

**CHAPTER 236. LOW-LEVEL RADIOACTIVE
WASTE MANAGEMENT AND DISPOSAL**

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Authority

The provisions of this Chapter 236 issued under section 302 of the Radiation Protection Act (35 P. S. § 7110.302); section 5 of The Clean Streams Law (35 P. S. § 691.5); section 302 of the Low-Level Radioactive Waste Disposal Act (35 P. S. § 7130.302); and section 1920-A of The Administrative Code of 1929 (71 P. S. § 510-20), unless otherwise noted.

Source

The provisions of this Chapter 236 adopted October 27, 1989, effective October 28, 1989, 19 Pa.B. 4665, unless otherwise noted.

Cross References

This chapter cited in 25 Pa. Code § 215.32 (relating to exemption qualifications); 25 Pa. Code § 217.1 (relating to purpose and scope); and 25 Pa. Code § 287.2 (relating to scope).

Subchapter A. GENERAL PROVISIONS

GENERAL

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This subchapter cited in 25 Pa. Code § 236.108 (relating to site justification); 25 Pa. Code § 236.141 (relating to general requirements); 25 Pa. Code § 236.143 (relating to demography and land use); 25 Pa. Code § 236.145 (relating to meteorology and climatology); 25 Pa. Code § 236.146 (relating to seismology); 25 Pa. Code § 236.147 (relating to surface geology and hydrology); 25 Pa. Code § 236.148 (relating to subsurface geology and hydrology); 25 Pa. Code § 236.149 (relating to natural resources); 25 Pa. Code § 236.208 (relating to specific technical information); 25 Pa. Code § 236.209 (relating to technical analyses); 25 Pa. Code § 236.245 (relating to content of license application for closure); 25 Pa. Code § 236.246 (relating to application and transfer of license to the Commonwealth); 25 Pa. Code § 236.301 (relating to scope and purpose); 25 Pa. Code § 236.311 (relating to general requirements); 25 Pa. Code § 236.312 (relating to compatibility with site); 25 Pa. Code § 236.315 (relating to recoverability); 25 Pa. Code § 236.326 (relating to remedial measures); 25 Pa. Code § 236.330 (relating to performance assessment); 25 Pa. Code § 236.403 (relating to facility operation plan); and 25 Pa. Code § 236.409 (relating to monitoring plan).

GENERAL

§ 236.1. Purpose and scope.

(a) This chapter establishes procedures, criteria and terms and conditions upon which the Department issues a license for the disposal of low-level radioactive wastes received from other persons. The requirements of this chapter are in addition to other applicable requirements of this article.

(b) This chapter establishes performance objectives, and technical and procedural requirements which are applicable to any method of disposal except shallow land burial, as defined in § 236.2 (relating to definitions).

(c) This chapter does not apply to disposal of byproduct material, as defined in section 11(e)(2) of the Atomic Energy Act of 1954 (42 U.S.C.A. § 2014(e)(2)) in quantities greater than 10,000 kilograms containing more than 5 millicuries of radium-226.

§ 236.2. Definitions.

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise:

Account—The Long Term Care Account.

Act—The Low-Level Radioactive Waste Disposal Act (35 P. S. §§ 7130.101—7130.905).

Active fault—A fault along which there is recurrent movement that is demonstrated by measurable periodic displacements or seismic activity.

Active institutional control period—See the definition of time periods.

Active maintenance—Significant activity needed during the long term care period to maintain reasonable assurance that the performance objectives in this subchapter are met. The term includes major remedial actions such as replacement of disposal unit covers. The term does not include custodial activities, such as repair of fencing, repair or replacement of monitoring equipment, revegetation, minor repair of disposal unit covers and general disposal site upkeep such as mowing grass.

Affected municipality—A unit of local government other than the host municipality designated as an affected municipality under section 318 of the act (35 P. S. § 7130.318). The term may include a county, city, borough, township or school district.

Broker—An intermediate person who collects, consolidates, handles, treats, processes, stores, packages, ships or otherwise has responsibility for or possesses low-level radioactive waste.

Buffer zone—A portion of the disposal site that is controlled by the licensee and that lies under the disposal units and between the disposal units and the boundary of the site.

