated PCB wastes.

2. Inspection of suspicious loads.

3. Records of all inspections to include the origin of waste suspected to be regulated hazardous, regulated medical, or regulated PCB waste, if known; transporters, to include transfer stations and all handlers of the waste en route to the disposal site; and any certifications from generators provided to the permittee or facility personnel. These records must be maintained on file in the operating record of the facility.

4. Training of facility personnel to recognize free liquids, regulated hazardous wastes, regulated medical wastes, and regulated PCB wastes.

5. Procedures for notifying the proper authorities if free liquids, regulated hazardous wastes, regulated medical wastes, or regulated PCB wastes are discovered at the facility.

6. Methods to identify all industrial users of the facility, producers of special wastes, and transporters of these wastes.

(c) Prior to disposal of industrial waste and/or medical waste, the permittee shall obtain from each generator a written certification that the material to be disposed does not contain free liquids, regulated hazardous wastes, regulated medical wastes, or regulated PCB wastes.

1. This certification may be based on laboratory analysis of the waste on a case-by-case basis, or documentation supporting the generator's knowledge of the wastestream(s), or as may be required by the Department.

2. Copies of the certification shall be submitted to the Department for disposal approval and for any specific requirements prior to disposal. After

submittal of the required certification, the Department shall have five (5) working days to respond. If no response is given, the permittee may dispose of the material as proposed.

3. In the case of one-time emergency disposal requests, the permittee shall submit the required certification no later than five (5) days after the disposal of waste.

4. Certification shall be renewed or revised biennially (every two years) or at such time that operational changes at the point of generation could render the waste hazardous, whichever is more frequent and submitted to the Department for approval.

5. Copies of these certifications and approvals shall be maintained on file in the operating record of the facility and shall be made available for the Department upon request.

6. The above requirements notwithstanding and, as may otherwise be required, pursuant to Division 13 rules, generators will not be required to submit certification to the Department provided that:

(i) The waste will be disposed of at a non-commercial industrial waste landfill which has been permitted by the Department, and is owned either exclusively or mutually by the generator(s) of the waste, and which disposes of waste generated only by the owner(s);

(ii) The wastestream(s) to be disposed of are specifically described in the Solid Waste Landfill Permit issued by the Department or in the final application as referenced by the permit for the site designated to receive the waste;

(iii) The required certification, as described above, is maintained on-site by the owner(s) of the landfill; and

(iv) The required certification, as described above, is made available for inspection by the Department upon request.

(d) The landfill unit shall be operated in such a manner that there will be no water pollution or unauthorized discharge.

1. Any discharge resulting from a landfill unit or practice may require:

(i) A National Pollutant Discharge Elimination System (NPDES) permit under the Alabama Water Pollution Control Act as issued by the Department.

(ii) A dredge or fill permit from the Army Corps of Engineers as required under Section 404 of the Clean Water Act, as amended; or

(iii) That a non-point source of surface waters does not violate an area wide or statewide water quality management plan that has been approved under the Alabama Water Pollution Control Act.

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2. The groundwater shall not be contaminated as specified by this Division.

(e) The historic and certified disposal areas shall be identified with a sufficient number of permanent markers which are at least visible from one marker to the next.

(f) Measuring or weighing devices shall be required for all municipal solid waste landfill units accepting solid waste. All solid waste shall be properly measured or weighed prior to disposal unless otherwise approved by the Department.

(g) Deep rooted vegetation (with roots that may grow below the six inch erosion layer) shall be prohibited as vegetative cover.

(h) With the exception of very small quantity generator waste disposed of in municipal solid waste landfills, regulated hazardous waste, as defined by Division 14 of the ADEM Administrative Code, is prohibited from disposal in a non-hazardous landfill unit.

(2) Open Burning.

(a) Open burning of solid waste at any landfill unit is prohibited unless approved by the Department as follows:

1. Clearing debris at the landfill unit such as trees and stumps may be burned if prior approval is received from the Department and the Alabama Forestry Commission.

2. Emergency clean-up debris resulting from catastrophic incidents may be burned at a permitted landfill unit if consistent with the intent of this Division and air pollution control requirements. Prior approval must be received from this Department and other appropriate agencies.

3. If approved, the burning shall not occur over previously filled areas or within 200 feet of existing disposal operations unless otherwise specified by the Department and such burning shall not cause a public nuisance or pose a threat to public health.

(b) The person or agency requesting permission to burn solid waste shall apply in writing to the Department, outlining why a burn request should be granted. This request should include, but not be limited to, specifically what areas will be utilized, types of waste to be burned, the projected starting and completion dates for the project, and the projected days and hours of operation.

Author: Russell A. Kelly; S. Scott Story; Heather M. Jones.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-5, 22-27-3, 22-27-4, 22-27-7, 22-27-47, 22-27-48.

History: Effective: November 18, 1981. **Amended:** Effective: March 31, 1988 (Emergency Regulations). **Amended:** Effective: July 21, 1988. **Amended:** Effective: October 2, 1990. **Amended:** Effective: November 2, 1993. **Amended:** Effective: July 26, 1996. **Amended:** Filed: April 24, 2018; Effective: June 8, 2018; **Amended:** Filed: June 25, 2019; Effective: August 9, 2019. **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-4-.22 Specific Requirements for Municipal Solid Waste Landfills.

The following requirements in conjunction with 335-13-4-.21 shall be for operating and maintaining an acceptable MSWLF:

(1) Daily Operation.

(a) All waste shall be covered as follows:

1. A minimum of six inches of compacted earth or other alternative cover material that is approved by the Department shall be added at the conclusion of each day's operation or as otherwise approved by the Department to control disease vectors, fires, odors, blowing litter, and scavenging.

2. In the event that erosion develops on previously covered disposal areas, or when covered waste otherwise becomes exposed, cover must be re-applied to comply with the minimum cover requirements of subparagraph (1)(a)1. of this section.

3. Final closure shall be carried out in accordance with rule 335-13-4-.20 of this Division.

(b) All waste shall be confined to as small an area as possible within a single working face and spread to a depth not exceeding two feet prior to compaction, and such compaction shall be accomplished on a face slope not to exceed 4 to 1 (25%) or as otherwise approved by the Department.

(c) All waste shall be thoroughly compacted with adequate landfill equipment before the daily cover is applied. A completed daily cell shall not exceed eight feet in vertical thickness measured perpendicular to the slope of the preceding cell.

(d) The site shall be operated in accordance with approved plans and permits.

(e) Adequate personnel shall be provided to ensure continued and smooth operation of the facility.

(f) Adequate equipment shall be provided to ensure continued operation in accordance with permit and regulations.

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(g) Provisions shall be made for disposal activities in adverse weather conditions.

(h) The site shall be adequately secured using artificial barriers, natural barriers, or both to prevent entry of unauthorized vehicular traffic.

(i) A sign outlining instructions for use of the site shall be posted at the entrance and shall include:

1. Name of facility,
2. Name of permittee and/or operating agency or person,
3. Days and hours of operation,
4. Disposal fees, and
5. Types of waste accepted if the site is available to the general public or commercial haulers.

(j) Special provisions shall be made for handling large dead animals or highly putrescible waste. Immediately covering the waste with a minimum of 12 inches of cover in a designated area of the facility shall be included in these provisions.

(k) Bulk or noncontainerized liquid waste, or containers capable of holding liquids, shall not be accepted at a landfill unit unless:

1. The liquid is household waste other than septic waste;
2. The liquid is leachate or gas condensate derived from the MSWLF unit, and the MSWLF unit is designed with a minimum composite liner and leachate collection system or approved equivalent liner and leachate collection system; or
3. The containers:
 - (i) Are similar in size to that normally found in household waste;
 - (ii) Are designed to hold liquids for use other than storage; or
 - (iii) Contain household wastes.

(l) Empty containers larger in size than normally found in household waste must be rendered unsuitable for holding liquids prior to disposal in the landfill unit unless otherwise approved by the Department.

(m) Unless otherwise provided by 335-13-4-.22(1)(k), free liquids are prohibited from disposal in the landfill unit.

(n) MSWLF units containing sewage sludge and failing to satisfy the criteria in this Division violate Sections 309 and 405(e) of the Clean Water Act.

(2) Routine Maintenance.

(a) Scavenging shall be prohibited and salvaging operations shall be controlled.

(b) Litter shall be controlled within the permitted facility.

(c) An all-weather access road shall be provided to the dumping face.

(d) Measures shall be taken to prevent the breeding or accumulation of disease vectors. If determined necessary by the Department or the State Health Department, additional disease vector control measures shall be conducted.

(e) Environmental monitoring and treatment structures shall be clearly marked and identified, protected and maintained in good repair and shall be easily accessible.

(f) Completed sites or portions of sites shall be properly closed as provided by this Division and approved facility plans.

(g) The average daily volume of waste received at a MSWLF shall be calculated by dividing the total month's receipts by the total number of days in the reporting month. Records shall be maintained on the average daily volume of waste received at MSWLFs. A quarterly report which summarizes the daily volumes, with volumes received reported in a format specified and approved by the Department, shall be submitted to the Department and maintained on file in the operating record of the facility by the permittee. If the average daily volume is exceeded for two or more consecutive quarters, by 20 percent or 100 tons/day, whichever is less, a modification would be required to adjust the permitted average daily volume.

(3) Additional Requirements.

(a) Owners or operators of all MSWLFs must ensure that the units do not violate any applicable requirements developed under a State Implementation Plan (SIP) approved or promulgated by the Administrator pursuant to Section 110 of the Clean Air Act, as amended.

(b) Notwithstanding this rule, additional requirements for operating and maintaining a MSWLF may be imposed by the Department, as deemed necessary, to comply with the Act and this Division.

Author: Russell A. Kelly; S. Scott Story; Heather M. Jones.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-4, 22-27-7.

History: Effective: November 18, 1981. **Amended:** Effective: July 21, 1988.

Amended: Effective: October 2, 1990. **Amended:** Effective: November 2, 1993.

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335-13-4-.23 Specific Requirements for Inert- Construction/Demolition Landfills and Industrial Landfills. The following requirements in conjunction with 335-13-4-.21 shall be for operating and maintaining an acceptable C/DLF or ILF:

(1) Operation.

(a) All waste shall be covered as follows:

1. A minimum of six inches of compacted earth or other alternative cover material that is approved by the Department shall be added at the conclusion of each week's operation or as otherwise specified by the Department to control disease vectors, fires, odors, blown litter and scavenging.

2. In the event that erosion develops on previously covered disposal areas, or when covered waste otherwise becomes exposed, cover must be re-applied to comply with the minimum cover requirements of subparagraph (1)(a)1. of this section.

3. Final closure shall be carried out in accordance with 335-13-4-.20 of this Division.

(b) All waste shall be thoroughly spread in layers two feet or less in thickness and thoroughly compacted weekly with adequate landfill equipment prior to placing additional layers of waste or placing the weekly cover as specified in 335-13-4-.23(1)(a)1., unless otherwise approved by the Department. Waste, such as construction/demolition waste and other types of waste, which cannot be managed by landfill equipment in this manner shall be managed in a manner approved by the Department.

(c) All waste shall be confined to as small an area as possible within a single working face and placed onto an appropriate slope not to exceed 4 to 1 (25%) or as approved by the Department.

(d) The facility shall be operated in accordance with approved plans and permits.

(e) The site shall be adequately secured to prevent entry except by authorized person(s) unless an operator is on site.

(f) If the site is available to the public or commercial haulers, a sign shall be posted at the landfill stating:

1. Name of permittee,
2. Owner and/or operator,
3. Name of landfill,

4. Days and hours of operation,
5. Waste types accepted, and
6. Disposal fees for use of the landfill.

(g) Provisions shall be made for disposal activities in adverse weather conditions.

(h) Adequate personnel shall be provided to ensure continued and smooth operation of the site.

(i) Adequate equipment shall be provided to ensure continued operation in accordance with permit and regulations.

(j) Bulk or non-containerized liquid waste, or containers capable of holding liquids, shall not be accepted at a C/DLF or ILF unless:

1. The liquid is leachate or gas condensate derived from the C/DLF or ILF unit, and

2. The C/DLF or ILF unit is designed with a minimum single liner and leachate collection system or approved equivalent liner and leachate collection system.

(k) Empty containers larger than 10 gallons in size must be rendered unsuitable for holding liquids prior to disposal in the landfill unit unless otherwise approved by the Department.

(l) Unless otherwise provided by 335-13-4-.23(1)(j), free liquids are prohibited from disposal in the landfill unit.

(2) Routine Maintenance.

(a) Scavenging shall not be permitted, and salvaging operations shall be controlled.

(b) Litter shall be controlled within the permitted facility.

(c) Completed sites or portions of sites shall be properly closed as provided by this Division and approved facility plans.

(d) An all-weather access road shall be provided to the dumping face.

(e) Environmental monitoring and treatment structures shall be protected and maintained in good repair and easily accessible.

(f) The average daily volume of waste received at a C/DLF or ILF shall be calculated by dividing the total month's receipts by the total number of days

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in the reporting month. Records shall be maintained on the average daily volume of waste received at C/DLFs and ILFs. A quarterly report which summarizes the daily volumes, with volumes received reported in a format specified and approved by the Department, shall be submitted to the Department and maintained on file in the operating record of the facility by the permittee. If the average daily volume is exceeded for two or more consecutive quarters, by 20 percent or 100 tons/day, whichever is less, a modification would be required to adjust the permitted average daily volume.

(g) Measures shall be taken to prevent the breeding or accumulation of disease vectors. If determined necessary by the Department or the State Health Department, additional disease vector control measures shall be conducted.

(3) Additional Requirements.

(a) Notwithstanding this rule, certain requirements for operating and maintaining a C/DLF or ILF may be enhanced or reduced by the Department as deemed necessary to comply with the Act and this Division. Any action by the Department to enhance or reduce the requirement(s) must be done in writing from the Department.

(b) [Reserved]

(c) Industrial landfills which accept coal combustion residuals must also adhere to the applicable requirements of ADEM Admin. Code 335-13-15.

Author: Russell A. Kelly, Eric L. Sanderson; Heather M. Jones.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-4, 22-27-7.

History: Effective: November 18, 1981. **Amended:** Effective: July 21, 1988.

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335-13-4-.24 Septic Tank Pumpings and Sewage Sludge. The practice of accepting septic tank pumpings and sewage sludge shall not occur at landfill units unless specifically approved in writing by the Department.

Author: Russell A. Kelly.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-7.

History: November 18, 1981.

Amended: July 21, 1988; November 2, 1993.

335-13-4-.25 [Reserved]

335-13-4-.26 Requirements for Management and Disposal of Special Waste.

(1) Exceptions.

(a) Requirements for the management and disposal of special waste at a landfill unit permitted by the Department shall meet the requirements of this rule.

(b) Certain requirements may be modified by the Department as deemed necessary to comply with the Act and this Division.

1. Waste types for which specific rules and regulations under this Division have not been developed shall be managed and disposed of in a manner as determined by the Department to be consistent with the intent of the Act and this Division.

2. Generators of a special waste may be required by the Department to provide an analysis and certification that the waste is nonhazardous waste or treated medical waste.

(2) Disposal requirements for friable asbestos. Any person who generates, processes, treats, or disposes of friable asbestos shall comply with the following practices:

(a) Friable asbestos shall be disposed of in a facility permitted by the Department. The friable asbestos shall arrive at the landfill unit in properly labeled, leak-tight containers as determined by the Department's Air Division.

(b) Containers shall be placed intact in a specially prepared place and covered with a minimum of 12 inches of earth or other alternative cover material, as approved by the Department, at the end of each working day. Asbestos waste may be landfilled in an excavation at the bottom of the operating face if no liner is present or the design depth restriction is not exceeded. The waste may also be placed in a separately designated area. If a separate area is utilized, it shall be clearly marked to prevent future excavation into the waste.

(c) Proper handling precautions shall be taken to ensure that containers are not ruptured prior to placing the required daily cover as noted in 335-13-4-.26(2)(b). No machinery shall be operated directly over uncovered containers.

(d) Final cover shall be as noted in 335-13-4-.20(2)(b).

(3) Disposal requirements for foundry wastes. Foundry waste which exhibits less than 50 percent of each of the TC Levels for metals as defined by the USEPA's Toxicity Characteristic Leaching Procedure (TCLP) may be managed in the following manner:

(a) Foundry waste may be managed in areas other than

1. Flood Plains;

2. Wetlands;

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3. Residential zones; or
4. Areas less than 5 feet above the uppermost aquifer.

(b) Each foundry must maintain records at the manufacturing facility. These records must include:

1. A description of the site to within the $\frac{1}{4}$, $\frac{1}{4}$ Section of a specific township and range.

2. Volume of foundry waste disposed of at each location.

(c) The waste must be certified by the generator on a quarterly basis or whenever the process changes which would significantly alter the test results, whichever is more frequent. Certification of the foundry waste shall be accomplished by submitting the following:

1. A completed Solid/Hazardous Waste Determination Form.
2. A TCLP analysis for metals.

(d) Each foundry must contact the Water Division of ADEM with regards to General Stormwater and/or NPDES permits.

(e) Foundry waste from two or more foundries may be managed at one location provided adequate documentation and record keeping is maintained for each foundry.

(f) Foundry waste not meeting the requirements of paragraph (3) of this rule must be managed at an approved recycle/reuse facility or at a landfill unit approved for the disposal of foundry waste and permitted by the Department.

(4) Disposal requirements for petroleum contaminated waste. Any person who disposes of petroleum contaminated waste shall comply with the following practices:

(a) Petroleum contaminated waste must be disposed of in a MSWLF and/or a synthetically lined facility having a solid waste disposal permit issued by the Department and having groundwater monitoring wells.

(b) Prior to disposing of a petroleum contaminated waste in accordance with subparagraph (a) of this paragraph, the generator of the waste must provide the Department with a written certification that the waste is non-hazardous.

1. The generator of a petroleum contaminated waste may use knowledge of the processes producing the waste to certify that the waste is non-hazardous; however the Department, on a case-by-case basis, may require additional information and/or laboratory analyses to support the generator's certification.

2. The written certification that the waste is non-hazardous must include laboratory analysis for metals if the source of the petroleum contamination is leaded gasoline, used automotive crank case oil, or if the generator has reason to believe that the source contains TCLP metals.

(c) Small quantities of petroleum contaminated waste may be disposed in MSWLFs, C/DLFs, or ILFs, and shall not require approval and/or testing, provided that the waste:

1. Contains less than twenty-five (25) gallons of petroleum; and
2. Total material (i.e., soil, rags, sorbent, etc.) is less than five (5) cubic yards per occurrence.

(5) Disposal requirements for municipal solid waste ash. Municipal solid waste ash shall be disposed of at a MSWLF meeting at a minimum the design criteria established under 335-13-4-.18. Alternative disposal methods or uses must be approved by the Department prior to implementation.

(6) Disposal requirements for wood ash waste. Wood ash waste which exhibits less than 50 percent of each of the TC Levels for metals as defined by the USEPA's Toxicity Characteristic Leaching Procedure (TCLP) may be managed in the following manner:

- (a) Wood ash waste may be managed in areas other than
 1. Flood Plains;
 2. Wetlands;
 3. Residential zones; or
 4. Areas less than 5 feet above the uppermost aquifer.

(b) Facilities managing wood ash waste in an area that is not a permitted landfill unit, not within the property boundaries of the generator, and meets the requirements of 335-13-4-.26 (6)(a) must maintain records at the facility that include the following:

1. A description of the site to within the $\frac{1}{4}$, $\frac{1}{4}$ Section of a specific Township and Range.
2. Volume of the wood ash waste disposed of at each location on a quarterly basis.
3. Certification of the wood ash waste on a quarterly basis or whenever the waste generating process changes which would significantly alter the test results, whichever is more frequent. Certification of the wood ash waste must be accomplished by submitting the following:

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- (i) A completed Solid/Hazardous Waste Determination Form.
- (ii) A TCLP analysis for metals.

(c) Facilities managing wood ash waste in an area that is not a permitted landfill unit, within the property boundaries of the generator, and meets the requirements of 335-13-4-.26 (6)(a) must maintain records at the facility that include the following:

1. Certification of the wood ash waste on a two (2) year basis or whenever the waste generating process changes which would significantly alter the test results, whichever is more frequent. Certification of the wood ash waste must be accomplished by submitting the following:

- (i) A completed Solid/Hazardous Waste Determination Form.
- (ii) A TCLP Analysis for metals.

(d) Each facility managing wood ash waste in accordance with 335-13-4-.26(6) shall submit an annual report on or before January 31st of each year utilizing a format approved by the Department which contains the following:

- 1. Summary of the components of 335-13-4-.26(6)(b) and/or (c).
- 2. Documentation of the non-coal permitted fuel burned on a quarterly basis to include the type, quantity (mass input basis), and the percentage of total fuel, of each type of fuel burned.

(e) Facilities managing wood ash waste in an area that is not a permitted landfill unit and meets the requirements of 335-13-4-.26 (6)(a) must contact the Water Division of the ADEM with regards to NPDES requirements for waste management areas.

(f) Wood ash waste from two or more facilities may be managed at one location provided adequate documentation and record keeping is maintained for each generator.

(g) Wood ash waste not meeting the requirements of paragraph (6) of this rule must be managed at a landfill unit approved for the disposal of wood ash waste and permitted by the Department.

Author: Russell A. Kelly, Eric L. Sanderson; S. Scott Story; Heather M. Jones.
Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-4, 22-27-7.
History: Effective: July 21, 1988. **Amended:** Effective: October 2, 1990.
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335-13-4-.27 Groundwater Monitoring and Corrective Action. The requirements for groundwater monitoring and corrective action at MSWLFs, C/DLFs, and ILFs are presented in the following paragraphs:

(1) Applicability.

(a) The requirements in this rule shall apply to all MSWLF units and, when determined necessary by the Department to protect public health and the environment, the requirements in this rule or any part thereof shall apply to C/DLF units and/or ILF units, except as provided in subparagraph (b) of this paragraph.

(b) Groundwater monitoring requirements under paragraphs (2) through (4) of this rule may be suspended by the Department for a LF unit if the owner or operator can demonstrate that there is no potential for migration of hazardous constituents from that LF unit to the first saturated zone, as defined in 335-13-1-.03, during the active life of the unit and the post-closure care period. This demonstration must be certified by a qualified groundwater scientist, as defined in 335-13-1-.03, and approved by the Department, and must be based upon:

1. Site-specific field collected measurements, sampling, and analysis of physical, chemical, and biological processes affecting contaminant fate and transport, and

2. Contaminant fate and transport predictions that maximize contaminant migration and consider impacts on human health and environment.

(c) Owners and operators of LF units must comply with the groundwater monitoring requirements of this rule according to the following schedule.

1. All LF units must be in compliance with the groundwater monitoring requirements specified in paragraphs (2) through (4) of this rule.

2. New LF units must be in compliance with the groundwater monitoring requirements specified in paragraphs (2) through (4) of this rule before waste can be placed in the unit.

(d) Once established at a LF unit, groundwater monitoring shall be conducted throughout the active life and post-closure care period of that LF unit as specified in 335-13-4-.20.

(e) The Department may establish alternative schedules for demonstrating compliance with Department notification (and placement of notification in operating record) requirements of this rule.

(2) Groundwater Monitoring Requirements.

(a) A groundwater monitoring system must be installed that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples from the first saturated zone (as defined in 335-13-1-.03 that:

1. Represent the quality of background groundwater that has not been affected by leakage from a unit. A determination of background quality may include sampling of wells that are not hydraulically upgradient of the waste management area where:

(i) Hydrogeologic conditions do not allow the owner or operator to determine what wells are hydraulically upgradient; or

(ii) 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. Represent the quality of groundwater passing the relevant point of compliance specified by the Department under subparagraph (a)3. of this paragraph.

(i) The downgradient monitoring system must be installed at the relevant point of compliance specified by the Department under subparagraph (a)3. of this paragraph that ensures detection of groundwater contamination in the first saturated zone.

(ii) When physical obstacles preclude installation of groundwater monitoring wells at the relevant point of compliance at existing units, the down-gradient monitoring system may be installed at the closest practicable distance hydraulically down-gradient from the relevant point of compliance specified by the Department under subparagraph (a)3. of this paragraph that ensures detection of groundwater contamination in the uppermost aquifer.

3. The relevant point of compliance shall be no more than 150 meters (492 feet) from the waste management unit boundary and shall be located on land owned by the owner of the landfill unit. In determining the relevant point of compliance, the following factors shall be considered, at a minimum:

(i) The hydrogeologic characteristics of the facility and surrounding land;

(ii) The volume and physical and chemical characteristics of the leachate;

(iii) The quantity, quality, and direction of groundwater flow;

(iv) The proximity and withdrawal rate of the groundwater users;

(v) The availability of alternative drinking water supplies;

(vi) The existing quality of the groundwater, including other sources of contamination and their cumulative impacts on the groundwater and whether groundwater is currently used or reasonably expected to be used for drinking water;

(vii) Public health, safety, and welfare effects; and

(viii) Practicable capability of the owner or operator.

(b) The Department may approve a multi-unit groundwater monitoring system instead of separate groundwater monitoring systems for each MSWLF unit when the facility has several units, provided the multi-unit groundwater monitoring system meets the requirement of subparagraph (a) of this paragraph and will be as protective of human health and the environment as individual monitoring systems for each MSWLF unit. This approval will be based on the following factors:

1. Number, spacing, and orientation of the MSWLF units;
2. Hydrogeologic setting;
3. Site history;
4. Engineering design of the MSWLF units; and
5. Type of waste accepted at the MSWLF units.

(c) Well design and construction

1. Groundwater monitoring wells shall be designed and constructed in accordance with the following reference: "Design and Installation of Groundwater Monitoring Wells in Aquifers", ASTM Subcommittee D18.21 on Groundwater Monitoring, or otherwise as specifically approved by the Department.

2. Plans for groundwater monitoring well location, design, construction and/or abandonment shall be submitted to the Department for review and approval prior to installation.

3. The monitoring wells must be cased in a manner that maintains the integrity of the monitoring well bore hole.

(i) This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples.

(ii) The annular space (i.e., the space between the bore hole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater.

4. The owner or operator must notify the Department that the design, installation, development, and/or abandonment of any monitoring wells, piezometers and other measurement, sampling, and analytical devices has been documented and placed in the operating record; and

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

(e) Abandoned wells and bore holes shall be abandoned in accordance with the following procedures in order to prevent contamination of groundwater resources. A plan of abandonment must be submitted and approved by the Department prior to implementing abandonment of any well.

1. A well shall be measured for depth prior to sealing to ensure that it is free from any obstructions that may interfere with sealing operations.

2. Where feasible, wells shall be completely filled with neat cement. If the well cannot be completely filled, the sealing materials for the top 20 feet must be neat cement and no material that could impart taste, odor, or toxic components to water may be used in the sealing process.

3. Liner pipe shall be removed from each well in order to ensure placement of an effective seal. If the liner pipe cannot be readily removed, it shall be perforated to ensure that proper sealing is obtained.

4. Concrete, cement grout, or neat cement shall be used as primary sealing materials and shall be placed from the bottom upwards using methods that will avoid segregation or dilution of material.

5. Complete, accurate records of the abandonment procedure shall be kept for each well abandoned. The record of abandonment shall include, at a minimum, the depth of each layer of all sealing and backfilling materials, the quantity of sealing materials used, measurements of static water levels and depths, and any changes made in the well during the sealing. A copy of these records shall be submitted to the Department and a copy placed in the operating record.

(f) The number, spacing, and depths of monitoring systems shall be:

1. Determined based upon site-specific technical information that must include thorough characterization of:

(i) Aquifer thickness, groundwater flow rate, groundwater flow direction including seasonal and temporal fluctuations in groundwater flow; and

(ii) Saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the

uppermost aquifer, including, but not limited to: thickness, stratigraphy, lithology, hydraulic conductivity, porosity and effective porosity.

2. Certified by a qualified groundwater scientist and approved by the Department. Within 14 days of the Department's approval, the owner or operator must notify the Department that the certification has been placed in the operating record.

(g) The groundwater monitoring program must include consistent sampling and analytical methods that are:

1. Designed to ensure monitoring results that provide an accurate representation of groundwater quality at the background and downgradient wells which have been installed in compliance with subparagraph (a) of this paragraph.

(i) The groundwater monitoring program, and subsequent documentation, must be submitted to the Department for approval and appropriate copies placed in the operating record.

(ii) The program must include procedures and techniques for:

(I) Sample collection;

(II) Sample preservation and shipment;

(III) Analytical procedures;

(IV) Chain of custody control; and

(V) Quality assurance and quality control.

2. Appropriate for groundwater sampling and that accurately measure hazardous constituents and other monitoring parameters in groundwater samples.

(h) Groundwater samples shall not be field-filtered prior to laboratory analysis.

(i) The sampling procedures and frequency must be protective of human health and the environment.

1. Groundwater elevations must be measured in each well immediately prior to purging, each time groundwater is sampled.

2. Groundwater elevations in wells which monitor the same waste management area must be measured within a 48 hour period to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater flow rate and direction.

3. The owner or operator must determine the rate and direction of groundwater flow each time groundwater is sampled.

(j) The owner or operator must establish background groundwater quality in a hydraulically upgradient or background well(s) for each of the monitoring parameters or constituents required in the particular groundwater monitoring program that applies to the LF unit, as determined under subparagraphs (3)(a) or (4)(a) of this rule. Background groundwater quality may be established at wells that are not located hydraulically upgradient from the LF unit if it meets the requirements of subparagraph (a)1. of this paragraph.

(k) The number of samples collected to establish groundwater quality data must be consistent with the appropriate statistical procedures determined pursuant to subparagraph (l) of this paragraph. The sampling procedures shall be those specified under subparagraph (3)(b) of this rule for detection monitoring, subparagraphs (4)(b) and (4)(d) of this rule for assessment monitoring, and subparagraph (5)(b) of this rule for corrective action.

(l) The owner or operator must specify in writing to the Department and place in the operating record one of the following statistical methods to be used in evaluating groundwater monitoring data for each hazardous constituent. The statistical test chosen shall be conducted separately for each hazardous constituent in each well.

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

2. An analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each 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 subparagraph (m) of this paragraph. The owner or operator must place a justification for this alternative in the operating record and submit it to the Department for approval to use this alternative test. The justification must demonstrate that the alternative method meets the performance standards of subparagraph (m) of this paragraph.

(m) Any statistical method chosen under subparagraph (l) of this paragraph shall comply with the following performance standards, as appropriate:

1. The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution of the chemical parameters or hazardous constituents is shown by the owner or operator to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the 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 comparisons 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 protective of human health and the environment. The 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.

4. If a tolerance interval or a prediction interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be protective of human health and the environment. These parameters 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 shall account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any practical quantitation limit (pql) that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

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

(n) The owner or operator must determine and certify in writing to the Department if there is a statistically significant increase (SSI) over background values for each parameter or constituent required in the groundwater monitoring program.

1. In determining whether an SSI has occurred, the owner or operator must compare the groundwater quality of each parameter or constituent at each monitoring well to the background value of that constituent, according to the statistical procedures and performance standards specified under this rule.

2. Within 30 days after completing sampling and receiving analytical results, the owner or operator must determine whether there has been an SSI over background at each monitoring well.

3. If an SSI over background groundwater quality is detected, the owner/operator must notify the Department within 14 days of this event.

(3) Detection Monitoring.

(a) Detection monitoring is required at LF units for all groundwater monitoring wells defined under subparagraphs (2)(a)1.(i) and (ii) of this rule.

1. At a minimum, a detection monitoring program for MSWLF units must include monitoring for the constituents listed in Appendix I of this chapter.

2. Detection monitoring programs for C/DLFs or ILFs may include monitoring for constituents listed in Appendix I of this chapter, or an alternative list, as specified by the Department.

3. The Department may delete any of the detection monitoring parameters for a LF unit if it can be shown that the removed constituents are not reasonably expected to be contained in or derived from the waste contained in the unit.

4. The Department may establish an alternative list of indicator parameters for a MSWLF unit, in addition to the Appendix I constituents, if the additional parameters provide a reliable indication of releases from the MSWLF unit to the groundwater. In determining alternative parameters, the Department shall consider the following factors:

(i) The types, quantities, and concentrations of constituents in waste managed at the LF unit;

(ii) The mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the LF unit;

(iii) The detectability of indicator parameters, waste constituents, and reaction products in the groundwater; and

(iv) The concentration or values and coefficients of variation of monitoring parameters or constituents in the groundwater background.

(b) Frequency.

1. The monitoring frequency for all constituents listed in Appendix I, or in the alternative list approved in accordance with subparagraph (a). of this paragraph, shall be at least semiannual during the active life of the facility (including closure) and the post-closure period. The owner or operator must submit a semi-annual report to the Department to coincide with and report the results of the semi-annual sampling event within ninety (90) days of the date of sampling. The report shall be certified by a qualified groundwater scientist.

(i) A minimum of four independent samples from each well (background and downgradient) must be collected and analyzed for the Appendix I constituents, or the alternative list approved in accordance with subparagraph (a) of this paragraph, during the first semiannual sampling event.

(ii) At least one sample from each well (background and downgradient) must be collected and analyzed during subsequent semiannual sampling events.

2. The Department may specify an appropriate alternative frequency for repeated sampling and analysis for Appendix I constituents, or the alternative list approved in accordance with subparagraph (a) of this paragraph, during the active life (including closure) and the post-closure care period.

(i) The alternative frequency during the active life (including closure) shall be no less than annual.

(ii) The alternative frequency shall be based on consideration of the following factors:

(I) Lithology of the aquifer and unsaturated zone;

(II) Hydraulic conductivity of the aquifer and unsaturated zone;

(III) Groundwater flow rates;

(IV) Minimum distance between upgradient edge of the LF unit and downgradient monitoring well screen (minimum distance of travel); and

(V) Resource value of the aquifer.

(c) If the owner or operator determines, pursuant to subparagraph (2)(l) of this rule, that there is an SSI over background for one or more of the constituents listed in Appendix I, or in the alternative list approved in accordance with subparagraph (a) of this paragraph, at any monitoring well at the boundary specified under subparagraph (2)(a)1.(ii) of this rule, the owner or operator:

1. Must, within 14 days of this finding, place a notice in the operating record, and submit a copy of this notice to the Department, indicating which constituents have shown statistically significant changes from background levels, and notify the Department that this notice was placed in the operating record; and

2. Must establish an assessment monitoring program meeting the requirements of subparagraphs (4)(a) through (j) of this rule within 90 days except as provided for under subparagraph (2)(c)3. of this rule.

3. May demonstrate that a source other than a LF unit caused the contamination or that the SSI resulted from an error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

(i) A report documenting this demonstration must be certified by a qualified groundwater scientist, approved by the Department and be placed in the operating record.

(ii) If a successful demonstration is made and documented, the owner or operator may continue detection monitoring as specified in this rule. If, after 90 days, a successful demonstration is not made, the owner or operator must initiate an assessment monitoring program as required in subparagraphs (4)(a) through (j) of this rule.

(4) Assessment Monitoring.

(a) Assessment monitoring is required whenever an SSI over background has been detected for one or more of the constituents listed in Appendix I or in the alternative list approved in accordance with subparagraph (3)(a) of this rule.

(b) Frequency.

1. Within 90 days of triggering an assessment monitoring program, and annually thereafter, the owner or operator must sample and analyze the groundwater for all constituents identified in Appendix II of this Chapter.

(i) A minimum of one sample from each downgradient well must be collected and analyzed during each sampling event.

(ii) For any constituent detected in the downgradient wells as the result of the complete Appendix II analysis, a minimum of four independent samples from each well (background and downgradient) must be collected and analyzed to establish background for the new constituents.

2. The Department may specify an appropriate subset of wells to be sampled and analyzed for Appendix II constituents during assessment monitoring. The Department may delete any of the Appendix II monitoring parameters for a LF unit if it can be shown that the removed constituents are not

reasonably expected to be in or derived from the waste contained in the unit. The Department may establish an alternative list of parameters for a facility required to conduct groundwater monitoring, in addition to the Appendix II constituents, if the addition of the parameters is warranted based on waste handling practices at the facility. In determining alternative parameters, the Department shall consider the factors listed in 335-4-.27(3)(a)4.(i) through (iv).

(c) The Department may specify an appropriate alternate frequency for repeated sampling and analysis for the full set of Appendix II constituents, or the alternative list approved in accordance with subparagraph (4)(b)2. of this rule, during the active life (including closure) and post-closure care of the unit considering the following factors:

1. Lithology of the aquifer and unsaturated zone;
2. Hydraulic conductivity of the aquifer and unsaturated zone;
3. Groundwater flow rates;
4. Minimum distance between upgradient edge of the LF unit and downgradient monitoring well screen (minimum distance of travel);
5. Resource value of the aquifer; and
6. Nature (fate and transport) of any constituents detected in response to this rule.

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

1. Within 14 days, place a notice in the operating record identifying the Appendix II constituents, or the alternative list approved in accordance with subparagraph (4)(b)2. of this rule, that have been detected and notify the Department that this notice has been placed in the operating record;
2. Within 90 days, and on at least a semiannual basis thereafter,
 - (i) Resample all wells specified by subparagraph (2)(a) of this rule with a minimum of one sample from each well (background and downgradient) being collected and analyzed during these sampling events,
 - (ii) Conduct analyses for all constituents in Appendix I or in the alternative list approved in accordance with subparagraph (3)(a) of this rule, and for those constituents in Appendix II, or in the alternative list approved in accordance with subparagraph (4)(b)2. of this rule, that are detected in response to subparagraph (b) of this paragraph, and
 - (iii) Record their concentrations in the facility operating record.

(iv) The Department may specify an alternative monitoring frequency during the active life (including closure) and the post closure period for the constituents referred to in this paragraph. The alternative frequency for Appendix I constituents, or the alternative list approved in accordance with subparagraph (3)(a) of this rule, during the active life (including closure) shall be no less than annual. The alternative frequency shall be based on consideration of the factors specified in subparagraph (c) of this paragraph;

3. Establish background concentrations for any constituents detected pursuant to subparagraph (b) or subparagraph (d)2. of this paragraph; and

4. Establish groundwater protection standards for all constituents detected pursuant to subparagraph (b) or subparagraph (d)2. of this paragraph. The groundwater protection standards shall be established in accordance with subparagraphs (h) or (i) of this paragraph.

(e) If the concentrations of all Appendix II constituents, or the alternative list approved in accordance with subparagraph (4)(b)2. of this rule, are shown to be at or below background values, using the statistical procedures in subparagraph (2)(l) of this rule, for two consecutive sampling events, the owner or operator must notify the Department of this finding and may return to detection monitoring.

(f) If the concentrations of any Appendix II constituents, or the alternative list approved in accordance with subparagraph (4)(b)2. of this rule, are above background values, but all concentrations are below the groundwater protection standard established under subparagraphs (h) or (i) of this paragraph, using the statistical procedures in subparagraph (2)(l) of this rule, the owner or operator must continue assessment monitoring in accordance with this rule.

(g) If one or more Appendix II constituents, or the alternative list approved in accordance with subparagraph (4)(b)2. of this rule, are detected at statistically significant levels above the groundwater protection standard established under subparagraphs (h) or (i) of this paragraph in any sampling event, within 14 days of this finding, the owner or operator must:

1. Place a notice in the operating record identifying the Appendix II constituents, or the alternative list approved in accordance with subparagraph (4)(b)2. of this rule, that have exceeded the groundwater protection standard and

2. Notify the Department and all appropriate local government officials that the notice has been placed in the operating record.

3. And must, either:

(i) Characterize the nature and extent of the release by installing additional monitoring wells as necessary,

(ii) Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well in accordance with subparagraph (d)2. of this paragraph,

(iii) Notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off-site as indicated by sampling of wells in accordance with subparagraphs (g)3.(i) and (ii) of this paragraph, and

(iv) Initiate an assessment of corrective measures as required by subparagraphs (5)(a) through (d) of this rule within 90 days;

4. Or may demonstrate that a source other than a LF unit caused the contamination, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. A report documenting this demonstration must be certified by a qualified groundwater scientist or approved by the Department and placed in the operating record. If a successful demonstration is made, the owner or operator must continue monitoring in accordance with the assessment monitoring program pursuant to subparagraphs (a) through (j) of this paragraph, and may return to detection monitoring if the Appendix II constituents, or the alternative list approved in accordance with subparagraph (4)(b)2. of this rule, are at or below background as specified in subparagraph (e) of this paragraph. Until a successful demonstration is made, the owner or operator must comply with subparagraph (g) of this paragraph, including initiating an assessment of corrective measures.

(h) The owner or operator must establish a groundwater protection standard for each Appendix II constituent, or each constituent in the alternative list approved in accordance with subparagraph (4)(b)2. of this rule, detected in the groundwater. The groundwater protection standard shall be:

1. For constituents for which a maximum contaminant level (MCL) has been promulgated under Section 1412 of the Safe Drinking Water Act (codified) under 40 CFR 141, the MCL for that constituent;

2. For constituents for which MCLs have not been promulgated, the background concentration for the constituent established from wells in accordance with subparagraph (2)(a)1. of this rule; or

3. For constituents for which the background level is higher than the MCL identified under subparagraph (h)1. of this paragraph or health based levels identified under subparagraph (i)1. of this paragraph, the background concentration.

(i) The Department may establish an alternative groundwater protection standard for constituents for which MCLs have not been established. These groundwater protection standards shall be appropriate health based levels that satisfy the following criteria:

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1. The level is derived in a manner consistent with EPA guidelines for assessing the health risks of environmental pollutants (51 FR 33992, 34006, 34014, 34028, September 24, 1986);

2. The level is based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act Good Laboratory Practice Standards (40 CFR 792) or equivalent;

3. For carcinogens, the level represents a concentration associated with an excess lifetime cancer risk level (due to continuous lifetime exposure) with the 1×10^{-4} to 1×10^{-6} range; and

4. For systemic toxicants, the level represents a concentration to which the human population (including sensitive subgroups) could be exposed to on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime. For purposes of this rule, systemic toxicants include toxic chemicals that cause effects other than cancer or mutation.

(j) In establishing groundwater protection standards under subparagraph (i) of this paragraph, the Department may consider the following:

1. Multiple contaminants in the groundwater;
2. Exposure threats to sensitive environmental receptors; and
3. Other site-specific exposure or potential exposure to groundwater.

(5) Corrective Action Requirements.

(a) Within 90 days of finding that any of the constituents listed in Appendix II or in the alternative list approved in accordance with subparagraph (4)(b)2. of this rule, have been detected at a statistically significant level exceeding the groundwater protection standards defined under subparagraphs (4)(h) or (i) of this rule, the owner or operator must initiate an assessment of corrective measures. Such an assessment must be completed within a reasonable period of time.

(b) The owner or operator must continue to monitor in accordance with the assessment monitoring program as specified in subparagraphs (4)(a) through (j) of this rule.

(c) The assessment shall include an analysis of the effectiveness of potential corrective measures in meeting all of the requirements and objectives of the remedy as described under subparagraphs (c) through (i) of this paragraph, 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 costs of remedy implementation; and
4. 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) The owner or operator must discuss the results of the corrective measures assessment, prior to the selection of remedy, in a public meeting with interested and affected parties.

(e) Based on the results of the corrective measures assessment conducted under subparagraphs (5)(a) through (d) of this paragraph, the owner or operator must select a remedy that, at a minimum, meets the standards listed in this paragraph. The owner or operator must notify the Department, within 14 days of selecting a remedy, that a report describing the selected remedy has been placed in the operating record and how it meets the standards in this paragraph. Remedies must:

1. Be protective of human health and the environment;
2. Attain the groundwater protection standard as specified pursuant to subparagraphs (4)(h) or (i) of this rule;
3. Control the source(s) of releases so as to reduce or eliminate, to the maximum extent practicable, further releases of Appendix II constituents, or the alternative list approved in accordance with subparagraph (4)(b)2. of this rule, into the environment that may pose a threat to human health or the environment; and
4. Comply with standards for management of wastes as specified in subparagraph (m) of this paragraph.

(f) In selecting a remedy that meets the standards of subparagraph (e) of this paragraph, the owner or operator shall consider the following evaluation factors:

1. The long- and short-term effectiveness and protectiveness of the potential remedy(ies), along with the degree of certainty that the remedy will prove successful based on consideration of the following:
 - (i) Magnitude of reduction of existing risks;
 - (ii) Magnitude of residual risks in terms of likelihood of further releases due to waste remaining following implementation of a remedy;
 - (iii) The type and degree of long-term management required, including monitoring, operation, and maintenance;

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

(v) Time until full protection is achieved;

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

(vii) Long-term reliability of the engineering and institutional controls;
and

(viii) 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:

(i) The extent to which containment practices will reduce further releases;

(ii) The extent to which treatment technologies may be used.

3. The ease or difficulty of implementing a potential remedy(ies) based on consideration of the following types of factors:

(i) Degree of difficulty associated with constructing the technology;

(ii) Expected operational reliability of the technologies;

(iii) Need to coordinate with and obtain necessary approvals and permits from other agencies;

(iv) Availability of necessary equipment and specialists; and

(v) Available capacity and location of needed treatment, storage, and disposal services.

4. Practicable capability of the owner or operator, including a consideration of the technical and economic capability.

5. The degree to which community concerns are addressed by a potential remedy(ies).

(g) The owner or operator shall specify as part of the selected remedy a schedule(s) for initiating and completing remedial activities. Such a schedule must require the initiation of remedial activities within a reasonable period of

time taking into consideration the factors set forth in this paragraph. The owner or operator must consider the following factors in determining the schedule of remedial activities:

1. Extent and nature of contamination;
 2. Practical capabilities of remedial technologies in achieving compliance with groundwater protection standards established under subparagraphs (4)(h) or (i) of this rule and other objectives of the remedy;
 3. Availability of treatment or disposal capacity for wastes managed during implementation of the remedy;
 4. Desirability of utilizing technologies that are not currently available, but which may offer significant advantages over already available technologies in terms of effectiveness, reliability, safety, or ability to achieve remedial objectives;
 5. Potential risks to human health and the environment from exposure to contamination prior to completion of the remedy;
 6. Resource value of the aquifer including:
 - (i) Current and future uses;
 - (ii) Proximity and withdrawal rate of users;
 - (iii) Groundwater quantity and quality;
 - (iv) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;
 - (v) The hydrogeologic characteristic of the facility and surrounding land;
 - (vi) Groundwater removal and treatment costs; and
 - (vii) The cost and availability of alternative water supplies.
 7. Practicable capability of the owner or operator.
 8. Other relevant factors.
- (h) The Department may determine that remediation of a release of an Appendix II constituent, or a constituent in the alternative list approved in accordance with subparagraph (4)(b)2. of this rule, from a LF unit is not necessary if the owner or operator demonstrates to the Department that:

1. The groundwater is additionally contaminated by substances that have originated from a source other than a LF unit and those substances are present in concentrations such that cleanup of the release from the LF unit would provide no significant reduction in risk to actual or potential receptors; or

2. The constituent(s) is present in groundwater that:

(i) Is not currently or reasonably expected to be a source of drinking water; and

(ii) Is not hydraulically connected with waters to which the hazardous constituents are migrating or are likely to migrate in a concentration(s) that would exceed the groundwater protection standards established under subparagraphs (4)(h) or (i) of this rule; or

3. Remediation of the release(s) is technically impracticable; or

4. Remediation results in unacceptable cross-media impacts.

(i) A determination by the Department pursuant to subparagraph (h) of this paragraph shall not affect the authority of the State to require the owner or operator to undertake source control measures or other measures that may be necessary to eliminate or minimize further releases to the groundwater, to prevent exposure to the groundwater, or to remediate the groundwater to concentrations that are technically practicable and significantly reduce threats to human health or the environment.

(j) Based on the schedule established under subparagraph (g) of this paragraph for initiation and completion of remedial activities the owner/operator must:

1. Establish and implement a corrective action groundwater monitoring program that:

(i) At a minimum, meets the requirements of an assessment monitoring program under subparagraphs (4)(a) through (j) of this rule;

(ii) Indicates the effectiveness of the corrective action remedy; and

(iii) Demonstrates compliance with groundwater protection standards pursuant to subparagraph (n) of this paragraph.

2. Implement the corrective action remedy selected under subparagraphs (e) through (i) of this paragraph; and

3. Take any interim measures necessary to ensure the protection of human health and the environment. Interim measures should, to the greatest extent practicable, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to subparagraphs (e) through (i) of this paragraph. The following factors must be considered by an owner or operator in determining whether interim measures are necessary:

(i) Time required to develop and implement a final remedy;

(ii) Actual or potential exposure of nearby populations or environmental receptors to hazardous constituents;

(iii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

(iv) Further degradation of the groundwater that may occur if remedial action is not initiated expeditiously;

(v) Weather conditions that may cause hazardous constituents to migrate or be released;

(vi) Risks of fire or explosion, or potential for exposure to hazardous constituents as a result of an accident or failure of a container or handling system; and

(vii) Other situations that may pose threats to human health and the environment.

(k) An owner or operator may determine, based on information developed after implementation of the remedy has begun or other information, that compliance with requirements of subparagraph (e) of this paragraph are not being achieved through the remedy selected. In such cases, the owner or operator must implement other methods or techniques that could practicably achieve compliance with the requirements, unless the owner or operator makes the determination under subparagraph (l) of this paragraph.

(l) If the owner or operator determines that compliance with requirements under subparagraph (e) of this paragraph cannot be practically achieved with any currently available methods, the owner or operator must:

1. Obtain certification of a qualified groundwater scientist or approval by the Department that compliance with requirements under subparagraph (e) of this paragraph cannot be practically achieved with any currently available methods;

2. Implement alternate measures to control exposure of humans or the environment to residual contamination, as necessary to protect human health and the environment; and

3. Implement alternate measures for control of the sources of contamination, or for removal or decontamination of equipment, units, devices, or structures that are:

(i) Technically practicable; and

(ii) Consistent with the overall objective of the remedy.

4. Notify the Department within 14 days that a report justifying the alternative measures prior to implementing the alternative measures has been placed in the operating record.

(m) All solid wastes that are managed pursuant to a remedy required under subparagraphs (e) through (i) of this paragraph, or an interim measure required under subparagraph (j)3. of this paragraph, shall be managed in a manner:

1. That is protective of human health and the environment; and
2. That complies with applicable RCRA requirements.

(n) Remedies selected pursuant to subparagraphs (e) through (i) of this paragraph shall be considered complete when:

1. The owner or operator complies with the groundwater protection standards established under subparagraphs (4)(h) or (i) of this rule at all points within the plume of contamination that lie beyond the groundwater monitoring well system established under subparagraph (3)(a) of this rule.

2. Compliance with the groundwater protection standards established under subparagraphs (4)(h) or (i) of this rule has been achieved by demonstrating that concentrations of Appendix II constituents, or the alternative list approved in accordance with subparagraph (4)(b)2. of this rule, have not exceeded the groundwater protection standard(s) for a period of three consecutive years using the statistical procedures and performance standards in subparagraphs (4)(l) and (m) of this rule. The Department may specify an alternative length of time during which the owner or operator must demonstrate that concentrations of Appendix II constituents, or the alternative list approved in accordance with subparagraph (4)(b)2. of this rule, have not exceeded the groundwater protection standard(s) taking into consideration:

- (i) Extent and concentration of the release(s);
- (ii) Behavior characteristics of the hazardous constituents in the groundwater;
- (iii) Accuracy of monitoring or modeling techniques, including any seasonal, meteorological, or other environmental variabilities that may affect the accuracy; and
- (iv) Characteristics of the groundwater.

3. All actions required to complete the remedy have been satisfied.

(o) Upon completion of the remedy, the owner or operator must notify the Department within 14 days that a certification that the remedy has been completed in compliance with the requirements of subparagraph (n) of this

paragraph has been placed in the operating record. The certification must be signed by the owner or operator and by a qualified groundwater scientist or approved by the Department.

(p) When, upon completion of the certification, the owner or operator determines that the corrective action remedy has been completed in accordance with the requirements under subparagraph (n) of this paragraph, the owner or operator shall be released from the requirements for financial assurance for corrective action under 335-13-4-.28(4).

Author: Russell A. Kelly, Heather M. Jones.

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335-13-4-.28 Financial Assurance Criteria.

(1) The requirements of 335-13-4-.28 apply to owners and operators of all MSWLF, except owners or operators who are state or federal government entities whose debts and liabilities are the debts and liabilities of the State or the United States.

(2) Financial Assurance for Closure.

(a) The owner or operator shall have a detailed written estimate, in current dollars, of the cost of hiring a third party to close the largest area of all landfill cells at the MSWLF ever requiring a final cover as required under 335-13-4-.20 at any time during the active life in accordance with the closure plan. The owner or operator shall place the closure cost estimate in the operating record and submit a copy of the estimate to ADEM for approval.

1. The closure cost estimate shall equal the cost of closing the largest area of the MSWLF ever requiring a final cover at any time during the active life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan. The cost estimate shall include the costs of continuing the operation of the gas collection and control systems as may be required in 335-3-10-.02(75) or 335-3-19, as applicable.

2. During the active life of the MSWLF, the owner or operator shall annually adjust the closure cost estimate for inflation.

3. The owner or operator shall increase the closure cost estimate and the amount of financial assurance provided under 335-13-4-.28(2)(b) if changes to the closure plan or landfill conditions increase the maximum cost of closure at any time during the remaining active life.

4. The owner or operator may reduce the closure cost estimate and the amount of financial assurance provided under 335-13-4-.28(2)(b) if the cost estimate exceeds the maximum cost of closure at any time during the remaining life of the MSWLF. The owner or operator shall place the justification for the reduction of the closure cost estimate and the amount of financial assurance in the operating record and submit a copy of the justification and new estimate to ADEM for approval.

(b) The owner or operator of a MSWLF shall establish financial assurance for closure of the MSWLF in compliance with 335-13-4-.28(5). The owner or operator shall provide continuous coverage for closure until released from financial assurance requirements by ADEM.

(3) Financial Assurance for Post-Closure Care.

(a) The owner or operator shall have a detailed written estimate, in current dollars, of the cost of hiring a third party to conduct post-closure care for the MSWLF in compliance with the post-closure requirements in 335-13-4-.20(3). The post-closure cost estimate used to demonstrate financial assurance in 335-13-4-.28(3)(b) shall account for the total costs of conducting post-closure care, including annual and periodic costs as described in the post-closure plan over the entire post-closure care period. The owner or operator shall place the estimate in the operating record and submit a copy of the estimate to ADEM for approval.

1. The cost estimate for post-closure care shall be based on the most expensive costs of post-closure care during the post-closure care period.

2. During the active life of the MSWLF and during the post-closure care period, the owner or operator shall annually adjust the post-closure cost estimate for inflation.

3. The owner or operator shall increase the post-closure care cost estimate and the amount of financial assurance provided under 335-13-4-.28(3)(b) if changes in the post-closure plan or MSWLF conditions increase the maximum costs of post-closure care.

4. The owner or operator may reduce the post-closure cost estimate and the amount of financial assurance provided under 335-13-4-.28(3)(b) if the cost estimate exceeds the maximum costs of post-closure care remaining over the post-closure care period. The owner or operator shall place the justification for the reduction of the post-closure cost estimate and the amount of financial assurance in the operating record and submit a copy of the justification and new estimate to ADEM for approval.

(b) The owner or operator of a MSWLF shall establish, in accordance with 335-13-4-.28(5), financial assurance for the costs of post-closure care required under 335-13-4-.28(3). The owner or operator shall provide continuous

coverage for post-closure care until released from financial assurance requirements for post-closure care under 335-13-4-.20(3)(e).

(4) Financial Assurance for Corrective Action.

(a) An owner or operator of a MSWLF required to undertake a corrective action program under 335-13-4-.27(5) shall have a detailed written estimate, in current dollars, of the cost of hiring a third party to perform the corrective action in accordance with the program required under 335-13-4-.27(5). The corrective action cost estimate shall account for the total costs of corrective action activities as described in the corrective action plan for the entire corrective action period. The owner or operator shall place the estimate in the operating record and submit a copy to ADEM for approval.

1. The owner or operator shall annually adjust the estimate for inflation until the corrective action program is completed in accordance with 335-13-4-.27(5).

2. The owner or operator shall increase the corrective action cost estimate and the amount of financial assurance provided under 335-13-4-.28(4)(b) if changes in the corrective action program or MSWLF conditions increase the maximum costs of corrective action.

3. The owner or operator may reduce the amount of the corrective action cost estimate and the amount of financial assurance provided under 335-13-4-.28(4)(b) if the cost estimate exceeds the maximum remaining costs of corrective action. The owner or operator shall place the justification for the reduction of the corrective action cost estimate and the amount of financial assurance in the operating record and submit a copy of the justification and new estimate to ADEM for approval.

(b) The owner or operator of a MSWLF required to undertake a corrective action program under 335-13-4-.27(5) shall establish, in a manner in accordance with 335-13-4-.28(5), financial assurance for the most recent corrective action program. The owner or operator shall provide continuous coverage for corrective action until released from financial assurance requirements for corrective action by demonstrating compliance with 335-13-4-.27(5)(o) and (p).

(5) Allowable Mechanisms for Financial Assurance. Allowable mechanisms used to demonstrate financial assurance under 335-13-4-.28 shall 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. Owners and operators shall choose from the options specified in 335-13-4-.28(5)(a) through (j).

(a) Trust Fund.

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1. An owner or operator may satisfy the requirements of 335-13-4-.28 by establishing a trust fund that conforms to the requirements of 335-13-4-.28(5)(a). The trustee shall be an entity that has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency. A copy of the trust agreement shall be placed in the MSWLF operating record and a copy submitted to ADEM for approval.

2. Payments into the trust fund shall be made annually by the owner or operator over the life of the MSWLF permit or over the remaining life of the MSWLF, whichever is shorter, in the case of a trust fund for closure or post-closure care, or over one-half of the estimated length of the corrective action program in the case of corrective action for known releases. This period is referred to as the pay-in period.

3. For a trust fund used to demonstrate financial assurance for closure and post-closure care, the first payment into the fund shall be at least equal to the current cost estimate for closure or post-closure care, except as provided in 335-13-4-.28(5)(k), divided by the number of years in the pay-in period as defined in 335-13-4-.28(5)(a)2. The amount of subsequent payments shall be determined by the following formula:

$$\text{Next Payment} = [\text{CE} - \text{CV}]/\text{Y}$$

where CE is the current cost estimate for closure or post-closure care (updated for inflation or other changes), CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

4. For a trust fund used to demonstrate financial assurance for corrective action, the first payment into the trust fund shall be at least equal to one-half of the current cost estimate for corrective action, except as provided in 335-13-4-.28(5)(k), divided by the number of years in the corrective action pay-in period as defined in 335-13-4-.28(5)(a)2. The amount of subsequent payments shall be determined by the following formula:

$$\text{Next Payment} = [\text{RB} - \text{CV}]/\text{Y}$$

where 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), CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

5. The initial payment into the trust fund shall be made before the initial receipt of waste or before the effective date of the requirements of 335-13-4-.28 in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of 335-13-4-.27(5).

6. If the owner or operator establishes a trust fund after having used one or more alternate mechanisms specified in 335-13-4-.28(5), the initial payment into the trust fund shall be at least the amount that the fund would

contain if the trust fund were established initially and annual payments were made according to the specifications of 335-13-4-.28(5)(a).

7. The owner or operator, or other person authorized to conduct closure, post-closure care, or corrective action activities may request reimbursement from the trustee for these expenditures. 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, and if justification and documentation of the cost is placed in the operating record, submitted to and approved by ADEM. The owner or operator shall place the documentation of the justification for reimbursement in the operating record and notify ADEM that reimbursement has been received.

8. The trust fund may be terminated by the owner or operator only if the owner or operator substitutes alternate financial assurance as specified in 335-13-4-.28(5) or if he is no longer required to demonstrate financial responsibility in accordance with the requirements of 335-13-4-.28(2)(b), (3)(b), or (4)(b).

(b) Surety Bond Guaranteeing Payment or Performance.

1. An owner or operator may demonstrate financial assurance for closure or post-closure care by obtaining a payment or performance surety bond which conforms to the requirements of 335-13-4-.28(5)(b). An owner or operator may demonstrate financial assurance for corrective action by obtaining a performance bond which conforms to the requirements of 335-13-4-.28(5)(b). The bond shall be effective before the initial receipt of waste or before the effective date of the requirements of 335-13-4-.28(2) and (3) in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of 335-13-4-.27(5). The owner or operator shall place a copy of the bond in the operating record and submit a copy of the bond to ADEM for approval. The surety company issuing the bond shall, at a minimum, be among those listed as acceptable sureties on federal bonds in Circular 570 of the U.S. Department of the Treasury.

2. The penal sum of the bond shall 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 335-13-4-.28(5)(k).

3. Under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond.

4. The owner or operator shall establish a standby trust fund. The standby trust fund shall meet the requirements of 335-13-4-.28(5)(a) except the requirements for initial payment and subsequent annual payments specified in 335-13-4-.28(5)(a)2. through 5.

5. Payments made under the terms of the bond will be deposited by the surety directly into the standby trust fund in accordance with instructions

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from ADEM. Payments from the trust fund shall be approved by the trustee and ADEM.

6. Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner and operator and to ADEM 120 days in advance of cancellation. If the surety cancels the bond, the owner or operator shall obtain alternate financial assurance as specified in 335-13-4-.28(5).

7. The owner or operator may cancel the bond only if alternate financial assurance is substituted as specified in 335-13-4-.28(5) or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with 335-13-4-.28(2)(b), (3)(b), or (4)(b).

(c) Letter of Credit.

1. An owner or operator may satisfy the requirements of 335-13-4-.28(5) by obtaining an irrevocable standby letter of credit which conforms to the requirements of 335-13-4-.28(5)(c). The letter of credit shall be effective before the initial receipt of waste or before the effective date of the requirements of 335-13-4-.28(2) and (3) in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of 335-13-4-.27(5). The owner or operator shall place a copy of the letter of credit in the operating record and submit a copy of the letter of credit to ADEM for approval. The issuing institution shall 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.

2. A letter from the owner or operator referring to the letter of credit by number, issuing institution, and date shall be included with the letter of credit in the operating record. The letter shall provide the name, address of the MSWLF, and the amount of funds assured.

3. The letter of credit shall be irrevocable and 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 or corrective action, whichever is applicable, except as provided in 335-13-4-.28(5)(k). The letter of credit shall provide that the expiration date will be automatically extended for a period of at least one year unless the issuing institution has cancelled the letter of credit by sending notice of cancellation by certified mail to the owner and operator and to ADEM 120 days in advance of cancellation. If the letter of credit is cancelled by the issuing institution, the owner or operator shall obtain alternate financial assurance.

4. The owner or operator may cancel the letter of credit only if alternate financial assurance is substituted as specified in 335-13-4-.28(5) or if the owner or operator is released from the financial assurance requirements in accordance with 335-13-4-.28(2)(b), (3)(b), or (4)(b).

(d) Insurance.

1. An owner or operator may demonstrate financial assurance for closure, post-closure care, and corrective action by obtaining insurance which conforms to the requirements of 335-13-4-.28(5). The insurance shall be effective before the initial receipt of waste or before the effective date of the requirements of 335-13-4-.28(2) and (3) in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of 335-13-4-.27(5). At a minimum, the insurer shall be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States. The owner or operator shall place a copy of the insurance policy in the operating record and submit a copy of the insurance policy to ADEM for approval.

2. The closure or post-closure care insurance policy shall guarantee that funds will be available to close the MSWLF whenever final closure occurs or to provide post-closure care for the MSWLF whenever the post-closure care period begins, whichever is applicable. The policy shall also guarantee that once closure or post-closure care begins, the insurer will be responsible for the paying out of funds to the owner or operator or other person authorized to conduct closure or post-closure care, up to an amount equal to the face amount of the policy upon the direction of ADEM.

3. The insurance policy shall 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 335-13-4-.28(5)(k). 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.

4. An owner or operator, or other person authorized to conduct closure or post-closure care, may receive reimbursements for closure or post-closure expenditures, whichever is applicable. Requests for reimbursement will be granted by the insurer only if the remaining value of the policy is sufficient to cover the remaining costs of closure or post-closure care, and if justification and documentation of the cost is placed in the operating record and approved by ADEM. The owner or operator shall place the documentation of the justification for reimbursement in the operating record and notify ADEM that reimbursement has been received.

5. The insurance policy shall contain a provision allowing assignment of the policy to a successor owner or operator. Such assignment may be conditional upon consent of the insurer, provided that such consent is not unreasonably refused.

6. The insurance policy shall provide that the insurer may not cancel, terminate, or fail to renew the policy except for failure to pay the premium. The automatic renewal of the policy shall, at a minimum, provide the insured with

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the option of renewal at the face amount of the expiring policy. 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 and operator and to ADEM 120 days in advance of cancellation. If the insurer cancels the policy, the owner or operator shall obtain alternate financial assurance as specified in 335-13-4-.28(5).

7. 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 will thereafter annually increase the face amount of the policy. Such increase shall be equivalent to the face amount of the policy, less the 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.

8. The owner or operator may cancel the insurance policy only if alternate financial assurance is substituted as specified in 335-13-4-.28(5) or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with the requirements of 335-13-4-.28(2)(b), (3)(b), or (4)(b).

(e) Corporate Financial Test. An owner or operator that satisfies the requirements of 335-13-4-.28(5)(e) may demonstrate financial assurance up to the amount specified in 335-13-4-.28(5)(e):

1. Financial Component.

(i) The owner or operator shall satisfy one of the following three conditions:

(I) 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

(II) A ratio of less than 1.5 comparing total liabilities to net worth, or

(III) A ratio of greater than 0.10 comparing the sum of net income plus depreciation, depletion and amortization, minus \$10 million, to total liabilities.

(ii) The tangible net worth of the owner or operator shall be greater than:

(I) The sum of the current closure, post-closure care, corrective action cost estimates and other environmental obligations, including guarantees, covered by a financial test plus \$10 million except as provided in 335-13-4-.28(5)(e)1.(ii)(II).

(II) \$10 million in net worth plus the amount of the 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 other environmental obligations covered by a financial test are recognized as liabilities

on the owner's or operator's audited financial statements, and subject to the approval of ADEM.

(iii) The owner or operator shall have assets located in the United States amounting to at least the sum of current closure, post-closure care, corrective action cost estimates and other environmental obligations covered by a financial test as described in 335-13-4-.28(5)(e)3.

2. Recordkeeping and Reporting Requirements.

(i) The owner or operator shall place the following items into the MSWLF operating record, and submit a copy to ADEM:

(I) A letter signed by the owner's or operator's chief financial officer that:

I. Lists all the current cost estimates covered by a financial test, including, but not limited to, cost estimates required for municipal solid waste management facilities under 335-13-4-.28, cost estimates required for UIC facilities under 40 CFR part 144, if applicable, cost estimates required for petroleum underground storage tank facilities under 40 CFR part 280, if applicable, cost estimates required for PCB storage facilities under 40 CFR part 761, if applicable, and cost estimates required for hazardous waste treatment, storage, and disposal facilities under 335-14-5 and 335-14-6, if applicable, and

II. Provides evidence demonstrating that the firm meets the conditions of either 335-13-4-.28(5)(e)1.(i)(I) or (i)(II) or (i)(III); and 335-13-4-.28(5)(e)1.(ii) and 1.(iii).

(II) A copy of the independent certified public accountant's unqualified opinion of the owner's or operator's financial statements for the latest completed fiscal year. To be eligible to use the financial test, the owner's or operator's financial statements shall receive an unqualified opinion from the independent certified public accountant. An adverse opinion, disclaimer of opinion, or other qualified opinion will be cause for disallowance, with the potential exception for qualified opinions provided in the next sentence. ADEM may evaluate qualified opinions on a case-by-case basis and allow use of the financial test in cases where ADEM deems that the matters that form the basis for the qualification are insufficient to warrant disallowance of the test. If ADEM does not allow use of the test, the owner or operator shall provide alternate financial assurance that meets the requirements of 335-13-4-.28(5).

(III) If the chief financial officer's letter providing evidence of financial assurance includes financial data showing that owner or operator satisfies 335-13-4-.28(5)(e)1.(i)(II) or (i)(III) that are different from data in the audited financial statements referred to in 335-13-4-.28(5)(e)2.(i)(II) or other audited financial statement or data filed with the SEC, then a special report from the owner's or operator's independent certified public accountant to the owner or operator is required. The special report shall be based upon an agreed upon procedures engagement in accordance with professional auditing standards and

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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 the differences.

(IV) If the chief financial officer's letter provides a demonstration that the firm has assured for environmental obligations as provided in 335-13-4-.28(5)(e)2.(ii)(II), 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 the guarantees provided.

(ii) An owner or operator shall place the items specified in 335-13-4-.28(5)(e)2.(i) in the operating record before the initial receipt of waste or before the effective date of the requirements of 335-13-4-.28(2) and (3) in the case of closure, and post-closure care, or no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of 335-13-4-.27(5).

(iii) After the initial placement of items specified in 335-13-4-.28(5)(e)2.(i) in the operating record, the owner or operator shall annually update the information and place updated information in the operating record within 90 days following the close of the owner or operator's fiscal year. ADEM may provide up to an additional 45 days for an owner or operator who can demonstrate that 90 days is insufficient time to acquire audited financial statements. The updated information shall consist of all items specified in 335-13-4-.28(5)(e)2.(i).

(iv) The owner or operator is not required to submit the items specified in 335-13-4-.28(5)(e)2. or comply with the requirements 335-13-4-.28(5)(e) when:

(I) They substitute alternate financial assurance as specified in 335-13-4-.28(5) that is not subject to these recordkeeping and reporting requirements, or

(II) They are released from the financial assurance requirements in accordance with 335-13-4-.28(2)(b), (3)(b), and (4)(b).

(v) If the owner or operator no longer meets the requirements of 335-13-4-.28(5)(e)1., the owner or operator shall, within 120 days following the close of the owner or operator's fiscal year, obtain alternative financial assurance that meets the requirements of 335-13-4-.28, place the required submissions for that assurance in the operating record, and notify ADEM that the owner or operator no longer meets the criteria of the financial test and that alternate assurance has been obtained. Proof of alternate assurance shall be submitted to ADEM for review.

(vi) An owner or operator using the mechanism in 335-13-4-.28(5)(e)1. shall provide an annual report of its financial condition in addition to or including current financial test documentation as specified in 335-13-4-.28(5)(e)2., to ADEM. If ADEM finds that the owner or operator no longer meets the requirements of 335-13-4-.28(5)(e)1., the owner or operator must provide alternate financial assurance that meets the requirements of 335-13-4-.28.

3. 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 other environmental obligations assured by a financial test referred to in 335-13-4-.28(5)(e), the owner or operator must include cost estimates required for municipal solid waste management facilities under this part, as well as cost estimates required for the following environmental obligations, if it assures them through a financial test: obligations associated with UIC facilities under 40 CFR part 144, petroleum underground storage tank facilities under 40 CFR part 280, PCB storage facilities under 40 CFR part 761, and hazardous waste treatment, storage, and disposal facilities under 335-14-5 and 335-14-6.

(f) Local Government Financial Test. An owner or operator that satisfies the requirements of 335-13-4-.28(5)(f)1. to 3. may demonstrate financial assurance up to the amount specified in 335-13-4-.28(5)(f)4.

1. Financial Component.

(i) The owner or operator must satisfy 335-13-4-.28(5)(f)1.(i)(I) or (II) as applicable:

(I) If the owner or operator has outstanding, rated, general obligation bonds that are not secured by insurance, a letter of credit, or other collateral or guarantee, it must have a current rating of Aaa, Aa, A or Baa, as issued by Moody's, or AAA, AA, A, or BBB, as issued by Standard and Poor's on all such general obligation bonds, or

(II) The owner or operator must satisfy all of the following financial ratios based on the owner or operator's most recent audited annual financial statement:

I. A ratio of cash plus marketable securities to total expenditures greater than or equal to 0.05, and

II. A ratio of annual debt service to total expenditures less than or equal to 0.20.

(ii) The owner or operator must prepare its financial statements in conformity with Generally Accepted Accounting Principles for governments and have its financial statements audited by an independent certified public accountant (or appropriate State agency).

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(iii) A local government is not eligible to assure its obligations under 335-13-4-.28(5)(f) if it:

- (I) Is currently in default on outstanding general obligation bonds, or
- (II) Has outstanding general obligation bonds rated lower than Baa as issued by Moody's or BBB as issued by Standard and Poor's, or
- (III) Operated at a deficit equal to five percent or more of total annual revenue in each of the past two fiscal years, or
- (IV) Receives an adverse opinion, disclaimer of opinion, or other qualified opinion from the independent certified public accountant (or appropriate State agency) auditing its financial statement as required under 335-13-4-.28(5)(f)1.(ii). However, ADEM may evaluate qualified opinions on a case-by-case basis and allow use of the financial test in cases where ADEM deems the qualification insufficient to warrant disallowance of use of the test.

(iv) The following terms used in 335-13-4-.28(5)(f) are defined as follows:

- (I) Deficit equals total annual revenues minus total annual expenditures.
- (II) Total revenues include revenues from all taxes and fees but does not include the proceeds from borrowing or asset sales, excluding revenue from funds managed by local government on behalf of a specific third party.
- (III) Total expenditures include all expenditures excluding capital outlays and debt repayment.
- (IV) Cash plus marketable securities is all the cash plus marketable securities held by the local government on the last day of a fiscal year, excluding cash and marketable securities designated to satisfy past obligations such as pensions, and
- (V) Debt service is the amount of principal and interest due on a loan in a given time period, typically the current year.

2. Public Notice Component. The local government owner or operator must place a reference to the closure and post-closure care costs assured through the financial test into its next comprehensive annual financial report (CAFR) after the effective date of 335-13-4-.28 or before the initial receipt of waste at the MSWLF, whichever is later. Disclosure must include the nature and source of closure and post-closure care requirements, the reported liability at the balance sheet date, the estimated total closure and post-closure care cost remaining to be recognized, the percentage of landfill capacity used to date, and the estimated landfill life in years. A reference to corrective action costs must be placed in the CAFR not later than 120 days after the corrective action remedy has been selected

in accordance with the requirements of 335-13-4-.27(5). For the first year the financial test is used to assure costs at a particular MSWLF, the reference may instead be placed in the operating record until issuance of the next available CAFR if timing does not permit the reference to be incorporated into the most recently issued CAFR or budget. For closure and post-closure costs, conformance with Government Accounting Standards Board Statement 18 assures compliance with this public notice component.

3. Recordkeeping and Reporting Requirements.

(i) The local government owner or operator must place the following items in the MSWLF operating record, and submit a copy to ADEM:

(I) A letter signed by the local government's chief financial officer that:

I. Lists all the current cost estimates covered by a financial test, as described in 335-13-4-.28(5)(f)4.

II. Provides evidence and certifies that the local government meets the conditions of 335-13-4-.28(5)(f)1.(i), (ii), and (iii).

III. Certifies that the local government meets the conditions of 335-13-4-.28(5)(f)2. and 4.

(II) The local government's independently audited year-end financial statements for the latest fiscal year (except for local governments where audits are required every two years where unaudited statements may be used in years when audits are not required), including the unqualified opinion of the auditor who must be an independent certified public accountant or an appropriate State agency that conducts equivalent comprehensive audits.

(III) A report to the local government from the local government's independent certified public accountant (CPA) or the appropriate State agency based on performing an agreed upon procedures engagement relative to the financial ratios required by 335-13-4-.28(5)(f)1.(i)(II), if applicable, and the requirements of 335-13-4-.28(5)(f)1.(ii) and 335-13-4-.28(5)(f)1.(iii)(III) and (IV). The CPA or State agency's report should state the procedures performed and the CPA or State agency's findings.

(IV) A copy of the comprehensive annual financial report (CAFR) used to comply with 335-13-4-.28(5)(f)2. or certification that the requirements of General Accounting Standards Board Statement 18 have been met.

(ii) The items required in 335-13-4-.28(5)(f)3.(i) must be placed in the MSWLF operating record as follows:

(I) In the case of closure and post-closure care, either before the effective date of 335-13-4-.28(2) and (3), or before the initial receipt of waste at the MSWLF, whichever is later.

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(II) In the case of corrective action, no later than 120 days after the corrective action remedy is selected in accordance with the requirements of 335-13-4-.27(5).

(iii) After the initial placement of the items in the MSWLF operating record, the local government owner or operator must update the information and place the updated information in the operating record within 180 days following the close of the owner or operator's fiscal year. In addition, a copy of the updated information must be submitted to ADEM.

(iv) The local government owner or operator is not required to meet the requirements of 335-13-4-.28(5)(f)3. if:

(I) The owner or operator substitutes alternate financial assurance as specified in 335-13-4-.28(5); or

(II) The owner or operator is released from the financial assurance requirements in accordance with 335-13-4-.28(2)(b), (3)(b), or (4)(b).

(v) A local government must satisfy the requirements of the financial test at the close of a fiscal year. If the local government owner or operator no longer meets the requirements of the local government financial test it must, within 210 days following the close of the owner or operator's fiscal year, obtain alternative financial assurance that meets the requirements of 335-13-4-.28(5), place the required submissions for that assurance in the operating record, and notify ADEM that the owner or operator no longer meets the criteria of the financial test and that alternate assurance has been obtained.

(vi) ADEM, based on a reasonable belief that the local government owner or operator may no longer meet the requirements of the local government financial test, may require additional reports of financial condition from the local government at any time. If ADEM finds, on the basis of such reports or other information, that the owner or operator no longer meets the requirements of the local government financial test, the local government must provide alternate financial assurance in accordance with 335-13-4-.28(5).

4. Calculation of Costs to be Assured. The portion of the closure, post-closure, and corrective action costs for which an owner or operator can assure under 335-13-4-.28 is determined as follows:

(i) If the local government owner or operator does not assure other environmental obligations through a financial test, it may assure closure, post-closure, and corrective action costs that equal up to 43 percent of the local government's total annual revenue.

(ii) If the local government assures other environmental obligations through a financial test, including those associated with UIC facilities under 40 CFR 144.62, petroleum underground storage tank facilities under 40 CFR Part

280, PCB storage facilities under 40 CFR Part 761, and hazardous waste treatment, storage, and disposal facilities under 335-14-5 and 6, it must add those costs to the closure, post-closure, and corrective action costs it seeks to assure under 335-13-4-.28. The total that may be assured must not exceed 43 percent of the local government's total annual revenue.

(iii) The owner or operator must obtain an alternate financial assurance instrument for those costs that exceed the limits set in 335-13-4-.28(5)(f)4.(i) and (ii).

(g) Corporate Guarantee.

1. An owner or operator may meet the requirements of 335-13-4-.28(5) by obtaining a written guarantee. The guarantor must be the direct or higher-tier parent corporation of the owner or operator, a firm whose parent corporation is also the parent corporation of the owner or operator, or a firm with a "substantial business relationship" with the owner or operator. The guarantor must meet the requirements for owners or operators in 335-13-4-.28(5)(e) and must comply with the terms of the guarantee.

2. A certified copy of the guarantee must be placed in the MSWLF operating record along with copies of the letter from the guarantor's chief financial officer and accountants' opinions. If the guarantor's parent corporation is also the parent corporation of the owner or operator, the letter from the guarantor's chief financial officer must describe the value received in consideration of the guarantee. If the guarantor is a firm with a "substantial business relationship" with the owner or operator, this letter must describe this "substantial business relationship" and the value received in consideration of the guarantee.

3. The guarantee must be effective and all required submissions placed in the operating record before the initial receipt of waste or before the effective date of the requirements of 335-13-4-.28(2) and (3) in the case of closure and post-closure care, or in the case of corrective action no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of 335-13-4-.27(5).

4. The terms of the guarantee must provide that:

(i) If the owner or operator fails to perform closure, post-closure care, and/or corrective action of a MSWLF covered by the guarantee, the guarantor will:

(I) Perform, or pay a third party to perform, closure, post-closure care, and/ or corrective action as required (performance guarantee); or

(II) Establish a fully funded trust fund as specified in 335-13-4-.28(5)(a) in the name of the owner or operator (payment guarantee).

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(ii) The guarantee will remain in force for as long as the owner or operator must comply with the applicable financial assurance requirements of 335-13-4-.28 unless the guarantor sends prior notice of cancellation by certified mail to the owner or operator and to ADEM. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and ADEM, as evidenced by the return receipts.

(iii) If notice of cancellation is given, the owner or operator must, within 90 days following receipt of the cancellation notice by the owner or operator and ADEM, obtain alternate financial assurance, place evidence of that alternate financial assurance in the MSWLF operating record, and notify ADEM. If the owner or operator fails to provide alternate financial assurance within the 90-day period, the guarantor must provide that alternate assurance within 120 days of the cancellation notice, obtain alternative assurance, place evidence of the alternate assurance in the MSWLF operating record, and notify ADEM.

5. If a corporate guarantor no longer meets the requirements of 335-13-4-.28(5)(e)1., the owner or operator must, within 90 days, obtain alternative assurance, place evidence of the alternate assurance in the MSWLF operating record, and notify ADEM. If the owner or operator fails to provide alternate financial assurance within the 90-day period, the guarantor must provide that alternate assurance within the next thirty (30) days.

6. The owner or operator is not required to meet the requirements of 335-13-4-.28(5)(g) when:

(i) The owner or operator substitutes alternate financial assurance as specified in 335-13-4-.28(5); or

(ii) The owner or operator is released from the financial assurance requirements in accordance with 335-13-4-.28(2)(b), (3)(b), or (4)(b).

(h) Local Government Guarantee. An owner or operator may demonstrate financial assurance for closure, post-closure, and corrective action, as required by 335-13-4-.28(2), (3), and (4), by obtaining a written guarantee provided by a local government. The guarantor must meet the requirements of the local government financial test in 335-13-4-.28(5)(f), and must comply with the terms of a written guarantee.

1. Terms of the Written Guarantee. The guarantee must be effective before the initial receipt of waste in the case of closure, post-closure care, or no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of 335-13-4-.27(5). The guarantee must provide that:

(i) If the owner or operator fails to perform closure, post-closure care, and/or corrective action of a MSWLF covered by the guarantee, the guarantor will:

(I) Perform, or pay a third party to perform, closure, post-closure care, and/or corrective action as required; or

(II) Establish a fully funded trust fund as specified in 335-13-4-.28(5)(a) in the name of the owner or operator.

(ii) The guarantee will remain in force unless the guarantor sends notice of cancellation by certified mail to the owner or operator and to ADEM. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by the owner or operator and ADEM, as evidenced by the return receipts.

(iii) If a guarantee is cancelled, the owner or operator must, within 90 days following receipt of the cancellation notice by the owner or operator and ADEM, obtain alternate financial assurance, place evidence of that alternate financial assurance in the MSWLF operating record, and notify ADEM. If the owner or operator fails to provide alternate financial assurance within the 90-day period, the guarantor must provide that alternate assurance within 120 days following the guarantor's notice of cancellation, place evidence of the alternate assurance in the MSWLF operating record, and notify ADEM.

2. Recordkeeping and Reporting.

(i) The owner or operator must place a certified copy of the guarantee along with the items required under 335-13-4-.28(5)(f)3. into the MSWLF operating record before the initial receipt of waste in the case of closure, post-closure care, or no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of 335-13-4-.27(5). A copy of the guarantee along with other required items must be submitted to ADEM.

(ii) The owner or operator is not required to maintain the items specified in 335-13-4-.28(5)(h)2. when:

(I) The owner or operator substitutes alternate financial assurance as specified in 335-13-4-.28(5); or

(II) The owner or operator is released from the financial assurance requirements in accordance 335-13-4-.28(2)(b), (3)(b), or (4)(b).

(iii) If a local government guarantor no longer meets the requirements of 335-13-4-.28(5)(f), the owner or operator must, within ninety (90) days, obtain alternative assurance, place evidence of the alternate assurance in the MSWLF operating record, and notify ADEM. If the owner or operator fails to obtain

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alternate financial assurance within that 90-day period, the guarantor must provide that alternate assurance within the next thirty (30) days.

(i) **State-Approved Mechanism.** An owner or operator may satisfy the requirements of 335-13-4-.28 by obtaining other mechanisms that meets the criteria specified in 335-13-4-.28(5)(l), and that is approved by ADEM.

(j) **State Assumption of Responsibility.** If ADEM either assumes legal responsibility for an owner or operator's compliance with the closure, post-closure care and/or corrective action requirements of this part, or assures that the funds will be available from State sources to cover the requirements, the owner or operator will be in compliance with the requirements of 335-13-4-.28(5). A State assumption of responsibility must meet the criteria specified in 335-13-4-.28(5)(l).

(k) **Use of Multiple Mechanisms.** An owner or operator may demonstrate financial assurance for closure, post-closure, and corrective action, as required by 335-13-4-.28(2), (3), and (4), by establishing more than one financial mechanism per MSWLF, except that mechanisms guaranteeing performance, rather than payment, may not be combined with other instruments. The mechanisms must be as specified in 335-13-4-.28(5)(a) to (j), except that financial assurance for an amount at least equal to the current cost estimate for closure, post-closure care, and/or corrective action may be provided by a combination of mechanisms, rather than a single mechanism.

(l) The language of the mechanisms listed in 335-13-4-.28(5)(a) to (j), must ensure that the instruments satisfy the following criteria:

1. The financial assurance mechanisms must ensure that the amount of funds assured is sufficient to cover the costs of closure, post-closure care, and corrective action for known releases when needed.

2. The financial assurance mechanisms must ensure that funds will be available in a timely fashion when needed.

3. The financial assurance mechanisms must be obtained by the owner or operator by the effective date of these requirements or before the initial receipt of solid waste, whichever is later, in the case of closure and post-closure care, and no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of 335-13-4-.27(5), until the owner or operator is released from the financial assurance requirements under 335-13-4-.28(2), (3), and (4).

4. The financial assurance mechanisms must be legally valid, binding, and enforceable under state and federal law.

(6) **Discounting.** ADEM may allow discounting of closure cost estimates in 335-13-4-.28(2)(a), post-closure cost estimates in 335-13-4-.28(3)(a), and/or corrective action costs in 335-13-4-.28(4)(a) up to the

rate of return for essentially risk free investments, net of inflation, under the following conditions:

(a) ADEM determines that cost estimates are complete and accurate and the owner or operator has submitted a statement from an engineer so stating.

(b) ADEM finds the MSWLF in compliance with applicable and appropriate permit conditions.

(c) ADEM determines that the closure date is certain and the owner or operator certifies that there are no foreseeable factors that will change the estimate of site life; and

(d) Discounted cost estimates must be adjusted annually to reflect inflation and years of remaining life.

Author: James L. Bryant, Heather M. Jones.

Statutory Authority: Code of Alabama (1975), §§ 22-22A-5, 22-27-7, 22-27-8.

History: Effective: December 12, 2005. **Amended:** Filed: April 24, 2018; Effective: June 8, 2018.

335-13-4-.29 Recordkeeping Requirements. Recordkeeping shall be maintained as follows:

(1) Operating Record. The owner or operator of a MSWLF, C/DLF or ILF unit must record and retain in an operating record at the facility, or in an alternative location approved by the Department, the following information as it becomes available:

(a) Solid Waste Disposal Facility Permit as issued by the Department.

(b) Permit application, operational narrative, and engineering drawings. This may include, but is not limited to:

1. Any location restriction demonstration required under 335-13-4-.01 of this Division;

2. Any MSWLF unit design documentation for placement of leachate or gas condensate in a MSWLF unit as required under 335-13-4-.22(1)(k) of this Division;

3. Closure and post closure care plans as required by 335-13-4-.20 of this Division;

4. Explosive gas monitoring plans as required by 335-13-4-.16 of this Division;

5. Corrective action plan, if necessary, which includes detection in assessment monitoring;

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6. Any other documentation submitted to the Department during the permitting process.

(c) Reports or documentation generated during the normal operation of the facility may include, but are not limited to:

1. Gas monitoring results from monitoring and any remediation plans required by 335-13-4-.16;

2. Inspection records, training procedures, notification procedures, and other information required in 335-13-4-.21(1)(b);

3. Any monitoring, testing, or analytical data as required by 335-13-4-.20 of this Division concerning closure;

4. Any demonstration, certification, finding monitoring, testing, or analytical data required by 335-13-4-.27 concerning groundwater monitoring and corrective action;

5. Quarterly volume reports as required in 335-13-4-.22(2)(g) or 335-13-4-.23(2)(f) of this Division;

6. Waste certifications as required by 335-13-4-.21(1)(c) of this Division;

7. Any other report or document generated in the normal operation of the facility which is submitted to the Department.

(d) Any cost estimates and financial assurance documentation required by 335-13-4-.28.

(2) Department notification. The owner/operator must notify the Department when the documents from subparagraph (1)(b) of this rule have been placed or added to the operating record, and all information contained in the operating record must be furnished upon request to the Department or be made available at all reasonable times for inspection by the Department.

(3) Alternative schedules. The Department can set alternative schedules for recordkeeping and notification requirements as specified in paragraphs (1) and (2) of this rule, except for notification requirements in 335-13-4-.01(1)(c) and 335-13-4-.27(4)(g)3.(iii).

Author: Russell A. Kelly; S. Scott Story.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-8, 22-27-7.

History: Effective: November 2, 1993. **Amended:** Effective: July 26, 1996.

Amended: Filed: April 24, 2018; Effective: June 8, 2018.