Capable fault—A fault which exhibited movement at or near the ground surface within the past 35,000 years.

Carrier—A person who transports low-level radioactive waste from or to a generator or waste management facility or to the regional disposal facility.

Chelating agent—An organic chemical that bonds with a central metal atom or ion at two or more points such as amine polycarboxylic acids, hydroxycarboxylic acids, gluconic acids and polycarboxylic acids.

Commencement of construction—Clearing of land, excavation or other substantial action that would adversely affect the environment of the disposal facility. The term does not include disposal site exploration, necessary roads for disposal site exploration, borings to determine foundation conditions or other preconstruction monitoring or testing to establish background information related to the suitability of the disposal site or the protection of environmental values.

Commission—The Appalachian States Low-Level Radioactive Waste Commission.

Compact—The Compact entered into by the Commonwealth under the terms of the Low-Level Radioactive Waste Policy Act of 1980 (42 U.S.C.A. §§ 2021b—2021j) and as contained in the act of December 22, 1985 (P. L. 539, No. 120), known as the Appalachian State Low-Level Radioactive Waste Compact Law (35 P. S. §§ 7125.1—7125.4).

Compact states—The combined states, including the Commonwealth, which have entered into the Compact.

Container—The first enclosure which encompasses the radioactive waste.

Containment—The function of isolating radioactive waste from the biosphere by emplacement of the waste within a container, waste module or disposal unit.

Custodial agency—An agency of the government designated by the Governor to act on behalf of the government owner of the disposal site. The agency is responsible for the long term monitoring and care of the disposal site. The term does not include the Department.

Disposal—The isolation of low-level radioactive wastes from the biosphere.

Disposal facility—The buildings, equipment and other engineered features, including disposal units and temporary holding facilities, within the disposal site which are used for the disposal of low-level radioactive waste.

Disposal site—The property, including improvements thereon, which is used for disposal of low-level radioactive waste. The term consists of the disposal units and the buffer zone.

Disposal Unit—A discrete portion of the disposal site into which waste is placed for disposal.

Disqualifying criteria—Conditions which would eliminate an area from further consideration for disposal.

Engineered barrier—A manmade structure or device that is intended to improve the disposal facility's ability to meet the performance objectives in this chapter.

Engineered cover—A manmade structure constructed over the disposal facility.

Engineered structure—A manmade state-of-the-art barrier designed to:

- (i) Provide additional measures for containment of radioactive waste from the environment.
- (ii) Provide protection for an inadvertent intruder.
- (iii) Provide stability of the disposal facility.
- (iv) Prevent radioactive release.

Enhanced containment—Additional isolation of the radioactive waste from the environment as provided by engineered structures.

Explosive material—A chemical compound, mixture or device which produces a substantial instantaneous release of gas and heat spontaneously or by contact with sparks or flame.

Fund—The Low-Level Waste Fund.

Generate—To produce low-level radioactive waste requiring disposal.

Generator—A person whose activity results in the production of low-level radioactive waste requiring disposal.

Groundwater—The part of the subsurface water that is in the zone of saturation, perennial or otherwise.

Hazardous life—The time required for radioactive materials to decay to safe levels of radioactivity, as defined by the time period for the concentration of radioactive materials within a given container or package to decay to maximum

permissible concentrations as defined by Federal law or by standards to be set by the host state, whichever is more restrictive.

Hazardous wastes—Wastes as defined in section 103 of the Solid Waste Management Act (35 P. S. § 6018.103) and regulations thereunder.

Host municipality—A city, borough, incorporated town or township, excluding a county, in which the low-level waste disposal facility will be constructed, as designated by the Department under section 318 of the act (35 P. S. § 7130.318).

Inadvertent intruder—A person who might occupy the disposal site after closure and engage in normal activities, such as agriculture, dwelling construction or other pursuits in which an individual might be unknowingly exposed to radiation from the waste.

Intruder barrier—A manmade structure or sufficient depth of cover over the waste that inhibits contact with waste and helps to ensure that radiation exposures to an inadvertent intruder will meet the requirements under § 236.320 (relating to protection from inadvertent intruders) and the performance objectives in this subchapter.