335-13-4-APPENDIX I CONSTITUENTS FOR DETECTION MONITORING¹

Common Name²	CAS Number³
pH ⁴	N/A
Specific Conductance ⁴	N/A
Inorganic Constituents	
1. Antimony	Total
2. Arsenic	Total
3. Barium	Total
4. Beryllium	Total
5. Cadmium	Total
6. Chromium	Total
7. Cobalt	Total
8. Copper	Total
9. Lead	Total
10. Mercury	Total
11. Nickel	Total
12. Selenium	Total
13. Silver	Total
14. Thallium	Total
15. Vanadium	Total
16. Zinc	Total
Organic Constituents	
17. Acetone	67-64-1
18. Acrylonitrile	107-13-1
19. Benzene	71-43-2
20. Bromochloromethane	74-97-5
21. Bromodichloromethane	75-27-4
22. Bromoform; Tribromomethane	75-25-2
23. Carbon disulfide	75-15-0
24. Carbon tetrachloride	56-23-5
25. Chlorobenzene	108-90-7
26. Chloroethane; Ethyl chloride	75-00-3
27. Chloroform; Trichloromethane	67-66-3
28. Dibromochloromethane; Chlorodibromomethane	124-48-1
29. 1,2-Dibromo-3-chloropropane (DBCP)	96-12-8
30. 1,2-Dibromoethane; Ethylene dibromide; EDB	106-93-4
31. o-Dichlorobenzene; 1,2-Dichlorobenzene	95-50-1
32. p-Dichlorobenzene; 1,4-Dichlorobenzene	106-46-7
33. trans-1,4-Dichloro-2-butene	110-57-6
34. 1,1-Dichloroethane; Ethylidene chloride	75-34-3
35. 1,2-Dichloroethane; Ethylene dichloride	107-06-2
36. 1,1-Dichloroethylene; 1,1-dichloroethene; Vinylidene chloride	75-35-4
37. cis-1,2-Dichloroethylene; cis-1,2Dichloroethene	156-59-2

38.	trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	156-60-5
39.	1,2-Dichloropropane; Propylene dichloride	78-87-5
40.	cis-1,3-Dichloropropene	10061-01-5
41.	trans-1,3-Dichloropropene	10061-02-6
42.	Ethylbenzene	100-41-4
43.	2-Hexanone; Methyl butyl ketone	591-78-6
44.	Methyl bromide; Bromomethane	74-83-9
45.	Methyl chloride; Chloromethane	74-87-3
46.	Methylene bromide; Dibromomethane	74-95-3
47.	Methylene chloride; Dichloromethane	75-09-2
48.	Methyl ethyl ketone; MEK; 2-Butanone	78-93-3
49.	Methyl iodide; Iodomethane	74-88-4
50.	4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1
51.	Styrene	100-42-5
52.	1,1,1,2-Tetrachloroethane	630-20-6
53.	1,1,2,2-Tetrachloroethane	79-34-5
54.	Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	127-18-4
55.	Toluene	108-88-3
56.	1,1,1-Trichloroethane; Methylchloroform	71-55-6
57.	1,1,2-Trichloroethane	79-00-5
58.	Trichloroethylene; Trichloroethene	79-01-6
59.	Trichlorofluoromethane; CFC-11	75-69-4
60.	1,2,3-Trichloropropane	96-18-4
61.	Vinyl acetate	108-05-4
62.	Vinyl chloride	75-01-4
63.	Xylenes	1330-20-7

Notes

- ¹ This list contains 47 volatile organics for which possible analytical procedure provided in EPA Report SW-846, "Test Methods for Evaluating Solid Waste," Third Edition, November 1986, as revised December 1987, includes Method 8260; and 15 metals for which SW-846 provides either Method 6010 or a method from the 7000 series of methods.
- ² Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.
- ³ Chemical Abstracts Service registry number. Where "Total" is entered, all species in the groundwater that contain this element are included.
- ⁴ State specific requirements.

Author: Russell A. Kelly; Heather Jones.

Statutory Authority: Code of Alabama 1975, §§ 22-27-4, 22-27-7.

History: Effective: November 2, 1993. **Amended:** Effective: July 26, 1996.

Amended: Filed: April 24, 2018; Effective: June 8, 2018.

335-13-4-APPENDIX II LIST OF HAZARDOUS INORGANIC AND ORGANIC CONSTITUENTS¹

Common Name ²	CAS Number ³	Chemical Abstracts Service Index Name ⁴	Suggested Methods ⁵	PQL (µg/L) ⁶
Acenaphthene	83-32-9	Acenaphthylene, 1,2-dihydro-	8100 8270	200 10
Acenaphthylene	208-96-8	Acenaphthylene	8100 8270	200 10
Acetone	67-64-1	2-Propanone	8260	100
Acetonitrile; Methyl cyanide	75-05-8	Acetonitrile	8015	100
Acetophenone	98-86-2	Ethanone, 1-phenyl-	8270	10
2-Acetylaminofluorene; 2-AAF	53-96-3	Acetamide, N-9H-fluoren-2-yl-	8270	20
Acrolein	107-02-8	2-Propenal	8030 8260	5 100
Acrylonitrile	107-13-1	2-Propenenitrile	8030 8260	5 200
Aldrin	309-00-2	1,4,5,8,-Dimethanonaphthalene 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-(1a,4a, 4aß,5a,8a,8aß)-	8080 8270	0.05 10
Allyl chloride	107-05-1	1-Propene, 3-chloro-	8010 8260	5 10
4-Aminobiphenyl	92-67-1	[1,1'-Biphenyl]-4-amine	8270	20
Anthracene	120-12-7	Anthracene	8100 8270	200 10
Antimony	(Total)	Antimony	6010 7040 7041	300 2000 30
Arsenic	(Total)	Arsenic	6010 7060 7061	500 10 20
Barium	(Total)	Barium	6010 7080	20 1000
Benzene	71-43-2	Benzene	8020 8021 8260	2 0.1 5
Benzo[a]anthracene; Benzenanthracene	56-55-3	Benz[a]anthracene	8100 8270	200 10
Benzo[b]fluoranthene	205-99-2	Benz[e]acephenanthrylene	8100 8270	200 10
Benzo[k]fluoranthene	207-08-9	Benzo[k]fluoranthene	8100 8270	200 10
Benzo[ghi]perylene	191-24-2	Benzo[ghi]perylene	8100 8270	200 10
Benzo[a]pyrene	50-32-8	Benzo[a]pyrene	8100 8270	200 10
Benzyl alcohol	100-51-6	Benzenemethanol	8270	20
Beryllium	(Total)	Beryllium	6010 7090 7091	3 50 2
alpha-BHC	319-84-6	Cyclohexane, 1,2,3,4,5,6-hexachloro- (1a,2a,3ß,4a,5ß,6ß)-	8080 8270	0.05 10
beta-BHC	319-85-7	Cyclohexane, 1,2,3,4,5,6-hexachloro- (1a,2ß,3a,4ß,5a,6ß)-	8080 8270	0.05 20
delta-BHC	319-86-8	Cyclohexane, 1,2,3,4,5,6-hexachloro-(1a,2a,3a,4ß,5a,6ß)-	8080 8270	0.1 20
gamma-BHC; Lindane	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro- (1a,2a,3ß,4a,5a,6ß)-	8080 8270	0.05 20
Bis(2-chloroethoxy)methane	111-91-1	Ethane, 1,1'-[methylenebis(oxy)] bis[2-chloro-	8110 8270	5 10

Bis(2-chloroethyl) ether; Dichloroethyl ether	111-44-4	Ethane, 1,1 ¹ -oxybis[2-chloro-	8110 8270	3 10
Bis(2-chloro-1-methylethyl) ether 2,21-Dichlorodisopropyl ether; DCIP, See note 7	108-60-1	Propane, 2,2 ¹ -oxybis[1-chloro-	8110 8270	10 10
Bis(2-ethylhexyl) phthalate	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	8060	20
Bromochloromethane; Chlorobromomethane	74-97-5	Methane, bromochloro-	8021 8260	0.1 5
Bromodichloromethane; Dibromochloromethane	75-27-4	Methane, bromodichloro-	8010 8021 8260	1 0.2 5
Bromoform; Tribromomethane	75-25-2	Methane, tribromo-	8010 8021 8260	2 15 5
4-Bromophenyl phenyl ether	101-55-3	Benzene, 1-bromo-4-phenoxy-	8110 8270	25 10
Butyl benzyl phthalate; Benzyl butyl phthalate	85-68-7	1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester	8060 8270	5 10
Cadmium	(Total)	Cadmium	6010 7130 7131	40 50 1
Carbon disulfide	75-15-0	Carbon disulfide	8260	100
Carbon tetrachloride	56-23-5	Methane, tetrachloro-	8010 8021 8260	1 0.1 10
Chlordane	See note 8	4,7-Methano-1H-indene, 1,2,4,5, 6,7,8,8- octachloro- 2,3,3a,4,7,7a-hexahydro-	8080 8270	0.1 50
p-Chloroaniline	106-47-8	Benzenamine, 4-chloro-	8270	20
Chlorobenzene	108-90-7	Benzene, chloro-	8010 8020 8021 8260	2 2 0.1 5
Chlorobenzilate	510-15-6	Benzeneacetic acid, 4-chloro-a- (4-chlorophenyl)-a-hydroxy- ethyl ester	8270	10
p-Chloro-m-cresol; 4-Chloro-3- methylphenol	59-50-7	Phenol, 4-chloro-3-methyl-	8040 8270	5 20
Chloroethane; Ethyl chloride	75-00-3	Ethane, chloro-	8010 8021 8260	5 1 10
Chloroform; Trichloromethane	67-66-3	Methane, trichloro-	8010 8021 8260	0.5 0.2 5
2-Chloronaphthalene	91-58-7	Naphthalene, 2-chloro-	8120 8270	10 10
2-Chlorophenol	95-57-8	Phenol, 2-chloro-	8040 8270	5 10
4-Chlorophenyl phenyl ether	7005-72-3	Benzene, 1-chloro-4-phenoxy-	8110 8270	40 10
Chloroprene	126-99-8	1,3-Butadiene, 2-chloro-	8010 8260	50 20
Chromium	(Total)	Chromium	6010 7190 7191	70 500 10
Chrysene	218-01-9	Chrysene	8100 8270	200 10
Cobalt	(Total)	Cobalt	6010 7200 7201	70 500 10
Copper	(Total)	Copper	6010 7210 7211	60 200 10
m-Cresol; 3-methylphenol	108-39-4	Phenol, 3-methyl-	8270	10

o-Cresol; 2-methylphenol	95-48-7	Phenol, 2-methyl-	8270	10
p-Cresol; 4-methylphenol	106-44-5	Phenol, 4-methyl-	8270	10
Cyanide	57-12-5	Cyanide	8270	10
2,4-D; 2,4-Dichlorophenoxyacetic acid	94-75-7	Acetic acid, (2,4-dichlorophenoxy)-	8150	10
4,4 ¹ -DDD	72-54-8	Benzene, 1,1 ¹ -(2,2-dichloroethylidene) bis[4-chloro-	8080 8270	0.1 10
4,4 ¹ -DDE	72-55-9	Benzene, 1,1 ¹ -(dichloroethylenylidene)bis[4-chloro-	8080 8270	0.05 10
4,4 ¹ -DDT	50-29-3	Benzene, 1,1 ¹ -(2,2,2-trichloroethylidene)bis[4-chloro-	8080 8270	0.1 10
Diallate	2303-16-4	Carbamothioic acid, bis(1-methyl ethyl)-,S-(2,3-dichloro-2-propenyl) ester	8270	10
Dibenz[a,h]anthracene	53-70-3	Dibenz[a,h]anthracene	8100 8270	200 10
Dibenzofuran	132-64-9	Dibenzofuran	8270	10
Dibromochloromethane; Chlorodibromomethane	124-48-1	Methane, dibromochloro-	8010 8021 8260	1 0.3 5
1,2-Dibromo-3-chloropropane; DBCP	96-12-8	Propane, 1,2-dibromo-3-chloro-	8011 8021 8260	0.1 30 25
1,2-Dibromoethane; Ethylene dibromide; EDB	106-93-4	Ethane, 1,2-dibromo-	8011 8021 8260	0.1 10 5
Di-n-butyl phthalate	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester	8060 8270	5 10
o-Dichlorobenzene; 1,2-Dichlorobenzene	95-50-1	Benzene, 1,2-dichloro-	8010 8020 8021 8120 8260 8270	2 5 0.5 10 5 10
m-Dichlorobenzene; 1,3-Dichlorobenzene	541-73-1	Benzene, 1,3-Dichloro-	8010 8020 8021 8120 8260 8270	5 5 0.2 10 5 10
p-Dichlorobenzene; 1,4-Dichlorobenzene	106-46-7	Benzene, 1,4-dichloro-	8010 8020 8021 8120 8260 8270	2 5 0.1 15 5 10
3,3 ¹ -Dichlorobenzidine	91-94-1	[1,1 ¹ -Biphenyl]-4,4 ¹ -diamine, 3,3 ¹ -dichloro-	8270	20
trans-1,4-Dichloro-2-butene	110-57-6	2-Butene, 1,4-dichloro-, (E)-	8260	100
Dichlorodifluoromethane; CFC-12	75-71-8	Methane, dichlorodifluoro-	8021 8260	0.5 5
1,1-Dichloroethane; Ethyldidene chloride	75-34-3	Ethane, 1,1-dichloro-	8010 8021 8260	1 0.5 5
1,2-Dichloroethane; Ethylene dichloride	107-06-2	Ethane, 1,1-dichloro-	8010 8021 8260	0.5 0.3 5
1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride	75-35-4	Ethene, 1,1-dichloro-	8010 8021 8260	1 0.5 5
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	156-59-2	Ethene, 1,2-dichloro-,(Z)-	8021 8260	0.2 5
trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	156-60-5	Ethene, 1,2-dichloro-,(E)-	8010 8021	1 0.5

			8260	5
2,4-Dichlorophenol	120-83-2	Phenol, 2,4-dichloro-	8040 8270	5 10
2,6-Dichlorophenol	87-65-0	Phenol, 2,6-dichloro-	8270	10
1,2-Dichloropropane; Propylene dichloride	78-87-5	Propane, 1,2-dichloro-	8010 8021 8260	0.5 0.05 5
1,3-Dichloropropane; Trimethylene dichloride	142-28-9	Propane, 1,3-dichloro-	8021 8260	0.3 5
2,2-Dichloropropane; Isopropylidene chloride	594-20-7	Propane, 2,2-dichloro-	8021 8260	0.5 15
1,1-Dichloropropene	563-58-6	1-Propene, 1,1-dichloro-	8021 8260	0.2 5
cis-1,3-Dichloropropene	10061-01-5	1-Propene, 1,3-dichloro-, (Z)-	8010 8260	20 10
trans-1,3-Dichloropropene	10061-02-6	1-Propene, 1,3-dichloro-, (E)-	8010 8260	5 10
Dieldrin	60-57-1	2,7:3,6-Dimethanonaphth[2,3-b] oxirene, 3,4,5,6,9,9-hexa, chloro-1a, 2,2a,3,6,6a,7,7a-octahydro-, (1aa, 2ß,2aa,3ß, 6ß,6aa,7ß,7aa)-	8080 8270	0.05 10
Diethyl phthalate	84-66-2	1,2-Benzenedicarboxylic acid, diethyl ester	8060 8270	5 10
0,0-Diethyl 0-2-pyrazinyl; phosphorothioate Thionazin	297-97-2	Phosphorothioic acid, 0,0-diethyl 0-pyrazinyl ester	8141 8270	5 20
Dimethoate	60-51-5	Phosphorodithioic acid, 0,0-dimethyl S-[2-(methylamino)-2-oxoethyl] ester.	8141 8270	3 20
p-(Dimethylamino)azobenzene	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)-	8270	10
7,12-Dimethylbenz[a]anthracene	57-97-6	Benz[a]anthracene, 7,12-dimethyl-	8270	10
3,3'-Dimethylbenzidine	119-93-7	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-	8270	10
2,4-Dimethylphenol; m-Xylenol	105-67-9	Phenol, 2,4-dimethyl-	8040 8270	5 10
Dimethyl phthalate	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester	8060 8270	5 10
m-Dinitrobenzene	99-65-0	Benzene, 1,3-dinitro-	8270	20
4,6-Dinitro-o-cresol 4,6-Dinitro- 2-methylphenol	534-52-1	Phenol, 2-methyl-4,6-dinitro-	8040 8270	150 50
2,4-Dinitrophenol	51-28-5	Phenol, 2,4-dinitro-	8040 8270	150 50
2,4-Dinitrotoluene	121-14-2	Benzene, 1-methyl-2,4-dinitro-	8090 8270	0.2 10
2,6-Dinitrotoluene	606-20-2	Benzene, 2-methyl-1,3-dinitro-	8090 8270	0.1 10
Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro-	8150 8270	1 20
Di-n-octyl phthalate	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester	8060 8270	30 10
Diphenylamine	122-39-4	Benzenamine, N-phenyl-	8270	10
Disulfoton	298-04-4	Phosphorodithioic acid, 0,0-diethyl S-[2-(ethylthio)ethyl] ester	8140 8141 8270	2 0.5 10
Endosulfan I	959-98-8	6,9-Methano-2,4,3-benzodioxathi epin,6,7,8,9,10,10- hexachloro-1, 5,5a, 6,9,9a-hexahydro-,3-oxide,	8080 8270	0.1 20
Endosulfan II	33213-65-9	6,9-Methano-2,4,3-benzodioxathi epin, 6,7,8,9,10,10-hexachloro-	8080 8270	0.05 20

		1,5,5a,6,9,9a-hexahydro-,3-oxide,(3a, 5aa, 6ß,9ß,9aa)-		
Endosulfan sulfate	1031-07-8	6,9-Methano-2,4,3-benzodioxathiepin,6,7,8,9,10,10-hexachloro-1,5,5a, 6,9,9a-hexahydro-3-3-dioxide.	8080	0.5
			8270	10
Endrin	72-20-8	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aa,2ß,2aß,3a,6a,6aß,7ß,7aa)-	8080	0.1
			8270	20
Endrin aldehyde	7421-93-4	1,2,4-Methenocyclopentac[d]pentalene-5-carboxaldehyde, 2,2a,3,3,4, 7-hexachlorodecahydro-, (1a,2ß, 2aß, 4ß,4aß,5ß, 6aß,6bß,7R*)-	8080	0.2
			8270	10
Ethylbenzene	100-41-4	Benzene, ethyl-	8020	2
			8221	0.05
			8260	5
Ethyl methacrylate	97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester	8015	5
			8260	10
			8270	10
Ethyl methanesulfonate	62-50-0	Methanesulfonic acid, ethyl ester	8270	20
Famphur	52-85-7	Phosphorothioic acid, O-[4-[[dimethylamino)sulfonyl]phenyl] O,0-dimethyl ester	8270	20
Fluoranthene	206-44-0	Fluoranthene	8100	200
			8270	10
Fluorene	86-73-7	9H-Fluorene	8100	200
			8270	10
Heptachlor	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8, 8-heptachloro-3a,4,7,7a-tetrahydro-	8080	0.05
			8270	10
Heptachlor epoxide	1024-57-3	2,5-Methano-2H-indeno[1,2-b]oxirene, 2,3,4,5,6,7,7-heptachloro-1a, 1b,5,5a,6,6a-hexahydro-,(1aa,1bß, 2a,5a, 5aß,6ß,6aa)	8080	1
			8270	10
Hexachlorobenzene	118-74-1	Benzene, hexachloro-	8120	0.5
			8270	10
Hexachlorobutadiene	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	8021	0.5
			8120	5
			8260	10
			8270	10
Hexachlorocyclopentadiene	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	8120	5
			8270	10
Hexachloroethane	67-72-1	Ethane, hexachloro-	8120	0.5
			8260	10
			8270	10
Hexachloropropene	1888-71-7	1-Propene, 1,1,2,3,3,3-hexachloro-	8270	10
2-Hexanone; Methyl butyl ketone	591-78-6	2-Hexanone	8260	50
Indeno(1,2,3-cd)pyrene	193-39-5	Indeno(1,2,3-cd)pyrene	8100	200
			8270	10
Isobutyl alcohol	78-83-1	1-Propanol, 2-methyl-	8015	50
			8240	100
Isodrin	465-73-6	1,4,5,8-Dimethanonaphthalene,1,2,	8270	20

		3,4,10,10- hexachloro-1,4,4a,5,8,8a hexahydro-(1a,4a,4aß,5ß,8ß,8aß)-	8260	10
Isophorone	78-59-1	2-Cyclohexen-1-one, 3,5,5-trimethyl-	8090 8270	60 10
Isosafrole	120-58-1	1,3-Benzodioxole, 5-(1-propenyl)-	8270	10
Kepone	143-50-0	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a, 5b,6-decachlorooctahydro-	8270	20
Lead	(Total)	Lead	6010 7420 7421	400 1000 10
Mercury	(Total)	Mercury	7470	2
Methacrylonitrile	126-98-7	2-Propenenitrile, 2-methyl-	8015 8260	5 100
Methapyrilene	91-80-5	1,2-ethanediamine,N.N.-dimethyl-N ¹ -2-pyridinyl-N1/2-thienyl-methyl-	8270	100
Methoxychlor	72-43-5	Benzene, 1,1 ¹ -(1,2,2, trichloroethylidene) bis[4-methoxy-	8080 8270	2 10
Methyl bromide; Bromomethane	74-83-9	Methane, bromo-	8010 8021	20 10
Methyl chloride; Chloromethane	74-87-3	Methane, chloro-	8010 8021	1 0.3
3-Methylcholanthrene	56-49-5	Benz[j]aceanthrylene, 1,2-dihydro-3- methyl-	8270	10
Methyl ethyl ketone; MEK; 2-Butanone	78-93-3	2-Butanone	8015 8260	10 100
Methyl iodide; iodomethane	74-88-4	Methane,iodo-	8010 8260	40 10
Methyl methacrylate	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester	8015 8260	2 30
Methyl methanesulfonate	66-27-3	Methanesulfonic acid, methyl ester	8270	10
2-Methylnaphthalene	91-57-6	Naphthalene, 2-methyl-	8270	10
Methyl parathion;Parathion methyl	298-00-0	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester	8140 8141 8270	0.5 1 10
4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1	2-Pentanone, 4-methyl-	8015 8260	5 100
Methylene bromide; Dibromomethane	74-95-3	Methane, dibromo-	8010 8021 8260	15 20 10
Methylene chloride; Dichloromethane	75-09-2	Methane, dichloro-	8010 8021 8260	5 0.2 10
Naphthalene	91-20-3	Naphthalene	8021 8100 8260 8270	0.5 200 5 10
1,4-Naphthoquinone	130-15-4	1,4-Naphthalenedione	8270	10
1-Naphthylamine	134-32-7	1-Naphthalenamine	8270	10
2-Naphthylamine	91-59-8	2-Naphthalenamine	8270	10
Nickel	(Total)	Nickel	6010 7520	150 400
o-Nitroaniline; 2-Nitroaniline	88-74-4	Benzenamine, 2-nitro-	8270	50
m-Nitroaniline; 3-Nitroaniline	99-09-2	Benzenamine, 3-nitro-	8270	50
p-Nitroaniline; 4-Nitroaniline	100-01-6	Benzenamine, 4-nitro	8270	20
Nitrobenzene	98-95-3	Benzene, nitro-	8090 8270	40 10

o-Nitrophenol; 2-Nitrophenol	88-75-5	Phenol, 2-nitro-	8040 8270	5 10
p-Nitrophenol; 4-Nitrophenol	100-02-7	Phenol, 4-nitro-	8040 8270	10 50
N-Nitrosodi-n-butylamine	924-16-3	1-Butanamine, N-butyl-N-nitroso-	8270	10
N-Nitrosodiethylamine	55-18-5	Ethanamine, N-ethyl-N-nitroso-	8270	20
N-Nitrosodimethylamine	62-75-9	Methanamine, N-methyl-N-nitroso-	8070	2
N-Nitrosodiphenylamine	86-30-6	Benzenamine, N-nitroso-N-phenyl-	8070	5
N-Nitrosodipropylamine; N-Nitroso- N- dipropylamine; Di-n-propylnitrosamine	621-64-7	1-Propanamine, N-nitroso-N-propyl-	8070	10
N-Nitrosomethylethylamine	10595-95-6	Ethanamine, N-methyl-N-nitroso-	8270	10
N-Nitrosopiperidine	100-75-4	Piperidine, 1-nitroso-	8270	20
N-Nitrosopyrrolidine	930-55-2	Pyrrolidine, 1-nitroso-	8270	40
5-Nitro-o-toluidine	99-55-8	Benzenamine, 2-methyl-5-nitro-	8270	10
Parathion	56-38-2	Phosphorothioic acid, 0,0-diethyl 0-(4-nitrophenyl) ester	8141 8270	0.5 10
Pentachlorobenzene	608-93-5	Benzene, pentachloro-	8270	10
Pentachloronitrobenzene	82-68-8	Benzene, pentachloronitro-	8270	20
Pentachlorophenol	87-86-5	Phenol, pentachloro-	8040 8270	5 50
Phenacetin	62-44-2	Acetamide, N-(4-ethoxyphenyl)	8270	20
Phenanthrene	85-01-8	Phenanthrene	8100 8270	200 10
Phenol	108-95-2	Phenol	8040	1
p-Phenylenediamine	106-50-3	1,4-Benzenediamine	8270	10
Phorate	298-02-2	Phosphorodithioic acid, 0,0-diethyl-S-[(ethylthio)methyl] ester	8140 8141 8270	2 0.5 10
Polychlorinated biphenyls; PCBs;Aroclors	See Note 9	1,1'-Biphenyl, chloro derivatives	8080 8270	50 200
Pronamide	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	8270	10
Propionitrile; Ethyl cyanide	107-12-0	Propanenitrile	8015 8260	60 150
Pyrene	129-00-0	Pyrene	8100 8270	200 10
Safrole	94-59-1	1,3-Benzodioxole, 5-(2-propenyl)-	8270	10
Selenium	(Total)	Selenium	6010 7740 7741	750 20 20
Silver	(Total)	Silver	6010 7760 7761	70 100 10
Silvex; 2,4,5-TP	93-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-	8150	2
Styrene	100-42-5	Benzene, ethenyl-	8020 8021 8260	1 0.1 10
Sulfide	18496-25-8	Sulfide	9030	4000
2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)-	8150	2
1,2,4,5-Tetrachlorobenzene	95-94-3	Benzene, 1,2,4,5-tetrachloro-	8270	10
1,1,1,2-Tetrachloroethane	630-20-6	Ethane, 1,1,1,2-tetrachloro-	8010 8021 8260	5 0.05 5
1,1,2,2-Tetrachloroethane	79-34-5	Ethane, 1,1,2,2-tetrachloro-	8010 8021	0.5 0.1

			8260	5
Tetrachloroethylene; Tetrachloroethene;	127-18-4	Ethene, tetrachloro-	8010	0.5
Perchloroethylene			8021	0.5
			8260	5
2,3,4,6-Tetrachlorophenol	58-90-2	Phenol, 2,3,4,6-tetrachloro-	8270	10
Thallium	(Total)	Thallium	6010	400
			7840	1000
			7841	10
Tin	(Total)	Tin	6010	40
Toluene	108-88-3	Benzene, methyl-	8020	2
			8021	0.1
			8260	5
o-Toluidine	95-53-4	Benzenamine, 2-methyl-	8270	10
Toxaphene	See Note 10	Toxaphene	8080	2
1,2,4-Trichlorobenzene	120-82-1	Benzene, 1,2,4-trichloro-	8021	0.3
			8120	0.5
			8260	10
			8270	10
1,1,1-Trichloroethane; Methylchloroform	71-55-6	Ethane, 1,1,1-trichloro-	8010	0.3
			8021	0.3
			8260	5
1,1,2-Trichloroethane	79-00-5	Ethane, 1,1,2-trichloro-	8010	0.2
			8260	5
Trichloroethylene; Trichloroethene	79-01-6	Ethane, trichloro-	8010	1
			8021	0.2
			8260	5
Trichlorofluoromethane; CFC- 11	75-69-4	Methane, trichlorofluoro-	8010	10
			8021	0.3
			8260	5
2,4,5-Trichlorophenol	95-95-4	Phenol, 2,4,5-trichloro-	8270	10
2,4,6-Trichlorophenol	88-06-2	Phenol, 2,4,6-trichloro-	8040	5
			8270	10
1,2,3-Trichloropropane	96-18-4	Propane, 1,2,3-trichloro-	8010	10
			8021	5
			8260	15
O,O,0-Triethyl phosphorothioate	126-68-1	Phosphorothioic acid, 0,0,0- triethylester	8270	10
sym-Trinitrobenzene	99-35-4	Benzene, 1,3,5-trinitro-	8270	10
Vanadium	(Total)	Vanadium	6010	80
			7910	2000
			7911	40
Vinyl acetate	108-05-4	Acetic acid, ethenyl ester	8260	50
Vinyl chloride; Chloroethene	75-01-4	Ethene, chloro-	8010	2
			8021	0.4
			8260	10
Xylene (total)	See Note 11	Benzene, dimethyl-	8020	5
			8021	0.2
			8260	5
Zinc	(Total)	Zinc	6010	20
			7950	50
			7951	0.5

Notes

- 1 The regulatory requirements pertain only to the list of substances; the right hand columns (Methods and PQL) are given for informational purposes only. See also footnotes 5 and 6.
- 2 Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.
- 3 Chemical Abstracts Service registry number. Where "Total" is entered, all species in the groundwater that contain this element are included.

- 4 CAS index are those used in the 9th Collective Index.
- 5 Suggested Methods refer to analytical procedure numbers used in EPA Report SW-846 "Test Methods for Evaluating Solid Waste", third edition, November 1986, as revised, December 1987. Analytical details can be found in SW-846 and in documentation on file at the agency. CAUTION: The methods listed are representative SW-846 procedures and may not always be the most suitable method(s) for monitoring an analyte under the regulations.
- 6 Practical Quantitation Limits (PQLs) are the lowest concentrations of analytes in groundwaters that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions. The PQLs listed are generally stated to one significant figure. PQLs are based on 5 mL samples for volatile organics and 1 L samples for semivolatile organics. CAUTION: The PQL values in many cases are based only on a general estimate for the method and not on a determination for individual compounds; PQLs are not a part of the regulation.
- 7 This substance is often called Bis(2-chloroisopropyl) ether, the name Chemical Abstracts Service applies to its noncommercial isomer, Propane, 2,2"-oxybis[2-chloro- (CAS RN 39638-32-9).
- 8 Chlordane: This entry includes alpha-chlordane (CAS RN 5103-71-9), beta-chlordane (CAS RN 5103-74-2), gamma-chlordane (CAS RN 5566-34-7), and constituents of chlordane (CAS RN 57-74-9 and CAS RN 12789-03-6). PQL shown is for technical chlordane. PQLs of specific isomers are about 20 $\mu\text{g}/\text{L}$ by method 8270.
- 9 Polychlorinated biphenyls (CAS RN 1336-36-3); this category contains congener chemicals, including constituents of Aroclor 1016 (CAS RN 12674-11-2), Aroclor 1221 (CAS RN 11104-28-2), Aroclor 1232 (CAS RN 11141-16-5), Aroclor 1242 (CAS RN 53469-21-9), Aroclor 1248 (CAS RN 12672-29-6), Aroclor 1254 (CAS RN 11097-69-1), and Aroclor 1260 (CAS RN 11096-82-5). The PQL shown is an average value for PCB congeners.
- 10 Toxaphene: This entry includes congener chemicals contained in technical toxaphene (CAS RN 8001-35-2), i.e., chlorinated camphene.
- 11 Xylene (total): This entry includes o-xylene (CAS RN 96-47-6), m-xylene (CAS RN 108-38-3), p-xylene (CAS RN 106-42-3), and unspecified xylenes (dimethylbenzenes) (CAS RN 1330-20-7). PQLs for method 8021 are 0.2 for o-xylene and 0.1 for m- or p-xylene. The PQL for m-xylene is 2.0 $\mu\text{g}/\text{L}$ by method 8020 or 8260.

Author: Russell A. Kelly; S. Scott Story.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-7.

History: Effective: November 2, 1993. **Amended:** Filed: April 24, 2018; Effective: June 8, 2018.

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
LAND DIVISION - SOLID WASTE PROGRAM**

**CHAPTER 335-13-5
PROCEDURES FOR OBTAINING PERMITS**

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35-13-5-.01 Permits. Solid waste management subject to this Division shall take place in a unit(s) permitted by the Department. Rules 335-13-5-.02 through 335-13-5-.07 establish the minimum requirements and procedures for obtaining a solid waste landfill permit, composting facility permit or CCR facility permit for existing and proposed facilities. The technical standards used to determine the requirements of a permit are set out in chapter 335-13-4 for landfills, 335-13-14 for composting facilities and 335-13-15 for CCR units.

Author: Russell A. Kelly, Heather M. Jones.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-5, 22-27-3, 22-27-5, 22-27-7.

History: November 18, 1981. **Amended:** Effective: July 21, 1988; **Amended:** Effective: November 2, 1993; **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-5-.02 Permit Application. Any person who requires a permit pursuant to this Division shall complete, sign, and submit to the Department an application for each permit required under 335-13-5-.01.

(1) Application Requirements.

(a) Solid Waste Landfills. Landfill units proposed after the effective date of this Division shall obtain permits to construct and/or operate by submitting a permit application consisting of the following in order to request a permit:

1. A completed application form designated by the Department, with applicable fees;

335-13-5-.02

2. Documentation of host government approval, as provided in the Code of Alabama 1975, § 22-27-48 and 48.1;

3. Facility design plans and operational procedures in accordance with Permit Application Procedures for Solid Waste Disposal Facilities as prepared by the Department;

4. Technical data and reports to comply with 335-13-4-.01, 335-13-4-.11 through 335-13-4-.24 and this Division; and

5. All technical reports, plans and specifications, plats, geological and hydrological reports required by this Division, prepared under the following:

(i) Plans, specifications, operational procedures, letters of final construction certification and other technical data, except as provided in 335-13-5-.02(1)(a)5.(ii) and (iii) for the construction and operation of a facility shall be prepared by a professional engineer. The seal or signature and registration number of the design engineer shall be affixed to the plans, specifications and reports.

(ii) Reports, letters of certification and other documents and technical data concerning the siting standards of 335-13-4-.01 shall be prepared by a person with technical expertise in the field of concern.

(iii) Legal property descriptions and survey plats shall be prepared by a land surveyor with the seal or signature and registration number of the land surveyor affixed.

6. The name and mailing address of all property owners whose property, per county tax records, is adjacent to the proposed site shall be submitted as part of a landfill unit's permit application.

7. The Department may waive certain requirements of (a)3. and 4. for those landfill units that will receive for disposal only construction and demolition type waste. A permit application for a C/DLF shall be submitted on a permit application form designated by the Department, which shall specify the minimum requirements for a complete application. The C/DLF permit application shall also include statements signed by a professional engineer and a representative of the facility owner/operator certifying that the information being submitted is accurate and correct. The submittal of false or inaccurate information shall result in the C/DLF permit application being suspended or denied.

(b) Composting Facilities.

1. The owner or operator of each composting facility in existence on April 3, 2012, shall file an application, including applicable fees, for a permit with the Department no later than June 1, 2012. The owner or operator of each

new composting facility desiring to begin operation after April 3, 2012, shall obtain a permit prior to commencing composting activities.

2. Each owner or operator of a composting facility shall submit a permit application prepared by a professional engineer to the Department utilizing a form designated by the Department. In addition to the designated application form, the following information shall be submitted as part of the permit application:

(i) Documentation of host government approval as provided in the Code of Alabama 1975, § 22-27-48 and 48.1.

(ii) List of feed stocks to be accepted at the composting facility.

(iii) The operational capacity of the composting facility.

(iv) Legal property description and plat prepared by a land surveyor with the seal or signature and registration number of the land surveyor affixed.

(v) Composting facility design plans and operational plans in accordance with 335-13-14. Design plans and operational plans shall be prepared by a professional engineer. The seal or signature and registration number of the design engineer shall be affixed to the plans.

(vi) A process flow diagram of the entire facility.

(vii) A fire prevention plan.

(viii) A closure plan that at a minimum includes:

(I) Information detailing the removal of all remaining solid waste material from the site as required by rule 335-13-14-.09;

(II) A detailed written estimate, in current dollars, of the cost required to complete closure of the composting facility in accordance with rule 335-13-14-.09; and

(III) A demonstration by the applicant of the ability to provide adequate financial coverage equal to the amount required in rule 335-13-5-.02(1)(b)2.(viii)(II) for the closure of the composting facility.

(ix) The names and mailing address of all property owners whose properties, per county tax records, are adjacent to the proposed site.

(c) CCR Facilities. All solid waste management of CCR generated from the combustion of coal at electrical utilities and independent power producers shall take place in a unit permitted by the Department. New and existing CCR landfills and surface impoundments shall obtain permits for construction, operation, closure and/or post-closure in accordance with the

335-13-5-.02

following:

1. Existing CCR Surface Impoundments. Except as provided in 335-13-5-.02(1)(c)3., for existing CCR surface impoundments, the owner or operator shall submit the following in order to request a permit:

(i) A completed application form designated by the Department, with applicable fees.

(ii) Boundary plat and legal property description prepared, signed, and sealed by a land surveyor of the boundary of the facility and disposal area of the CCR unit.

(iii) Technical data and reports documenting compliance with the following location requirements:

(I) Five foot separation of the base of the CCR unit and the uppermost aquifer as specified in 335-13-15-.03(1);

(II) Wetland and endangered species requirements under 335-13-15-.03(2);

(III) Fault area requirements under 335-13-15-.03(3);

(IV) Seismic impact zones requirements under 335-13-15-.03(4);

(V) Unstable area requirements under 335-13-15-.03(5); and

(VI) The location requirements under 335-13-15-.01(2)(b) and 335-13-15-.03(6).

(iv) Detailed presentation of geological and hydrogeological units within the disposal site, with typical sections of disposal method and plan and profile sheets on all areas or trenches.

(v) Technical report of the determination of the liner design and type as required by 335-13-15-.04(2).

(vi) Technical report for the hazard potential classification as outlined in 335-13-15-.04(4)(a)2. and the Emergency Action Plan (EAP), if necessary, developed under 335-13-15-.04(4)(a)3.

(vii) For existing CCR surface impoundments that have a height of five feet or more and a storage volume of 20 acre-feet or more, or an existing surface impoundment with a height of 20 feet or more, the application shall include the following:

- (I) All the information required by 335-13-15-.04(4)(c)1.(i) through (xii).
- (II) Results of the structural stability assessment as required by 335-13-15-.04(4)(d).
- (III) Results of the safety factor assessment as required by 335-13-15-.04(4)(e).
- (viii) Sufficient control points on-site to provide for accurate horizontal and vertical control for facility construction, operation and closure and post-closure.
- (ix) Topographical maps at contour intervals of not more than five feet for the existing ground surface elevation, initial disposal area elevation, and final disposal area elevation. The maps shall also show buffer zones.
- (x) Quality assurance/quality control (QA/QC) plan for all components of the final cover system.
- (xi) An operation plan that includes at a minimum:
 - (I) A CCR fugitive dust control plan developed in accordance with 335-13-15-.05(1).
 - (II) An inflow design flood control system plan developed in accordance with 335-13-15-.05(3).
 - (III) All technical reports, plans and specifications documenting compliance with the requirements of 335-13-15-.05(4) and 335-13-15-.05(6).
 - (IV) A detailed description of the groundwater monitoring and analysis program developed in accordance with 335-13-15-.06.
 - (V) Procedures for compliance with recordkeeping, notification and internet posting as required under 335-13-15-.08.
 - (VI) Procedures for updating all plans and assessments periodically as required by 335-13-15.
- (xii) The written closure and post-closure or retrofit plan developed in accordance with 335-13-15-.07.
- (xiii) Any additional information that may be required by the Department.
- (xiv) The name and mailing address of all property owners whose property, per county tax records, is adjacent to the proposed site.

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(xv) Plans, specifications, operational procedures, letters of final construction certification and other technical data required as part of the application, except as provided in 335-13-5-.02(1)(c)1.(ii) and (xiv), shall be certified by a professional engineer. The seal or signature and registration number of the design engineer shall be affixed to the plans, specifications and reports.

2. New CCR surface impoundments and any lateral expansion of a CCR surface impoundment. For new CCR surface impoundments and any lateral expansion of a CCR surface impoundment, the owner or operator shall submit the following in order to request a permit:

(i) Except for the requirements of 335-13-5-.02(1)(c)1.(v), (vi), and (vii), the requirements for an existing CCR surface impoundment in 335-13-5-.02(1)(c)1.

(ii) Technical report for the hazard potential classification as outlined in 335-13-15-.04(5)(a)2. and the Emergency Action Plan (EAP), if necessary, under 335-13-15-.04(5)(a)3.

(iii) For new CCR surface impoundments that have a height of five feet or more and a storage volume of 20 acre-feet or more, or a surface impoundment with a height of 20 feet or more, the application shall include the following:

(I) All the information required by 335-13-15-.04(5)(c)1.(i) through (xii).

(II) Results of the structural stability assessment as required by 335-13-15-.04(5)(d).

(III) Results of the safety factor assessment as required by 335-13-15-.04(5)(e).

(iv) Design for the liner as required by 335-13-15-.04(3).

(v) Quality assurance/quality control (QA/QC) plan for all components of the liner.

(vi) Plans, specifications, operational procedures, letters of final construction certification and other technical data required as part of the application, except as provided in 335-13-5-.02(1)(c)1.(ii) and (xiv), shall be certified by a professional engineer. The seal or signature and registration number of the design engineer shall be affixed to the plans, specifications and reports.

3. For existing CCR surface impoundments that have initiated closure or are otherwise subject to the closure requirements of 335-13-15-.07(2), the owner or operator shall submit all the information as required for an existing CCR surface impoundment in 335-13-5-.02(1)(c)1., except for the requirements

of 335-13-5-.02(1)(c)1.(iii), (iv) and (v), to request a closure or post-closure permit or a permit for such operations as may be authorized by 335-13-15-.07(4).

4. Existing CCR Landfills. For existing CCR landfills, the owner or operator shall submit the following to request a permit:

(i) Except for the requirements of 335-13-5-.02(1)(c)1.(iii), (v), (vi), (vii) and (xi)(II) and (III), the requirements for an existing CCR surface impoundment in 335-13-5-.02(1)(c)1.

(ii) Technical data and reports documenting compliance with the following:

(I) Unstable area requirements in 335-13-15-.03(5);

(II) The location requirements under 335-13-15-.01(2)(b) and 335-13-15-.03(6);

(III) Cover requirements under 335-13-15-.05(7)(a);

(IV) Access control requirements of 335-13-15-.05(6)(e);

(iii) An operation plan that includes, at a minimum:

(I) A run-on and run-off control system plan developed in accordance with 335-13-15-.05(2)(c), which should include existing and proposed surface drainage patterns and control structures designed to handle run-on and run-off.

(II) Details of plans for permanent all weather access roads.

(III) All technical reports, plans and specifications documenting compliance with the operational requirements of 335-13-15-.05(1)(d), 335-13-15-.05(5), (6) and (7).

5. New CCR Landfills and any lateral expansion of a CCR Landfill. In addition to the requirements listed in 335-13-5-.02(1)(c)4. above, applications for new CCR landfills and any lateral expansion of a CCR landfill shall include the following in order to request a permit:

(i) Technical data and reports documenting compliance with the following location requirements:

(I) Five foot separation of the base of the CCR unit above the uppermost aquifer as specified in 335-13-15-.03(1).

(II) Wetland and endangered species requirements under 335-13-15-.03(2).

(III) Fault area requirements under 335-13-15-.03(3).

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(IV) Seismic impact zones under 335-13-15-.03(4).

(ii) Design of the liner and leachate collection and removal system as required by 335-13-15-.04(1), including a quality assurance/quality control (QA/QC) plan for all components of the liner, leachate collection, and final cover system.

(d) In addition to the requirements listed in 335-13-5-.02(1), the permit application shall also include statements signed by a professional engineer and a representative of the facility owner/operator certifying that the information being submitted is accurate and correct. The submittal of false or inaccurate information shall result in the permit application being suspended or denied.

(2) Permit Renewal Application Requirements.

(a) Permittees requesting to renew an existing permit must do so by submitting a permit renewal application consisting of the following:

1. A completed application form designated by the Department, with applicable fees;

2. Updated technical data, plans or reports, where applicable, as required under the following:

(i) 335-13-5-.02(1)(a)3. and/or 4. for landfills;

(ii) 335-13-5-.02(1)(b)2. (ii) through (viii) for composting facilities; and

(iii) 335-13-5-.02(1)(c) for CCR units.

3. The name and mailing address of all property owners whose property, per county tax records, is adjacent to the site shall be submitted as part of a renewal application.

4. All renewal applications and supporting documentation shall be prepared in accordance with 335-13-5-.02(1)(d).

(3) Permit Duration. Permits obtained in compliance with this Division shall be valid for the design life of the facility or as otherwise determined by the Department, but no longer than a period of ten years. Permits, however, are subject to revocation under 335-13-5-.05 of this Division.

(4) Filing Deadline. Applications for an extension, renewal, or a new permit for any landfill facility, composting facility or CCR facility shall be filed with the Department by the owner or operator at least 180 days prior to the expiration date for existing permits or the proposed construction date for new facilities. Applications for an initial permit for CCR facilities shall be filed with the Department within 180 after the original effective date of 335-13-15.

(5) Modifications. Prior to any change listed in 335-13-5-.06(1) and (2), the permittee shall request a modification of the permit as described in 335-13-5-.06(3). A request for modification described in 335-13-5-.06(1) and (2) must be filed with the Department at least 120 days prior to the anticipated change and shall receive approval from the Department prior to the implementation of the proposed change.

(6) Effect of non-compliance.

(a) As determined by the Director, substantial non-compliance with Department regulations or permits at any facility owned or operated by the applicant, including any facility for which the pending permit application is requested, will be grounds for denial of the application, or alternatively, for suspension of further consideration of the application until such non-compliance is corrected.

(b) In addition to the foregoing, the Director may deny a permit application if:

1. The Director determines that a permit could not be issued that would result in compliance with applicable solid waste standards; or
2. The applicant could not comply with the permit as issued.

Author: Russell A. Kelly, Eric L. Sanderson, S. Scott Story, Heather M. Jones.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-5, 22-27-7, and 22-27-48 and 48.1.

History: Effective: November 18, 1981. **Amended:** Effective: March 31, 1988 (Emergency Regulations). **Amended:** Effective: July 21, 1988. **Amended:** Effective: October 2, 1990. **Amended:** Effective: November 2, 1993. **Amended:** Effective: July 26, 1996. **Amended:** Filed: April 24, 2018; Effective: June 8, 2018. **Amended:** Filed: June 25, 2019; Effective: August 9, 2019; **Amended:** Filed: December 31, 2020; Effective: February 15, 2021; **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-5-.03 Public Notice.

(1) Notice Requirements.

(a) The Department shall provide notice and an opportunity to comment and request a public hearing on any solid waste landfill unit, composting facility or CCR facility permit initial issuance, renewal, a modification listed in 335-13-5-.06(1) or (2) (b) to the facility permit, or if otherwise determined necessary to meet the requirements of this Division.

(b) The following procedures shall be observed:

1. The Department shall send a copy of the notice to persons on a mailing list developed by:

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(i) Including those who request in writing to be on the list;

(ii) Notifying the public of the opportunity to be put on the mailing list through the Department's website, periodic publication in the public press and in such publications as regional and state funded newsletters, environmental bulletins, or state law journals (the Director may update the mailing list from time to time by requesting written indication of continued interest from those listed and may delete from the list the name of any person who fails to respond to such a request);

2. The Department shall notify interested and potentially interested persons of the proposed permit action for a solid waste landfill, composting or CCR facility by posting a notice to the Department's website. The draft permit action shall be posted on the website for the duration of the public comment period.

3. The notice shall be given not less than 35 days prior to the proposed issuance of a permit action.

4. The notice shall contain the specific type and nature of the solid waste landfill, composting or CCR facility, the type of waste to be disposed or accepted, as applicable, the owner or operator requesting the permit action, and the descriptive location of the solid waste landfill, composting or CCR facility, address and telephone number of the Department, and how the public may submit comments and request a public hearing on the proposed permit action.

5. The Department shall send by certified mail, a written copy of the public notice to landowners adjacent to the subject solid waste landfill, composting or CCR facility at the address as indicated on county tax records and provided by the applicant as part of the permit application. The list and addresses of adjacent land owners, as provided in the permit application, shall be verified and/or updated by the applicant and such documentation shall be provided to the Department within 90 days prior to the public notice date. Documentation that notice was sent shall include copies of the signed receipts of certified mail delivery or a copy of any returned certified mail item, that is refused or otherwise undeliverable.

(2) Departmental Action. After the comment period closes, the Department shall review, consider and respond to all public comments received by the close of the comment period and take one of the following actions:

(a) Deny the permitting action, stating in writing the reasons for denial and informing the person requesting the permitting action of appeal procedures in chapter 335-2-1;

(b) Issue the permitting action if the application complies with this Division; or

(c) Require additional information or additional elements of design for the facility. If required, the applicant must specify procedures for inclusion into the permit of any additional information prior to issuance of the permit action.

Author: Russell A. Kelly; S. Scott Story; Heather M. Jones.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-5, and 22-27-7.

History: Effective: November 18, 1981. **Amended:** Effective: July 21, 1988.

Amended: Effective: November 2, 1993. **Amended:** Effective: July 26, 1996.

Amended: Filed: April 24, 2018; Effective: June 8, 2018. **Amended:** Filed: June 25, 2019; Effective: August 9, 2019; **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-5.04 Public Hearing.

(1) Authorization. The Department shall authorize a public hearing at its discretion, or upon receipt of significant number of technical requests as provided in 335-13-5-.04(2).

(2) Procedures.

(a) Requests for public hearings shall be submitted in writing to the Department.

1. Frivolous or nontechnical requests shall be denied by the Department.

2. Requests for public hearings must be submitted within 35 days after the publication of the public notice and must contain the following:

(i) The name, address and telephone number of the person requesting the hearing.

(ii) A brief statement of the person's interest and the information the person wishes to submit.

(iii) The person's signature, if an individual, or the signature of a responsible officer of an organization or legal entity.

(b) When a hearing has been authorized, the Department shall appoint a hearing officer to conduct the hearing and shall establish a time, date, and location for the hearing. The location for the hearing shall comply with the requirements of the Americans with Disabilities Act.

(c) The Department shall give notice of the public hearing in the manner set forth in 335-13-5-.03(1), and also to the persons requesting the hearing in 335-13-5-.04(2). The notice shall be given not less than 35 days prior to the time of the public hearing and shall include:

1. A summary of the proposed permitting action.

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2. The place, time, and date of the hearing.
3. The name, address, and telephone number of an office at which interested persons may receive further information.

(3) Departmental Action. After the public hearing and close of the comment period, the Department shall review, consider, and respond to comments received by the close of the comment period and take one of the following actions:

(a) Deny the permitting action, stating in writing the reasons for denial and inform the person requesting the permitting action of appeal procedures in chapter 335-2-1;

(b) Issue the permitting action if the application complies with this Division; or

(c) Require additional information or additional elements of design for the facility. If required, the applicant must specify procedures for inclusion into the permit of any additional information prior to issuance of the permit action.

Author: Russell A. Kelly; S. Scott Story; Heather M. Jones.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-5 and 22-27-7.

History: Effective: November 18, 1981. **Amended:** Effective: July 21, 1988.

Amended: Effective: November 2, 1993. **Amended:** Effective: July 26, 1996.

Amended: Filed: April 24, 2018; Effective: June 8, 2018; **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-5-.05 Permit Denial, Suspension or Revocation.

(1) Conditions. The Department may deny, suspend or revoke any operating permit if:

(a) The permittee is found to be in violation of any of the permit conditions:

(b) The permittee fails to perform the permitted activity in accordance with the approved permit application, operational plan/narrative or engineering drawings:

(c) The permittee fails to seek a modification of the permit as required by 335-13-5-.06:

(d) An active solid waste landfill stops receiving waste as specified in 335-13-4-.20(2)(f);

(e) An active composting facility stops accepting and processing raw material as specified by 335-13-14-.09(2);

(f) An active CCR facility stops receiving waste as specified by 335-13-15-.07(3)(e); or

(g) The design and/or operations create a nuisance or is inconsistent with the Act or this Division.

(2) Written Notice. In the event of denial, suspension or revocation of an operating permit, the Department shall serve written notice of such action on the permittee and shall set forth in such notice the reason for such action.

(3) Closure. Upon revocation or suspension of the operating permit, or denial of the renewal of the permit, the permittee shall meet the closure requirements found in 335-13-4-.20 for solid waste landfill units, 335-13-14-.09 for composting facilities or 335-13-15-.07 for CCR units.

Author: Russell A. Kelly; S. Scott Story; Heather M. Jones.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-5, 22-27-3, 22-27-5, and 22-27-7.

History: Effective: November 18, 1981. **Amended:** Effective: March 31, 1988 (Emergency Regulations). **Amended:** Effective: July 21, 1988. **Amended:** Effective: October 2, 1990. **Amended:** Effective: November 2, 1993. **Amended:** Effective: July 26, 1996. **Amended:** Filed: April 24, 2018. Effective: June 8, 2018; **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-5-.06 Permit Modification. The Department may modify any permit after receiving a satisfactory request for modification that is found in compliance with ADEM rules and regulations. Permit modifications shall be requested in writing utilizing application forms designated by the Department (ADEM Form 439 for MSWLFs, ILFs and CCR facilities, ADEM Form 305 for C/DLFs or ADEM Form 018 for composting facilities) when the permittee proposes to modify its operation in any of the ways listed in 335-13-5-.06(1) or (2).

(1) Major Modifications.

(a) Major modifications are limited to the following actions:

1. There is any change in the permitted service area. The Director may temporarily waive permit modification requirements related to service area on a case-by-case basis, if it is demonstrated that a disposal alternative is needed immediately to protect human health or the environment.

2. Convert an industrial landfill (ILF) or construction/demolition landfill (C/DLF) to a municipal solid waste landfill (MSWLF) or convert a construction/demolition landfill (C/DLF) to an industrial landfill (ILF).

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3. Addition of a liner and/or leachate collection system or any design change in the existing permitted liner and/or leachate collection system.

4. Addition of acreage to the facility boundary or addition of disposal acreage inside the permitted perimeter where design plans have not been previously submitted.

(b) Modifications required under this paragraph are subject to the provisions of rules 335-13-5-.03 and 335-13-5-.04, which require a public notice and may require a public hearing.

(2) Minor Modifications.

(a) Except as provided in 335-13-5-.06(2)(b), minor modifications are limited to the following actions:

1. Correction of typographical errors and informational changes as requested by the permittee.

2. Changes to remove permit conditions to conform with revised Department guidance or regulations (i.e., permit conditions that are no longer applicable because the standards upon which they were based are no longer applicable to the facility).

3. Changes, by the permittee, to approved applicable plans, as included in the permit application, that increase the frequency, duration or stringency of the actions covered by the applicable plan(s).

4. Addition of a new groundwater monitoring well or replacement of an existing monitoring well (i.e., one that has been damaged or rendered inoperable, as close as possible to the original location, and of similar design and depth).

5. Changes in the statistical analysis method (e.g. changing from interwell or intrawell analysis).

6. Changes in the stormwater conveyance system including, but not limited to, the addition of a sedimentation basin.

7. Changes in fill sequence.

8. Modifications required by 335-13-5-.06(2)(a) are not subject to the provisions of 335-13-5-.03 and 335-13-5-.04, and do not require public notice or a public hearing.

(b) Other Minor Modifications. Modifications not explicitly listed in 335-13-5-.06(1) or (2)(a), will be considered a minor modification that would be subject to the provisions of 335-13-5-.03 for public notice and may require a public hearing under 335-13-5-.04. Applicable actions include, but are not limited to, the following:

1. Addition of a waste stream to an ILF, C/DLF or CCR unit.
2. An increase in the average daily volume specified by the permit for a landfill or CCR unit. The Director may temporarily waive permit modification requirements related to an increase in the average daily volume on a case-by-case basis, if it is demonstrated that a disposal alternative is needed immediately to protect human health or the environment.
3. Addition of an alternative cover material for daily or weekly cover.
4. For landfill or CCR units undergoing corrective action, incorporation of approved final remedies into the permit, or any changes to the approved final remedy.
5. Any changes to the permitted final fill elevations.
6. Any change to the approved final closure method, as detailed in the closure plan submitted with the approved permit application.

(c) For any proposed change covered under 335-13-5-.06(2)(b), the permittee may request a determination by the Department that the modification application should be reviewed and approved as a minor modification under 335-13-5-.06(2)(a). To do so, the permittee must provide the Department with the necessary information to support the requested classification. In determining the appropriate classification for a specific modification, the Department shall consider:

1. The similarity of the modification to other modifications listed in 335-13-5-.06(2)(a); and
2. The criteria that the modification(s) apply only to changes that:
 - (i) Keep the permit current with routine changes to the facility or its operation; and
 - (ii) Do not substantially alter the permit conditions.
- (3) Procedures. Permittee shall request a permit modification in accordance with the following procedures:
 - (a) Submit a request for modification to the Department at least 120 days prior to the anticipated change.
 - (b) Identify each and every part of the permit or plans to be modified.
 - (c) Submit revised plans and narratives as required by the Department.
 - (d) For those modifications subject to the provisions of 335-13-5-.03 for public notice that may require a public hearing under 335-13-5-.04, the

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name and mailing address of all property owners whose property, per county tax records, is adjacent to the site shall be submitted as part of the permit modification application.

(e) Receive approval from the Department prior to implementing the modification.

Author: Russell A. Kelly; S. Scott Story.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-5, 22-27-3, 22-27-5, and 22-27-7.

History: Effective: November 2, 1993. **Amended:** Effective: July 26, 1996.

Amended: Filed: April 24, 2018; Effective: June 8, 2018; **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-5-.07 Transfer of Permit. Permits are not transferable except as follows:

(1) A notification must be submitted to and approved by the Department prior to any proposed transfer from one person or company to another or for the name change of any permitted facility.

(a) The notification must be submitted to the Department at least 30 days prior to the proposed transfer or name change.

(b) Information regarding the transfer or name change must be submitted on form(s) designated by the Department.

(2) **[Reserved]**

Author: Russell A. Kelly, Heather M. Jones.

Statutory Authority: Code of Alabama 1975, §§ 22-22-A-5, 22-27-7.

History: November 18, 1981. **Amended:** Effective: March 31, 1988 (Emergency Regulations); **Amended:** Effective: July 21, 1988; **Amended:** Effective: November 2, 1993; **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-5-.08 Vertical Expansion.

(1) Applicability. Existing MSWLF units may continue to operate past October 8, 1993, or the effective date of § 258.1 of 40 CFR 258, Solid Waste Disposal Criteria, whichever is later, provided that an adequate application request is submitted and approval is granted by the Department.

(2) Application Requests. A vertical expansion application request must be submitted to the Department. The application, at a minimum, shall include the following:

(a) An assessment of the existing groundwater data and groundwater monitoring system. The assessment shall include:

1. Submittals of past groundwater data and conclusions as to whether or not the groundwater has been impacted by the landfill.

2. Monitoring well data such as: well logs, total well depth, screen depth, depth to water level, indication/documentation of upgradient or downgradient well location, numbering sequence, etc. and conclusions as to whether or not the groundwater monitoring system is adequate.

(b) A plat or engineering drawing, designating the active footprint; i.e., area where waste has previously been disposed and has not reached final closure elevations. Areas that have the final closure cap in place will not be considered active areas.

(3) Approval Criteria. In determining whether to approve or deny the vertical expansion request, the Department shall consider the following criteria:

(a) If the groundwater analysis indicates no significant impact to the groundwater, the MSWLF will be allowed to fill vertically over the active footprint, according to the approved plans, until final closure elevations are reached, provided the active footprint is over a lined area with a leachate collection system. If the approved active footprint is over an unlined area, the MSWLF may not expand vertically past October 8, 1997.

(b) If the groundwater analysis indicates an increase over the background data (initial sampling data), and no sampling data has exceeded primary drinking water standards, unlined MSWLFs will be allowed to expand vertically until October 8, 1995 and MSWLFs operating over liners and leachate collection systems may operate according to the approved plans until final closure elevations are reached.

(c) If the groundwater analysis indicates an increase over the background data and exceeds the primary drinking water standards, the MSWLF must perform a groundwater assessment. After Departmental review of the groundwater assessment, a remediation plan (if required) must be submitted to and approved by the Department prior to October 9, 1993, or the effective date of § 258.1 of 40 CFR 258, Solid Waste Disposal Criteria, whichever is later. If a remediation plan is approved by ADEM and implemented by the MSWLF unit, the facility may expand vertically until October 8, 1995.

(d) The active footprint shall be determined by the Department.

Author: Russell A. Kelly; S. Scott Story.

Statutory Authority: Code of Alabama 1975, §§ 22-22-A-5, 22-27-4, and 22-27-7.

History: Effective: November 2, 1993. **Amended:** Effective: July 26, 1996.

Amended: Filed: April 24, 2018; Effective: June 8, 2018.

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LAND DIVISION - SOLID WASTE PROGRAM**

**CHAPTER 335-13-6
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335-13-6-.01 Inspection of Solid Waste Disposal Facilities

335-13-6-.01 Inspection of Solid Waste Disposal Facilities.

(1) General.

(a) The Department shall make periodic evaluations of all solid waste disposal facilities. The evaluations shall be unannounced, and a written report shall be forwarded to the persons holding the disposal permit. The report shall specify the items not in compliance and shall outline measures for corrections and dates for compliance.

(b) The Department may require the permittee to prepare waste for inspection. Such preparation may include but not be limited to the disassembly of bales, or spreading of confined waste to facilitate inspection.

(2) Access. Any permittee, owner or operator of a solid waste disposal facility shall upon request of a duly authorized representative of the Department, permit the representative to enter, at all reasonable times, property and buildings relating to past, present and future management of solid and medical waste and allow the representative to inspect facilities and equipment and to conduct monitoring and sampling activities.

Author: Lindsay Mothershed, Russell A. Kelly.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3, 22-27-5, and 22-27-7.

History: November 18, 1981.

Amended: March 31, 1988 (Emergency Regulations); July 21, 1988; October 2, 1990; July 26, 1996.

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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CHAPTER 335-13-7

RESERVED

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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**CHAPTER 335-13-8
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335-13-8-.01 Variances. The Department may grant individual variances from the specific provisions of Division 13 based upon the procedures of 335-13-8-.02 through 335-13-8-.05 whenever it is found by the Department, upon presentation of adequate proof, that the requested variance will not threaten the public health or unreasonably create environmental pollution. Specifically, variances may only be granted for those provisions of Division 13 that are in addition to or more stringent than analogous federal regulations. Variance requests will not be granted for provisions of Division 13 that are identical to a federal rule (i.e. those provisions that are not a state specific rule). Variances per se are not favored by the Department.

Author: Russell A. Kelly, S. Scott Story.

Statutory Authority: Code of Alabama 1975, § 22-27-7.

History: November 18, 1981.

Amended: July 21, 1988; July 26, 1996. **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-8-.02 Petition for Variance.

(1) Applicability. Any person may request a variance from specific provisions of Division 13 by filing a Petition for Variance with the Department at least 120 days prior to the anticipated change and shall receive approval from the Department prior to the implementation of the proposed change.

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(2) Petition Requirements. To enable the Department to rule on the Petition for Variance, the following information, where determined applicable by the Department, shall be included in the petition:

(a) A clear and complete statement of the precise extent of the relief sought including specific identification of the particular provisions of the regulations from which the variance is sought;

(b) An assessment, with supporting factual information, of the impact that the variance will impose on the public health and the environment in the affected area.

(c) Any additional information requested by the Department as necessary to evaluate the variance request.

(d) A concise factual statement of the reasons the petitioner believes that non-compliance with the particular provisions of Division 13 will not threaten the public health or unreasonably create environmental pollution.

(e) Applicable fees in accordance with Division 1.

(f) The name and mailing address of all property owners whose property, per county tax records, is adjacent to the proposed site shall be submitted as part of a Petition for Variance.

Author: Russell A. Kelly., S. Scott Story.

Statutory Authority: Code of Alabama 1975, § 22-27-7.

History: November 18, 1981.

Amended: July 21, 1988; July 26, 1996. **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-8-.03 Extension of Prior or Existing Variance. A petition to extend a prior or existing variance granted by the Department shall be commenced by filing a Petition for Variance with the Department in accordance with the requirements of 335-13-8-.02.

(1) For petitions to extend an existing variance, the information required by 335-13-8-.02 that was included in the prior Petition for Variance for which extension is sought, shall be submitted, along with any additional information as necessary to update the existing Petition for Variance.

(2) A petition to extend a prior or existing variance shall be a new petition for Variance before the Department and shall be subject to all of the requirements of this Division except as provided in 335-13-8-.03(1).

Author: Russell A. Kelly; Heather M. Jones.

Statutory Authority: Code of Alabama 1975, § 22-27-7.

History: November 18, 1981.

Amended: July 21, 1988. **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-8-.04 [Reserved]

335-13-8-.05 Termination of Variance. Any variance granted by the Department may be terminated by the Department whenever the Department finds, after notice and opportunity for hearing, that the petitioner is in violation of any requirement, condition, schedule, limitation or any other provision of the variance or that operation under the variance does not meet the minimum requirements established by the state and federal laws and regulations or is unreasonably threatening the public health.

Author:

Statutory Authority: Code of Alabama 1975, § 22-27-7.

History: November 18, 1981.

Amended: July 21, 1988.

335-13-8-.06 [Reserved]

335-13-8-.07 [Reserved]

335-13-8-.08 [Reserved]

335-13-8-.09 [Reserved]

335-13-8-.10 [Reserved]

335-13-8-.11 [Reserved]

335-13-8-.12 Public Notice.

(1) Notice Requirements.

(a) The Department shall provide notice and an opportunity to comment and request a public hearing on Petition for Variance from a specific provision of this Division.

(b) The following procedures shall be observed:

1. The Department shall send a copy of the notice to persons on a mailing list developed by:

(i) Including those who request in writing to be on the list;

(ii) Notifying the public of the opportunity to be put on the mailing list through the Department's website, periodic publication in the public press and in such publications as regional and state funded newsletters, environmental bulletins, or state law journals (the Director may update the mailing list from time to time by requesting written indication of continued interest from those listed and may delete from the list the name of any person who fails to respond to such a request);

2. The Department shall notify interested and potentially interested persons of the Petition for Variance by posting a notice to the Department's website. The Petition for Variance shall be posted on the website for the duration of the public comment period.

3. The notice shall be given not less than 35 days prior to the proposed approval of the petition.

4. The notice shall contain the specific type and nature of the petition, the owner or operator requesting the petition, and the descriptive location of the subject facility or unit, address and telephone number of the Department, and how the public may submit comments and request a public hearing on the proposed petition.

5. The Department shall send by certified mail, a written copy of the public notice to landowners adjacent to the subject facility at the address as indicated on county tax records and provided by the applicant as part of the Petition for Variance. The list and addresses of adjacent land owners, as provided in the Petition for Variance, shall be verified and/or updated by the applicant and such documentation shall be provided to the Department within 90 days prior to the public notice date. Documentation that notice was sent shall include copies of the signed receipts of certified mail delivery or a copy of any returned certified mail item, that is refused or otherwise undeliverable.

(2) Departmental Action. After the comment period closes, the Department shall review, consider and respond to all public comments received by the close of the comment period and take one of the following actions:

(a) The petition may be dismissed if the Department determines that it is not adequate under 335-13-8-.02;

(b) The Department may grant the variance as petitioned or by imposing such conditions as the Division may require, including the establishment of schedules of compliance and monitoring requirements; or

(c) The Department may deny the petition. If such a denial is made, the Department shall notify the petitioner in writing the reasons for denial and outline procedures for appeal.

Author: Heather M. Jones.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-5, and 22-27-7.

History: Filed: October 29, 2021; Effective: December 13, 2021.

335-13-8-.13 Public Hearing.

(1) Authorization. The Department shall authorize a public hearing at its discretion, or upon receipt of significant number of technical requests as provided in 335-13-8-.13(2).

(2) Procedures.

(a) Requests for public hearings shall be submitted in writing to the Department.

1. Frivolous or nontechnical requests shall be denied by the Department.

2. Requests for public hearings must be submitted within 35 days after the publication of the public notice and must contain the following:

(i) The name, address and telephone number of the person requesting the hearing.

(ii) A brief statement of the person's interest and the information the person wishes to submit.

(iii) The person's signature, if an individual, or the signature of a responsible officer of an organization or legal entity.

(b) When a hearing has been authorized, the Department shall appoint a hearing officer to conduct the hearing and shall establish a time, date, and location for the hearing. The location for the hearing shall comply with the requirements of the Americans with Disabilities Act.

(c) The Department shall give notice of the public hearing in the manner set forth in 335-13-8-.13(1), and also to the persons requesting the hearing in 335-13-8-.13(2). The notice shall be given not less than 35 days prior to the time of the public hearing and shall include:

1. A summary of the Petition for Variance.

2. The place, time, and date of the hearing.

3. The name, address, and telephone number of an office at which interested persons may receive further information.

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(3) Departmental Action. After the public hearing and close of the comment period, the Department shall review, consider and respond to comments received by the close of the comment period and take one of the following actions:

(a) The petition may be dismissed if the Department determines that it is not adequate under 335-13-8-.02;

(b) The Department may grant the variance as petitioned or by imposing such conditions as the Division may require, including the establishment of schedules of compliance and monitoring requirements; or

(c) The Department may deny the petition. If such a denial is made, the Department shall notify the petitioner in writing the reasons for denial and outline procedures for appeal.

Author: Heather M. Jones.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-5 and 22-27-7.

History: Filed: October 29, 2021; Effective: December 13, 2021.

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
LAND DIVISION - SOLID WASTE PROGRAM**

**CHAPTER 335-13-9
STATE SOLID WASTE MANAGEMENT PLAN**

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335-13-9-.06	Local Solid Waste Management Plans

335-13-9-.01 Purpose. Pursuant to the provisions of Code of Alabama 1975, §§ 22-27-40 to 22-47-49, the Department is required to develop a comprehensive plan for managing solid waste in the state. Local authorities must develop solid waste management plans for their respective areas.

Author: James L. Bryant.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-8(d); 22-27-40 et seq.

History: March 12, 2002.

Amended:

335-13-9-.02 State Solid Waste Management Plan. Pursuant to Code of Alabama 1975, § 22-27-45(4), the Alabama Solid Waste Management Plan, dated May 2008, and included in Appendix A of these regulation, is hereby adopted to the extent allowed by law.

Author: James L. Bryant; Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-8(d); 22-27-40 et seq.

History: March 12, 2002.

Amended: September 30, 2008.

335-13-9-.03 [Reserved].

335-13-9-.04 Updating and Modifying the State Solid Waste Management Plan. The state solid waste management plan shall be subject to amendment and periodic revision.

(1) Each revision of the state solid waste management plan should address those items identified in Code of Alabama 1975, §22-27-45(4)c. that the Department has statutory authority, at the time of revision, to control or regulate.

(2) The state solid waste management plan may be amended at any time as deemed necessary by the Director.

Author: James L. Bryant; Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-8(d); 22-27-40 et seq.

History: March 12, 2002.

Amended: September 30, 2008.

335-13-9-.05 Regional Planning and Development Needs Assessment.

(1) Each regional planning and development commission or council in the state shall prepare and adopt a regional needs assessment evaluating solid waste management needs in their respective regions as required by Code of Alabama 1975, §§ 22-27-46. The regional needs assessment shall be prepared each year and submitted to the Department and to local governments in their region.

(2) The regional needs assessment shall include, at a minimum, the following:

(a) An evaluation of the amount of solid waste generated within the region and the amount of remaining design disposal capacity, expressed in years, at each solid waste disposal facility within the region.

(b) An evaluation of the needs of all localities within the region as to the adequacy or inadequacy of solid waste collection, transportation and disposal within those localities.

(c) A projection of the expected population and business growth in the region, including specific estimates of the types of businesses which may be entering and leaving the region and the resulting impact these changes will likely have on waste volumes generated in the region.

(d) An evaluation of the environmental, economic and other relevant factors which would be implicated by acceptance of solid waste from beyond the boundaries of the region.

(3) Each landfill permitted by the Department must provide to the regional planning and development commission or council serving the county in which the facility is located the information as may be necessary to complete the annual regional needs assessment and shall be reported in the following manner:

(a) Information shall be reported using forms developed by the Department in consultation with the regional planning and development commission or council requesting the information.

(b) Information shall be submitted to the regional planning and development commission or council not later than March 31 of each calendar year for the immediate past calendar year. However, the first reported information will be due March 31, 2003.

(4) Annual needs assessments shall be prepared and submitted to the Department and to local governments in their region not later than November 16 of each calendar year. The needs of all governing bodies of the county or municipality with responsibility for solid waste management plans within the region of each regional planning and development commission or council shall be evaluated and reported. The first regional needs assessment utilizing data reported under 335-13-9-.05(3) shall be submitted to the Department and to local governments in their region not later than November 16, 2003.

Author: James L. Bryant.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-8(d); 22-27-40 et seq.

History: March 12, 2002.

Amended:

335-13-9-.06 Local Solid Waste Management Plans.

(1) The governing body of a county or municipality has a responsibility for and the authority to assure the proper management of solid wastes generated within its jurisdiction in accordance with its solid waste management plan. Local solid waste management plans shall be developed pursuant to the guidance stated in Code of Alabama 1975, § 22-27-47(b).

(2) Local solid waste management plans shall be revised and submitted to the Department in accordance with Code of Alabama 1975, § 22-27-47. The governing body of the county or municipality with responsibility for its solid waste management plan shall consider the information provided in the annual regional needs assessment prepared in accordance with 335-13-9-.05 when revising its solid waste management plan. The first revised plan shall be submitted to the Department not later than September 30, 2004. After the first revision date, local plans shall be revised and submitted in accordance with Code of Alabama 1975, § 22-27-47(i).

Author: James L. Bryant.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-8(d); 22-27-40 et seq.

History: March 12, 2002.

Amended:

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
LAND DIVISION - SOLID WASTE PROGRAM**

**CHAPTER 335-13-10
ALABAMA RECYCLING FUND GRANTS PROGRAM**

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335-13-10-.01 Purpose. This regulation is to establish the procedures for the disbursement of recycling grants to local governments, authorities, and nonprofit organizations for use in developing, implementing, and enhancing local recycling, reuse and waste minimization projects and programs.

Author: Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§ 22-27-12 and 22-27-17.

History: January 19, 2009.

335-13-10-.02 Definitions. When used in this chapter, the following terms have the meaning given below:

(a) “Advance funds” means monies approved for known costs to the applicant before the semi-annual report is due.

(b) “Authority” means any quasi-governmental agency, board, or authority created by agreement on behalf of one local government or between two or more local governments for solid waste management or recycling purposes.

(c) “Eligibility” means the standard or criteria by which a local government or applicant qualifies for grant funds, as determined by the Department. These standards shall include, but are not limited to, completeness of the grant application, plans for recycling, reuse and waste minimization projects, current status of recycling and waste minimization efforts underway within the applicant’s jurisdiction, and consistency with local solid waste management planning.

(d) “Grant agreement” means the binding contract between the Department and the applicant. “Grant Application” means the initial request from for a grant from the Department.

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(e) “Grant period” means twelve months from the time the grant agreement is properly executed by all parties.

(f) “Local government” means any municipality, county, district or authority or any agency thereof which has responsibility for and the authority to assure the proper management of solid waste within its jurisdiction, including but not limited to, its collection, disposal, treatment or recycling.

(g) “Nonprofit organization” means a corporation or association where no part of the income or profit of which is distributable to its members, directors or officers, and is operated pursuant to the requirements of Code of Alabama 1975, §§ 10-3A-1 to 10-3A-225.

(h) “Official” or “officer” means either the principal executive officer or ranking elected official of a governmental body, authority, or non-profit organization.

(i) “Program” means the grant program established and administered by the Department under the authority of Code of Alabama 1975, § 22-27-17.

(j) “Temporary operating subsidy” means the use of grant funds for operational expenses of a solid waste reduction program or a recycling program, including personnel costs, training cost, rental of facilities, and other similar expenses approved by the Department.

Author: Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§ 22-27-12 and 22-27-17.

History: January 19, 2009.

335-13-10-.03 Grant Application Requirements.

(1) Requests for funding shall be submitted to the Department on application forms specified by the Department.

(2) Applications for grants from the Program must be submitted to the Department no later than March 1 of each year to be considered for funding from that fiscal year’s Fund allocation.

(3) Applications received from local governments, authorities, or nonprofit organizations which have not completed their obligations under all previously awarded funds may be denied by the Department.

(4) Applications from local governments, authorities, or nonprofit organizations which have not met their obligations under the terms of any previous grant agreements or accounted for any unused grant funds from a previous grant awarded under this rule during the previous 36 months shall be denied by the Department.

(5) All recycling projects included in an application must be consistent with the description of current or planned recycling programs included in the approved local solid waste management plan of the appropriate local jurisdiction. Jurisdictions without an approved local solid waste management plan or without language in an approved plan consistent with the grant application may be rewarded conditional approval of the grant application pending the Department's approval of a modification to an existing plan or the approval of a new plan for the jurisdiction.

(a) Where proposed recycling projects would not be consistent with the approved local plan, the application shall include measures to revise the local plan, as necessary. Such revisions must be completed prior to the Department's approval of disbursement of grant funds for the proposed recycling projects.

1. The costs associated with the revisions of local solid waste management plans as required by subparagraph (a) are eligible for inclusion in an application for grant funds.

2. Only grant funds associated with the costs of amending the local solid waste management plan may be disbursed prior to departmental approval of the revised local solid waste management plan. The balance of grant funds in the award shall be disbursed in accordance with rule 335-13-10-.04 following final departmental approval of the revised local plan.

(b) Applications for proposed recycling projects that would be inconsistent with the recycling programs included in the existing local solid waste management plan or plans that do not include a proposal to amend the local plan(s) in accordance with (a) shall be denied by the Department.

(c) Any amendments to the local solid waste management plan necessary to comply with subparagraph (5) shall apply only to the jurisdiction proposing the modifications and not to any other local jurisdictions included under the local solid waste management plan.

Author: Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, § 22-27-17(c)(1) et seq.

History: January 19, 2009.

335-13-10-.04 Disbursement of Funds.

(1) Upon review and approval of the application, the Department shall determine the exact amount of the grant award and prepare a grant agreement.

(2) The grant agreement will be forwarded to the applicant to be signed by a local government official, authority official or officer of the nonprofit organization.

(3) The applicant may request advance funds through the application process; however, known needs must be documented before advance funds can

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be approved. Following approval by the Department, the advance funds will be forwarded to the applicant.

(4) Any local government, authority, or non-profit organization receiving grant funds will be reimbursed for actual expenses incurred from the implementation of the approved project or program. Each semi-annual report shall report on the status of the recycling project or program to be funded by the grant, and shall include information necessary for review by the Department for reimbursement of actual costs. Each report must be submitted fifteen (15) days from the end of the previous semester. Semesters shall run October 1st through March 31st, and April 1st through September 30th of each year.

(5) The Director, or his designee, may terminate a grant award in whole or in part and demand refund of grant funds when there is substantial non-compliance with the terms of the award or these rules, a determination made by the Department that the grant was obtained by fraudulent means, found that grant monies have been used for non-allowable costs, or a determination made by the Department that gross abuse or corrupt practices have been used in the administration of the grant project by the recipient.

(a) The Director, or his designee, shall give written notice to the recipient (via certified mail, return receipt requested) of its intent to terminate a Fund grant, in whole or in part, at least 30 days prior to the intended date of termination.

(b) The Director, or his designee, shall afford the grant recipient an opportunity for consultation prior to any termination. After such opportunity for consultation, the Department may, in writing (via certified mail, return receipt requested), terminate the Fund grant in whole or in part.

(c) In event of such termination, the local government, authority, or non-profit organization shall be ineligible to make application for further participation in the grant program until the grantee complies with the terms of the grant award or these rules.

(6) The amount of each grant awarded under this chapter shall be at the sole discretion of the Director, or his designee; however, no single grant award may exceed 20 % of the total funds appropriated to the Alabama Recycling Fund during the previous fiscal year.

(a) For applications filed on or before March 1, 2009, no single grant award may exceed \$350,000..

(b) These grant award limitations may be waived by the Director if the total amount of grant funds requested by eligible applications for a fiscal year does not exceed the funds appropriated to the Alabama Recycling Fund during the previous fiscal year, or if there are less than five total grant applications submitted to the Department.

(7) Grant funds not awarded due to insufficient requests or applications, shall remain in the Alabama Recycling Fund and shall be available for award in future grant years.

(8) Eligible grant applications will be divided into two categories for the purpose of awarding funds.

(a) Category 1 applications shall be those applications submitted by a jurisdiction or jurisdictions for projects or programs which will serve geographic areas containing more than 40,000 households, based on data from the most recent U.S. census.

(b) Category 2 applications shall be those applications submitted by a jurisdiction or jurisdictions for projects or programs which will serve geographic areas with fewer than 40,000 households, as determined by the most recent U.S. census.

(c) The Department shall award no less than 60 % of the total grant funds available during a fiscal year to Category 1 applications. Provided, however, for grant application years beginning on March 1, 2012, and thereafter, at least 20 percent of the total grant funds must be awarded to Category 2 applications, if sufficient applications are received and approved by the Department.

Author: Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§ 22-27-12 and 22-27-17.

History: January 19, 2009.

335-13-10-.05 Grant Recordkeeping.

(1) Each recipient of grant funds shall maintain accurate records of all expenditures associated with the recycling project funded by grants awarded pursuant to this chapter, and shall assure that these records are available for inspection and/or audit upon request by the Department. Records shall be kept for a period of at least five years from the execution of the grant agreement.

(2) Recordkeeping information as required by the Department shall be listed in the grant agreement and shall be included with each semi-annual report submitted by the recipient. Such requirements established by the Department shall not be inconsistent with accounting and record-keeping methods such entities may be required to follow by the Alabama Department of Examiners of Public Accounts.

Author: Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§ 22-27-12 and 22-27-17.

History: January 19, 2009.

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335-13-10-.06 Specific Recycling Grant Requirements.

(1) Upon receipt and approval of the grant application, the Department will determine the amount of the grant award and prepare the grant agreement. Payment of grant awards will be contingent upon receipt and approval of the grant agreement.

(2) All local governments that choose to apply jointly shall enter into a binding agreement that designates a lead applicant and describes how the funds will be disbursed and used. Any agency or authority created by regional agreement for solid waste management or recycling purposes is eligible to apply for grants. The applicant shall submit all required documents on behalf of the local governments which are party to the agreement. Such applications and submittals shall be equivalent to those required if each local government were applying individually.

(3) Applicants shall provide the Department with information on any previous state or federal grants received for the purpose of solid waste management or recycling received by the jurisdiction during the previous 36 months. This information shall include the grant amount and the grant period, and other information or data as set forth in the application forms.

Author: Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§ 22-27-12 and 22-27-17.

History: January 19, 2009.

335-13-10-.07 Eligibility Requirements.

(1) In order to be considered for a grant award under the Program, all applications shall include the following information for the area to be serviced under the terms of the requested grant:

(a) A description of the recycling or waste reduction/minimization project for which grant funds are requested, including any business or accounting plans for such projects;

(b) An estimate of the quantity, source and type of materials to be collected and recycled under the proposed project or program, including an explanation of the methods used to estimate this quantity. The quantity shall include the volume of any out-of-state waste coming into the service area, but records of out-of-state waste volume shall be shown as a separate item on each semi-annual report;

(c) A description of all existing or proposed recycling facilities, collection centers or other related service centers located within the jurisdiction or jurisdictions covered by the proposed project or program. If the application is for multi-jurisdictional or regional program, a listing of recycling facilities and services operating within the boundaries of the responsible regional planning and

development commission, including ownership, capacity, type of facility and service area of such facilities shall also be included;

(d) A statement that the grant is needed to achieve or surpass both the recycling or waste reduction/minimization efforts set forth in the approved local solid waste management plan and the purpose and goals of the Solid Wastes and Recyclable Materials Management Act of 2008. This statement shall include an explanation of how any existing private and public sector recycling programs and efforts will be incorporated into the proposed recycling project or program;

(e) A summary of all costs incurred, or to be incurred, in planning and implementing the recycling and waste reduction/minimization projects or programs;

(f) A copy of any regional agreement into which local governments have entered or will enter to accomplish the purposes of this rule;

(g) Any written contracts, written bids or written agreements which were entered into to develop and implement the proposed project or program;

(h) The description of objectives that will be utilized to evaluate any education or public outreach component of the proposed project or program, and an explanation of how the educational component will directly promote the use of existing or planned local recycling or waste reduction/minimization projects; and,

(i) A description of the methods to be used in evaluating the success of the recycling project or program. Progress reports and methods used to measure the progress shall be included in the semi-annual reports.

(2) The grant application shall include a recycling plan for the population of the area included in the application containing at least the following information:

(a) An explanation of the manner in which the proposed recycling project or program will be implemented;

(b) A timetable for the continued development and implementation of the proposed recycling project or program;

(c) The number of households to be covered by the proposed recycling project or program, as determined by the most recent U.S. census;

(d) The estimate percentage of the population participating in various types of recycling activities, including the estimate success rates, perceived reasons for the estimated success or failure, and the public and private sector recycling activities which are ongoing and most successful;

(e) The estimate percent reduction each year in solid waste disposed at solid waste disposal facilities as a result of any existing public and private

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recycling programs and an estimate of avoided disposal costs due to recycling that occurs as a result of the proposed recycling project or program;

(f) An estimate of the number of households within the proposed program area served by solid waste collection services, an identification and description facilities where solid waste is being disposed or processed, and the anticipated effect of the proposed recycling project or program on such services and facilities;

(g) A description and evaluation of recyclable materials that are being recycled including, but not limited to, glass, aluminum, steel, other metallic materials, office paper, yard waste, newsprint, corrugated paper/cardboard, plastics, white goods, and tires;

(h) The currently available and anticipated markets or uses for materials collected through the proposed recycling project or programs;

(i) The estimated costs of, and revenue from, operating and maintaining existing and proposed recycling projects or programs. This does not include specific costs and revenues from privately-operated recycling programs, but a summary of such costs and revenues shall be required if the applicant intends to provide funding for such programs;

(j) A description of any recycling activities planned or existing prior to the effective date of the grant regulations;

(k) If the application includes programs managing “special wastes” it should include a description of how all special wastes, as defined in this Division, including but not limited to industrial wastes, as defined in this Division, will be managed.

Author: Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§ 22-27-12 and 22-27-17.

History: January 19, 2009.

335-13-10-.08 Grant Award Criteria. Grants awarded under this chapter shall be made in accordance with the requirements of this part and shall be used to develop, implement, enhance and promote recycling and beneficial re-use projects and programs, as necessary to meet the requirements and objectives of the Solid Wastes and Recyclable Materials Management Act of 2008. Funding awarded for this purpose shall meet the following:

(a) Recycling grants awarded under the Program shall be used to provide funding for recycling program costs, which may include equipment purchases, facility construction and other such costs approved by the Department, as part of the grant agreement.

(b) Where approved by the Department, recycling grants may be used for operating subsidies, provided that the applicant demonstrates that such

use is necessary for success of the program, and shows how the subsidy will benefit the program. Within one (1) year of the award the applicant shall provide reasonable assurances that the program will be able to operate without a subsidy from this grant program..

(c) For recycling projects or programs involving multiple governmental jurisdictions within a region, recycling grants may also be used to assist local governments, authorities, non-profit organizations in recycling paper, glass, construction and demolition debris, white goods, and metals and in composting and recycling organic materials, where such assistance is demonstrated to be necessary to make the regional effort viable. In such instances, the applicant shall provide a regional business plan for marketing recyclable materials.

(d) In conjunction with projects or activities described in subparagraphs (a), (b), and (c) of rule 335-13-10-.08, recycling grants awarded under the Program may be used to promote recycling, solid waste volume reduction, waste minimization projects, and market development for recyclable materials, provided that such efforts meet the requirements of rule 335-13-10-.07.

(e) All existing public and private recycling infrastructure shall be used to the greatest extent possible when planning and implementing the recycling programs funded by grants awarded under this chapter. Grant funds shall not be used for duplicating existing private and public recycling programs unless the applicant satisfactorily demonstrates to the Department that such existing programs cannot be integrated into the proposed recycling or waste reduction projects or programs.

(f) Local governments or authorities may contact with private entities for the administrative operation of activities outlined in the grant application, with pre-approval from the Department.

(g) Grant applications for projects to be implemented within jurisdictions without existing recycling programs shall be given priority status for award under the Fund, as will applications submitted jointly by multiple jurisdictions or authorities on behalf of multiple jurisdictions.

Author: Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§ 22-27-12 and 22-27-17.

History: January 19, 2009.

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
LAND DIVISION – SOLID WASTE PROGRAM**

**CHAPTER 335-13-11
SOLID WASTE FUND SITE REMEDIATION**

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335-13-11-.01 Purpose. The purpose of this chapter is to establish the procedures for the disbursement of monies from the Solid Waste Fund for use in assessing, investigating, conducting necessary remediation, and achieving closure of unauthorized solid waste dumps.

Author: Phillip D. Davis and Brent A. Watson.

Statutory Authority: Code of Alabama, 1975, §§ 22-27-7, 22-27-12, and 22-27-10

History: May 26, 2009

335-13-11-.02 Solid Waste Fund.

(1) For the purposes of remediation conducted under the authority of this Chapter, an innocent landowner shall mean an owner of real property upon which there is located an unauthorized dump and who meets all of the following conditions:

(a) The solid waste was disposed of on the property after the owner acquired title to the property or the waste was disposed of before the owner acquired title to the property and the owner lacked actual knowledge of the waste after conducting reasonable due diligence or title was acquired by bequest or devise.

(b) The owner did not have knowledge that the waste was being disposed of on the property or the owner took steps, including, but not limited to, posting signs to prevent disposal on the property.

(c) The owner did not participate in or consent to the disposal of solid waste on the property.

(d) The owner did not receive any financial benefit from the disposal of solid waste on the property.

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(e) Title to the property was not transferred to the owner for the purpose of evading liability for operating an unauthorized dump.

(f) The person or persons responsible for disposing of the solid waste on the property, in doing so, was not acting as an agent for the owner.

(2) An unauthorized dump site will be eligible for remediation utilizing the Solid Waste Fund if either of the following occurs:

(a) The party or parties responsible for the creation, contribution to, and/or operation of an unauthorized dump cannot be identified and the site is located on property owned by an innocent landowner; or

(b) The party or parties responsible for the creation, contribution to, and/or operation of an unauthorized dump refuses to properly remediate the site.

(3) If the responsible party refuses to remediate an unauthorized solid waste dump site after notice from the Department, and the Solid Waste Fund is used to remediate the site, the Department may, through a civil action in circuit court, recover all costs incurred during the site remediation. Recoverable costs may include, but are not limited to, legal expenses for remediation or cost recovery, utilization of remediation contractors, vector control, disposal costs, administrative costs, and other associated costs.

(4) An innocent landowner shall not be liable for remediation costs if that person works cooperatively with the Department to remediate the site. The innocent landowner shall do all of the following:

(a) Sign a site access agreement and provide site access to Department personnel and contractors working under the Solid Waste Fund.

(b) Take reasonable measures to restrict site access to unauthorized parties.

(c) Provide all information the landowner may have regarding the source of the solid waste, and cooperate with the Department in the enforcement of the Solid Wastes and Recyclable Materials Management Act and its implementing regulations, in determining the responsible party and recovering the cost of remediation.

(d) Remove other materials or impediments to cleanup, if required, or grant permission to the Department or its authorized contractors to remove said materials or impediments to cleanup.

(e) Be in compliance with the applicable regulatory requirements of Division 335-13.

(5) Should a landowner fail to comply with the requirements of Rule 335-13-11-.02(4), said landowner shall not qualify as an innocent landowner,

and shall be liable for remediation of the site in accordance with Rule 335-13-1-.13.

(6) Obligation of Funds.

(a) Solid Waste Fund monies for remediation of sites shall be obligated from funds collected by the Alabama Department of Revenue, funds from prior years not previously expended, or funds recovered under Rule 335-13-11-.02(3).