Isolation—Protection of the public and the environment from inadvertent intrusion or direct release of radioactive material from the disposal site.

Leak resistance—The material properties of the disposal facility design which retard or prevent migration of water.

Long term care period—See the definition of time periods.

Low-level radioactive waste—Radioactive waste that meets one of the following criteria:

(i) Is not high-level radioactive waste, spent nuclear fuel or by-product material as defined in section 11(e)(2) of the Atomic Energy Act of 1954 (42 U.S.C.A. § 2014(e)(2)), waste generated as a result of atomic energy defense activities of the Federal government and waste for which the Federal government is responsible under section 3(b)(1) of the Low-Level Radioactive Waste Policy Amendments Act of 1985 (42 U.S.C.A. § 2021c(b)(1)).

(ii) Is classified by the Federal government as low-level waste, consistent with the Low-Level Radioactive Waste Policy Amendments Act of 1985 or waste that contains naturally occurring or accelerator produced radioactive material which is not excluded by subparagraph (i).

Management—The reduction, collection, consolidation, storage, processing, incineration, separation, minimization, compaction, segregation, solidification, evaporation, packaging or treatment of low-level radioactive waste.

Mixed waste—Waste that is low-level radioactive waste, as defined in this subchapter, and either contains a hazardous waste or exhibits a hazardous characteristic as contained in the Solid Waste Management Act (35 P. S. §§ 6018.101—6018.1003).

Monitoring—Observing and making measurements to provide data to evaluate the performance and characteristics of the disposal site.

Municipality—A county, city, borough, home rule or incorporated town or township as defined in 1 Pa.C.S. § 1991 (relating to definitions).

Passive institutional control period—See the definition of time periods.

Person—Includes the following:

- (i) The definition contained in § 215.2 (relating to definitions).
- (ii) An individual, corporation, partnership, association, public or private institution, cooperative enterprise, municipal authority, public utility, trust, estate, group, Federal government or agency, other than the United States Nuclear Regulatory Commission or a successor thereto, State institution and agency or other legal entity which is recognized by law as the subject of rights and duties. The term includes officers and directors of a corporation or other legal entity having officers and directors.

Postclosure observation and maintenance period—See the definition of time periods.

Potentially suitable site—An area containing approximately 500 acres, for the disposal site, that meets the screening requirements in Subchapter B (relating to requirements for siting the regional disposal facility) and would reasonably be expected to meet the performance objectives in this subchapter and site suitability requirements in Subchapter B.

Protection fund—The Regional Facility Protection Fund.

Public water system—A water system which provides water to the public for human consumption and which has at least 15 service connections or regularly services an average of at least 25 individuals daily, at least 60 days out of the year.

Pyrophoric material—Material that ignites spontaneously. The term includes any liquid that ignites spontaneously in dry or moist air at or below 130° F (54.5°C), or a solid, other than one classed as an explosive, which under normal conditions is liable to cause fires through friction, retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious transportation, handling or disposal hazard. The term also includes spontaneously combustible and water reactive materials.

Shallow land burial—The disposal of low-level radioactive waste directly in subsurface trenches without additional confinement in engineered structures and in proper packaging as determined in the act.

Site closure and stabilization—Actions that are taken upon completion of operations that prepare the disposal site for custodial care and that assure that the disposal site will remain stable and will not need ongoing active maintenance.

Stability—Structural stability.

Surveillance—Monitoring and observation of the disposal site for purposes of visual detection of need for maintenance, custodial care, evidence of intrusion and compliance with other license, permit and regulatory requirements.

Time periods—Specific periods of time associated with the life of the disposal facility. The term includes the following time periods presented in chronological order:

(i) *Postclosure observation and maintenance period*—The period of time following site closure during which the site operator is preparing the site for transfer to the custodial agency.

(ii) *Long term care period*—The period of time which includes both the active and passive institutional control periods.

(iii) *Active institutional control period*—The period of time following site closure and the postclosure observation and maintenance period during which active access control, surveillance, monitoring and custodial care is maintained. This period will last for a minimum of 100 years.