(b) Once a site has qualified for remediation using Solid Waste Fund monies, remediation activities shall be funded until the site is properly closed.

(7) Nothing in Chapter 335-13-11 shall establish liability or responsibility on the part of the Department or the State of Alabama to pay remediation costs from a source other than the Solid Waste Fund, nor to make payments for remediation costs if the Solid Waste Fund is insufficient to do so.

(8) The Department and the State of Alabama shall have no liability or responsibility if the property owner or party responsible defaults in payment for remedial actions undertaken by the property owner or party responsible to remediate an unauthorized dump.

Author: Phillip D. Davis and Brent A. Watson.

Statutory Authority: Code of Alabama, 1975, §§ 22-27-2, 22-27-7, 22-27-10, and 22-27-12

History: May 26, 2009.

335-13-11-.03 Remediation of Sites.

(1) Any owner of an interest in a property suspected of containing unauthorized disposal of solid waste shall provide to authorized representatives of the Department access to the property for the purposes of evaluating the site as a potential threat to public health, the environment and safety, and for determining the site's compliance status with the applicable requirements of this Division.

(2) The person or persons responsible for the creation, contribution to, and/or operation of an unauthorized dump site shall be responsible for the remediation of the site. If the responsible person or persons is not determined, the landowner shall be responsible for remediation of the site, unless the landowner qualifies as an innocent landowner. An innocent landowner is exempt from the remediation requirements of Rule 335-13-11-.03, provided he complies with the requirements of Rule 335-13-11-.02(4).

(3) A person remediating an unauthorized dump site at the direction of the Department under the authority of the Solid Waste Fund, shall submit a Remediation Plan prepared by an engineer which shall be used to direct

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remedial actions as necessary to comply with the closure requirements of Rule 335-13-1-.13. The Department may waive the requirement for the submittal of a Remediation Plan prepared by an engineer based on the waste types, site geology or hydrology, or other factors as determined by the site ranking criteria under Rule 335-13-11-.04. Notice of the waiving of this requirement will be made through the publication of the legal advertisement as set forth in Rule 335-13-11-.05(1).

(4) Any required Remediation Plans must be approved by the Department prior to initiating remedial action, and must provide for the following as applicable:

(a) Removal of all solid wastes from the site, and transportation to an appropriate permitted solid waste landfill or management facility in accordance with Health Department transportation requirements, or delivery to an appropriate recovered materials processing facility for processing, reuse or recycling. Verification of removal and transport to an authorized facility shall be provided to the Department.

(b) Removal or treatment of substances that are a threat to human health and the environment that may have been released to the environment from the unauthorized accumulation, burning, processing or disposal of solid wastes and other materials.

(c) Restoration of the site by placing backfill in excavated areas, sloping and landscaping to minimize erosion and establishment of a vegetative cover over the site, or other best management practices to control storm water runoff.

(d) Securing the site by use of a barricade or other device or other methods as needed to address public safety concerns due to the proximity of the site to publicly-accessible areas such as roads and rights-of-way, or, when necessary to prevent further dumping, the posting of signs indicating the dump site is closed and the location of the nearest permitted landfill.

(e) Methods to remediate the site and to remove solid wastes, to include:

1. An estimate of the quantity of regulated wastes to be removed, including an estimate of the quantity of any materials recycled or reused.

2. A discussion of any procedures to be undertaken to manage any special wastes, such as medical wastes or industrial wastes, found during remediation of the site.

3. A description of the procedures to be utilized to determine if any wastes at the site are classified as hazardous waste, and if so, the procedures to be used to properly manage these hazardous wastes in accordance with applicable provisions of Division 335-14.

(f) The implementation of an effective vector control plan, including baiting for at least two weeks following closure, to prevent vector migration to adjacent properties and spraying to control mosquitoes, or other vector control measures as determined necessary by the Department or the State Health Department.

(g) Stormwater runoff control. It shall be the responsibility of the party conducting the remediation to comply with the applicable requirements of Division 335-6.

(h) Fire protection measures.

(i) A schedule of proposed remediation work.

(j) Disposition of the materials removed from the site, whether for disposal, reuse, or recycling.

(k) The total estimated cost of remediation, with a breakdown of costs estimated by the remediation contractor.

(l) The steps taken to locate and protect from damage, all utilities that may be present at the site, such as electricity, gas, telephone, etc.

(5) When a Remediation Plan prepared by an engineer is not required by the Department, the party conducting the site remediation shall submit a general description of work to be performed, the proposed disposition of the solid waste removed from the site, the proposed site safety and security measures to be taken, including steps to locate and protect all utilities that may be present at the site such as electricity, gas, telephone, etc., and the proposed restoration of the site, prior to being directed by the Department to begin site remediation activities.

Author: Phillip D. Davis and Brent A. Watson.

Statutory Authority: Code of Alabama, 1975, §§ 22-27-7, 22-27-10, and 22-27-12

History: May 26, 2009.

335-13-11-.04 Site Ranking System.

(1) A site ranking system shall be used to determine priority for remediating existing unauthorized dump sites utilizing Solid Waste Fund monies. Higher ranking sites will be remediated before lower ranking sites, unless it is determined by the Department that sites in close proximity may be bid together in an effort to more efficiently utilize Solid Waste Fund resources. Sites shall be ranked utilizing the factors set out below:

(a) The presence of human or animal infections or diseases as reported by the State Health Department or the Centers for Disease Control and Prevention, including, but not limited to, West Nile Virus, Eastern Equine

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Encephalitis, and other infections or diseases as determined in conjunction with the Health Department or the CDC.

(b) The estimated amount of solid waste in the unauthorized dump.

(c) The proximity of an unauthorized dump site to:

1. Schools, hospitals, nursing homes, assisted living and other health care facilities.

2. Churches, businesses, residential areas, recreational areas and other populated structures or areas.

3. Public water supply systems or sources, or coastal area beaches and dunes.

4. Gas pipelines, electrical power lines, phone lines, and cable lines.

5. Roadways, railroads, and other transportation resources.

6. Private Drinking water wells.

(d) Fire hazard due to the lack of availability of adequate fire protective equipment or services, or to inadequate access control.

(e) The presence or suspected presence of special wastes, such as medical or infectious wastes and industrial waste, or the presence of hazardous waste as defined by Division 335-14.

(f) The location of the site in an area of minority and/or low-income populations pursuant to *Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations."*

(g) The known or potential for adverse impacts to surface water or groundwater water quality due to the location of the unauthorized dump.

(h) Other factors as determined relevant by the Department.

(2) In the case of sites with mixed wastes of solid waste and scrap tires, sites may be determined to be ineligible for cleanup utilizing the Solid Waste Fund if scrap tires and tire materials are a large percentage of wastes present. In these circumstances, remediation of the site may fall under the authority of the Scrap Tire Fund, as specified under Chapter 335-4-2.

(3) Sites for which the Solid Waste Fund has been utilized to perform a previous cleanup may be given lower priority than other sites that have not yet been remediated. Utilizing Solid Waste Fund monies for cleanup of a site that was previously remediated will be at the discretion of the Department and costs associated with further remediation activities may be determined to be the responsibility of the landowner or responsible party.

(4) The Department shall review site rankings periodically, and if necessary, adjust the unauthorized solid waste dump site cleanup priority list based on new information regarding previously ranked sites. The priority list shall be adjusted when remediation has been completed on a site and it is removed from the priority list, or when a new site is identified and sufficient information is gathered to rank the new site.

Author: Phillip D. Davis and Brent A. Watson.

Statutory Authority: Code of Alabama, 1975, §§ 22-27-7, 22-27-10, and 22-27-12

History: May 26, 2009.

335-13-11-.05 Remediation Contracting.

(1) The Department will provide notice of requests for proposals from remediation contractors by publication of a legal advertisement.

(a) The Request for Proposals shall identify the site, scope of work, and a deadline for submittal of bids.

(b) Interested remediation contractors shall submit three sets of their bids in response to the Request for Proposals. Submittals shall also include:

1. A remediation plan prepared in accordance with Rule 335-13-11-.03(4) for closure of the unauthorized dump, if required; and

2. Documentation of all required licenses, bonds, or other documents or approvals necessary to perform work under applicable Alabama contracting laws and regulations.

(c) Not later than sixty days after the deadline for accepting remediation proposals, the Department shall select the remediation contractor submitting the lowest responsible bid that meets all requirements of the scope of work in the Request for Proposals.

(d) A contract between the Department and the remediation contractor will be executed in compliance with State of Alabama contracting procedures. The contract shall contain the following items:

1. Detailed scope of work.
2. Schedule for completion of the work.
3. Recordkeeping and reporting requirements.
4. Maximum amount of remediation cost reimbursement.
5. Methods of payment to the contractor.

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6. Provisions for removing the contractor for inadequate performance.

7. Financial assurance for the completion of the contract, if required by the Department.

8. Provisions for monetary penalties for failure to complete the work as stipulated in the contract in a timely manner.

(e) The Department may utilize processes available under state law for contractor selection and contract execution.

(2) Misrepresentation of any information in the proposal may be cause for disqualification of the contractor from further consideration on future unauthorized dump remediation projects.

(3) A contractor may lose authorization to perform work under the Solid Waste Fund if progress in completing actions at funded sites has been significantly delayed or inhibited due to the quality or timeliness of work performed by the contractor, or if the contractor is determined to be in significant noncompliance with any environmental regulation or statute.

(4) The acceptance of a proposal from a remediation contractor shall in no way establish liability or responsibility on the part of the Department or the State of Alabama with regard to the services provided by the contractor or circumstances which may occur as a result of the services, nor shall it guarantee that the contractor will receive future Solid Waste Fund work.

(5) Contractor Performance.

(a) The remediation activities shall be implemented consistent with the approved Remediation Plan in a manner acceptable to the Department in order for the contractor to be reimbursed for all costs associated with those activities.

(b) If, after the contract is executed, the Department determines that the activities in the approved scope of work need to be revised, an amended Remediation Plan shall be submitted that details the additional efforts that are to be undertaken to accomplish the revised remediation activities and the estimated cost increases proposed. The Department shall review the amended Plan, and, if costs projections are justified, shall approve the amended Remediation Plan, modify the approved scope of work, and obligate more funds from the Fund before the additional work may proceed. However, there shall be a presumption against allowing amendments to Remediation Plans for failure to adequately estimate costs.

Author: Phillip D. Davis and Brent A. Watson.

Statutory Authority: Code of Alabama, 1975, §§ 22-27-7, 22-27-10, and 22-27-12

History: May 26, 2009.

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
LAND DIVISION - SOLID WASTE PROGRAM**

**CHAPTER 335-13-12
LANDFILL OPERATOR CERTIFICATION REQUIREMENTS**

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335-13-12-.01 Applicability

(1) The training and certification requirements of this rule apply to persons involved in the operation of a Public Solid Waste Management Facility as defined by Code of Alabama 1975, §22-27-2, and Rule 335-13-1-.03.

(2) Any person designated by the public solid waste facility as the person having direct supervision over and responsibility for the daily operation of the landfill must apply for and obtain operator certification under the conditions contained in these regulations by no later than April 15, 2010.

(3) By no later than April 15, 2010, all public solid waste management facilities in the State are required to have at least one certified operator on-site during hours of operation. However, a certified operator is not required to be on-site during the post-closure care period.

Author: S. Scott Story, Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-5, 22-27-9, 22-27-12(7).

History: November 24, 2009.

335-13-12-.02 Training and Certification Requirements

(1) In addition to the requirements listed in rules 335-13-12-.02(2) and (3), all applicants for certification or re-certification under this Chapter must complete a training course developed and provided by the Department. The curriculum of this training course will be tailored specifically to the requirements of this Division. The completion of this course will qualify towards the training requirements of rules 335-13-12-.02(2)(f) and (h), and of rules 335-13-12-.02(3)(d) and (f).

(2) Municipal Solid Waste (MSW) Landfill Operator Certification.

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(a) The facilities subject to this Chapter are required to have at least one operator holding certification from the Department.

(b) A person desiring to be certified or re-certified must file an application with the Department on a form provided by the Department, along with the appropriate application fee.

(c) At a minimum, the applicant must be a graduate of high school or an accredited GED program, and have worked at a MSW landfill in the State of Alabama for at least 3 years.

(d) The applicant must pass a written examination developed and given by the Department or, developed and given by another entity that has been approved by the Department.

(e) Any certificate granted under this rule shall be renewable every 3 years, unless revoked or invalidated for cause as determined by the Department.

(f) All persons required to obtain certification may become re-certified within 3 years by attending a total of at least 30 hours of Department approved training. The Department will maintain a list of training programs approved by the Department.

(g) An applicant who fails to pass an examination given by the Department may repeat the examination at the next regularly scheduled examination date. If the applicant again fails to pass, he may then reapply for the training and certification and pay the appropriate application fees.

(h) Exceptions

1. An applicant for initial certification as an operator may request to be certified without meeting the requirements of either rule 335-13-12-.02(1)(c) or rule 335-13-12-.02(2)(d), provided the applicant has attended at least 15 hours of ADEM-approved training or continuing education courses since April 15, 2008 and can demonstrate at least 5 years of relevant experience working at MSW landfills; or

2. An applicant may request to be certified without meeting the requirements of both rule 335-13-12-.02(2)(c) and rule 335-13-12-.02(2)(d) by attending at least 15 hours of ADEM-approved training or continuing education courses since April 15, 2008, and can demonstrate at least 8 years of qualifying experience working at MSW landfills; or

3. An applicant may request initial certification pursuant to the provisions of rule 335-13-12-.03.

(3) Construction/Demolition and Industrial Landfill Operator Certification

(a) The facilities subject to this Chapter are required to have at least one operator holding certification from the Department.

(b) A person desiring to be certified must file an application with the Department on a form provided by the Department, along with the appropriate application fee.

(c) At a minimum, the applicant must be a graduate of high school or an accredited GED program, and have worked at a landfill in the State of Alabama for at least 1 year.

(d) The applicant must have attended at least 10 hours of relevant training or continuing education courses approved by the Department since April 15, 2008 to receive certification.

(e) Any certificate granted under this rule shall be renewable every 3 years, unless revoked or invalidated for cause as determined by the Department.

(f) All persons required to obtain certification may become re-certified within 3 years by attending a total of at least 30 hours of Department approved training. The Department will maintain a list of approved continuing education training programs.

(g) Exceptions

1. An applicant for initial certification as an operator may request to be certified without meeting the requirements of 335-13-12-.02(3)(c) provided the applicant can demonstrate at least 3 years of relevant experience; or

2. The applicant has passed an approved examination in accordance with rule 335-13-12-.02(2)(d); or

3. The applicant may request initial certification pursuant to the provisions of rule 335-13-12-.03.

Author: S. Scott Story, Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-5, 22-27-9, 22-27-12(7).

History: November 24, 2009.

335-13-12-.03 Reciprocity

(1) Certification may be issued by the Department to a person who holds a current valid certificate from another state provided that:

(a) The state of certification has entered into a reciprocity agreement with the Department, and;

(b) The applicant has completed the training course developed by the Department in accordance with rule 335-13-12-.02(1).

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(2) Reciprocity agreements may be established if the Department determines that the certification and training program of another state meets or exceeds that of the Department.

Author: S. Scott Story, Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-5, 22-27-9, and 22-27-12(7).

History: November 24, 2009.

335-13-12-.04 Revocation of Certificate. Following a hearing before the Director or his designated representative, the Director may revoke or suspend a certificate if it is found that the operator:

(a) Has practiced fraud or deception in obtaining the certificate or in the performance of his duties as an operator;

(b) Has not used reasonable care, judgement, or the application of his knowledge or ability in the performance of his duties;

(c) Is incompetent or unable to perform his duties as an operator;

(d) Has knowingly submitted incorrect or falsified operational data or information;

(e) Has consistently failed to submit operational data as required by the department; or

(f) Has violated the requirements of this chapter.

Author: S. Scott Story, Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§ 22-22A-5, 22-27-9, and 22-27-12(7).

History: November 24, 2009.

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
LAND DIVISION - SOLID WASTE PROGRAM**

**CHAPTER 335-13-13
STATEWIDE SOLID WASTE REDUCTION GOAL**

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335-13-13-.01 Purpose
335-13-13-.02 Statewide Solid Waste Reduction Goal

335-13-13-.01 Purpose. This Chapter establishes a statewide solid waste reduction goal and the data requirements necessary to monitor the status of progress toward achieving said goal. Further, this Chapter establishes the schedule for routine evaluation of the goal and the need to revise it as appropriate.

Author: Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§ 22-27-12, 22-27-15, and 22-27-16.

History: November 24, 2009.

335-13-13-.02 Statewide Solid Waste Reduction Goal. There is hereby established a statewide solid waste reduction goal of 25%. Attainment of this goal (G) shall be determined on an annual percentage basis by use of the following formula:

$$G = (R / (R + W)) \times 100$$

where the amount of annual waste reduction (R) shall be calculated by aggregating all reported quantities of recovered materials in tons processed for recycling or beneficial reuse, and the total annual statewide solid waste generation (W) shall be determined in tons by data reported to the Department in accordance with 335-13-4-.22(2)(g) or 335-13-4-.23(2)(f) less any reported out of state waste accepted for disposal.

(a) By April 15, 2011 the Department shall calculate the statewide solid waste reduction percentage for the baseline calendar year of 2010. Annually, thereafter, the Department shall replicate this calculation for the previous calendar year.

(b) The calculated annual statewide solid waste reduction percentage shall be posted on the departmental internet website.

(c) The Department shall evaluate the percentage goal established in this rule on a triennial basis and, if warranted, shall revise the goal in order to promote increased recycling and beneficial reuse within the State.

(d) Any public or private entity involved in solid waste management within the State shall undertake measures to support the attainment of the statewide solid waste reduction goal, including but not limited to implementation of waste reduction and recycling programs through the approved local solid waste management plan, and the recordkeeping and reporting of the amounts of recycled or beneficially reused materials, as required under the State Solid Waste Management Plan established in ADEM Administrative Code 335-13-9.

Author: Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§ 22-27-12, 22-27-15, and 22-27-16.

History: November 24, 2009.

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
LAND DIVISION – SOLID WASTE PROGRAM**

**CHAPTER 335-13-14
COMPOSTING FACILITIES**

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335-13-14-.01 Purpose. The purpose of these regulations is to establish procedures to encourage and regulate the production and use of compost made from solid waste within the State of Alabama.

Author: Phillip D. Davis, S. Scott Story, Jonathan E. Crosby.

Statutory Authority: Code of Alabama 1975, §§ 22-27-9 and 22-27-12.

History: Effective: April 3, 2012. **Amended:** Filed: April 24, 2018; Effective: June 8, 2018. **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-14-.02 Definitions. When used in this chapter, the following terms have the meaning given below:

(1) “Compost” means the humus-like end product produced by the composting of putrescible solid wastes.

(2) “Composting Facility” means the physical site or operation location where the composting of putrescible solid waste from residential, commercial, or industrial property for revenue or non-revenue generating use occurs.

(3) “Composting Pad” means the surface, whether soil or manufactured, where the process of composting takes place, and where raw and finished materials are stored.

(4) “Feedstock” means biologically decomposable organic material used for the production of compost.

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(5) “Humus” means a dark or black carbon-rich relatively stable residue resulting from the decomposition of organic matter that retains nutrients and slowly releases nutrients to plants and increases the ability of the soil to retain water.

(6) “On-site composting” means the composting of materials including solid waste generated at a residential, commercial, or industrial property by the owner or tenant.

Author: Phillip D. Davis, S. Scott Story.

Statutory Authority: Code of Alabama 1975, §§ 22-27-9 and 22-27-12.

History: Effective: April 3, 2012. **Amended:** Filed April 24, 2018; Effective: June 8, 2018.

335-13-14-.03 Applicability.

(1) The following requirements shall be for operating and maintaining an acceptable “Composting Facility” as defined by rule 335-13-14-.02.

(2) No person may receive, store or process solid waste for composting or operate a composting facility without being properly permitted by the Department, except as described by rule 335-13-14-.03(3). ADEM Admin. Code 335-13-5 outlines the procedures for obtaining a permit for new and existing composting facilities. Any person who operates a composting facility, without having applied for and been issued a permit from the Department shall be considered to be operating an unpermitted solid waste facility and shall be subject to enforcement action in accordance with this Division.

(3) Exceptions.

(a) Composting of agricultural waste as defined and regulated by rule 335-6-7-.02.

(b) On-site composting as defined by rule 335-13-14-.02. However, if any on-site compost is used for revenue generation, then the generator is not exempt and shall comply with the requirements of this chapter.

(c) Facilities that receive solid waste and generate compost for use solely at their site.

(d) Facilities in operation on or before the effective date of this rule, shall be exempt from the requirements of rules 335-13-5-.02(1)(b)2.(i) and 335-13-14-.05, except for any major modifications that may occur after said date.

Author: Phillip D. Davis, S. Scott Story, Jonathan E. Crosby.

Statutory Authority: Code of Alabama 1975, §§ 22-27-9 and 22-27-12.

History: Effective: April 3, 2012. **Amended:** Filed: April 24, 2018; Effective: June 8, 2018. **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-14-.04 [Reserved]

335-13-14-.05 Design Criteria.

(1) Specifications for site preparation measures including, but not limited to clearing and grubbing, stormwater control structures, leachate collection systems, access roads, screening, fencing, buildings, and compost pads, must be included in the engineering design report developed for the site.

(2) A composting facility shall not be located in the 100 year floodplain.

(3) A composting facility shall not cause a discharge of pollutants into waters of the State, including wetlands, that is in violation of the requirements of the National Pollutant Discharge Elimination System (NPDES), Alabama Water Pollution Control Act, Code of Alabama 1975, §§ 22-22-1 to 22-22-14 and/or section 404 of the Clean Water Act, as amended.

(4) A composting facility shall not cause non-point source pollution of waters of the State, including wetlands, that violates any requirements of an area wide and State wide water quality management plan that has been approved under the Alabama Water Pollution Control Act.

(5) A composting facility shall not be permissible in wetlands, beaches or dunes.

(6) A composting facility shall be located outside the boundaries of the coastal area, unless no other reasonable alternative is available. If a site within the coastal area is proposed for development as a composting facility, it shall be demonstrated to the satisfaction of the Department that siting, design, construction, and operation will ensure that present levels of coastal plants and animals will be maintained.

(7) The applicant shall design the facility so that the bottom elevation of the composting facility shall be a minimum of five (5) feet above the highest measured groundwater level, as determined by a minimum of two measurements taken during each of the three consecutive months of February, March and April with no two measurements taken within any twelve day period. If the measurements are taken outside of February, March and April, the minimum bottom elevation of the composting facility shall be ten (10) feet above the highest measured groundwater level. The applicant shall submit to the Department all data known to exist concerning groundwater elevations at the proposed site and shall submit to the Department a location map showing all monitoring wells or piezometers and drilling logs for all monitoring wells or piezometers used to obtain any groundwater elevation data that is submitted. Nothing herein shall prevent the Department from requiring additional groundwater measurements or from requiring an additional buffer as it may deem appropriate with respect to a particular site.

(8) A composting pad, as defined by rule 335-13-14-.02, shall be provided for the receiving and storage areas, and the processing and curing areas. The surface shall be constructed of asphalt, concrete or compacted soil. If a compacted soil surface is utilized, the minimum requirement will be 24 inches of soil with a permeability of 1×10^{-7} cm/sec. A pad is not required for the storage of finished compost product.

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(9) The raw material receiving and storage areas shall be covered in a manner to minimize exposure of the material to the elements.

(10) A stormwater control system shall be constructed to control at least the water volume from a 24-hour, 25-year storm. Stormwater or other water that comes in contact with the solid waste received, being stored, processed or composted, or which mixes with leachate shall be considered leachate.

(11) The composting facility shall have a leachate collection and removal system designed to collect and remove leachate from the waste receiving and storage areas and the processing area.

(12) Buffer zones around the perimeter of the composting facility shall be a minimum of 100 feet measured in the horizontal plane. No composting, storage practices, stormwater controls or leachate collection shall take place in the buffer zone.

Author: Phillip D. Davis, S. Scott Story.

Statutory Authority: Code of Alabama 1975, §§ 22-27-9 and 22-27-12.

History: Effective: April 3, 2012. **Amended:** Filed: April 24, 2018; Effective: June 8, 2018.

335-13-14-.06 Operating Criteria.

(1) Compost offered for use must be produced by a process that encompasses turning on a regular basis to aerate the waste, maintain temperatures, and/or reduce pathogens. Compost may be produced by other composting techniques as approved by the Department.

(2) Used oil, hazardous waste, treated or untreated medical waste, treated wood, and asbestos containing waste shall not be accepted at a composting facility.

(3) Household hazardous waste shall not be accepted at a composting facility.

(4) Solid waste received at the composting facility shall be confined to a designated delivery or storage area until processed. Any solid waste not introduced into the processing operation within 72 hours shall be removed and disposed of at a municipal solid waste landfill.

(5) The site shall be graded to prevent ponding of water in the active composting area.

(6) Surface water drainage shall be diverted around and away from the composting area to prevent any washing or escape of waste from the property.

(7) Leachate shall be collected and disposed of in a manner approved by the Department.

(8) The composting facility shall be operated in a manner that controls vectors.

(9) The composting facility shall be operated in a manner that controls and minimizes odors. Should obnoxious odors arising from the composting facility operations be verified by the Department, measures to abate the odor shall be taken upon a determination by the Department that such measures are technically feasible.

(10) The composting facility shall be operated in a manner that prevents fires in accordance with the fire prevention plan.

(11) Open burning at any composting facility is prohibited except for burning resulting from land clearing activities at the site, if prior written approval is received from the Department and the Alabama Forestry Commission.

(12) Access to the facility shall be controlled so as to minimize the potential for scavenging of materials and unauthorized disposal of wastes.

(13) A sign shall be posted which identifies the composting facility owner or operator, hours of operation, waste that may be accepted, and the permit number.

Author: Phillip D. Davis, S. Scott Story.

Statutory Authority: Code of Alabama 1975, §§22-27-9 and 22-27-12.

History: Effective: April 3, 2012. **Amended:** Filed: April 24, 2018; Effective: June 8, 2018.

335-13-14-.07 [Reserved]

335-13-14-.08 Recordkeeping and Reporting.

(1) An operating record for the composting facility shall be maintained at the facility or in a location approved by ADEM.

(a) The following information shall be maintained in the operating record as it becomes available.

1. Copy of the permit.
2. Permit application.
3. Fire prevention plan.
4. Stormwater and leachate discharge records.
5. Closure plan.
6. Certifications required for the normal operations of the facility.
7. Any other report or document generated in the normal operation of the facility that is submitted to ADEM.

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(b) Information contained in the operating record shall be retained for at least three (3) years. Records relating to a violation or enforcement action shall not be removed from the operating record until these matters are resolved.

(2) A composting facility shall submit a semi-annual report to ADEM utilizing an ADEM approved form for each reporting period of the calendar year (October through March and April through September). The report shall be submitted to ADEM by the 28th day following the end of the reporting period. The report shall contain the average daily volume of waste accepted at the facility and total volume of cured compost produced.

Author: Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§22-27-9 and 22-27-12.

History: April 3, 2012.

335-13-14-.09 Closure.

(1) Prior to closure of the composting facility, the owner or operator must submit to the Department and place in the operating record, a notice of intent to close.

(2) The owner or operator must begin closure of the composting facility no later than 30 days after the date of which composting activities cease.

(3) The owner or operator must complete closure activities in accordance with the closure plan within 180 days after the date of which composting activities cease.

(4) All remaining solid waste shall be removed from the site and disposed of at a municipal solid waste landfill permitted by the Department, and, if necessary, the site shall be stabilized to prevent the migration of sediment off-site due to stormwater runoff.

Author: Phillip D. Davis.

Statutory Authority: Code of Alabama 1975, §§22-27-9 and 22-27-12.

History: April 3, 2012.

335-13-14-.10 [Reserved]

335-13-14-.11 [Reserved]

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
LAND DIVISION – SOLID WASTE PROGRAM**

**CHAPTER 335-13-15
Standards for the Disposal of Coal Combustion Residuals in Landfills and
Surface Impoundments**

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335-13-15-.01 General Provisions.

(1) Scope and purpose.

(a) 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) This chapter also applies to inactive CCR surface impoundments at active electric utilities or independent power producers, regardless of the fuel

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currently used at the facility to produce electricity.

(c) This chapter does not apply to CCR landfills that have ceased receiving CCR prior to October 19, 2015.

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

(e) 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) This chapter does not apply to practices that meet the definition of a beneficial use of CCR.

(g) This chapter does not apply to CCR placement at active or abandoned underground or surface coal mines.

(h) This chapter does not apply to municipal solid waste landfills that receive CCR.

(i) ADEM Admin. Code ch. 335-13-5 outlines the procedures for obtaining a permit for new and existing CCR surface impoundments and landfills, including lateral expansions of such units.

(2) Applicability of other regulations.

(a) 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, or local laws or other requirements.

(b) Any CCR landfill, CCR surface impoundment, or lateral expansion of a CCR unit continues to be subject to the following:

1. Facilities or practices in floodplains shall not restrict the flow of a 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste, so as to pose a hazard to human life, wildlife, or land or water resources;

2. Facilities or practices shall not cause or contribute to the taking of any endangered or threatened species of plants, fish, or wildlife or result in the destruction or adverse modification of the critical habitat of endangered or threatened species as identified in 50 CFR part 17;

3. CCR units shall not be located on a site that is archaeologically or historically sensitive as determined by the Alabama Historical Commission. Written certification must be provided from the State Historic Preservation Officer; and

4. A CCR unit shall be located so as to not adversely impact water quality by complying with the following:

(i) A CCR unit shall not cause a discharge of pollutants into waters of the State, including wetlands, that is in violation of the requirements of the National Pollutant Discharge Elimination System (NPDES), Alabama Water Pollution Control Act, Code of Alabama 1975, §§ 22-22-1 to 22-22-14 and/or section 404 of the Clean Water Act, as amended.

(ii) A CCR unit shall not cause non-point source pollution of waters of the State, including wetlands, that violates any requirements of an area wide and statewide water quality management plan that has been approved under the Alabama Water Pollution Control Act.

(iii) CCR units, including buffer zones, shall not be permissible in wetlands, beaches or dunes.

(iv) CCR units shall not be permissible in any location where the disposal of solid waste would significantly degrade wetlands, beaches or dunes.

(v) CCR units shall be located outside the boundaries of the coastal area, unless no other reasonable alternative is available. If a site within the coastal area is proposed for development as a CCR unit, it shall be demonstrated to the satisfaction of the Department that siting, design, construction, and operation will ensure that present levels of coastal plants and animals will be maintained.

Author: Eric L. Sanderson, S. Scott Story, Heather M. Jones

Statutory Authority: Code of Alabama 1975, §§ 22-27-3 and 22-27-7

History: Filed: April 24, 2018; Effective: June 8, 2018. **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-15-.02 Definitions. The following definitions apply to this chapter. Terms not defined in this chapter have the meaning given in 335-13-1-.03.

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(1) Acre foot - the volume of one acre of surface area to a depth of one foot.

(2) Active facility or active electric utilities or independent power producers - any facility subject to the requirements of this chapter that is 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 disposal facility is in operation if it is accepting or managing CCR on or after October 19, 2015.

(3) Active life or in operation - 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 335-13-15-.07(3).

(4) Active portion - 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 335-13-15-.07(3).

(5) Aquifer - a geologic formation, group of formations, or portion of a formation capable of yielding usable quantities of groundwater to wells, springs or waters of the state.

(6) Area-capacity curves - 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.

(7) Areas susceptible to mass movement - 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.

(8) Beneficial use of CCR - 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 involves 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.

(9) Closed - placement of CCR in a CCR unit has ceased, and the owner or operator has completed closure of the CCR unit in accordance with 335-13-15-.07(3) and has initiated post-closure care in accordance with 335-13-15-.07(5).

(10) Coal combustion residuals (CCR) - 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.

(11) CCR fugitive dust - solid airborne particulate matter that contains or is derived from CCR, emitted from any source other than a stack or chimney.

(12) CCR landfill or landfill - 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.

(13) CCR pile or pile - 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.

(14) CCR surface impoundment or impoundment - 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.

(15) CCR unit - 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

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both new and existing units, unless otherwise specified.

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

(17) Disposal - the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste as defined in 335-13-1-.03 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. Disposal does not include the storage or the beneficial use of CCR.

(18) Downstream toe - the junction of the downstream slope or face of the CCR surface impoundment with the ground surface.

(19) Eligible unlined CCR surface impoundment - an existing CCR surface impoundment that meets all of the following conditions:

(a) The owner or operator has documented that the CCR unit is in compliance with the location restrictions specified in 335-13-15-.03(1) through (5);

(b) The owner or operator has documented that the CCR unit is in compliance with the periodic safety factor assessment requirements in 335-13-15-.04(4)(e) and (f); and

(c) No constituent listed in Appendix IV to this chapter has been detected at a statistically significant level exceeding a groundwater protection standard defined in 335-13-15-.06(6)(h).

(20) Encapsulated beneficial use - a beneficial use of CCR that binds the CCR into a solid matrix that minimizes its mobilization into the surrounding environment.

(21) Existing CCR landfill - 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.

(22) Existing CCR surface impoundment - 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.

(23) Facility - 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).

(24) Factor of safety (Safety factor) - 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.

(25) Flood hydrograph - a graph showing, for a given point on a stream, the discharge, height, or other characteristic of a flood as a function of time.

(26) Freeboard - the vertical distance between the lowest point on the crest of the impoundment dike and the surface of the waste contained therein.

(27) Hazard potential classification - 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 - a diked surface impoundment where failure or mis-operation will probably cause loss of human life.

(b) Low hazard potential CCR surface impoundment - 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 - 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.

(28) Height - 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.

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

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(30) Inactive CCR surface impoundment - 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.

(31) Incised CCR surface impoundment - 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.

(32) Indian country or Indian lands:

(a) All land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and including rights-of-way running throughout the reservation;

(b) All dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of Alabama; and

(c) All Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

(33) Indian Tribe or Tribe – any Indian tribe, band, nation, or community recognized by the Secretary of the Interior and exercising substantial governmental duties and powers on Indian lands.

(34) Inflow design flood - the flood hydrograph that is used in the design or modification of the CCR surface impoundments and its appurtenant works.

(35) In operation - the same as active life.

(36) Karst terrain - 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 terrains include, but are not limited to, dolines, collapse shafts (sinkholes), sinking streams, caves, seeps, large springs, and blind valleys.

(37) Lateral expansion - a horizontal expansion of the waste boundaries of an existing CCR landfill or existing CCR surface impoundment made after October 19, 2015.

(38) Liquefaction factor of safety - the factor of safety (safety factor) determined using analysis under liquefaction conditions.

(39) Maximum horizontal acceleration in lithified earth material - 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.

(40) New CCR landfill - 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 the federal, state, and local approvals or 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.

(41) New CCR surface impoundment - 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 federal, state, and local approvals or permits necessary to begin physical construction and a continuous on-site, physical construction program had begun after October 19, 2015.

(42) Operator - the person(s) responsible for the overall operation of a CCR unit.

(43) Overfill - a new CCR landfill constructed over a closed CCR surface impoundment.

(44) Owner - the person(s) who owns a CCR unit or part of a CCR unit.

(45) Poor foundation conditions - 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 335-13-15-.04(4)(e) and 335-13-15-.04(5)(e) would cause a poor foundation condition.

(46) Probable maximum flood - 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.

(47) Qualified person - 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.

(48) Qualified professional engineer - an individual who is licensed by the State of Alabama as a Professional Engineer to practice one or more disciplines of engineering and who is qualified by education, technical knowledge and experience to make the specific technical certifications required under this chapter.

(49) Recognized and generally accepted good engineering practices - 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.

(50) Retrofit - to remove all CCR and contaminated soils and sediments from the CCR surface impoundment, and to ensure the unit complies with the requirements in 335-13-15-.04(3).

(51) Run-off - any rainwater, leachate, or other liquid that drains over land from any part of a CCR landfill or lateral expansion of a CCR landfill.

(52) Run-on - any rainwater, leachate, or other liquid that drains over land onto any part of a CCR landfill or lateral expansion of a CCR landfill.

(53) Sand and gravel pit or quarry - 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.

(54) Seismic factor of safety - 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.

(55) Seismic impact zone - 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.

(56) Slope protection - 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.

(57) Solid waste management or management - the systematic

administration of the activities which provide for the collection, source separation, storage, transportation, processing, treatment, or disposal of solid waste.

(58) Static factor of safety - 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.

(59) Structural components - 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.

(60) Taking - harassing, harming, pursuing, hunting, wounding, killing, trapping, capturing, or collecting or attempting to engage in such conduct.

(61) Technically feasible - possible to do in a way that would likely be successful.

(62) Technically infeasible - not possible to do in a way that would likely be successful.

(63) Unstable area - 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.

(64) Uppermost aquifer - 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.

(65) Waste boundary - a vertical surface located at the hydraulically downgradient limit of the CCR unit. The vertical surface extends down into the uppermost aquifer.

Author: Heather M. Jones

Statutory Authority: Code of Alabama 1975, §§ 22-27-2, 22-27-3, 22-27-7, 22-27-9 and 22-27-12

History: Filed: April 24, 2018; Effective: June 8, 2018. **Amended:** Filed: December 31, 2020; Effective: February 15, 2021. **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-15-.03 Location Restrictions.

(1) Placement above the uppermost aquifer.

(a) 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 uppermost aquifer as determined by the following procedures:

1. The site hydrogeology shall be established to the uppermost aquifer and subsequent interconnecting aquifers. The hydrogeological evaluation for a specific site must be performed by a firm or individual having expertise in hydrogeology. The hydrogeological evaluation shall require a minimum of three exploration borings to include sampling and geologic logging and completion of these borings as piezometers.

2. Two groundwater measurements shall be taken during each of the three consecutive months of February, March, and April with no two measurements taken within any twelve day period, or as otherwise approved by the Department.

3. From the hydrogeological evaluation and groundwater measurements, the subsequent establishment of the first saturation zone, the uppermost aquifer and subsequent underlying and interconnected aquifers, piezometer measuring point elevations, water table elevations and an estimate of groundwater flow direction and rate will be required.

4. Based on the groundwater measurements, the owner or operator of a new CCR unit or any lateral expansion of a CCR unit shall design the CCR unit so that the bottom base is five feet above the uppermost aquifer.

5. When the geological and hydrological data so indicate, the Department may specify greater separation distances to protect groundwater.

6. When the geological and hydrological data so indicate, the Department may allow engineering controls to remove, divert, drain, or otherwise modify zones of saturation above the uppermost aquifer.

(b) The owner or operator must demonstrate by the dates specified in 335-13-15-.03(1)(d) that the CCR unit meets the minimum requirements for placement above the uppermost aquifer.

(c) 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 335-13-15-.03(1)(a).

(d) The owner or operator of the CCR unit must complete the demonstration required by 335-13-15-.03(1)(a) by the date specified in either 335-13-15-.03(1)(d)1. or 2.

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 335-13-15-.03(1)(a) when the demonstration is placed in the facility's operating record as required by 335-13-15-.08(1)(e).

4. An owner or operator of an existing CCR surface impoundment who fails to demonstrate compliance with the requirements of 335-13-15-.03(1)(a) by the date specified in 335-13-15-.03(1)(d)1. is subject to the requirements of 335-13-15-.07(2)(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 335-13-15-.03(1)(a) is prohibited from placing CCR in the CCR unit.

(e) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(e), the notification requirements specified in 335-13-15-.08(2)(e), and the internet requirements specified in 335-13-15-.08(3)(e).

(2) Wetlands.

(a) 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 335-13-1-.03, unless the owner or operator demonstrates by the dates specified in 335-13-15-.03(2)(c) that the CCR unit meets the requirements of 335-13-15-.03(2)(a)1. through 5.

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:

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- (i) A violation of any applicable state or federal water quality standard;
- (ii) A violation of any applicable toxic effluent standard or prohibition under section 307 of the Clean Water Act;
- (iii) Jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973; and
- (iv) A violation of any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary.

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

- (i) Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the CCR unit;
- (ii) Erosion, stability, and migration potential of dredged and fill materials used to support the CCR unit;
- (iii) The volume and chemical nature of the CCR;
- (iv) Impacts on fish, wildlife, and other aquatic resources and their habitat from release of CCR;
- (v) The potential effects of catastrophic release of CCR to the wetland and the resulting impacts on the environment; and
- (vi) Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected.

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 335-13-15-.03(2)(a)1. through 3., 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 335-13-15-.03(2)(a)1. through 4.

(b) 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 335-13-15-.03(2)(a).

(c) The owner or operator of the CCR unit must complete the demonstrations required by 335-13-15-.03(2)(a) by the date specified in either 335-13-15-.03(2)(c)1. or 2.

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 335-13-15-.03(2)(a) when the demonstration is placed in the facility's operating record as required by 335-13-15-.08(1)(e).

4. An owner or operator of an existing CCR surface impoundment who fails to demonstrate compliance with the requirements of 335-13-15-.03(2)(a) by the date specified in 335-13-15-.03(2)(c)1. is subject to the requirements of 335-13-15-.07(2)(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 335-13-15-.03(2)(a) is prohibited from placing CCR in the CCR unit.

(d) The owner or operator must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(e), the notification requirements specified in 335-13-15-.08(2)(e), and the internet requirements specified in 335-13-15-.08(3)(e).

(3) Fault areas.

(a) 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 335-13-15-.03(3)(c) that an alternative setback distance of less than 60 meters (200 feet) will prevent damage to the structural integrity of the CCR unit.

(b) The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer stating that the demonstration meets the

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requirements of 335-13-15-.03(3)(a).

(c) The owner or operator of the CCR unit must complete the demonstration required by 335-13-15-.03(3)(a) by the date specified in either 335-13-15-.03(3)(c)1. or 2.

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 335-13-15-.03(3)(a) when the demonstration is placed in the facility's operating record as required by 335-13-15-.08(1)(e).

4. An owner or operator of an existing CCR surface impoundment who fails to demonstrate compliance with the requirements of 335-13-15-.03(3)(a) by the date specified in 335-13-15-.03(3)(c)1. is subject to the requirements of 335-13-15-.07(2)(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 335-13-15-.03(3)(a) is prohibited from placing CCR in the CCR unit.

(d) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(e), the notification requirements specified in 335-13-15-.08(2)(e), and the internet requirements specified in 335-13-15-.08(3)(e).

(4) Seismic impact zones.

(a) 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 335-13-15-.03(4)(c) 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) 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 335-13-15-.03(4)(a).

(c) The owner or operator of the CCR unit must complete the

demonstration required by 335-13-15-.03(4)(a) by the date specified in either 335-13-15-.03(4)(c)1. or 2.

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 335-13-15-.03(4)(a) when the demonstration is placed in the facility's operating record as required by 335-13-15-.08(1)(e).

4. An owner or operator of an existing CCR surface impoundment who fails to demonstrate compliance with the requirements of 335-13-15-.03(4)(a) by the date specified in 335-13-15-.03(4)(c)1. is subject to the requirements of 335-13-15-.07(2)(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 335-13-15-.03(4)(a) is prohibited from placing CCR in the CCR unit.

(d) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(e), the notification requirements specified in 335-13-15-.08(2)(e), and the internet requirements specified in 335-13-15-.08(3)(e).

(5) Unstable areas.

(a) 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 335-13-15-.03(5)(d) 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) 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

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3. On-site or local human-made features or events (both surface and subsurface).

(c) 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 335-13-15-.03(5)(a).

(d) The owner or operator of the CCR unit must complete the demonstration required by 335-13-15-.03(5)(a) by the date specified in either 335-13-15-.03(5)(d)1. or 2.

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 335-13-15-.03(5)(a) when the demonstration is placed in the facility's operating record as required by 335-13-15-.08(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 335-13-15-.03(5)(a) by the date specified in 335-13-15-.03(5)(d)1. is subject to the requirements of 335-13-15-.07(2)(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 335-13-15-.03(5)(a) is prohibited from placing CCR in the CCR unit.

(e) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(e), the notification requirements specified in 335-13-15-.08(2)(e), and the internet requirements specified in 335-13-15-.08(3)(e).

(6) Buffer Requirement. A buffer requirement of 100 feet measured in a horizontal plane shall be required from the perimeter of the facility boundary. In addition, a 100 foot buffer shall be required around wetlands, beaches, or dunes. No disposal or storage practices for solid waste shall take place in the buffer zone. Roads, access control measures, earth storage, and buildings may be placed in the buffer zone.

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335-13-15-.04 Design Criteria.

(1) Design Criteria for new CCR landfills and any lateral expansion of a CCR landfill.

(a) 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 335-13-15-.04(1)(b) or an alternative composite liner that meets the requirements in 335-13-15-.04(1)(c), and a leachate collection and removal system that meets the requirements of 335-13-15-.04(1)(e).

2. Prior to construction of an overfill, the underlying surface impoundment must meet the requirements of 335-13-15-.07(3)(d).

(b) A composite liner must consist of two components; the upper component consisting of, at a minimum, a 40-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 1×10^{-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

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the CCR or leachate.

(c) 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 40-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 1×10^{-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 1×10^{-7} cm/sec. The hydraulic conductivity for the two feet of compacted soil used in the comparison shall be no greater than 1×10^{-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, which is derived from Darcy's Law for gravity flow through porous media.

$$\text{(Eq. 1)} \quad \frac{Q}{A} = q = k \left(\frac{h}{t} + 1 \right)$$

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 335-13-15-.04(1)(b)1. through 4.