(iv) *Passive institutional control period*—The period of time after the active institutional control period during which monitoring and passive access control of the facility is maintained. This period will be at least as long as the hazardous life of the radioactive waste.

Waste—Low-level radioactive waste.

Waste module—A discrete assembly of waste containers within a disposal unit.

Cross References

This section cited in 25 Pa. Code § 236.1 (relating to purpose and scope); 25 Pa. Code § 236.311 (relating to general requirements); and 25 Pa. Code § 237.2 (relating to definitions).

DISPOSAL SITE PERFORMANCE OBJECTIVES

§ 236.11. Scope.

The disposal site performance objectives establish the minimum overall level of safety that the disposal facility is required to meet. Operation within these levels will provide protection of public health, safety and the environment.

§ 236.12. General requirement.

The disposal facility shall be sited, designed, operated, closed and controlled after closure so that reasonable assurance exists that exposures to individuals are within the requirements established in the performance objectives in §§ 236.13—236.16.

§ 236.13. Protection of the general population and environment from releases of radioactivity.

Concentrations of radioactive material which may be released to the general environment in groundwater, surface water, air, soil, plants or animals may not result in an annual dose exceeding an equivalent of 25 millirems to the whole body, 75 millirems to the thyroid and 25 millirems to any other organ of any

member of the public. Releases of radioactivity in effluents to the general environment shall be as low as reasonably achievable and within the most restrictive Federal and Commonwealth regulations and standards which are applicable.

Cross References

This section cited in 25 Pa. Code § 236.12 (relating to general requirement); 25 Pa. Code § 236.15 (relating to protection of individuals during operations); 25 Pa. Code § 236.225 (relating to requirements for issuance of a license); 25 Pa. Code § 236.314 (relating to enhanced containment); and 25 Pa. Code § 236.603 (relating to assurance for onsite cleanup during operation).

§ 236.14. Protection of individuals from inadvertent intrusion.

Design, operation and closure of the disposal facility shall ensure protection of an individual from inadvertently intruding into the disposal site and occupying the site or contacting the waste after active institutional controls over the disposal site have been removed.

Cross References

This section cited in 25 Pa. Code § 236.12 (relating to general requirement); and 25 Pa. Code § 236.225 (relating to requirements for issuance of a license).

§ 236.15. Protection of individuals during operations.

Operations at the disposal facility shall be conducted in compliance with the standards for radiation protection in Chapter 219 (relating to standards for protection against radiation), except for releases of radioactivity in effluents from the disposal facility, which shall be governed by § 236.13 (relating to protection of the general population and environment from releases of radioactivity). Effort shall be made to maintain radiation exposures as low as is reasonably achievable.

Cross References

This section cited in 25 Pa. Code § 236.12 (relating to general requirement); and 25 Pa. Code § 236.603 (relating to assurance for onsite cleanup during operation).

§ 236.16. Stability of the disposal site.

The disposal facility shall be sited, designed, used, operated and closed to achieve long term stability of the disposal site and to eliminate to the extent practicable the need for ongoing active maintenance of the disposal site following closure so that only surveillance, monitoring or minor custodial care are required.

Cross References

This section cited in 25 Pa. Code § 236.12 (relating to general requirement); and 25 Pa. Code § 236.314 (relating to enhanced containment).

**Subchapter B. REQUIREMENTS FOR SITING THE
REGIONAL DISPOSAL FACILITY**

GENERAL

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**PHASE II SITE SUITABILITY
REQUIREMENTS**

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236.148. Subsurface geology and hydrology.
236.149. Natural resources.

Cross References

This subchapter cited in 25 Pa. Code § 236.2 (relating to definitions); 25 Pa. Code § 236.225 (relating to requirements for issuance of a license); 25 Pa. Code § 236.301 (relating to scope and purpose); and 25 Pa. Code § 236.312 (relating to compatibility with site).

GENERAL**§ 236.101. Scope and applicability.**

This subchapter contains the requirements for siting a low-level radioactive waste disposal facility in this Commonwealth. The low-level radioactive waste disposal facility shall satisfy other requirements of this chapter. The criteria for siting a low-level radioactive waste disposal facility are divided into two phases, §§ 236.121—236.128 (relating to Phase I screening requirements) and §§ 236.141—236.149 (relating to Phase II site suitability requirements). The proposed site for licensing shall meet the Phase I and Phase II requirements.