(d) The installation of composite liners shall be as recommended by the manufacturer providing that:

1. The installation recommendations of the manufacturer to be used are provided to the Department for review.

2. The Department finds that the recommended installation procedures are consistent with the intent of this chapter.

3. The installation of the liner shall be under the supervision of an engineer who shall certify to the Department that the liner was installed and maintained in accordance with this Division, QA/QC plans, and approved design plans.

(e) 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.

(f) Prior to 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 design of the composite liner (or, if applicable, alternative composite liner) and the leachate collection and removal system meets the requirements of this section.

(g) 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 have been constructed in accordance with the requirements of this section.

(h) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(f), the notification requirements specified in 335-13-15-.08(2)(f), and the internet requirements specified in 335-13-15-.08(3)(f).

(2) Liner design criteria for existing CCR surface impoundments.

(a) 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:

(i) [Reserved]

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(ii) A composite liner that meets the requirements of 335-13-15-.04(1)(b); or

(iii) An alternative composite liner that meets the requirements of 335-13-15-.04(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:

(i) The owner or operator of the CCR unit determines that the CCR unit is not constructed with a liner that meets the requirements of 335-13-15-.04(2)(a)1.(ii) or (iii); or

(ii) 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 335-13-15-.04(2)(a)1.(ii) or (iii).

4. All existing unlined CCR surface impoundments are subject to the requirements of 335-13-15-.07(2)(a).

(b) 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 335-13-15-.04(2)(a) is accurate. This certification must be submitted to the Department.

(c) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(f), the notification requirements specified in 335-13-15-.08(2)(f), and the internet requirements specified in 335-13-15-.08(3)(f).

(3) Liner design criteria for new CCR surface impoundments and any lateral expansion of a CCR surface impoundment.

(a) 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 335-13-15-.04(1)(b) or (c).

(b) 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) Prior to construction of the CCR surface impoundment or any lateral expansion of a CCR surface impoundment, the owner or operator must obtain certification from a qualified professional engineer that the design of the composite liner or, if applicable, the design of an alternative composite liner complies with the requirements of this section. This certification must be submitted to the Department.

(d) 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.

(e) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(f), the notification requirements specified in 335-13-15-.08(2)(f), and the internet requirements specified in 335-13-15-.08(3)(f).

(4) Structural integrity criteria for existing CCR surface impoundments.

(a) The requirements of 335-13-15-.04(4)(a)1. through 4. 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 335-13-15-.04(4)(a)1. through 4.

1. No later than December 17, 2015, 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 identification number of the CCR unit, if one has been assigned by the state, 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.

(i) 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 335-13-15-.04(4)(f). 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.

(ii) 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 335-13-

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15-.04(4)(a)2.(i) was conducted in accordance with the requirements of this section. This certification must be submitted to the Department.

3. Emergency Action Plan (EAP).

(i) 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 335-13-15-.04(4)(a)2. 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.

(ii) Amendment of the plan.

(I) The owner or operator of a CCR unit subject to the requirements of 335-13-15-.04(4)(a)3.(i) may amend the written EAP at any time provided the revised plan is placed in the facility's operating record as required by 335-13-15-.08(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 335-13-15-.04(4)(a)3.(i) is accurate. As necessary, the EAP must be updated and a revised EAP placed in the facility's operating record as required by 335-13-15-.08(1)(f)6.

(iii) 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 335-13-15-.08(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 335-13-15-.04(4)(a)3.(i) within six months of completing such periodic hazard potential assessment.

(iv) 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 335-13-15-.04(4)(a)3. The EAP, as well as the certification from a qualified professional engineer, must be submitted to the Department for approval.

(v) 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. The CCR unit and surrounding areas must be designed, constructed, operated, and maintained with vegetated slopes of dikes. Deep rooted vegetation (roots that may grow below the six inch erosion layer) shall be prohibited as vegetative cover.

(b) The requirements of 335-13-15-.04(4)(c) through (e) 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) 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 335-13-15-.04(4)(c)1.(i) through (xi).

(i) 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.

(ii) The location of the CCR unit identified on the most recent U.S. Geological Survey (USGS) 7½ minute or 15 minute topographic quadrangle map,

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or a topographic map of equivalent scale if a USGS map is not available.

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

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

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

(vi) 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.

(vii) 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.

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

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

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

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

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

2. Changes to the history of construction. If there is a significant change to any information compiled under 335-13-15-.04(4)(c)1., 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 335-13-15-.08(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:

- (i) Stable foundations and abutments;
- (ii) Adequate slope protection to protect against surface erosion, wave action, and adverse effects of sudden drawdown;
- (iii) Dikes mechanically compacted to a density sufficient to withstand the range of loading conditions in the CCR unit;
- (iv) Vegetated slopes of dikes and surrounding areas not to include deep rooted vegetation (roots that may grow below the six inch erosion layer);
- (v) A single spillway or a combination of spillways configured as specified in 335-13-15-.04(4)(d)1.(v)(I). 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 335-13-15-.04(4)(d)1.(v)(II).
 - (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.

(vi) 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

(vii) 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 335-13-15-.04(4)(d)1. 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 of a CCR unit must remedy the deficiency or release as soon as feasible and prepare a report detailing the corrective measures taken. This report must be submitted to the Department for review and approval.

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. This certification must be submitted to the Department.

(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 335-13-15-.04(4)(e)1.(i) through (iv) 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.

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

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

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

(iv) 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 335-13-15-.04(4)(e)1. meets the requirements of this section. This certification must be submitted to the Department.

(f) Timeframes for periodic assessments.

1. Initial assessments. Except as provided by 335-13-15-.04(4)(f)2., the owner or operator of the CCR unit must complete the initial assessments required by 335-13-15-.04(4)(a)2., (d), and (e) 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 335-13-15-.04(4)(a)2., (d) and (e) in the facility's operating record as required by 335-13-15-.08(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 335-13-15-.04(4)(a)2., (d), and (e) provided that the previously completed assessment(s):

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

(ii) Meets the applicable requirements of 335-13-15-.04(4)(a)2., (d), and (e).

3. Frequency for conducting periodic assessments. The owner or operator of the CCR unit must conduct and complete the assessments required by 335-13-15-.04(4)(a)2., (d), and (e) 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 335-13-15-.04(4)(f)2., 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. The owner or operator has completed an assessment when the relevant assessment(s) required by 335-13-15-.04(4)(a)2., (d), and (e) has been placed in the facility's operating record as required by 335-13-15-.08(1)(f)5., 10., and 12.

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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 335-13-15-.04(4)(e) is subject to the requirements of 335-13-15-.07(2)(b)2.

(g) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(f), the notification requirements specified in 335-13-15-.08(2)(f), and the internet requirements specified in 335-13-15-.08(3)(f).

(5) Structural integrity criteria for new CCR surface impoundments and any lateral expansion of a CCR surface impoundment.

(a) The requirements of 335-13-15-.04(5)(a)1. through 4. 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 335-13-15-.04(5)(a)1. through 4.

1. 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 identification number of the CCR unit, if one has been assigned by the state, 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.

(i) 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 335-13-15-.04(5)(f). 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.

(ii) 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 335-13-15-.04(5)(a)2.(i) was conducted in accordance with the requirements of this section. This certification must be submitted to the Department.

3. Emergency Action Plan (EAP).

(i) 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 335-13-15-.04(5)(a)2. 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.

(ii) Amendment of the plan.

(I) The owner or operator of a CCR unit subject to the requirements of 335-13-15-.04(5)(a)3.(i) may amend the written EAP at any time provided the revised plan is placed in the facility's operating record as required by 335-13-15-.08(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 335-13-15-.04(5)(a)3.(i) is accurate. As necessary, the EAP must be updated and a revised EAP placed in the facility's operating record as required by 335-13-15-.08(1)(f)6.

(iii) 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

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is placed in the facility's operating record as required by 335-13-15-.08(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 335-13-15-.04(5)(a)3.(i) within six months of completing such periodic hazard potential assessment.

(iv) 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 335-13-15-.04(5)(a)3. The EAP, as well as the certification from a qualified professional engineer, must be submitted to the Department for approval.

(v) 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. The CCR unit and surrounding areas must be designed, constructed, operated, and maintained with vegetated slopes of dikes. Deep rooted vegetation (roots that may grow below the six inch erosion layer) shall be prohibited as vegetative cover.

(b) The requirements of 335-13-15-.04(5)(c) through (e) 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) 1. No later than the initial receipt of CCR in the CCR unit, the owner or operator of a CCR unit must compile the design and construction plans for the CCR unit, which must include, to the extent feasible, the information specified in 335-13-15-.04(5)(c)1.(i) through (xi).

(i) 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.

(ii) The location of the CCR unit identified on the most recent U.S. Geological Survey (USGS) 7¹/₂ minute or 15 minute topographic quadrangle map, or a topographic map of equivalent scale if a USGS map is not available.

- (iii) A statement of the purpose for which the CCR unit is being used.
 - (iv) The name and size in acres of the watershed within which the CCR unit is located.
 - (v) A description of the physical and engineering properties of the foundation and abutment materials on which the CCR unit is constructed.
 - (vi) 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.
 - (vii) 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.
 - (viii) A description of the type, purpose, and location of existing instrumentation.
 - (ix) Area-capacity curves for the CCR unit.
 - (x) A description of each spillway and diversion design feature and capacities and calculations used in their determination.
 - (xi) The construction specifications and provisions for surveillance, maintenance, and repair of the CCR unit.
 - (xii) Any record or knowledge of structural instability of the CCR unit.
2. Changes in the design and construction. If there is a significant change to any information compiled under 335-13-15-.04(5)(c)1., 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 335-13-15-.08(1)(f)13.
- (d) Periodic structural stability assessments.

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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:

(i) Stable foundations and abutments;

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

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

(iv) Vegetated slopes of dikes and surrounding areas not to include deep rooted vegetation (roots that may grow below the six inch erosion layer);

(v) A single spillway or a combination of spillways configured as specified in 335-13-15-.04(5)(d)1.(v)(I). 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 335-13-15-.04(5)(d)1.(v)(II).

(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.

(vi) 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

(vii) 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 335-13-15-.04(5)(d)1. 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 of a CCR unit must remedy the deficiency or release as soon as feasible and prepare a report detailing the corrective measures taken. This report must be submitted to the Department for review and approval.

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. This certification must be submitted to the Department.

(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 335-13-15-.04(5)(e)1.(i) through (v) 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.

(i) 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.

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

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

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

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(v) 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 335-13-15-.04(5)(e)1. meets the requirements of this section. This certification must be submitted to the Department.

(f) Timeframes for periodic assessments.

1. Initial assessments. Except as provided by 335-13-15-.04(5)(f)2., the owner or operator of the CCR unit must complete the initial assessments required by 335-13-15-.04(5)(a)2., (d), and (e) 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 335-13-15-.04(5)(a)2., (d), and (e) in the facility's operating record as required by 335-13-15-.08(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 335-13-15-.04(5)(a)2., (d), and (e) 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, the owner or operator has completed an assessment when the relevant assessment(s) required by 335-13-15-.04(5)(a)2., (d), and (e) has been placed in the facility's operating record as required by 335-13-15-.08(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 335-13-15-.04(5)(e)1.(i) through (v), 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 335-13-15-.04(5)(e) is subject to the requirements of 335-13-15-.07(2)(c).

(g) The owner or operator of the CCR unit must comply with the

recordkeeping requirements specified in 335-13-15-.08(1)(f), the notification requirements specified in 335-13-15-.08(2)(f), and the internet requirements specified in 335-13-15-.08(3)(f).

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335-13-15-.05 Operating Criteria.

(1) Air criteria.

(a) 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 335-13-15-.05(1)(b)1. through 7. 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 prepare 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 335-13-15-.08(1)(g)1.

6. Amendment of the plan. 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 335-13-15-.08(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. The CCR fugitive dust control plan, as well as the certification from a qualified professional engineer must be submitted to the Department for approval.

(c) Annual CCR fugitive dust control report. The owner or operator of a CCR unit must prepare 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. The owner or operator has completed the annual CCR fugitive dust control report when the report has been submitted to the Department and placed in the facility's operating record as required by 335-13-15-.08(1)(g)2.

(d) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(g), the notification requirements specified in 335-13-15-.08(2)(g), and the internet requirements specified in 335-13-15-.08(3)(g).

(2) Run-on and run-off controls for CCR landfills.

(a) 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 and/or closed 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 and/or closed 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 the active and/or closed portion of the CCR unit must be handled in accordance with the surface water requirements under 335-13-15-.01(2)(b)4.(i) and (ii).

(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 335-13-15-.05(2)(c)3. and 4. 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 335-13-15-.08(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 335-13-15-.08(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.

(i) 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.

(ii) 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.

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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 335-13-15-.05(2)(c)1. 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. 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 335-13-15-.08(1)(g)3.

5. 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. The run-on and run-off control system plans, as well as the certification from a qualified professional engineer, must be submitted to the Department for approval.

(d) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(g), the notification requirements specified in 335-13-15-.08(2)(g), and the internet requirements specified in 335-13-15-.08(3)(g).

(3) Hydrologic and hydraulic capacity requirements for CCR surface impoundments.

(a) 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 335-13-15-.05(3)(a)1. and 2.

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 335-13-15-.05(3)(a)3.

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 335-13-15-.05(3)(a)3.

3. The inflow design flood is:

(i) For a high hazard potential CCR surface impoundment, as determined under 335-13-15-.04(4)(a)2. or 335-13-15-.04(5)(a)2., the probable maximum flood;

(ii) For a significant hazard potential CCR surface impoundment, as determined under 335-13-15-.04(4)(a)2. or 335-13-15-.04(5)(a)2., the 1,000-year flood;

(iii) For a low hazard potential CCR surface impoundment, as determined under 335-13-15-.04(4)(a)2. or 335-13-15-.04(5)(a)2., the 100-year flood; or

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

(b) Discharge from the CCR unit must be handled in accordance with the surface water requirements under 335-13-15-.01(2)(b)4.(i) and (ii).

(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 335-13-15-.05(3)(c)3.and 4. 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 335-13-15-.08(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 335-13-15-.08(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.

(i) 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.

(ii) 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 335-13-

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15-.05(3)(c)1. 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. 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 335-13-15-.08(1)(g)4.

5. 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.

(d) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(g), the notification requirements specified in 335-13-15-.08(2)(g), and the internet requirements specified in 335-13-15-.08(3)(g).

(4) Inspection requirements for CCR surface impoundments.

(a) Inspections by a qualified person.

1. All CCR surface impoundments and any lateral expansion of a CCR surface impoundment must be examined by a qualified person as follows:

(i) 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;

(ii) 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

(iii) At intervals not exceeding 30 days, monitor all CCR unit instrumentation.

(iv) The results of the inspection by a qualified person must be recorded in the facility's operating record as required by 335-13-15-.08(1)(g)5.

2. Timeframes for inspections by a qualified person.

(i) Existing CCR surface impoundments. The owner or operator of the CCR unit must initiate the inspections required under 335-13-15-.05(4)(a) no later than October 19, 2015.

(ii) 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 335-13-15-.05(4)(a) upon initial receipt of CCR by the CCR unit.

(b) Annual inspections by a qualified professional engineer.

1. 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 335-13-15-.04(4)(d) or 335-13-15-.04(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:

(i) 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 335-13-15-.04(4)(c)1. and 335-13-15-.04(5)(c)1., previous periodic structural stability assessments required under 335-13-15-.04(4)(d) and 335-13-15-.04(5)(d), the results of inspections by a qualified person, and results of previous annual inspections);

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

(iii) 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:

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

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

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

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

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

(vi) 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

(vii) 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.

(i) Existing CCR surface impoundments. The owner or operator of the CCR unit must complete the initial inspection required by 335-13-15-.05(4)(b)1. and 2. no later than January 19, 2016.

(ii) 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 335-13-15-.05(4)(b)1. and 2. no later than 14 months following the date of initial receipt of CCR in the CCR unit.

4. Frequency of inspections.

(i) Except as provided for in 335-13-15-.05(4)(b)4.(ii), the owner or operator of the CCR unit must conduct the inspection required by 335-13-15-.05(4)(b)1. and 2. 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. The owner or operator has completed an inspection when the inspection report has been placed in the facility's operating record as required by 335-13-15-.08(1)(g)6.

(ii) 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 335-13-15-.04(4)(d) and 335-13-15-.04(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, the deadline for completing the next annual inspection is one year from the date of completing the quinquennial

structural stability assessment.

5. 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 a report detailing the corrective measures taken. This report must be submitted to the Department for review and approval.

(c) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(g), the notification requirements specified in 335-13-15-.08(2)(g), and the internet requirements specified in 335-13-15-.08(3)(g).

(5) Inspection requirements for CCR landfills.

(a) Inspections by a qualified person.

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

(i) 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

(ii) The results of the inspection by a qualified person must be recorded in the facility's operating record as required by 335-13-15-.08(1)(g)8.

2. Timeframes for inspections by a qualified person.

(i) Existing CCR landfills. The owner or operator of the CCR unit must initiate the inspections required under 335-13-15-.05(5)(a) no later than October 19, 2015.

(ii) 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 335-13-15-.05(5)(a) upon initial receipt of CCR by the CCR unit.

(b) Annual inspections by a qualified professional engineer.

1. 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:

(i) A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating

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record (e.g., the results of inspections by a qualified person, and results of previous annual inspections); and

(ii) 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:

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

(ii) The approximate volume of CCR contained in the unit at the time of the inspection;

(iii) 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

(iv) 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.

(i) Existing CCR landfills. The owner or operator of the CCR unit must complete the initial inspection required by 335-13-15-.05(5)(b)1. and 2. no later than January 19, 2016.

(ii) 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 335-13-15-.05(5)(b)1. and 2. 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 335-13-15-.05(5)(b)1. and 2. 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. The owner or operator has completed an inspection when the inspection report has been placed in the facility's operating record as required by 335-13-15-.08(1)(g)9.

5. 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 a report detailing the corrective measures taken. This report must be submitted to the Department for review and approval.

(c) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(g), the notification requirements specified in 335-13-15-.08(2)(g), and the internet requirements specified in 335-13-15-.08(3)(g).

(6) General operational standards for CCR units.

(a) The operation and use of the CCR unit shall be as stipulated in the approved plans and the permit.

(b) The disposal area shall be identified with a sufficient number of permanent markers which are at least visible from one marker to the next.

(c) Open Burning.

1. Open burning at any CCR unit is prohibited unless approved by the Department as follows:

(i) Clearing debris at the CCR unit such as trees and stumps may be burned if prior approval is received from the Department and the Alabama Forestry Commission.

(ii) If approved, burning shall not occur within 200 feet of existing disposal operations unless otherwise specified by the Department and such burning shall not cause a public nuisance or pose a threat to public health.

2. The person or agency requesting permission to burn shall apply in writing to the Department, outlining why a burn request should be granted. This request should include, but not be limited to, specifically what areas will be utilized, types of waste to be burned, the projected starting and completion dates for the project, and the projected days and hours of operation.

(d) Adequate equipment shall be provided to ensure continued operation in accordance with the permit and regulations.

(e) The owner or operator of the facility must control public access and prevent unauthorized vehicular traffic and illegal dumping of wastes by using artificial barriers, natural barriers, or both, as appropriate to protect human health and the environment.

(f) Adequate personnel shall be provided to ensure continued and smooth operation of the facility.

(g) Provisions shall be made for disposal activities in adverse weather

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conditions.

(h) Environmental monitoring and treatment structures shall be clearly marked and identified, protected and maintained in good repair and shall be easily accessible.

(i) All CCR material to be disposed shall be properly measured or weighed prior to disposal unless otherwise approved by the Department. The average daily volume of waste received at a CCR unit shall be calculated by dividing the total month's receipts by the total number of days in the reporting month. Records shall be maintained on the average daily volume of waste received at the CCR unit. A quarterly report which summarizes the daily volumes, with volumes received reported in a format specified and approved by the Department, shall be submitted to the Department and maintained on file in the operating record of the facility by the permittee. If the average daily volume is exceeded for two or more consecutive quarters, by 20 percent or 100 tons/day, whichever is less, a modification would be required to adjust the permitted average daily volume.

(j) The CCR unit shall be operated in such a manner that there will be no water pollution or unauthorized discharge.

1. Any discharge resulting from a CCR unit or practice may require:

(i) A National Pollutant Discharge Elimination System (NPDES) permit under the Alabama Water Pollution Control Act as issued by the Department.

(ii) A dredge or fill permit from the Army Corps of Engineers as required under Section 404 of the Clean Water Act, as amended; or

(iii) That a non-point source of surface waters does not violate an area wide or statewide water quality management plan that has been approved under the Alabama Water Pollution Control Act.

2. The groundwater shall not be contaminated as specified by this chapter.

(k) Notwithstanding this rule, additional requirements for operating and maintaining a CCR unit may be imposed by the Department, as deemed necessary, to comply with this Division.

(7) General operational standards for CCR landfills. In addition the requirements of 335-13-15-.05(6), the following also apply to CCR landfills:

(a) Daily, weekly, or some other periodic cover shall be required at all CCR landfill units, as determined by the Department.

1. The suitability and volume of any soils for daily, intermediate and final cover requirements shall be determined by soil borings and analysis.

2. Any proposal to use alternative cover systems shall be submitted to and approved by the Department prior to implementation.

3. Alternative cover shall be approved by the Department in compliance with federal law and the USEPA rules of guidance to achieve a level of performance equal to or greater than earthen cover material.

(b) All waste shall be covered as follows:

1. A minimum of six inches of compacted earth or other alternative cover material shown to achieve a level of performance equal to or greater than earthen cover material and that is approved by the Department shall be added at the conclusion of each week's operation or as otherwise specified by the Department.

2. In the event that erosion develops on previously covered disposal areas, or when covered waste otherwise becomes exposed, cover must be re-applied to comply with the minimum cover requirements of subparagraph (7)(b)1. of this section.

3. Final closure shall be carried out in accordance with 335-13-15-.07.

(c) All waste shall be thoroughly spread in layers two feet or less in thickness and thoroughly compacted weekly with adequate equipment prior to placing additional layers of waste or placing the weekly cover as specified in 335-13-15-.05(7)(b)1., unless otherwise approved by the Department. Waste which cannot be managed by equipment in this manner shall be managed in a manner approved by the Department.

(d) All waste shall be placed onto an appropriate slope not to exceed 4 to 1 (25%) or as approved by the Department.

(e) The owner or operator of a CCR landfill unit must prevent the disposal of free liquids in the CCR landfill.

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335-13-15-.06 Groundwater Monitoring and Corrective Action.

(1) Applicability.

(a) All CCR landfills, CCR surface impoundments, and lateral expansions of CCR units are subject to the groundwater monitoring and corrective action requirements under 335-13-15-.06(1) through 335-13-15-.06(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:

(i) Install the groundwater monitoring system as required by 335-13-15-.06(2);

(ii) 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 335-13-15-.06(4);

(iii) Initiate the detection monitoring program to include obtaining a minimum of eight independent samples for each background and downgradient well as required by 335-13-15-.06(5)(b); and

(iv) Begin evaluating the groundwater monitoring data for statistically significant increases over background levels for the constituents listed in Appendix III as required by 335-13-15-.06(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 335-13-15-.06(1)(b)1.(i) and (ii). 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 335-13-15-.06(5)(b).

(c) 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) 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 335-13-15-.06(7), 335-13-15-.06(8), and 335-13-15-.06(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. The owner or operator has prepared the annual report when the report is submitted to the Department and placed in the facility's operating record as required by 335-13-15-.08(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 335-13-15-.06(1) through 335-13-15-.06(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 as a statistically significant increase over background levels); and

5. Other information required to be included in the annual report as specified in 335-13-15-.06(1) through 335-13-15-.06(9).

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6. A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit. At a minimum, the summary must specify all of the following:

(i) At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in 335-13-15-.06(5) or the assessment monitoring program in 335-13-15-.06(6);

(ii) At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in 335-13-15-.06(5) or the assessment monitoring program in 335-13-15-.06(6);

(iii) If it was determined that there was a statistically significant increase over background for one or more constituents listed in Appendix III pursuant to 335-13-15-.06(5)(e):

I. Identify those constituents listed in Appendix III and the names of the monitoring wells associated with such an increase; and

II. Provide the date when the assessment monitoring program was initiated for the CCR unit.

(iv) If it was determined that there was a statistically significant level above the groundwater protection standard for one or more constituents listed in Appendix IV pursuant to 335-13-15-.06(6)(g) include all of the following:

I. Identify those constituents listed in Appendix IV and the names of the monitoring wells associated with such an increase;

II. Provide the date when the assessment of corrective measures was initiated for the CCR unit;

III. Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit; and

IV. Provide the date when the assessment of corrective measures was completed for the CCR unit.

(v) Whether a remedy was selected pursuant to 335-13-15-.06(8) during the current annual reporting period, and if so, the date of remedy selection; and

(vi) Whether remedial activities were initiated or are ongoing pursuant to 335-13-15-.06(9) during the current annual reporting period.

(f) Semi-annual groundwater monitoring report. The owner or operator of a CCR unit must submit a semi-annual groundwater monitoring report to the Department to coincide with the semi-annual sampling event. The report shall be certified by a qualified professional engineer. The semi-annual report must document the status of the groundwater monitoring program for the CCR unit. The owner or operator has prepared the semi-annual report when the report is submitted to the Department and placed in the facility's operating record as required by 335-13-15-.08(1)(h)14. At a minimum, the semi-annual groundwater monitoring 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 semi-annual period;

3. In addition to all the monitoring data obtained under 335-13-15-.06(1) through 335-13-15-.06(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; and

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 as a statistically significant increase over background levels).

(g) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(h), the notification requirements specified in 335-13-15-.08(2)(h), and the internet requirements specified in 335-13-15-.08(3)(h).

(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

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upgradient of the CCR management area where:

(i) Hydrogeologic conditions do not allow the owner or operator of the CCR unit to determine what wells are hydraulically upgradient; or

(ii) 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) 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.

3. The number, spacing, and depth of the monitoring system developed under 335-13-15-.06(2) shall be certified by a qualified professional engineer and submitted to the Department for approval. Within 14 days of the Department's approval, the owner or operator must notify the Department that the certification has been placed in the facility operating record.

(c) The groundwater monitoring system must include, at a minimum, the number of monitoring wells necessary to meet the performance standards specified in 335-13-15-.06(2)(a), based on the site-specific information specified in 335-13-15-.06(2)(b). 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) 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 335-13-15-.06(2)(a) through (c) for each CCR unit based on the following factors:

- (i) Number, spacing, and orientation of each CCR unit;
- (ii) Hydrogeologic setting;
- (iii) Site history; and
- (iv) Engineering design of the CCR unit.

2. [Reserved]

(e) Well design and construction.

1. Groundwater monitoring wells shall be designed and constructed in accordance with the following reference: "Design and Installation of Groundwater Monitoring Wells in Aquifers", ASTM Subcommittee D18.21 on Groundwater Monitoring or otherwise as specifically approved by the Department.

2. Plans for groundwater monitoring well location, design, construction and/or abandonment shall be submitted to the Department for review and approval prior to installation or abandonment.

3. Monitoring wells must be cased in a manner that maintains the integrity of the monitoring well borehole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples. The annular space (i.e., the space between the borehole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater.

4. 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 335-13-15-.06(2)(f).

5. The monitoring wells, piezometers, and other measurement,

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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) 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 335-13-15-.06(2)(c)1., the certification must document the basis supporting this determination. Once completed, the certification must be submitted to the Department and placed in the operating record in accordance with 335-13-15-.08(1)(h)3.

(g) Abandoned wells and bore holes shall be abandoned in accordance with the following procedures in order to prevent contamination of groundwater resources. A plan of abandonment must be submitted and approved by the Department prior to implementing abandonment of any well.

1. A well shall be measured for depth prior to sealing to ensure that it is free from any obstructions that may interfere with sealing operations.

2. Where feasible, wells shall be completely filled with neat cement. If the well cannot be completely filled, the sealing materials for the top 20 feet must be neat cement and no material that could impart taste, odor, or toxic components to water may be used in the sealing process.

3. Liner pipe shall be removed from each well in order to ensure placement of an effective seal. If the liner pipe cannot be readily removed, it shall be perforated to ensure that proper sealing is obtained.

4. Concrete, cement grout, or neat cement shall be used as primary sealing materials and shall be placed from the bottom upwards using methods that will avoid segregation or dilution of material.

5. Complete, accurate records of the abandonment procedure shall be kept for each well abandoned. The record of abandonment shall include, at a minimum, the depth of each layer of all sealing and backfilling materials, the quantity of sealing materials used, measurements of static water levels and depth, and any changes made in the well during the sealing. A copy of these records shall be submitted to the Department and a copy placed in the operating record.

(h) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(h), the notification requirements specified in 335-13-15-.08(2)(h), and the internet requirements specified in 335-13-15-.08(3)(h).

(3) [Reserved]

(4) Groundwater sampling and analysis requirements.

(a) 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 335-13-15-.06(2). The owner or operator of the CCR unit must develop, and submit to the Department for approval, 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.

(b) 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 335-13-15-.06(1) through 335-13-15-.06(9), the term constituent refers to both hazardous constituents and other monitoring parameters listed in either Appendix III or IV.

(c) 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.

(d) 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 335-13-15-.06(5)(a) or 335-13-15-.06(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 335-13-15-.06(2)(a)1.

(e) 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 335-13-

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15-.06(4)(f) and the performance standards under 335-13-15-.06(4)(g). The sampling procedures shall be those specified under 335-13-15-.06(5)(b) through (d) for detection monitoring, 335-13-15-.06(6)(b) through (d) for assessment monitoring, and 335-13-15-.06(7)(b) for corrective action.

(f) The owner or operator of the CCR unit must specify in writing to the Department and place in the operating record one of the statistical methods specified in 335-13-15-.06(4)(f)1. through 5. 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 335-13-15-.06(4)(g). The owner or operator must place a justification for this alternative in the operating record and submit it to the Department for approval to use this alternative method. The justification must demonstrate that the alternative method meets the performance standards of 335-13-15-.06(4)(g).

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.

(g) Any statistical method chosen under 335-13-15-.06(4)(f) 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

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control or correct for seasonal and spatial variability as well as temporal correlation in the data.

(h) The owner or operator of the CCR unit must determine and certify in writing to the Department if there is a statistically significant increase over background values or the groundwater protection standard for each constituent required in the particular groundwater monitoring program that applies to the CCR unit, as determined under 335-13-15-.06(5)(a) or 335-13-15-.06(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 335-13-15-.06(2)(a)2. or (d)1. to the background value of that constituent when in detection monitoring or to the groundwater protection standard when in assessment monitoring, according to the statistical procedures and performance standards specified under 335-13-15-.06(4)(f) and (g).

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 when in detection monitoring or to the groundwater protection standard when in assessment monitoring for any constituent at each monitoring well.

3. If a statistically significant increase is detected over background groundwater quality when in detection monitoring or over the groundwater protection standard when in assessment monitoring, the owner or operator must notify the Department in writing within 14 days of this event.

(i) 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.

(j) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(h), the notification requirements specified in 335-13-15-.08(2)(h), and the internet requirements specified in 335-13-15-.08(3)(h).

(5) Detection monitoring program.

(a) 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 the constituents listed in Appendix III of this chapter.

(b) Except as provided in 335-13-15-.06(5)(d), the monitoring frequency for the constituents listed in Appendix III 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 III and Appendix IV, for the purpose of establishing background concentrations 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 Appendix III and Appendix IV for the purpose of establishing background concentrations during the first six months of sampling.

(c) The number of samples collected and analyzed for each background well and downgradient well during subsequent semiannual sampling events must be consistent with 335-13-15-.06(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) 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 III 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. The demonstration must be supported by, at a minimum, the information specified in 335-13-15-.06(5)(d)1. and 2.

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

- (i) Lithology of the aquifer and unsaturated zone;
- (ii) Hydraulic conductivity of the aquifer and unsaturated zone; and
- (iii) 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

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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 submit the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer to the Department for approval. If Departmental approval is granted, the owner or operator must place the demonstration in the annual groundwater monitoring and corrective action report required by 335-13-15-.06(1)(e).

(e) If the owner or operator of the CCR unit determines, pursuant to 335-13-15-.06(4)(h) that there is a statistically significant increase over background levels for one or more of the constituents listed in Appendix III at any monitoring well at the waste boundary specified under 335-13-15-.06(2)(a)2., the owner or operator must:

1. Except as provided for in 335-13-15-.06(5)(e)2., within 90 days of detecting a statistically significant increase over background levels for any constituent, establish an assessment monitoring program meeting the requirements of 335-13-15-.06(6).

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. A report documenting this demonstration must be certified by a qualified professional engineer verifying the accuracy of the information in the report, and placed in the operating record. 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, subject to subsequent review and approval from the Department. 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 335-13-15-.06(6). The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by 335-13-15-.06(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 335-13-15-.08(1)(h)5; and

4. Must, within 14 days of this finding, place a notice in the operating record, and submit a copy of this notice to the Department, stating that a statistically significant increase over background has been detected and indicate which constituents have shown statistically significant changes from background levels.

(f) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(h), the notification requirements specified in 335-13-15-.08(2)(h), and the internet requirements specified in 335-13-15-.08(3)(h).

(6) Assessment monitoring program.

(a) 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 III.

(b) 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 III and Appendix IV. The number of samples collected and analyzed for each well during each sampling event must be consistent with 335-13-15-.06(4)(e), and must account for any unique characteristics of the site, but must be at least one sample from each well.

(c) 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 III and Appendix IV 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. The demonstration must be supported by, at a minimum, the information specified in 335-13-15-.06(6)(c)1. and 2.

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

- (i) Lithology of the aquifer and unsaturated zone;
- (ii) Hydraulic conductivity of the aquifer and unsaturated zone;
- (iii) Groundwater flow rates; and
- (iv) Nature (fate and transport) of any constituents detected in response to this rule.

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 submit the demonstration providing the basis for the alternative monitoring frequency and the certification by a qualified professional engineer to the Department for approval. If Departmental approval is granted, the owner or operator must place the demonstration in the annual groundwater monitoring and corrective action report required by 335-13-15-.06(1)(e).

(d) After obtaining the results from the initial and subsequent sampling events required in 335-13-15-.06(6)(b), the owner or operator must:

1. Within 14 days, place a notice in the operating record and submit a copy of this notice to the Department identifying the Appendix IV constituents that have been detected;

2. 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 335-13-15-.06(2), conduct analyses for all parameters in Appendix III and for those constituents in Appendix IV that are detected in response to 335-13-15-.06(6)(b), 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 335-13-15-.06(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;

3. Establish groundwater protection standards for all Appendix IV constituents detected pursuant to 335-13-15-.06(6)(b) or (d). The groundwater protection standards must be established in accordance with 335-13-15-.06(6)(h); and

4. Include the recorded concentrations required by 335-13-15-.06(6)(d)2., identify the background concentrations established under 335-13-15-.06(5)(b), and identify the groundwater protection standards established under 335-13-15-.06(6)(d)3. in the annual groundwater monitoring and corrective action report required by 335-13-15-.06(1)(e) and the semi-annual groundwater monitoring report required by 335-13-15-.06(1)(f).

(e) If the concentrations of all constituents listed in Appendix III and Appendix IV are shown to be at or below background values, using the statistical procedures in 335-13-15-.06(4)(g), for two consecutive sampling events, the owner or operator may return to detection monitoring of the CCR unit. 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 335-13-15-.08(1)(h)7. and submitted to the Department.

(f) If the concentrations of any constituent in Appendix III and Appendix IV are above background values, but all concentrations are below the groundwater protection standard established under 335-13-15-.06(6)(h), using the statistical procedures in 335-13-15-.06(4)(g), the owner or operator must continue assessment monitoring in accordance with this section.

(g) If one or more constituents in Appendix IV are detected at statistically significant levels above the groundwater protection standard established under 335-13-15-.06(6)(h) in any sampling event, the owner or operator must prepare a notification identifying the constituents in Appendix IV that have exceeded the groundwater protection standard. The owner or operator has completed the notification when the notification is placed in the facility's operating record as required by 335-13-15-.08(1)(h)8. The owner or operator of the CCR unit also must:

1. Submit a copy of the notification to the Department and all appropriate local government officials, if the facility is subject to the local host government approval requirements as provided in the Code of Alabama 1975, § 22-27-48 and 48.1; and

2. 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 335-13-15-.06(7). Characterization of the release includes the following minimum measures:

(i) Install additional monitoring wells necessary to define the contaminant plume(s);

(ii) Collect data on the nature and estimated quantity of material released including specific information on the constituents listed in Appendix IV and the levels at which they are present in the material released;

(iii) Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well in accordance with 335-13-15-.06(6)(d)2.; and

(iv) Sample all wells in accordance with 335-13-15-.06(6)(d)2. to characterize the nature and extent of the release.

3. 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

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migrated off-site if indicated by sampling of wells in accordance with 335-13-15-.06(6)(g)2. The owner or operator has completed the notifications when they are placed in the facility's operating record as required by 335-13-15-.08(1)(h)8.

4. Within 90 days of finding that any of the constituents listed in Appendix IV have been detected at a statistically significant level exceeding the groundwater protection standards the owner or operator must either:

(i) Initiate an assessment of corrective measures as required by 335-13-15-.06(7); or

(ii) 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 and must be certified to be accurate by a qualified professional engineer and approved by the Department. 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 may return to detection monitoring if the constituents in Appendix III and Appendix IV are at or below background as specified in 335-13-15-.06(6)(e). The owner or operator must also include the demonstration in the annual groundwater monitoring and corrective action report required by 335-13-15-.06(1)(e), in addition to the certification by a qualified professional engineer.

5. If a successful determination has not been made at the end of the 90 day period provided by 335-13-15-.06(6)(g)4., the owner or operator of the CCR unit must initiate the assessment of corrective measures requirements under 335-13-15-.06(7).

6. The owner or operator must prepare a notification stating that an assessment of corrective measures has been initiated.

(h) The owner or operator of the CCR unit must establish a groundwater protection standard for each constituent in Appendix IV detected in the groundwater. The groundwater protection standard shall be:

1. For constituents for which a maximum contaminant level (MCL) has been established under 335-7-2-.03(1) and 335-7-2-.08(1) and (2), the MCL for that constituent;

2. For the following constituents:

(i) Cobalt 6 micrograms per liter ($\mu\text{g/L}$);

(ii) Lead 15 $\mu\text{g/L}$;

- (iii) Lithium 40 µg/L; and
- (iv) Molybdenum 100 µg/L.

3. For constituents for which the background level is higher than the levels identified under 335-13-15-.06(6)(h)1. or (h)2., the background concentration.

(i) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(h), the notification requirements specified in 335-13-15-.08(2)(h), and the internet requirements specified in 335-13-15-.08(3)(h).

(7) Assessment of corrective measures.

(a) Within 90 days of finding that any constituent listed in Appendix IV has been detected at a statistically significant level exceeding the groundwater protection standard defined under 335-13-15-.06(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 areas to original conditions. 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 and submit the demonstration to the Department for approval. 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 335-13-15-.06(1)(e), in addition to the certification by a qualified professional engineer.

(b) The owner or operator of the CCR unit must continue to monitor groundwater in accordance with the assessment monitoring program as specified in 335-13-15-.06(6).

(c) The assessment under 335-13-15-.06(7)(a) 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 335-13-15-.06(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;

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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) The owner or operator must place the completed assessment of corrective measures in the facility's operating record. The assessment has been completed when it is placed in the facility's operating record as required by 335-13-15-.08(1)(h)10.

(e) 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.

(f) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(h), the notification requirements specified in 335-13-15-.08(2)(h), and the internet requirements specified in 335-13-15-.08(3)(h).

(8) Selection of remedy.

(a) Based on the results of the corrective measures assessment conducted under 335-13-15-.06(7), the owner or operator must, as soon as feasible, select a remedy that, at a minimum, meets the standards listed in 335-13-15-.06(8)(b). This requirement applies in addition to, not in place of, any applicable standards under the Occupational Safety and Health Act. The owner or operator must prepare a semiannual report describing the progress in selecting and designing the remedy. Upon selection of a remedy, the owner or operator must prepare a final report describing the selected remedy and how it meets the standards specified in 335-13-15-.06(8)(b). The owner or operator must obtain a certification from a qualified professional engineer that the remedy selected meets the requirements of this section. Within 14 days of selecting a remedy, the owner or operator must submit the report to the Department for approval of the selected remedy. The report has been completed when it is placed in the operating record as required by 335-13-15-.08(1)(h)12.

(b) Remedies must:

1. Be protective of human health and the environment;
2. Attain the groundwater protection standard as specified pursuant to 335-13-15-.06(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 IV 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 335-13-15-.06(9)(d).

(c) In selecting a remedy that meets the standards of 335-13-15-.06(8)(b), 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:

(i) Magnitude of reduction of existing risks;

(ii) Magnitude of residual risks in terms of likelihood of further releases due to CCR remaining following implementation of a remedy;

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

(iv) 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;

(v) Time until full protection is achieved;

(vi) 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;

(vii) Long-term reliability of the engineering and institutional controls;
and

(viii) 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:

(i) The extent to which containment practices will reduce further

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releases; and

- (ii) 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:

- (i) Degree of difficulty associated with constructing the technology;
- (ii) Expected operational reliability of the technologies;
- (iii) Need to coordinate with and obtain necessary approvals and permits from other agencies;
- (iv) Availability of necessary equipment and specialists; and
- (v) 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) 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 335-13-15-.06(8)(d)1. through 6. 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 335-13-15-.06(6)(g);
- 2. Reasonable probabilities of remedial technologies in achieving compliance with the groundwater protection standards established under 335-13-15-.06(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:
 - (i) Current and future uses;
 - (ii) Proximity and withdrawal rate of users;

- (iii) Groundwater quantity and quality;
 - (iv) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to CCR constituents;
 - (v) The hydrogeologic characteristic of the facility and surrounding land; and
 - (vi) The availability of alternative water supplies; and
6. Other relevant factors.

(e) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(h), the notification requirements specified in 335-13-15-.08(2)(h), and the internet requirements specified in 335-13-15-.08(3)(h).

(9) Implementation of the corrective action program.

(a) Within 90 days of selecting a remedy under 335-13-15-.06(8), the owner or operator must initiate remedial activities. Based on the schedule established under 335-13-15-.06(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:

(i) At a minimum, meets the requirements of an assessment monitoring program under 335-13-15-.06(6);

(ii) Documents the effectiveness of the corrective action remedy; and

(iii) Demonstrates compliance with the groundwater protection standard pursuant to 335-13-15-.06(9)(c).

2. Implement the corrective action remedy selected under 335-13-15-.06(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 335-13-15-.06(8). The following factors must be considered by an owner or operator in determining whether interim measures are necessary:

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- (i) Time required to develop and implement a final remedy;
 - (ii) Actual or potential exposure of nearby populations or environmental receptors to any of the constituents listed in Appendix IV;
 - (iii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;
 - (iv) Further degradation of the groundwater that may occur if remedial action is not initiated expeditiously;
 - (v) Weather conditions that may cause any of the constituents listed in Appendix IV to migrate or be released;
 - (vi) Potential for exposure to any of the constituents listed in Appendix IV as a result of an accident or failure of a container or handling system; and
 - (vii) Other situations that may pose threats to human health and the environment.
- (b) If an owner or operator of the CCR unit, determines, at any time, that compliance with the requirements of 335-13-15-.06(8)(b) is not being achieved through the remedy selected, the owner or operator must implement other methods or techniques that could feasibly achieve compliance with the requirements.
- (c) Remedies selected pursuant to 335-13-15-.06(8) shall be considered complete when:
- 1. The owner or operator of the CCR unit demonstrates compliance with the groundwater protection standards established under 335-13-15-.06(6)(h) has been achieved at all points within the plume of contamination that lie beyond the groundwater monitoring well system established under 335-13-15-.06(2).
 - 2. Compliance with the groundwater protection standards established under 335-13-15-.06(6)(h) has been achieved by demonstrating that concentrations of constituents listed in Appendix IV have not exceeded the groundwater protection standard(s) for a period of three consecutive years using the statistical procedures and performance standards in 335-13-15-.06(4)(f) and (g).
 - 3. All actions required to complete the remedy have been satisfied.
- (d) All CCR that are managed pursuant to a remedy required under

335-13-15-.06(8), or an interim measure required under 335-13-15-.06(9)(a)3., shall be managed in a manner that complies with all applicable state and/or federal requirements.

(e) Upon completion of the remedy, the owner or operator must notify the Department within 14 days that a certification from a qualified professional engineer attesting that the remedy has been completed in compliance with the requirements of 335-13-15-.06(9)(c) has been placed in the operating record. The certification must be signed by the owner or operator and by a qualified professional engineer and approved by the Department. The report has been completed when it is placed in the operating record as required by 335-13-15-.08(1)(h)13.

(f) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(h), the notification requirements specified in 335-13-15-.08(2)(h), and the internet requirements specified in 335-13-15-.08(3)(h).

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335-13-15-.07 Closure and Post-Closure Care.

(1) Inactive CCR surface impoundments.

(a) 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. An inactive CCR surface impoundment for which the owner or operator has completed the actions by the deadlines specified in 335-13-15-.07(1)(e)1.(i) through (iii) is eligible for the alternative timeframes specified in 335-13-15-.07(1)(e)2. through 6. 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:

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(i) 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 335-13-15-.08(1)(i)1.;

(ii) The owner or operator must have provided notification to the Director by January 19, 2016, of the intent to initiate closure of the inactive CCR surface impoundment pursuant to 335-13-15-.08(2)(i)1; and

(iii) The owner or operator must have placed on its CCR website by January 19, 2016, the notification of intent to initiate closure of the inactive CCR surface impoundment pursuant to 335-13-15-.08(3)(i)1.

2. Location restrictions.

(i) 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 335-13-15-.03(1)(a), (b), (c) and (d)3.;

(II) Complete the demonstration for wetlands as set forth by 335-13-15-.03(2)(a), (b), and (c)3.;

(III) Complete the demonstration for fault areas as set forth by 335-13-15-.03(3)(a), (b), and (c)3.;

(IV) Complete the demonstration for seismic impact zones as set forth by 335-13-15-.03(4)(a), (b), and (c)3.; and

(V) Complete the demonstration for unstable areas as set forth by 335-13-15-.03(5)(a), (b), (c), and (d)3.

(ii) An owner or operator of an inactive CCR surface impoundment who fails to demonstrate compliance with the requirements of 335-13-15-.07(1)(e)2.(i) is subject to the closure requirements of 335-13-.15-.07(2)(b)1.

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

(i) No later than April 17, 2018, complete the documentation of liner type as set forth by 335-13-15-.04(2)(a) and (b).

(ii) No later than June 16, 2017, place on or immediately adjacent to the CCR unit the permanent identification marker as set forth by 335-13-15-.04(4)(a)1.

(iii) No later than October 16, 2018, prepare and maintain an Emergency Action Plan as set forth by 335-13-15-.04(4)(a)3.

(iv) No later than April 17, 2018, compile a history of construction as set forth by 335-13-15-.04(4)(b) and (c).

(v) No later than April 17, 2018, complete the initial hazard potential classification, structural stability, and safety factor assessments as set forth by 335-13-15-.04(4)(a)2., (b), (d), (e), and (f).

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

(i) No later than April 18, 2017, prepare the initial CCR fugitive dust control plan as set forth in 335-13-15-.05(1)(b).

(ii) No later than April 17, 2018, prepare the initial inflow design flood control system plan as set forth in 335-13-15-.05(3)(c).

(iii) No later than April 18, 2017, initiate the inspections by a qualified person as set forth by 335-13-15-.05(4)(a).

(iv) No later than July 19, 2017, complete the initial annual inspection by a qualified professional engineer as set forth by 335-13-15-.05(4)(b).

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

(i) No later than April 17, 2019, comply with groundwater monitoring requirements set forth in 335-13-15-.06(1)(b) and 335-13-15-.06(5)(b); and

(ii) No later than August 1, 2019, prepare the initial groundwater monitoring and corrective action report as set forth in 335-13-15-.06(1)(e).

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

(i) No later than April 17, 2018, prepare an initial written closure plan as set forth in 335-13-15-.07(3)(b); and

(ii) No later than April 17, 2018, prepare an initial written post-closure care plan as set forth in 335-13-15-.07(5)(d).

(2) Closure or retrofit of CCR units.

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(a) The owner or operator of an existing unlined CCR surface impoundment, as determined under 335-13-15-.04(2)(a), is subject to the requirements of 335-13-15-.07(2)(a)1.

1. Except as provided by 335-13-15-.07(2)(a)3., as soon as technically feasible, but not later than April 11, 2021, an owner or operator of an 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 335-13-15-.07(3).

2. An owner or operator of an existing unlined CCR surface impoundment that closes in accordance with 335-13-15-.07(2)(a)1. must include a statement in the notification required under 335-13-15-.07(3)(g) or (l)5. that the CCR surface impoundment is closing or retrofitting under the requirements of 335-13-15-.07(2)(a)1.

3. The timeframe specified in 335-13-15-.07(2)(a)1. does not apply if the owner or operator complies with the alternative closure procedures specified in 335-13-15-.07(4).

4. At any time after the initiation of closure under 335-13-15-.07(2)(a)1., the owner or operator may cease closure activities and initiate a retrofit of the CCR unit in accordance with the requirements of 335-13-15-.07(3)(l).

(b) The owner or operator of an existing CCR surface impoundment is subject to the requirements of 335-13-15-.07(2)(b)1.

1. (i) Location standard under 335-13-15-.03(1). Except as provided by 335-13-15-.07(2)(b)4., the owner or operator of an existing CCR surface impoundment that has not demonstrated compliance with the location standard specified in 335-13-15-.03(1)(a) must cease placing CCR and non-CCR wastestreams into such CCR unit as soon as technically feasible, but no later than April 11, 2021, and close the CCR unit in accordance with the requirements of 335-13-15-.07(3).

(ii) Location standards under 335-13-15-.03(2) through 335-13-15-.03(5). Except as provided by 335-13-15-.07(2)(b)4., within six months of determining that an existing CCR surface impoundment has not demonstrated compliance with any location standard specified in 335-13-15-.03(2)(a), 335-13-15-.03(3)(a), 335-13-15-.03(4)(a), and 335-13-15-.03(5)(a), the owner or operator of the CCR surface impoundment must cease placing CCR and non CCR waste streams into such CCR unit and close the CCR unit in accordance with the requirements of 335-13-15-.07(3).

2. Within six months of either failing to complete the initial or any subsequent periodic safety factor assessment required by 335-13-15-.04(4)(e) by the deadlines specified in 335-13-15-.04(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 335-13-15-.04(4)(e)1.(i) through (iv), the owner or operator of the CCR surface impoundment must cease placing CCR and non CCR waste streams into such CCR unit and close the CCR unit in accordance with the requirements of 335-13-15-.07(3).

3. An owner or operator of an existing CCR surface impoundment that closes in accordance with 335-13-15-.07(2)(b)1. or 2. must include a statement in the notification required under 335-13-15-.07(3)(g) that the CCR surface impoundment is closing under the requirements of 335-13-15-.07(2)(b)1. or 2.

4. The timeframe specified in 335-13-15-.07(2)(b)1. does not apply if the owner or operator complies with the alternative closure procedures specified in 335-13-15-.07(4).

(c) The owner or operator of a new CCR surface impoundment is subject to the requirements of 335-13-15-.07(2)(c)1.

1. Within six months of either failing to complete the initial or any subsequent periodic safety factor assessment required by 335-13-15-.04(5)(e) by the deadlines specified in 335-13-15-.04(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 335-13-15-.04(5)(e)1.(i) through (v), the owner or operator of the CCR surface impoundment must cease placing CCR and non CCR waste streams into such CCR unit and close the CCR unit in accordance with the requirements of 335-13-15-.07(3).

2. An owner or operator of a new CCR surface impoundment that closes in accordance with 335-13-15-.07(2)(c)1. must include a statement in the notification required under 335-13-15-.07(3)(g) that the CCR surface impoundment is closing under the requirements of 335-13-15-.07(2)(c)1.

(d) The owner or operator of an existing CCR landfill is subject to the requirements of 335-13-15-.07(2)(d)1.

1. Except as provided by 335-13-15-.07(2)(d)3., within six months of determining that an existing CCR landfill has not demonstrated compliance with the location restriction for unstable areas specified in 335-13-15-.03(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 335-13-15-.07(3).

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2. An owner or operator of an existing CCR landfill that closes in accordance with 335-13-15-.07(2)(d)1. must include a statement in the notification required under 335-13-15-.07(3)(g) that the CCR landfill is closing under the requirements of 335-13-15-.07(2)(d)1.

3. The timeframe specified in 335-13-15-.07(2)(d)1. does not apply if the owner or operator complies with the alternative closure procedures specified in 335-13-15-.07(4).

(3) Criteria for conducting the closure or retrofit of CCR units.

(a) 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 335-13-15-.07(3)(b) through (j). Retrofit of a CCR surface impoundment must be completed in accordance with the requirements in 335-13-15-.07(3)(l).

(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 owner or operator must submit the closure plan as part of the permit application to the Department. The written closure plan must include, at a minimum, the information specified in 335-13-15-.07(3)(b)1.(i) through (vi).

(i) A narrative description of how the CCR unit will be closed in accordance with this section.

(ii) 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 335-13-15-.07(3)(c).

(iii) 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 335-13-15-.07(3)(d), 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 335-13-15-.07(3)(d).

(iv) An estimate of the maximum inventory of CCR ever on-site over the active life of the CCR unit.

(v) An estimate of the largest area of the CCR unit ever requiring a final

cover as required by 335-13-15-.07(3)(d) at any time during the CCR unit's active life.

(vi) 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 335-13-15-.07(3)(f)1., the written closure plan must include the site-specific information, factors and considerations that would support any time extension sought under 335-13-15-.07(3)(f)2.

2. Timeframes for preparing the initial written closure plan.

(i) 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 335-13-15-.07(3)(b)1.

(ii) 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 335-13-15-.07(3)(b)1.

(iii) The owner or operator has completed the written closure plan when the plan, including the certification required by 335-13-15-.07(3)(b)4., has been placed in the facility's operating record as required by 335-13-15-.08(1)(i)4.

3. Amendment of a written closure plan.

(i) The owner or operator may amend the initial or any subsequent written closure plan developed pursuant to 335-13-15-.07(3)(b)1. at any time.

(ii) 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.

(iii) 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. 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. The closure plan, as well as the certification from a qualified professional engineer, must be submitted to the Department 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 335-13-15-.06(6)(h) for constituents listed in Appendix IV.

(d) Closure performance standard when leaving CCR in place.

1. The owner or operator of a CCR unit must ensure that, at a minimum, the CCR unit is closed in a manner that will:

(i) 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;

(ii) Preclude the probability of future impoundment of water, sediment, or slurry;

(iii) 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;

(iv) Minimize the need for further maintenance of the CCR unit; and

(v) 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 335-13-15-.07(3)(d)2.(i) and (ii) prior to installing the final cover system required under 335-13-15-.07(3)(d)3.

(i) Free liquids must be eliminated by removing liquid wastes or solidifying the remaining wastes and waste residues.

(ii) 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 335-13-15-.07(3)(d)3.(i), or the requirements of the alternative final cover system specified in 335-13-15-.07(3)(d)3.(ii).

(i) The final cover system must be designed and constructed to meet the criteria in 335-13-15-.07(3)(d)3.(i)(I) through (VII). The design of the final cover system must be included in the written closure plan required by 335-13-15-.07(3)(b).

(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 1×10^{-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 minimum final grade of the final cover system shall not be less than 5 percent.

(IV) The maximum final grade of the final cover system shall not exceed 25 percent, or as specified by the Department, to minimize erosion.

(V) Slopes longer than 25 feet shall require horizontal terraces, of sufficient width for equipment operation, for every 20 feet rise in elevation or utilize other erosion control measures approved by the Department.

(VI) 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.

(VII) The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.

(ii) The owner or operator may select an alternative final cover system

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design, provided the alternative final cover system is designed and constructed to meet the criteria in 335-13-15-.07(3)(d)3.(ii)(I) through (III). The design of the final cover system must be included in the written closure plan required by 335-13-15-.07(3)(b).

(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 335-13-15-.07(3)(d)3.(i)(I) and (II).

(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 335-13-15-.07(3)(d)3.(i)(VI).

(III) The disruption of the integrity of the final cover system must be minimized through a design that accommodates settling and subsidence.

(iii) The owner or operator of the CCR unit must obtain and submit to the Department 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 335-13-15-.07(3)(e)4. and 335-13-15-.07(4), the owner or operator of a CCR unit must commence closure of the CCR unit no later than the applicable timeframes specified in either 335-13-15-.07(3)(e)1. or 2.

1. 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:

(i) Receives the known final receipt of waste, either CCR or any non-CCR waste stream; or

(ii) Removes the known final volume of CCR from the CCR unit for the purpose of beneficial use of CCR.

2. (i) Except as provided by 335-13-15-.07(3)(e)2.(ii), 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.

(ii) Notwithstanding 335-13-15-.07(3)(e)2.(i), the owner or operator of the CCR unit may request an additional two years to initiate closure of the idle unit provided the owner or operator provides written documentation to the Department 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 335-13-15-.07(3)(e)2.(ii)(I) and (II). The Department may approve 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 submit each completed demonstration, if more than one time extension is sought, to the Department for approval and place in the facility's operating record as required by 335-13-15-.08(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 335-13-15-.07(3)(e)2.(ii)(II)I. through IV. 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.

(iii) In order to obtain additional time extension(s) to initiate closure of a CCR unit beyond the two years provided by 335-13-15-.07(3)(e)2.(i), the owner or operator of the CCR unit must include with the demonstration required by 335-13-15-.07(3)(e)2.(ii) the following statement signed by the owner or operator or an authorized representative:

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“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. 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:

(i) Taken any steps necessary to implement the written closure plan required by 335-13-15-.07(3)(b);

(ii) 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 closure of a CCR unit.

4. The timeframes specified in 335-13-15-.07(3)(e)1. and 2. do not apply to any of the following owners or operators:

(i) [Reserved]

(ii) An owner or operator of an existing unlined CCR surface impoundment closing the CCR unit as required by 335-13-15-.07(2)(a);

(iii) An owner or operator of an existing CCR surface impoundment closing the CCR unit as required by 335-13-15-.07(2)(b); or

(iv) An owner or operator of a new CCR surface impoundment closing the CCR unit as required by 335-13-15-.07(2)(c); or

(v) An owner or operator of an existing CCR landfill closing the CCR unit as required by 335-13-15-.07(2)(d).

(f) Completion of closure activities.

1. Except as provided for in 335-13-15-.07(3)(f)2., the owner or operator must complete closure of the CCR unit:

(i) For existing and new CCR landfills and any lateral expansion of a CCR landfill, within six months of commencing closure activities.

(ii) For existing and new CCR surface impoundments and any lateral expansion of a CCR surface impoundment, within five years of commencing

closure activities.

2. (i) Extensions of closure timeframes. The timeframes for completing closure of a CCR unit specified under 335-13-15-.07(3)(f)1. may be extended if the owner or operator can demonstrate to the Department 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 335-13-15-.07(3)(b)1., 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 submit each completed demonstration, if more than one time extension is sought, to the Department for approval and place in the facility's operating record as required by 335-13-15-.08(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; or

(III) The geology and terrain surrounding the CCR unit will affect the amount of material needed to close the CCR unit.

(ii) 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.

(iii) In order to obtain additional time extension(s) to complete closure of a CCR unit beyond the times provided by 335-13-15-.07(3)(f)1., the owner or operator of the CCR unit must include with the demonstration required by 335-

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13-15-.07(3)(f)2.(i) 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. 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 335-13-15-.07(3)(b) and the requirements of this section.

(g) 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 335-13-15-.07(3)(d)3.(iii), if applicable. The owner or operator has completed the notification when it has been submitted to the Department and placed in the facility’s operating record as required by 335-13-15-.08(1)(i)7.

(h) 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 335-13-15-.07(3)(f)3. The owner or operator has completed the notification when it has been submitted to the Department and placed in the facility’s operating record as required by 335-13-15-.08(1)(i)8.

(i) Deed notations.

1. Except as provided by 335-13-15-.07(3)(i)4., 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:

(i) The land has been used as a CCR unit; and

(ii) Its use is restricted under the post-closure care requirements as provided by 335-13-15-.07(5)(d)1.(iii).

(iii) The locations and dimensions of the CCR unit with respect to

permanently surveyed benchmarks and section corners shall be on a plat prepared and sealed by a land surveyor.

(iv) Contain a note, prominently displayed, which states the name of the permittee or operating agency, the type of CCR unit and the beginning and closure dates of the disposal activity.

(v) Certification by an engineer that all closure requirements have been completed as determined necessary by the Department.

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 335-13-15-.08(1)(i)9. and documentation of the recording of the notation on the deed has been submitted to the Department.

4. An owner or operator that closes a CCR unit in accordance with 335-13-15-.07(3)(c) is not subject to the requirements of 335-13-15-.07(3)(i)1. through 3.

(j) Following closure, the owner or operator of a CCR unit must provide an environmental covenant to the Department in compliance with 335-5. The owner or operator must place the executed environmental covenant in the facility's operating record as required by 335-13-15-.08(1)(i)10.

(k) The owner or operator of the CCR unit must comply with the closure recordkeeping requirements specified in 335-13-15-.08(1)(i), the closure notification requirements specified in 335-13-15-.08(2)(i), and the closure internet requirements specified in 335-13-15-.08(3)(i).

(l) Criteria to retrofit an existing CCR surface impoundment.

1. To retrofit an existing CCR surface impoundment, the owner or operator must:

(i) First remove all CCR, including any contaminated soils and sediments from the CCR unit; and

(ii) Comply with the requirements in 335-13-15-.04(3).

(iii) 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.

(i) 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.

(ii) Timeframes for preparing the initial written retrofit plan.

(I) No later than 60 days prior to the date of initiating retrofit activities, the owner or operator must prepare an initial written retrofit plan consistent with the requirements specified in 335-13-15-.07(3)(l)2. 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; or

II. 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 335-13-15-.07(3)(l)2.(iv), has been placed in the facility's operating record as required by 335-13-15-.08(1)(j)1.

(iii) 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.

(iv) 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. The retrofit plan, as well as the certification from a qualified professional engineer, must be submitted to the Department for approval.

3. 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 335-13-15-.07(3)(f) or, where applicable, 335-13-15-.07(4).

4. Upon completion, the owner or operator must obtain and submit to the Department a certification from a qualified professional engineer verifying that the retrofit activities have been completed in accordance with the retrofit plan specified in 335-13-15-.07(3)(l)2. and the requirements of this section.

5. 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 335-13-15-.08(1)(j)5.

6. Within 30 days of completing the retrofit activities specified in 335-13-15-.07(3)(l)1., 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 335-13-15-.07(3)(l)4. The owner or operator has completed the notification when it has been placed in the facility's operating record as required by 335-13-15-.08(1)(j)6.

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7. 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 335-13-15-.07(3).

8. The owner or operator of the CCR unit must comply with the retrofit recordkeeping requirements specified in 335-13-15-.08(1)(j), the retrofit notification requirements specified in 335-13-15-.08(2)(j), and the retrofit internet requirements specified in 335-13-15-.08(3)(j).

(4) Alternative closure requirements. 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 335-13-15-.07(2)(a), (b)1., or (d) may nevertheless continue to receive the wastes specified in either 335-13-15-.07(4)(a), (b), (f)1., or (f)2. in the unit, provided the owner or operator meets all the requirements in the respective paragraph.

(a) CCR Landfills

1. No alternative CCR disposal capacity. Notwithstanding the provisions of 335-13-15-.07(2)(d), a CCR landfill may continue to receive CCR if the owner or operator of the CCR landfill certifies that the CCR must continue to be managed in that CCR landfill due to the absence of alternative disposal capacity both on-site and off-site of the facility. To qualify under this paragraph, the owner or operator of the CCR landfill must submit a plan to the Department for approval which demonstrates that all of the following conditions have been met:

(i) 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;

(ii) The owner or operator has made, and continues to make, efforts to obtain additional capacity. Qualification under 335-13-15-.07(4)(a) 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;

(iii) 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

(iv) The owner or operator must prepare and submit to the Department the annual progress report specified in 335-13-15-.07(4)(c) 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 landfill must cease receiving CCR and initiate closure following the timeframes in 335-13-15-.07(3)(e).

3. If no alternative capacity is identified within five years after the initial certification, the CCR landfill must cease receiving CCR and close in accordance with the timeframes in 335-13-15-.07(3)(e) and (f).

(b) CCR Landfills.

1. Permanent cessation of a coal-fired boiler(s) by a certain date. Notwithstanding the provisions of 335-13-15-.07(2)(d), a CCR landfill 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 335-13-15-.07(4)(b)4., but in the interim period (prior to closure of the coal-fired boiler), the facility must continue to use the CCR landfill due to the absence of alternative disposal capacity both on-site and off-site of the facility. To qualify under this paragraph, the owner or operator of the CCR landfill must submit a plan to the Department for approval which demonstrates that all of the following conditions have been met:

(i) 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.

(ii) 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

(iii) The owner or operator must prepare and submit to the Department the annual progress report specified in 335-13-15-.07(4)(c) documenting the continued lack of alternative capacity and the progress towards the closure of the coal-fired boiler.

2. [Reserved]

3. [Reserved]

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 for CCR Landfills. An owner or operator of a CCR landfill that closes in accordance with 335-13-15-.07(4)(a) or (b) must complete the notices and progress reports specified in 335-13-15-.07(4)(c)1. through 3.

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1. Within six months of becoming subject to closure pursuant to 335-13-15-.07(2)(d), the owner or operator must prepare, submit to the Department for approval and place in the facility's operating record a request to comply with the alternative closure requirements of this section. The request must describe why the CCR unit qualifies for the alternative closure provisions under either 335-13-15-.07(4)(a) or (b), in addition to providing the documentation and certifications required by 335-13-15-.07(4)(a) or (b).

2. The owner or operator must prepare the periodic progress reports required by 335-13-15-.07(4)(a)1.(iv), or (b)1.(iii) , 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:

(i) The first annual progress report must be prepared no later than 13 months after completing the request to comply with the alternative closure requirements required by 335-13-15-.07(4)(c)1.

(ii) The second annual progress report must be prepared no later than 12 months after completing the first annual progress report. Subsequent annual progress reports must be prepared within 12 months of completing the previous annual progress report.

(iii) The owner or operator has completed the progress reports specified in 335-13-15-.07(4)(c)2. when the reports are submitted to the Department and placed in the facility's operating record as required by 335-13-15-.08(1)(i)12.

3. An owner or operator of a CCR landfill must also prepare the notification of intent to close a CCR unit as required by 335-13-15-.07(3)(g).

(d) CCR landfill recordkeeping. The owner or operator of the CCR landfill must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(i), the notification requirements specified in 335-13-15-.08(2)(i), and the internet requirements specified in 335-13-15-.08(3)(i).

(e) [Reserved]

(f) Site-specific alternative deadlines to initiate closure of CCR surface impoundments. Notwithstanding the provisions of 335-13-15-.07(2)(a) and (b)1., a CCR surface impoundment may continue to receive the waste specified in 335-13-15-.07(4)(f)1. or (f)2., provided the owner or operator submits a demonstration that the criteria in either 335-13-15-.07(4)(f)1. or (f)2. have been met. The demonstration must be submitted to the Director for approval no later than the relevant deadline in 335-13-15-.07(4)(f)3. The Director will act on the submission in accordance with the procedures in 335-13-15-.07(4)(f)3.

1. Development of alternative capacity is technically infeasible. Notwithstanding the provisions of 335-13-15-.07(2)(a) and (b)1., a CCR surface impoundment may continue to receive the waste specified in 335-13-15-.07(4)(f)1.(ii)(I) or (II), provided the owner or operator demonstrates the wastestream(s) must continue to be managed in that CCR surface impoundment because it was technically infeasible to complete the measures necessary to provide alternative disposal capacity on or off-site of the facility by April 11, 2021. To obtain approval under 335-13-15-.07(4)(f)1., all of the following criteria must be met:

(i) No alternative disposal capacity is available on or off-site. An increase in costs or the inconvenience of existing capacity is not sufficient to support qualification under this section;

(ii) (I) For units closing pursuant to 335-13-15-.07(2)(a) and (b)1.(i), CCR and/or non-CCR wastestreams must continue to be managed in that CCR surface impoundment because it was technically infeasible to complete the measures necessary to obtain alternative disposal capacity either on or off-site of the facility by April 11, 2021.

(II) For units closing pursuant to 335-13-15-.07(2)(b)1.(ii), CCR must continue to be managed in that CCR surface impoundment because it was technically infeasible to complete the measures necessary to obtain alternative disposal capacity either on or off-site of the facility by April 11, 2021.

(iii) The facility is in compliance with all of the requirements of this chapter.

(iv) The owner or operator of the CCR surface impoundment must submit documentation that the criteria in 335-13-15-.07(4)(f)1.(i) through (iii) have been met by submitting to the Director all of the following:

(I) To demonstrate that the criteria in 335-13-15-.07(4)(f)1.(i) and (ii) have been met the owner or operator must submit a workplan that contains all of the following elements:

I. A written narrative discussing the options considered both on and off-site to obtain alternative capacity for each CCR and/or non-CCR wastestreams, the technical infeasibility of obtaining alternative capacity prior to April 11, 2021, and the option selected and justification for the alternative capacity selected. The narrative must also include all of the following:

A. An in-depth analysis of the site and any site-specific conditions that led to the decision to select the alternative capacity being developed;

B. An analysis of the adverse impact to plant operations if the CCR surface impoundment in question were to no longer be available for use; and

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C. A detailed explanation and justification for the amount of time being requested and how it is the fastest technically feasible time to complete the development of the alternative capacity;

II. A detailed schedule of the fastest technically feasible time to complete the measures necessary for alternative capacity to be available including a visual timeline representation. The visual timeline must clearly show all of the following:

A. How each phase and the steps within that phase interact with or are dependent on each other and the other phases;

B. All of the steps and phases that can be completed concurrently;

C. The total time needed to obtain the alternative capacity and how long each phase and step within each phase will take; and

D. At a minimum, the following phases: engineering and design, contractor selection, equipment fabrication and delivery, construction, and start up and implementation;

III. A narrative discussion of the schedule and visual timeline representation, which must discuss all of the following:

A. Why the length of time for each phase and step is needed and a discussion of the tasks that occur during the specific step;

B. Why each phase and step shown on the chart must happen in the order it is occurring;

C. The tasks that occur during each of the steps within the phase; and

D. Anticipated worker schedules; and

IV. A narrative discussion of the progress the owner or operator has made to obtain alternative capacity for the CCR and/or non-CCR wastestreams. The narrative must discuss all the steps taken, starting from when the owner or operator initiated the design phase up to the steps occurring when the demonstration is being compiled. It must discuss where the facility currently is on the timeline and the efforts that are currently being undertaken to develop alternative capacity.

(II) To demonstrate that the criteria in 335-13-15-.07(4)(f)1.(iii) have been met, the owner or operator must submit all of the following:

I. A certification signed by the owner or operator that the facility is in compliance with all of the requirements of this chapter;

II. Visual representation of hydrogeologic information at and around the CCR unit(s) that supports the design, construction and installation of the groundwater monitoring system. This includes all of the following:

A. Map(s) of groundwater monitoring well locations in relation to the CCR unit(s);

B. Well construction diagrams and drilling logs for all groundwater monitoring wells; and

C. Maps that characterize the direction of groundwater flow accounting for seasonal variations;

III. Constituent concentrations, summarized in table form, at each groundwater monitoring well monitored during each sampling event;

IV. A description of site hydrogeology including stratigraphic cross-sections;

V. Any corrective measures assessment conducted as required by 335-13-15-.06(7);

VI. Any progress reports on corrective action remedy selection and design and the report of final remedy selection required at 335-13-15-.06(8)(a);

VII. The most recent structural stability assessment required by 335-13-15-.04(4)(d); and

VIII. The most recent safety factor assessment required by 335-13-15-.04(4)(e).

(v) As soon as alternative capacity for any CCR or non-CCR wastestream is available, the CCR surface impoundment must cease receiving that CCR or non-CCR wastestream. Once the CCR surface impoundment ceases receipt of all CCR and/or non-CCR wastestreams, the CCR surface impoundment must initiate closure following the timeframes in 335-13-15-.07(3)(e) and (f).

(vi) Maximum time frames. All CCR surface impoundments covered by 335-13-15-.07(4)(f)1. must cease receiving waste by the deadlines specified in 335-13-15-.07(4)(f)1.(vi)(I) and (II) and close in accordance with the timeframes in 335-13-15-.07(3)(e) and (f).

(I) Except as provided by 335-13-15-.07(4)(f)1.(vi)(II), no later than October 15, 2023.

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(II) An eligible unlined CCR surface impoundment must cease receiving CCR and/or non-CCR wastestreams no later than October 15, 2024. In order to continue to operate until October 15, 2024, the owner or operator must include in their demonstration to the Department as required by 335-13-15-.07(4)(f), documentation that the unit meets the definition of an eligible unlined CCR surface impoundment.

(vii) An owner or operator may seek additional time beyond the time granted in the initial approval by making the showing in 335-13-15-.07(4)(f)1.(i) through (iv), provided that no facility may be granted time to operate the impoundment beyond the maximum allowable time frames provided in 335-13-15-.07(4)(f)1.(vi).

(viii) The owner or operator at all times bears responsibility for demonstrating to the Department qualification under this section. Failure to remain in compliance with any of the requirements of this chapter will result in the automatic loss of authorization under this section.

(ix) The owner or operator must:

(I) Upon submission of the demonstration to the Director, prepare and place in the facility's operating record a notification that the demonstration has been submitted, along with a copy of the demonstration. An owner or operator that claims confidential business information in the demonstration may post a redacted version of the demonstration to its publicly accessible CCR internet site provided that it contains sufficient detail so that the public can meaningfully comment on the demonstration. Information submitted to the Department may be considered confidential in accordance with the requirements of rule 335-1-1-.06(2), if requested by the facility in writing.

(II) Upon receipt of a decision pursuant to 335-13-15-.07(4)(f)3., must prepare and place in the facility's operating record a copy of the decision.

(III) If an extension of an approved deadline pursuant to 335-13-15-.07(4)(f)1.(vii) has been requested, place a copy of the request submitted to the Director in the facility's operating record.

(x) The owner or operator must prepare semi-annual progress reports. The semi-annual progress reports must contain all of the following elements:

(I) Discussion of the progress made to date in obtaining alternative capacity, including:

I. Discussion of the current stage of obtaining the capacity in reference to the timeline required under 335-13-15-.07(4)(f)1.(iv)(I);

II. Discussion of whether the owner or operator is on schedule for obtaining alternative capacity;

III. If the owner or operator is not on or ahead of schedule for obtaining alternative capacity, the following must be included:

A. Discussion of any problems encountered, and a description of the actions taken or planned to resolve the problems and get back on schedule; and

B. Discussion of the goals for the next six months and major milestones to be achieved for obtaining alternative capacity; and

(II) Discussion of any planned operational changes at the facility.

(xi) The progress reports must be completed according to the following schedule:

(I) The semi-annual progress reports must be prepared no later than April 30 and October 31 of each year for the duration of the alternative cease receipt of waste deadline.

(II) The first semi-annual progress report must be prepared by whichever date, April 30 or October 31, is soonest after receiving approval from the Director; and

(III) The owner or operator has completed the progress reports specified in 335-13-15-.07(4)(f)1.(x) when the reports have been placed in the facility's operating record as required by 335-13-15-.08(1)(i)18.

(xii) The owner or operator must prepare the notification of intent to close a CCR surface impoundment as required by 335-13-15-.07(3)(g).

(xiii) The owner or operator must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(i), the notification requirements specified in 335-13-15-.08(2)(i), and the internet posting requirements specified in 335-13-15-.08(3)(i).

2. Permanent cessation of a coal-fired boiler(s) by a date certain. Notwithstanding the provisions of 335-13-15-.07(2)(a) and (b)1., a CCR surface impoundment may continue to receive CCR and/or non-CCR wastestreams if the facility will cease operation of the coal-fired boiler(s) and complete closure of the impoundment within the timeframes specified in 335-13-15-.07(4)(f)2.(iv), but in the interim period (prior to closure of the coal-fired boiler), the facility must continue to use the CCR surface impoundment due to the absence of alternative disposal capacity both on and off-site of the facility. To qualify under 335-13-15-.07(4)(f)2., all of the following criteria must be met:

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(i) No alternative disposal capacity is available on or off-site. An increase in costs or the inconvenience of existing capacity is not sufficient to support qualification under this section.

(ii) Potential risks to human health and the environment from the continued operation of the CCR surface impoundment have been adequately mitigated;

(iii) The facility is in compliance with all other requirements of this chapter, including the requirement to conduct any necessary corrective action; and

(iv) The coal-fired boilers must cease operation and closure of the impoundment must be completed within the following timeframes:

(I) For a CCR surface impoundment that is 40 acres or smaller, the coal-fired boiler(s) must cease operation and the CCR surface impoundment must complete closure no later than October 17, 2023.

(II) For a CCR surface impoundment that is larger than 40 acres, the coal-fired boiler(s) must cease operation, and the CCR surface impoundment must complete closure no later than October 17, 2028.

(v) The owner or operator of the CCR surface impoundment must submit to the Department the following documentation that the criteria in 335-13-15-.07(4)(f)2.(i) through (iv) have been met, as specified in 335-13-15-.07(4)(f)2.(v)(I) through (IV).

(I) To demonstrate that the criteria in 335-13-15-.07(4)(f)2.(i) have been met the owner or operator must submit a narrative that explains the options considered to obtain alternative capacity for CCR and/or non-CCR wastestreams both on and off-site.

(II) To demonstrate that the criteria in 335-13-15-.07(4)(f)2.(ii) have been met, the owner or operator must submit a risk mitigation plan describing the measures that will be taken to expedite any required corrective action, and that contains all of the following elements:

I. A discussion of any physical or chemical measures a facility can take to limit any future releases to groundwater during operation.

II. A discussion of the surface impoundment's groundwater monitoring data and any found exceedances; the delineation of the plume (if necessary based on the groundwater monitoring data); identification of any nearby receptors that might be exposed to current or future groundwater contamination; and how such exposures could be promptly mitigated.

III. A plan to expedite and maintain the containment of any contaminant plume that is either present or identified during continued operation of the unit.

(III) To demonstrate that the criteria in 335-13-15-.07(4)(f)2.(iii) have been met, the owner or operator must submit all of the following:

I. A certification signed by the owner or operator that the facility is in compliance with all of the requirements of this chapter;

II. Visual representation of hydrogeologic information at and around the CCR unit(s) that supports the design, construction and installation of the groundwater monitoring system. This includes all of the following:

A. Map(s) of groundwater monitoring well locations in relation to the CCR unit;

B. Well construction diagrams and drilling logs for all groundwater monitoring wells; and

C. Maps that characterize the direction of groundwater flow accounting for seasonal variations;

III. Constituent concentrations, summarized in table form, at each groundwater monitoring well monitored during each sampling event;

IV. Description of site hydrogeology including stratigraphic cross-sections;

V. Any corrective measures assessment required by 335-13-15-.06(7);

VI. Any progress reports on remedy selection and design and the report of final remedy selection required by 335-13-15-.06(8);

VII. The most recent structural stability assessment required by 335-13-15-.04(4)(d); and

VIII. The most recent safety factor assessment required by 335-13-15-.04(4)(e).

(IV) To demonstrate that the criteria in 335-13-15-.07(4)(f)2.(iv) have been met, the owner or operator must submit the closure plan required by 335-13-15-.07(3)(b) and a narrative that specifies and justifies the date by which they intend to cease receipt of waste into the unit in order to meet the closure deadlines.

(vi) The owner or operator at all times bears responsibility for demonstrating to the Department qualification for authorization under this section.

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Failure to remain in compliance with any of the requirements of this chapter will result in the automatic loss of authorization under this section.

(vii) The owner or operator must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(i), the notification requirements specified in 335-13-15-.08(2)(i) and the internet posting requirements specified in 335-13-15-.08(3)(i).

(viii) Upon submission of the demonstration to the Director, the owner or operator must prepare and place in the facility's operating record and on its publicly accessible CCR internet site a notification that the demonstration has been submitted, along with a copy of the demonstration.

(ix) Upon receipt of a decision pursuant to 335-13-15-.07(4)(f)3., the owner or operator must place a copy of the decision in the facility's operating record and on the facility's publicly accessible CCR internet site.

(x) 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 CCR surface impoundment. The owner or operator has completed the progress report when the report has been submitted to the Department and placed in the facility's operating record as required by 335-13-15-.08(1)(i)(21).

3. Process to Obtain Authorization.

(i) Deadlines for Submission.

(I) The owner or operator must submit the demonstration required under 335-13-15-.07(4)(f)1.(iv), for an alternative cease receipt of waste deadline for a CCR surface impoundment pursuant to 335-13-15-.07(4)(f)1., to the Director for approval no later than November 30, 2020.

(II) An owner or operator may seek additional time beyond the time granted in the initial approval, in accordance with 335-13-15-.07(4)(f)1.(vii), by submitting a new demonstration, as required under 335-13-15-.07(4)(f)1.(iv), to the Director for approval, no later than fourteen days from determining that the cease receipt of waste deadline will not be met.

(III) The owner or operator must submit the demonstration required under 335-13-15-.07(4)(f)2.(v) to the Director for approval no later than November 30, 2020.

(ii) The Department will evaluate the demonstration and may request additional information to complete its review. Submission of a complete demonstration will toll the facility's deadline to cease receipt of waste until issuance of a decision under 335-13-15-.07(4)(f)3.(iv). Incomplete submissions will not toll the facility's deadline and will be denied. The owner or operator will be notified in writing if the request is denied, and informed of the reasons for the denial and the appeal

procedures as provided in chapter 335-2-1 of the ADEM Administrative Code. All decisions issued under 335-13-15-.07(4)(f)3.(ii) or (iv) will contain the facility's deadline to cease receipt of waste.

(iii) The Department shall provide notice and an opportunity for public comment on its proposed decision on a complete demonstration. The public comment period will close 30 days after the notice is published in a newspaper of general circulation in the area where the CCR unit is located.

(iv) After consideration of the comments, the Department will issue its decision on the alternative compliance deadline within a reasonable timeframe.

4. Transferring between site-specific alternatives. An owner or operator authorized to continue operating a CCR surface impoundment under this section may at any time request authorization to continue operating the impoundment pursuant to another paragraph of 335-13-15-.07(4)(f), by submitting the information in 335-13-15-.07(4)(f)4.(i) or (ii).

(i) Transfer from 335-13-15-.07(4)(f)1. to 335-13-15-.07(4)(f)2. The owner or operator of a surface impoundment authorized to operate pursuant to 335-13-15-.07(4)(f)1. may request authorization to instead operate the surface impoundment in accordance with the requirements of 335-13-15-.07(4)(f)2., by submitting a new demonstration that meets the requirements of 335-13-15-.07(4)(f)2.(v) to the Director. The Department may approve the request only upon determining that the criteria in 335-13-15-.07(4)(f)2.(i) through (iv) have been met.

(ii) Transfer from 335-13-15-.07(4)(f)2. to 335-13-15-.07(4)(f)1. The owner or operator of a surface impoundment authorized to operate pursuant to 335-13-15-.07(4)(f)2. may request authorization to instead operate the surface impoundment in accordance with the requirements of 335-13-15-.07(4)(f)1., by submitting a new demonstration that meets the requirements of 335-13-15-.07(4)(f)1.(iv) to the Director. The Department may approve the request only upon determining that the criteria at 335-13-15-.07(4)(f)1.(i) through (iii) and (vi) have been met.

(iii) The procedures in 335-13-15-.07(4)(f)3. will apply to all requests for transfer under 335-13-15-.07(4)(f)4.

(5) Post-closure care requirements.

(a) Applicability.

1. Except as provided by 335-13-15-.07(5)(a)2., this section applies to owners or operators of CCR landfills, CCR surface impoundments, and all lateral expansions of CCR units that are subject to the closure criteria under 335-13-15-.07(3).

2. An owner or operator of a CCR unit that elects to close a CCR unit

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by removing CCR as provided by 335-13-15-.07(3)(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 335-13-15-.04(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 335-13-15-.04(1); and

3. Maintaining the groundwater monitoring system and monitoring the groundwater in accordance with the requirements of 335-13-15-.06(1) through 335-13-15-.06(9).

(c) Post-closure care period.

1. Except as provided by 335-13-15-.07(5)(c)2., 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 335-13-15-.06(6), the owner or operator must continue to conduct post-closure care until the owner or operator returns to detection monitoring in accordance with 335-13-15-.06(6)(e).

(d) Written post-closure plan.

1. Content of the plan. The owner or operator of a CCR unit must prepare and submit to the Department as part of the permit application a written post-closure plan that includes, at a minimum, the information specified in 335-13-15-.07(5)(d)1.(i) through (iii).

(i) A description of the monitoring and maintenance activities required in 335-13-15-.07(5)(b) for the CCR unit, and the frequency at which these activities will be performed;

(ii) 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

(iii) 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 may be approved by the Department 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, submitted to the Department for approval and 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.

(i) 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 335-13-15-.07(5)(d)1.

(ii) 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 335-13-15-.07(5)(d)1.

(iii) The owner or operator has completed the written post-closure plan when the plan, including the certification required by 335-13-15-.07(5)(d)4., has been placed in the facility's operating record as required by 335-13-15-.08(1)(i)13.

3. Amendment of a written post-closure plan.

(i) The owner or operator may amend the initial or any subsequent written post-closure plan developed pursuant to 335-13-15-.07(5)(d)1. at any time.

(ii) 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.

(iii) 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. 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. The post-closure plan, as well as the certification from a qualified professional engineer, must be submitted to the Department 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. 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 335-13-15-.07(5)(d) and the requirements of this section. The owner or operator has completed the notification when it has been submitted to the Department and placed in the facility's operating record as required by 335-13-15-.08(1)(i)14.

(f) The owner or operator of the CCR unit must comply with the recordkeeping requirements specified in 335-13-15-.08(1)(i), the notification requirements specified in 335-13-15-.08(2)(i), and the internet requirements specified in 335-13-15-.08(3)(i).

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335-13-15-.08 Recordkeeping, Notification, and Posting of Information to the Internet.

(1) Recordkeeping requirements.

(a) 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) 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) 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) The owner or operator of a CCR unit must submit to the Department any demonstration or documentation that is required by this chapter, or any other demonstration or documentation, if requested.

(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 335-13-15-.03(1)(a), 335-13-15-.03(2)(a), 335-13-15-.03(3)(a), 335-13-15-.03(4)(a), and 335-13-15-.03(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 335-13-15-.04(1)(f) and (g).
2. The documentation of liner type as required by 335-13-15-.04(2)(a).
3. The design and construction certifications as required by 335-13-15-.04(3)(c) and (d).
4. Documentation prepared by the owner or operator stating that the permanent identification marker was installed as required by 335-13-15-.04(4)(a)1. and 335-13-15-.04(5)(a)1.
5. The initial and periodic hazard potential classification assessments as required by 335-13-15-.04(4)(a)2. and 335-13-15-.04(5)(a)2.
6. The emergency action plan (EAP), and any amendment of the EAP, as required by 335-13-15-.04(4)(a)3. and 335-13-15-.04(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 335-13-15-.08(1)(b).

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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 335-13-15-.04(4)(a)3.(i)(V) and 335-13-15-.04(5)(a)3.(i)(V).

8. Documentation prepared by the owner or operator recording all activations of the Emergency Action Plan (EAP) as required by 335-13-15-.04(4)(a)3.(v) and 335-13-15-.04(5)(a)3.(v).

9. The history of construction, and any revisions of it, as required by 335-13-15-.04(4)(c), except that these files must be maintained until the CCR unit completes closure of the unit in accordance with 335-13-15-.07(3).

10. The initial and periodic structural stability assessments as required by 335-13-15-.04(4)(d) and 335-13-15-.04(5)(d).

11. Documentation detailing the corrective measures taken to remedy the deficiency or release as required by 335-13-15-.04(4)(d)2. and 335-13-15-.04(5)(d)2.

12. The initial and periodic safety factor assessments as required by 335-13-15-.04(4)(e) and 335-13-15-.04(5)(e).

13. The design and construction plans, and any revisions of it, as required by 335-13-15-.04(5)(c), except that these files must be maintained until the CCR unit completes closure of the unit in accordance with 335-13-15-.07(3).

(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 335-13-15-.05(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 335-13-15-.08(1)(b).

2. The annual CCR fugitive dust control report required by 335-13-15-.05(1)(c).

3. The initial and periodic run-on and run-off control system plans as required by 335-13-15-.05(2)(c).

4. The initial and periodic inflow design flood control system plan as required by 335-13-15-.05(3)(c).

5. Documentation recording the results of each inspection and instrumentation monitoring by a qualified person as required by 335-13-15-.05(4)(a).

6. The periodic inspection report as required by 335-13-15-.05(4)(b)2.

7. Documentation detailing the corrective measures taken to remedy the deficiency or release as required by 335-13-15-.05(4)(b)5. and 335-13-15-.05(5)(b)5.

8. Documentation recording the results of the weekly inspection by a qualified person as required by 335-13-15-.05(5)(a)1.(ii).

9. The periodic inspection report as required by 335-13-15-.05(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 335-13-15-.06(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 335-13-15-.06(2)(e)4.

3. The groundwater monitoring system certification as required by 335-13-15-.06(2)(f).

4. The selection of a statistical method certification as required by 335-13-15-.06(4)(f)6.

5. Within 30 days of establishing an assessment monitoring program, the notification as required by 335-13-15-.06(5)(e)3.

6. The results of Appendices III and IV constituent concentrations as required by 335-13-15-.06(6)(d)2.

7. Within 30 days of returning to a detection monitoring program, the notification as required by 335-13-15-.06(6)(e).

8. Within 30 days of detecting one or more constituents in Appendix IV at statistically significant levels above the groundwater protection standard, the notifications as required by 335-13-15-.06(6)(g).

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9. Within 30 days of initiating the assessment of corrective measures requirements, the notification as required by 335-13-15-.06(6)(g)6.

10. The completed assessment of corrective measures as required by 335-13-15-.06(7)(d).

11. Documentation prepared by the owner or operator recording the public meeting for the corrective measures assessment as required by 335-13-15-.06(7)(e).

12. The semiannual report describing the progress in selecting and designing the remedy and the selection of remedy report as required by 335-13-15-.06(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 335-13-15-.06(9)(e).

14. The semi-annual groundwater monitoring report as required by 335-13-15-.06(1)(f).

(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 335-13-15-.07(1)(e)1.(i).

2. [Reserved]

3. [Reserved]

4. The written closure plan, and any amendment of the plan, as required by 335-13-15-.07(3)(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 335-13-15-.08(1)(b).

5. The written demonstration(s), including the certification required by 335-13-15-.07(3)(e)2.(iii), for a time extension for initiating closure as required by 335-13-15-.07(3)(e)2.(ii).

6. The written demonstration(s), including the certification required by 335-13-15-.07(3)(f)2.(iii), for a time extension for completing closure as required by 335-13-15-.07(3)(f)2.(i).

7. The notification of intent to close a CCR unit as required by 335-13-15-.07(3)(g).

8. The notification of completion of closure of a CCR unit as required by 335-13-15-.07(3)(h).

9. The notification recording a notation on the deed as required by 335-13-15-.07(3)(i).

10. The notification recording an environmental covenant as required by 335-13-15-.07(3)(j).

11. The notification of intent to comply with the alternative closure requirements as required by 335-13-15-.07(4)(c)1.

12. The annual progress reports under the alternative closure requirements as required by 335-13-15-.07(4)(c)2.

13. The written post-closure plan, and any amendment of the plan, as required by 335-13-15-.07(5)(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 335-13-15-.08(1)(b).

14. The notification of completion of post-closure care period as required by 335-13-15-.07(5)(e).

15. The notification of intent to comply with the site-specific alternative to initiation of closure due to the development of alternative capacity being technically infeasible as required by 335-13-15-.07(4)(f)1.(ix)(I).

16. The approved or denied demonstration for the site-specific alternative to initiation of closure due to the development of alternative capacity being technically infeasible as required by 335-13-15-.07(4)(f)1.(ix)(II).

17. The notification for requesting additional time to the alternative cease receipt of waste deadline as required by 335-13-15-.07(4)(f)1.(ix)(III).

18. The semi-annual progress reports for the site-specific alternative to initiation of closure due to the development of alternative capacity being technically infeasible as required by 335-13-15-.07(4)(f)1.(xi).

19. The notification of intent to comply with the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as required by 335-13-15-.07(4)(f)2.(viii).

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20. The approved or denied demonstration for the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as required by 335-13-15-.07(4)(f)2.(ix).

21. The annual progress report for the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as required by 335-13-15-.07(4)(f)2.(x).

(j) 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 335-13-15-.07(3)(l)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 335-13-15-.08(1)(b).

2. The notification of intent that the retrofit activities will proceed in accordance with the alternative procedures in 335-13-15-.07(4).

3. The annual progress reports required under the alternative requirements as required by 335-13-15-.07(4).

4. The written demonstration(s), including the certification in 335-13-15-.07(3)(f)2.(iii), for a time extension for completing retrofit activities as required by 335-13-15-.07(3)(l)3.

5. The notification of intent to initiate retrofit of a CCR unit as required by 335-13-15-.07(3)(l)5.

6. The notification of completion of retrofit activities as required by 335-13-15-.07(3)(l)6.

(2) Notification requirements.

(a) The notifications required under 335-13-15-.08(2)(e) through (i) must be sent to the Director 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 state holiday, the notification deadline is automatically extended to the next business day.

(b) If any CCR unit is located in its entirety within Indian Country, the notifications of this section must be sent to the appropriate Tribal authority. If any CCR unit is located in part within Indian Country, the notifications of this

section must be sent both to the Director and Tribal authority.

(c) Notifications may be combined as long as the deadline requirement for each notification is met.

(d) Unless otherwise required in this section, the notifications specified in this section must be sent to the Director within 30 days of placing in the operating record the information required by 335-13-15-.08(1).

(e) Location restrictions. The owner or operator of a CCR unit subject to the requirements of this chapter must notify the Director that each demonstration specified under 335-13-15-.08(1)(e) has been placed in the operating record and on the owner or operator's publicly accessible internet site.

(f) Design criteria. The owner or operator of a CCR unit subject to this chapter must notify the Director 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 335-13-15-.08(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 Director 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 335-13-15-.08(1)(f)1. or 3.

3. Provide notification of the availability of the documentation of liner type specified under 335-13-15-.08(1)(f)2.

4. Provide notification of the availability of the initial and periodic hazard potential classification assessments specified under 335-13-15-.08(1)(f)5.

5. Provide notification of the availability of Emergency Action Plan (EAP), and any revisions of the EAP, specified under 335-13-15-.08(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 335-13-15-.08(1)(f)7.

7. Provide notification of documentation prepared by the owner or operator recording all activations of the Emergency Action Plan (EAP) specified under 335-13-15-.08(1)(f)8.

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8. Provide notification of the availability of the history of construction, and any revision of it, specified under 335-13-15-.08(1)(f)9.

9. Provide notification of the availability of the initial and periodic structural stability assessments specified under 335-13-15-.08(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 335-13-15-.08(1)(f)11.

11. Provide notification of the availability of the initial and periodic safety factor assessments specified under 335-13-15-.08(1)(f)12.

12. Provide notification of the availability of the design and construction plans, and any revision of them, specified under 335-13-15-.08(1)(f)13.

(g) Operating criteria. The owner or operator of a CCR unit subject to this chapter must notify the Director when information has been placed in the operating record. 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 335-13-15-.08(1)(g)1.

2. Provide notification of the availability of the annual CCR fugitive dust control report specified under 335-13-15-.08(1)(g)2.

3. Provide notification of the availability of the initial and periodic run-on and run-off control system plans specified under 335-13-15-.08(1)(g)3.

4. Provide notification of the availability of the initial and periodic inflow design flood control system plans specified under 335-13-15-.08(1)(g)4.

5. Provide notification of the availability of the periodic inspection reports specified under 335-13-15-.08(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 335-13-15-.08(1)(g)7.

7. Provide notification of the availability of the periodic inspection reports specified under 335-13-15-.08(1)(g)9.

(h) Groundwater monitoring and corrective action. The owner or operator of a CCR unit subject to this chapter must notify the Director 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 335-13-15-.08(1)(h)1.
2. Provide notification of the availability of the groundwater monitoring system certification specified under 335-13-15-.08(1)(h)3.
3. Provide notification of the availability of the selection of a statistical method certification specified under 335-13-15-.08(1)(h)4.
4. Provide notification that an assessment monitoring program has been established as specified under 335-13-15-.08(1)(h)5.
5. Provide notification that the CCR unit is returning to a detection monitoring program as specified under 335-13-15-.08(1)(h)7.
6. Provide notification that one or more constituents in Appendix IV have been detected at statistically significant levels above the groundwater protection standard and the notifications to land owners as specified under 335-13-15-.08(1)(h)8.
7. Provide notification that an assessment of corrective measures has been initiated as specified under 335-13-15-.08(1)(h)9.
8. Provide notification of the availability of assessment of corrective measures as specified under 335-13-15-.08(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 335-13-15-.08(1)(h)12.
10. Provide notification of the completion of the remedy specified under 335-13-15-.08(1)(h)13.

(i) Closure and post-closure care. The owner or operator of a CCR unit subject to this chapter must notify the Director 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 335-13-15-.08(1)(i)1.
2. [Reserved]
3. [Reserved]

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4. Provide notification of the availability of the written closure plan, and any amendment of the plan, specified under 335-13-15-.08(1)(i)4.

5. Provide notification of the availability of the demonstration(s) for a time extension for initiating closure specified under 335-13-15-.08(1)(i)5.

6. Provide notification of the availability of the demonstration(s) for a time extension for completing closure specified under 335-13-15-.08(1)(i)6.

7. Provide notification of intent to close a CCR unit specified under 335-13-15-.08(1)(i)7.

8. Provide notification of completion of closure of a CCR unit specified under 335-13-15-.08(1)(i)8.

9. Provide notification of the deed notation as required by 335-13-15-.08(1)(i)9.

10. Provide notification of the environmental covenant as required by 335-13-15-.08(1)(i)10.

11. Provide notification of intent to comply with the alternative closure requirements specified under 335-13-15-.08(1)(i)11.

12. The annual progress reports under the alternative closure requirements as required by 335-13-15-.08(1)(i)12.

13. Provide notification of the availability of the written post-closure plan, and any amendment of the plan, specified under 335-13-15-.08(1)(i)13.

14. Provide notification of completion of post-closure care as specified under 335-13-15-.08(1)(i)14.

15. Provide the notification of intent to comply with the site-specific alternative to initiation of closure due to the development of alternative capacity being technically infeasible as specified under 335-13-15-.08(1)(i)15.

16. Provide the approved or denied demonstration for the site-specific alternative to initiation of closure due to the development of alternative capacity being technically infeasible as specified under 335-13-15-.08(1)(i)16.

17. Provide the notification for requesting additional time to the alternative cease receipt of waste deadline as required by 335-13-15-.08(1)(i)17.

18. The semi-annual progress reports for the site-specific alternative to

initiation of closure due to the development of alternative capacity being technically infeasible as specified under 335-13-15-.08(1)(i)18.

19. Provide the notification of intent to comply with the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as specified under 335-13-15-.08(1)(i)19.

20. Provide the approved or denied demonstration for the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as required by 335-13-15-.08(1)(i)20.

21. The annual progress report for the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as required by 335-13-15-.08(1)(i)(21).

(j) Retrofit criteria. The owner or operator of a CCR unit subject to this chapter must notify the Director 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 335-13-15-.08(1)(j)1.

2. Provide notification of intent to comply with the alternative retrofit requirements specified under 335-13-15-.08(1)(j)2.

3. The annual progress reports under the alternative retrofit requirements as required by 335-13-15-.08(1)(j)3.

4. Provide notification of the availability of the demonstration(s) for a time extension for completing retrofit activities specified under 335-13-15-.08(1)(j)4.

5. Provide notification of intent to initiate retrofit of a CCR unit specified under 335-13-15-.08(1)(j)5.

6. Provide notification of completion of retrofit activities specified under 335-13-15-.08(1)(j)6.

(3) Publicly accessible internet site requirements.

(a) Each owner or operator of a CCR unit subject to the requirements of this chapter must maintain a publicly accessible internet site (CCR website) containing the information specified in this section. The owner or operator's website must be titled "CCR Rule Compliance Data and Information." The website must ensure that all information required to be posted is immediately available to anyone visiting the site, without requiring any prerequisite, such as

registration or a requirement to submit a document request. All required information must be clearly identifiable and must be able to be immediately printed and downloaded by anyone accessing the site. If the owner/operator changes the web address (i.e., Uniform Resource Locator (URL)) at any point, they must notify Director within 14 days of making the change. The facility's CCR website must also have a "contact us" form or a specific email address posted on the website for the public to use to submit questions and issues relating to the availability of information on the website.

(b) 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 website clearly delineates information by the name or identification number of each unit.

(c) Unless otherwise required in this section, the information required to be posted to the CCR website 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 website.

(d) Unless otherwise required in this section, the information must be posted to the CCR website within 30 days of placing the pertinent information required by 335-13-15-.08(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 335-13-15-.08(1)(e) on the owner or operator's CCR website.

(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 website:

1. Within 60 days of commencing construction of a new unit, the design certification specified under 335-13-15-.08(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 335-13-15-.08(1)(f)1. or 3.

3. The documentation of liner type specified under 335-13-15-.08(1)(f)2.

4. The initial and periodic hazard potential classification assessments specified under 335-13-15-.08(1)(f)5.

5. The Emergency Action Plan (EAP) specified under 335-13-15-.08(1)(f)6., except that only the most recent EAP must be maintained on the CCR website irrespective of the time requirement specified in 335-13-15-.08(3)(c).

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 335-13-15-.08(1)(f)7.

7. Documentation prepared by the owner or operator recording any activation of the Emergency Action Plan (EAP) specified under 335-13-15-.08(1)(f)8.

8. The history of construction, and any revisions of it, specified under 335-13-15-.08(1)(f)9.

9. The initial and periodic structural stability assessments specified under 335-13-15-.08(1)(f)10.

10. The documentation detailing the corrective measures taken to remedy the deficiency or release specified under 335-13-15-.08(1)(f)11.

11. The initial and periodic safety factor assessments specified under 335-13-15-.08(1)(f)12.

12. The design and construction plans, and any revisions of them, specified under 335-13-15-.08(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 website:

1. The CCR fugitive dust control plan, or any subsequent amendment of the plan, specified under 335-13-15-.08(1)(g)1. except that only the most recent plan must be maintained on the CCR website irrespective of the time requirement specified in 335-13-15-.08(3)(c).

2. The annual CCR fugitive dust control report specified under 335-13-15-.08(1)(g)2.

3. The initial and periodic run-on and run-off control system plans specified under 335-13-15-.08(1)(g)3.

4. The initial and periodic inflow design flood control system plans specified under 335-13-15-.08(1)(g)4.

5. The periodic inspection reports specified under 335-13-15-.08(1)(g)6.

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6. The documentation detailing the corrective measures taken to remedy the deficiency or release specified under 335-13-15-.08(1)(g)7.

7. The periodic inspection reports specified under 335-13-15-.08(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 website:

1. The annual groundwater monitoring and corrective action report specified under 335-13-15-.08(1)(h)1.

2. The groundwater monitoring system certification specified under 335-13-15-.08(1)(h)3.

3. The selection of a statistical method certification specified under 335-13-15-.08(1)(h)4.

4. The notification that an assessment monitoring program has been established as specified under 335-13-15-.08(1)(h)5.

5. The notification that the CCR unit is returning to a detection monitoring program as specified under 335-13-15-.08(1)(h)7.

6. The notification that one or more constituents in Appendix IV have been detected at statistically significant levels above the groundwater protection standard and the notifications to land owners specified under 335-13-15-.08(1)(h)8.

7. The notification that an assessment of corrective measures has been initiated specified under 335-13-15-.08(1)(h)9.

8. The assessment of corrective measures specified under 335-13-15-.08(1)(h)10.

9. The semiannual reports describing the progress in selecting and designing the remedy and the selection of remedy report specified under 335-13-15-.08(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 335-13-15-.08(1)(h)13.

11. The semi-annual groundwater monitoring report specified under

335-13-15-.08(1)(h)14.

(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 website:

1. The notification of intent to initiate closure of the CCR unit specified under 335-13-15-.08(1)(i)1.

2. [Reserved]

3. [Reserved]

4. The written closure plan, and any amendment of the plan, specified under 335-13-15-.08(1)(i)4.

5. The demonstration(s) for a time extension for initiating closure specified under 335-13-15-.08(1)(i)5.

6. The demonstration(s) for a time extension for completing closure specified under 335-13-15-.08(1)(i)6.

7. The notification of intent to close a CCR unit specified under 335-13-15-.08(1)(i)7.

8. The notification of completion of closure of a CCR unit specified under 335-13-15-.08(1)(i)8.

9. The notification recording a notation on the deed as required by 335-13-15-.08(1)(i)9.

10. The notification recording an environmental covenant as required by 335-13-15-.08(1)(i)10.

11. The notification of intent to comply with the alternative closure requirements as required by 335-13-15-.08(1)(i)11.

12. The annual progress reports under the alternative closure requirements as required by 335-13-15-.08(1)(i)12.

13. The written post-closure plan, and any amendment of the plan, specified under 335-13-15-.08(1)(i)13.

14. The notification of completion of post-closure care specified under 335-13-15-.08(1)(i)14.

15. The notification of intent to comply with the site-specific alternative to

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initiation of closure due to the development of alternative capacity being technically infeasible as specified under 335-13-15-.08(1)(i)15.

16. The approved or denied demonstration for the site-specific alternative to initiation of closure due to the development of alternative capacity being technically infeasible as specified under 335-13-15-.08(1)(i)16.

17. The notification for requesting additional time to the alternative cease receipt of waste deadline as required by 335-13-15-.08(1)(i)17.

18. The semi-annual progress reports for the site-specific alternative to initiation of closure due to the development of alternative capacity being technically infeasible as specified under 335-13-15-.08(1)(i)18.

19. The notification of intent to comply with the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as specified under 335-13-15-.08(1)(i)19.

20. The approved or denied demonstration for the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as required by 335-13-15-.08(1)(i)20.

21. The annual progress report for the site-specific alternative to initiation of closure due to permanent cessation of a coal-fired boiler(s) by a date certain as required by 335-13-15-.08(1)(i)21.

(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 website:

1. The written retrofit plan, and any amendment of the plan, specified under 335-13-15-.08(1)(j)1.

2. The notification of intent to comply with the alternative retrofit requirements as required by 335-13-15-.08(1)(j)2.

3. The annual progress reports under the alternative retrofit requirements as required by 335-13-15-.08(1)(j)3.

4. The demonstration(s) for a time extension for completing retrofit activities specified under 335-13-15-.08(1)(j)4.

5. The notification of intent to retrofit a CCR unit specified under 335-13-15-.08(1)(j)5.

6. The notification of completion of retrofit activities specified under 335-13-15-.08(1)(j)6.

Author: S. Scott Story, Heather M. Jones

Statutory Authority: Code of Alabama 1975, §§ 22-27-3 and 22-27-7

History: Filed: April 24, 2018; Effective: June 8, 2018. **Amended:** Filed: December 31, 2020; Effective: February 15, 2021. **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-15-.09 [Reserved]

335-13-15-.10 [Reserved]

335-13-15-.11 [Reserved]

335-13-15-.12 [Reserved]

335-13-15-.13 [Reserved]

335-13-15-.14 [Reserved]

335-13-15-.15 Variations. The Department may grant individual variances only from specific provisions of this chapter that are in addition to or more stringent than the federal regulations. The individual variances must be granted based upon the procedures of 335-13-8-.01 through 335-13-8-.05 whenever it is found by the Department, upon presentation of adequate proof, that non-compliance with one or more of these provisions will not threaten the public health or unreasonably create environmental pollution.

Author: S. Scott Story.

Statutory Authority: Code of Alabama 1975, §§ 22-27-3 and 22-27-7

History: Filed: April 24, 2018; Effective: June 8, 2018. **Amended:** Filed: October 29, 2021; Effective: December 13, 2021.

335-13-15-Appendices III and IV

335-13-15-Appendix III CCR Constituents for Detection Monitoring

Common name ¹

Boron
Calcium
Chloride
Fluoride
pH
Sulfate
Total Dissolved Solids (TDS)

¹ Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

Author: Heather M. Jones

Statutory Authority: Code of Alabama 1975, §§ 22-27-3 and 22-27-7

History: Filed: April 24, 2018; Effective: June 8, 2018.

335-13-15-Appendix IV CCR Constituents for Assessment Monitoring

Common name ¹

Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Fluoride
Lead
Lithium
Mercury
Molybdenum
Selenium
Thallium
Radium 226 and 228 combined

¹ Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

Author: Heather M. Jones

Statutory Authority: Code of Alabama 1975, §§ 22-27-3 and 22-27-7

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**ALABAMA DEPARTMENT OF ENVIRONMENTAL
MANAGEMENT LAND DIVISION – SOLID WASTE
PROGRAM**

**CHAPTER 335-13-16
REQUIREMENTS FOR BENEFICIAL USE OF BY-PRODUCT
MATERIALS FOR THE PURPOSE OF LAND APPLICATION**

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335-13-16-.01 Purpose. The purpose of this chapter is to establish procedures to encourage and regulate the land application of eligible non-hazardous by-product materials within the State.

Author: S. Scott Story

Statutory Authority: Code of Alabama 1975, §22-27-9 and §22-27-12

History: Filed: February 28, 2020; Effective: April 13, 2020.

335-13-16-.02 Definitions. For the purpose of this chapter, the following terms have the meaning given below:

(1) “Agronomic Rate” means the land application of by-products at rates of application which provide the crop or forage growth with needed nutrients for optimum health and growth in accordance with acceptable industry technical standards and guidelines to ensure the protection of human health and the environment.

(2) “Beneficial Use” means the use of a by-product material as a soil

amendment or fertilizer, where the by-product material replaces a natural or other resource material by its utilization.

(3) “Biosolids” are a solid, semi-solid or liquid residue generated during the treatment of domestic sewage in a treatment works. During this treatment process the domestic sewage is treated physically and chemically to produce this nutrient-containing product.

(4) “By-Product” means a material that is generated as a result of water or wastewater treatment or residual materials from industrial or manufacturing processes that, barring any form of alternate or beneficial use of that material, would otherwise be discarded at a landfill or other solid waste disposal facility.

(5) “Class A Biosolids” is a designation that meets U.S. EPA guidelines pursuant to 40 C.F.R. § 503.32 for land application.

(6) “Class B Biosolids” is a designation for biosolids that meets U.S. EPA guidelines, pursuant to 40 C.F.R. § 503.32, for land application, but does not meet the requirements for Class A Biosolids.

(7) “Distributor” means the person, organization, business, industry, agency, or institution who utilizes and/or resells by-product material for beneficial use.

(8) “Dry Short Ton” means 2,000 pounds (lbs) of material with 0% moisture content.

(9) “Feed Crops” means crops produced primarily for consumption by animals.

(10) “Fiber Crops” means crops such as flax and cotton.

(11) “Food Crops” means crops consumed by humans. These include, but not limited to, fruits, vegetables, and tobacco.

(12) “Food Processing Residuals” or “FPR” means by-product that is generated from food processing facilities and may include other materials with pathogen potential.

(13) “FPR Treatment” means the usage of biological, physical, chemical, and/or mechanical processes along with retention time to characteristically change FPR into Treated FPR Material.

(14) “FPR Treatment Facility” means the person, organization, business, industry, agency or institution that operates FPR treatment impoundments.

(15) “FPR Treatment Impoundment” is a surface feature certified in

accordance with ADEM Admin. Code r. 335-13-16-.08(54) capable of containing FPR materials for the storage and treatment of FPR.

(16) “Generator” means the person, organization, business, industry, agency or institution whose activities or business results in the initial generation of a by-product material to be used for beneficial use.

(17) “Mine-Land Recovery” means the use of biosolids at mine spoil areas which have been released from regulatory control by the Alabama Surface Mining Commission or the Alabama Department of Labor, as appropriate, in an effort to rehabilitate otherwise unusable land.

(18) “Multi-Owner Property” means contiguous parcels of land, which are owned by two (2) or more different individuals, and operated as a single farm.

(19) “Property Boundary” means the outer boundary of a property owner’s contiguous property, which may consist of one or more parcels.

(20) “Residential End-User” means a person(s) who obtain(s) Class A Biosolids for use in lawns and gardens on their private residential properties.

(21) “Staging” means the transportation and positioning of by-product material immediately [within forty-eight (48) hours] preceding land application.

(22) “Storage” means the temporary [a period exceeding forty-eight (48) hours] holding of by-product material prior to land application activities when not immediately possible due to outside constraints.

(23) “Treated FPR Material” means FPR treated to the extent described in ADEM Admin. Code r. 335-13-16-.08 as the result of biological, physical, chemical, or mechanical processes and retention time in FPR treatment impoundment(s).

(24) “Yield Goal” means the expected production of the intended crop per acre in the given calendar year.

Author: S. Scott Story; Richard T. Kelsey

Statutory Authority: Code of Alabama 1975, §22-27-9 and §22-27-12

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335-13-16-.03 Specific Requirements for Land Application of By-Product Materials.

(1) By-product materials may be eligible for consideration for land application under this rule, where such materials meet the following requirements:

(a) The material, proposed for beneficial use, must be a “by-product” as defined in 335-13-16-.02; and

(b) The by-product material proposed for beneficial use must:

1. Be characterized [as required by ADEM Admin. Code r. 335-13-16-.04(2)(c)10.];

2. Possess physical and/or chemical properties which make the material suitable for the intended agronomic application rate as defined in ADEM Admin. Code r. 335-13-16-.02; and

3. Not be a hazardous waste as defined in ADEM Admin. Code r. 335-14-1-.02.

(2) Residential End-Users are exempt from this chapter unless an immediate threat to human health or the environment is observed in association with this use.

(3) Generators and/or Distributors conducting Mine-Land Recovery activities must utilize biosolids, as defined in this chapter, and must adhere to all applicable requirements of 40 C.F.R. § 503.

(4) The proposed beneficial use must conform to the following use-specific standards:

(a) The proposed beneficial use must utilize a by-product that serves as a suitable replacement for a raw material or other feedstock and, through its use, provides a benefit comparable to the material it is proposed to replace;

(b) The proposed beneficial use of by-product material must not be managed in a manner that constitutes discarding or disposal as provided in ADEM Admin. Code r. 335-13-16-.04(8)(c);

(c) An Operations Plan (OP) and a Nutrient Management Plan (NMP) are required for the site or sites where by-product materials will be applied. These plans are to be amended as application site locations or conditions change. The amended plan must be submitted in accordance with ADEM Admin. Code r. 335-13-16-.04(5)(b), except as provided below:

1. An NMP is not required for properties on which only Class A Biosolids (e.g. not mixed with other materials) are land applied; and

2. An exemption from the development of an NMP may be requested for an industrial by-product. This request must include by-product characterization as required by ADEM Admin. Code r. 335-13-16-.07(3). An industrial by-product proposed to be exempted from the requirement for a NMP may include materials from privately owned industrial facilities which treat self-generated industrial wastewater, and shall not contain the following:

- i. FPR material;
- ii. Material that is generated or treated by publically owned or privately owned treatment works treating domestic sewage and municipal wastewater; or
- iii. Hazardous waste as defined in ADEM Admin. Code r. 335-14-1-.02.

(d) Distributors who do not own the property on which the by-product material is proposed to be utilized shall obtain written consent from the landowner prior to the land application of by-product material. The Distributor must provide the landowner information including the material characterization as required by ADEM Admin. Code r. 335-13-16-.07(3), any potential odor issues, and any crop restrictions; and

(e) These rules and regulations do not supersede any other state or federal regulations regarding beneficial use or waste disposal. Persons generating or utilizing beneficially used by-product materials shall comply with this chapter and any other applicable state and federal rules and regulations.

(5) The placement, dumping, disposal, or other use of a by-product material in a manner inconsistent with the requirements of this chapter may be considered an unauthorized dump as defined in ADEM Admin Code r. 335-13-1-.03. The responsible party may be subject to revocation of the Registration and enforcement action by the Department in accordance with ADEM Admin. Code r. 335-13-1-.13.

(6) Land application of by-product materials regulated by the following are exempt from the requirements of this chapter:

(a) ADEM Admin. Code chap. 335-6-8 (Ground Water – and – Underground Injection Control);

(b) ADEM Admin. Code chap. 335-6-7 (...Animal Mortality Management Requirements for Owners and Operators of Animal Feeding Operations (AFOs) and Concentrated Animal Feeding Operations (CAFOs); and

(c) Products licensed by the Alabama Department of Agriculture and Industries as a commercial fertilizer, fertilizer material, soil conditioner, or soil amendment or permitted by the Alabama Department of Agriculture and Industries as a liming material.

Author: S. Scott Story; Richard T. Kelsey

Statutory Authority: Code of Alabama 1975, §22-27-9 and §22-27-12

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335-13-16-.04 Registration Application Requirements.

(1) Generators that produce one hundred (100) dry short tons per calendar year or more of eligible by-product material for beneficial use in the State of Alabama must electronically submit the following items to the Department:

(a) A completed electronic ADEM Form 569 with the applicable fees in accordance with ADEM Admin. Code div. 335-1;

(b) The type of material being generated, such as FPR, Class A Biosolids, Class B Biosolids, etc., and expected quantity (in dry short tons) to be generated for use under this chapter per calendar year; and

(c) A list of Distributors that manage and land apply the by-product materials for beneficial use in the State of Alabama.

(2) Distributors that manage and land apply one hundred (100) dry short tons per year or more of eligible by-product material for beneficial use in the State of Alabama must electronically submit the following items to the Department:

(a) A completed ADEM Form 569 with the applicable fees in accordance with ADEM Admin. Code div. 335-1;

(b) The type of material being distributed, such as FPR, Class A Biosolids, Class B Biosolids, etc., and expected quantity (in dry short tons) to be land applied under this chapter per calendar year;

(c) A NMP which, at a minimum, includes the following:

1. Signature certification, including applicable credentials, clearly displayed on the first page of the plan, that the plan was prepared by a person certified by the Natural Resources Conservation Service (NRCS) for nutrient management planning, by a professional engineer licensed in the State of Alabama, or by other appropriate professionals approved by the Department;

2. Brief site specific description of the operation; including the type/classification of material being land applied;

3. Crops and soils information, including: site suitability for proposed application activities, crop rotation plans, harvesting cycle plans, and seasonal land application schedule;

4. Yield goal for the given crop and site, or Department approved equivalent;

5. The recommended nitrogen and phosphorus application rates for the crops to be grown on each application zone. This crop specific information is

not required for Mine-Land Recovery activities conducted in accordance with the requirements of ADEM Admin. Code r. 335-13-16-.03(3). Limits for nitrogen and phosphorous may be imposed by the Department to protect human health and the environment;

6. Timing and specific method of applications for each site;

7. Description of best management practices to be implemented at each site to protect human health and the environment including but not limited to preventing run-off, managing run-on at FPR treatment impoundments, and minimizing odors;

8. Property description(s), site(s) address(es), site(s) coordinates in decimal degrees, and aerial view of property boundaries;

9. Provide copies of signed permission by the landowners where by-products are land applied. This permission shall include acknowledgement of compliance with ADEM Admin. Code r. 335-13-16-.03(4)(d); and

10. Testing analysis/results for the ceiling concentration of constituents listed in ADEM Admin. Code r. 335-13-16-Appendix I shall be provided and the concentrations shall not exceed those listed. Testing for fecal coliform shall be conducted in accordance with 40 C.F.R. § 503.32(b)(2). Fecal coliform limits may be imposed by the Department to protect human health and the environment. The Department may require testing for additional constituents as applicable.

(d) An OP which, at a minimum includes the following:

1. Signature certification, including applicable credentials, clearly displayed on the first page of the plan that the plan was prepared by a person certified by the NRCS for nutrient management planning, by a professional engineer licensed in the State of Alabama, or by other appropriate professionals approved by the Department; and

2. The plan shall include best management practices and mitigation actions detailing the handling, transportation, and application of the by-product material to minimize:

(i) Vectors;

(ii) Birds;

(iii) Odors;

(iv) Fugitive air borne dust;

(v) Spills; and

(vi) Time in transit, with consideration to the type of material, which includes efforts made to avoid traffic congestion, accidents, populated areas, or other factors as determined by the Department.

(3) All Distributors that manage or land apply less than one hundred (100) dry short tons per year of eligible by-product material for beneficial use in the State of Alabama must maintain all required records to be available for inspection upon request in accordance with ADEM Admin. Code r. 335-13-16-.04(2)(c) and (d).

(4) No later than October 1, 2022, FPR Treatment Facilities subject to the requirements of this chapter that manage eligible by-product materials for beneficial use in the State of Alabama must electronically submit the following items to the Department:

(a) A completed ADEM Form 569 with the applicable fees in accordance with ADEM Admin. Code div. 335-1; and

(b) All items required in ADEM Admin Code r. 335-13-16-.08.

(5) Registration Modifications.

(a) A request to modify an existing registration that changes the registration type and/or causes changes to the previously issued registration, outside of the registration renewal period, must electronically submit ADEM Form 569, all applicable fees in accordance with ADEM Admin. Code div. 335-1, and any further pertinent records at least thirty (30) days before the desired registration change.

(b) Submissions of addendums to the NMP and/or OP, excluding those defined in ADEM Admin. Code r. 335-13-16-.04(5)(a), are considered Registration Information Updates. A Registration Information Update including addendums or additions to the approved NMP and OP must be electronically submitted for Department review at least fourteen (14) calendar days prior to the anticipated initial land application date. Upon determining the Registration Information Update to be complete, the Department will acknowledge completion to the registrant and incorporate the updated information into the current registration.

(6) Beginning on October 1, 2022, these registrations will transition to a three (3) year registration cycle.

(7) Applicants who submit a complete registration renewal application at least thirty (30) days prior to the expiration date of their existing registration, shall have their existing registration administratively extended, until such time as the Department makes a final determination on the registration renewal application.

(8) Upon the Department's review and determination that an application is consistent with these regulations, the Department shall issue, renew, or modify a registration to the applicant, subject to the following conditions:

(a) Registrations issued by the Department are only valid for activities conducted within the State of Alabama.;

(b) By-product material for which a Registration has been issued shall no longer be subject to ADEM Admin. Code chaps. 335-13-1 through 335-13-15 provided the by-product is utilized in a manner consistent with the terms and conditions of the Registration and the requirements of ADEM Admin. Code chap. 335-13-16;

(c) The placement, dumping, disposal, or other use of a by-product material in a manner inconsistent with the Registration may be considered an unauthorized dump as defined in ADEM Admin. Code r. 335-13-1-.03. The responsible party may be subject to revocation of the Registration and/or enforcement action by the Department in accordance with ADEM Admin. Code r. 335-13-1-.13;

(d) The issuance of a Registration does not exempt the registrant from compliance with other applicable regulatory requirements when managing or beneficially using a by-product under these regulations; and

(e) If a registrant or applicant is determined to be in significant noncompliance with the requirements of this chapter, the Registration may be revoked or the application for Registration may be denied by the Department.

Author: S. Scott Story; Richard T. Kelsey

Statutory Authority: Code of Alabama 1975, §22-27-9 and §22-27-12

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335-13-16-.05 Operating Criteria for Storage, Staging and Land Application of By-Product Materials.

(1) Notification of intent to land apply at a given registered location shall be electronically submitted to the Department by the registered Distributor at least forty eight (48) hours before land application activity begins, and at a minimum shall contain the following:

(a) Physical address of site(s), along with GPS coordinates in decimal degrees;

(b) Material being land applied to the site(s); and

(c) Expected duration of land application and associated activities for

335-13-16-.06

the site(s).

(2) After all activity has concluded at the site(s), notification of completion of land application and associated activities at a given location shall be electronically submitted to the Department within seven (7) calendar days.

(3) All transport and application site staging of FPR material shall be in closed container(s). Container(s) shall be kept closed unless adding or removing material, until land applied in accordance with these regulations.

(4) By-product material storage, application site staging, and land application areas shall be:

(a) Located a minimum of one hundred (100) feet from public roads and right of ways (excluding land application of Class A Biosolids);

(b) Located a minimum of five hundred (500) feet from public and private drinking water wells;

(c) Located a minimum of five hundred (500) feet from any inhabitable building. Exceptions to this requirement are allowed for on-site structures occupied by the landowner or farm operator, Class A Biosolids, and industrial by-products for which an NMP is not required pursuant to ADEM Admin. Code r. 335-13-16-.03(4)(c)1. and 2.;

(d) Located a minimum of one hundred (100) feet from surface waters of the State, as defined in ADEM Admin. Code r. 335-6-10-.02, measured from the ordinary high water mark; and

(e) Located a minimum of one hundred (100) feet from the property boundary. This requirement does not apply to Class A Biosolids and internal parcel/property boundaries of Multi-Owner Properties, as defined by ADEM Admin. Code r. 335-13-16-.02.

(5) By-products to be land applied shall not exceed the ceiling concentration limits established in ADEM Admin. Code r. 335-13-16-Appendix I.

(6) Limitations may be placed on the agronomic application rates by the Department when determined necessary to protect human health and the environment.

Author: S. Scott Story; Richard T. Kelsey

Statutory Authority: Code of Alabama 1975, §22-27-9 and §22-27-12

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335-13-16-.06 [Reserved]

335-13-16-.07 Operating Criteria for Food Processing Residual.

(1) All Distributors managing and land applying FPR shall adhere to the following additional requirements:

(a) The site restrictions listed in 1-8 of this section shall be met when FPR is land applied; or the pH of by-product material land applied shall be raised to twelve (12) or higher by alkali addition and, without the addition of more alkali, shall remain at twelve (12) or higher for thirty (30) minutes and the site restrictions in 1-4 of this section shall be met:

1. Food crops with harvested parts that touch the by-product/soil mixture and are totally above the land surface shall not be harvested for fourteen (14) months after application of by-product material;

2. Food crops with harvested parts below the surface of the land shall not be harvested for twenty (20) months after application of by-product material when the by-product material remains on the land surface for four months or longer prior to incorporation into the soil;

3. Food crops with harvested parts below the surface of the land shall not be harvested for thirty-eight (38) months after application of by-product material when the by-product material remains on the land surface for less than four months prior to incorporation into the soil;

4. Food crops, feed crops, and fiber crops shall not be harvested for thirty (30) days after application of by-product material;

5. Animals shall not be grazed on the land for thirty (30) days after application of by-product material;

6. Turf grown on land where by-product material is applied shall not be harvested for one (1) year after application of the by-product material when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the Department;

7. Public access to land with a high potential for public exposure shall be restricted for one (1) year after application of by-product material; and

8. Public access to land with a low potential for public exposure shall be restricted for thirty (30) days after application of by-product material.

(2) One of the land application requirements listed below shall be met when FPR is land applied:

(a) Subsurface injection (material is placed underneath the soil surface and is immediately incorporated into and under the soil surface), unless otherwise approved by the Department on a case by case basis. The Department may require the Distributor to demonstrate that the requested alternative method

335-13-16-.08

of application will provide control of odors and vectors at least as effectively as subsurface injection, or

(b) The pH of by-product material shall be raised to twelve (12) or higher by alkali addition and, without the addition of more alkali, shall remain at twelve (12) or higher for thirty (30) minutes.

(3) By-products, including but not limited to FPR, shall not be applied to the land if the concentrations of any constituent listed in ADEM Admin. Code r. 335-13-16-Appendix I exceeds the ceiling concentration and either the cumulative loading rate or the monthly average concentration found in ADEM Admin. Code r. 335-13-16-Appendix I.

(4) The annual agronomic rate for by-product material land applied shall not exceed the annual agronomic rate, as applicable, calculated using Equation 1, or other Department approved method:

Equation 1: $AAR = \frac{N}{0.0026}$, where AAR is the annual agronomic rate in gallons per acre per 365 day period and N is the amount of nitrogen in pounds per acre per 365 day period needed by the crop or vegetation grown on the land.

(5) All transport and application site staging shall adhere to ADEM Admin. Code r. 335-13-16-.05(3).

Author: S. Scott Story; Richard T. Kelsey

Statutory Authority: Code of Alabama 1975, §22-27-9 and §22-27-12

History: Filed: February 28, 2020; Effective: April 13, 2020; **Amended:** Filed: June 30, 2022; Effective: August 15, 2022.

335-13-16-.08 Operating Criteria for Food Processing Residuals Treatment Impoundments.

(1) FPR Treatment Impoundments must adhere to all requirements for Distributors as specified in ADEM Admin. Code ch. 335-13-16, including the additional requirements specified in ADEM Admin. Code r. 335-13-16-.07.

(2) The registrant shall ensure that all contents of the impoundment(s) are retained except as permitted under ADEM Admin. Code chap. 335-6-6.

(3) Location of FPR Treatment Impoundments must comply with all buffer zones in accordance with ADEM Admin. Code r. 335-13-16-.05(4).

(4) FPR Treatment Impoundments must have an appropriate volume-to-surface area ratio to facilitate sufficient retention time for effective and efficient treatment to protect human health and the environment. Details documenting this must be provided in the NMP.

(5) FPR Treatment Impoundments must be NRCS certified. Documentation of certification must be submitted to the Department before operation begins. In the case of existing FPR Treatment Impoundments, the registrant must obtain certification that the impoundment was constructed to current engineering standards to document the integrity of the impoundment.

(6) The FPR Treatment Impoundment must maintain at all times sufficient freeboard to contain a twenty-four (24) hr/twenty-five (25) yr rain event or at least twenty-four (24) inches of freeboard, whichever is greater. The Department may consider an equivalent alternate overflow management system(s), as warranted (e.g. additionally available freeboard in an adjacent impoundment, nearby tank, etc.). Run-on controls shall be implemented to protect the FPR Treatment Impoundment from excess stormwater from the surrounding watershed.

(7) At the deepest point of the impoundment, the grease cap thickness shall not exceed twenty-five (25) % of the maximum operational depth at any given time, regardless of season.

(8) Treated FPR Material Requirements.

(a) An NMP and OP as defined by ADEM Admin. Code r. 335-13-16-.04(2)(c) and (d) is required with the following additions:

1. The Treated FPR Material application rate will be based on nutrient analysis (agronomic rate) and retention time (treatment level); and

2. NMP must include a sludge (bottom solids) management plan for the impoundment(s).

(b) Treated FPR Material must comply with ADEM Admin. Code r. 335-13-16-.07(1) and (3) and ADEM Admin. Code r. 335-13-16-.04(2)(c)10.

(c) Application of Treated FPR Material must adhere to all buffer zones listed in ADEM Admin. Code r. 335-13-16-.05(4).

(9) Reporting Requirements.

(a) All applications must include testing results described in ADEM Admin. Code r. 335-13-16-.07(3). Materials must be tested according to the NMP and annual reporting requirements as required by ADEM Admin. Code r. 335-13-16-.09. Application surface and substrate must be tested for all constituents listed in ADEM Admin. Code r. 335-13-16-Appendix I, nitrogen, phosphorus, and other constituents as required by the Department.

(b) Renewal applications and annual reports must include all information required in ADEM Admin Code r. 335-13-16-.09, in addition to the following:

1. Amounts of FPR received and amounts of Treated FPR Material applied throughout the calendar year;
2. Counties where Treated FPR Material was applied;
3. Nutrient value testing results and agronomic loading rates; and
4. The results from testing required in ADEM Admin. Code r. 335-13-16-.07(3) and the fecal coliform test results required in ADEM Admin. Code r. 335-13-16-.04(2)(c)10.

Author: S. Scott Story; Richard T. Kelsey

Statutory Authority: Code of Alabama 1975, §22-27-9 and §22-27-12

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335-13-16-.09 Recordkeeping and Reporting Requirements.

(1) All reporting, submittals, and correspondence for ADEM Admin. Code r. 335-13-16-.09 shall be electronically submitted in a format approved by the Department.

(2) All registrants subject to 40 C.F.R. § 503 must submit duplicate reports required under 40 C.F.R. § 503 in the annual report as described in ADEM Admin. Code r. 335-13-16-.09(3).

(3) Registrations issued pursuant to ADEM Admin. Code r. 335-13-16-.04 are subject to annual reporting requirements. All annual reports for activity conducted during the previous calendar year shall be submitted to the Department no later than February 28th of each year, for activity conducted during the previous calendar year. At a minimum, the report must contain the following information:

(a) The total quantity, in dry short tons, of by-product materials generated/managed/land applied during the previous calendar year;

(b) An updated list of all the counties in which by-product materials were used or distributed for use during the previous calendar year and how much material was generated/managed/land applied in each county;

(c) If the registrant is subject to ADEM Admin. Code r. 335-13-16-.04(2)(c), then annually performed test results in accordance with ADEM Admin. Code r. 335-13-16-.04(2)(c)10., the ceiling concentration for all constituents listed in ADEM Admin. Code r. 335-13-16-Appendix I, and the nitrogen and phosphorus rates as required by ADEM Admin. Code r. 335-13-16-.04(2)(c)5. must be submitted with the annual report;

(d) The yield of the crop grown and harvested, production destruction event/result, if applicable (e.g. drought, fire, pestilence, etc.), or a Department

approved alternative (e.g. number of animals raised/grazed, etc.), for each approved application site listed in the NMP(s). This number(s) should be reported in short tons/acre or equivalent industry standard;

(e) A signed certification from the Generator affirming that the physical and chemical characteristics of the by-product materials applied were consistent with the information submitted in the approved application together with documentation of any inconsistencies. Generator certifications must be unique to each Generator facility; and

(f) A complete and accurate compliance certification, which shall include the following:

1. An itemized list with the identification of each term or condition that is the basis of the certification and method for determining compliance status. This itemized list includes, but is not limited to, the items found in ADEM Admin Code chap. 335-13-16 and the Registration;

2. The applicant's compliance status related to each term or condition and documentation of whether the compliance has been continuous or intermittent;

3. A statement signed by a responsible official including the following language, "*I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. I understand that the information provided will be used to determine compliance with ADEM Admin. Code chap. 335-13-16 Requirements for Beneficial Use of By-Product Materials for the Purpose of Land Application. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*"; and

4. Such other information as the Department may require to determine the compliance status of the entity.

(4) Operating Record: All registered facilities shall maintain the following records for a minimum of five (5) years from generation of the record and make them available for inspection upon request:

(a) Registration, including all applications and supplemental information;

(b) Annual reports;

(c) OP and NMP, as applicable; and

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(d) Notification(s) of intent and completion to land apply, for Distributors only, as required in ADEM Admin. Code r. 335-13-16-.05(1-2).

Author: S. Scott Story; Richard T. Kelsey

Statutory Authority: Code of Alabama 1975, §22-27-9 and §22-27-12

History: Amended: Filed: June 30, 2022; Effective: August 15, 2022.

335-13-16-.10 Variances. The Department may grant individual variances only from specific provisions of this chapter that are in addition to or more stringent than federal regulations. The individual variances must be granted based upon the procedures of ADEM Admin. Code rs. 335-13-8-.02 through 335-13-8-.05 whenever it is found by the Department, upon presentation of adequate proof, that non-compliance with one or more of these provisions will not threaten the public health or unreasonably create environmental pollution.

Author: S. Scott Story; Richard T. Kelsey

Statutory Authority: Code of Alabama 1975, §22-27-9 and §22-27-12

History: Amended: Filed: June 30, 2022; Effective: August 15, 2022.

335-13-16-Appendix I Constituent Concentration Limits*

Constituent	Ceiling Concentration (mg/kg)†	Cumulative Loading Rate (kg/ha) [lb/ac]	Monthly Average Concentration (mg/kg)†
Arsenic	75	41 [37]	41
Cadmium	85	39 [35]	39
Copper	4,300	1,500 [1,338]	1,500
Lead	840	300 [268]	300
Mercury	57	17 [15]	17
Molybdenum	75	N/A	N/A
Nickel	420	420 [375]	420
Selenium	100	100 [89]	100
Zinc	7,500	2,800 [2,498]	2,800

†Dry Weight Basis

*Taken from 40 C.F.R. § 503.13 Tables 1, 2, and 3

Author: S. Scott Story; Richard T. Kelsey

Statutory Authority: Code of Alabama 1975, §22-27-9 and §22-27-12

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