§ 236.102. Summary and purpose.

(a) The site selection process for the low-level radioactive waste disposal facility addresses a wide range of public health, safety, environmental, social and economic factors. Considerations such as public health and safety, flooding, tectonics, protection of lands in the public trust, protection and exploitation of natural resources, demographics, transportation, wildlife, air quality, ecology, topography and hydrogeology are addressed in the siting requirements. The primary goal of the siting process is to identify a site that is capable of protecting public health, safety and the environment and to identify a site that is licensable.

(b) Application of the site selection process eliminates land in this Commonwealth that is unsuitable for use as a disposal site. From the remaining land, a site is to be selected by the applicant which will be submitted in the license application for the construction of the low-level radioactive waste disposal facility. At the initiation of the site selection process, all of the land in this Commonwealth is considered suitable for siting the facility. Through application of Phase I screening requirements, the applicant shall evaluate multiple areas and determine whether the areas are qualified or unqualified until the applicant has identified and submitted three sites, of approximately 500 acres each, to the EQB as the preferred potentially suitable sites. Through application of Phase I and Phase II site suitability requirements, the preferred potentially suitable sites will be studied in detail—characterized—and compared to identify the proposed site to be submitted for licensing.

§ 236.103. Siting plan.

(a) The applicant shall submit a siting plan to the Department for approval. The siting plan shall meet the requirements of this subchapter and the act and follow the siting process discussed in the applicant's proposal. A quality assurance/quality control plan, which will be implemented throughout site screening and characterization, shall be submitted as part of the siting plan. Siting activities cannot begin until approval of the siting plan has been granted by the Department.

(b) The Department will utilize its oversight role to ensure that the applicant is implementing the approved siting plan throughout the site screening and site characterization period.

Cross References

This section cited in 25 Pa. Code § 236.104 (relating to siting process); and 25 Pa. Code § 236.206 (relating to program plans).

§ 236.104. Siting process.

(a) The applicant shall screen this Commonwealth for potentially suitable sites using the criteria in §§ 236.121—236.128 (relating to Phase I screening requirements). Screening shall be conducted consistent with the applicant's siting plan under § 236.103 (relating to siting plan), proposal and contract with the Department made under section 306 of the act (35 P. S. § 7130.306). The applicant shall propose three preferred potentially suitable sites and submit those sites to the EQB for approval.

(b) The EQB will hold at least one public information meeting and one public hearing in each proposed potentially suitable area, evaluate the three proposed potentially suitable sites and determine compliance with §§ 236.121—236.128. As part of this determination, the EQB will make a determination that the screening process has identified three of the best potential locations in this Commonwealth, based on the administrative record before the EQB. The administrative record shall consist of the screening report, site justification report, the study of short and long term environmental effects on the potentially suitable sites, the conclusions and siting recommendations of the Department, the testimony presented at the EQB's public hearings and comments received during the comment period.

(c) Upon preliminary approval of the three preferred potentially suitable sites by the EQB, the applicant shall obtain access to the sites and conduct detailed characterization studies under §§ 236.141—236.149 (relating to Phase II site suitability requirements). The studies shall be conducted consistent with the applicant's site characterization plan, proposal and contract with the Department made under section 306 of the act. After concluding the characterization studies, the applicant shall select the site to be considered for licensing.

(d) Detailed site characterization at a site may be discontinued by the applicant if conditions are encountered that would prevent that site from meeting the Phase I site screening evaluation requirements or the Phase II site suitability requirements. If no disqualifying conditions are encountered, the applicant shall continue detailed site characterization.

(e) If disqualifying conditions are encountered at the three sites, the applicant shall submit three other potentially suitable sites under this section prior to reinitiation of Phase II.

Cross References

This section cited in 25 Pa. Code § 236.141 (relating to general requirements).

§ 236.105. Preferred potentially suitable site selection procedure.

(a) The applicant shall propose three preferred potentially suitable sites for preliminary approval for further study and submit those sites to the EQB and the Department.

(b) The proposal shall be accompanied by the following:

- (1) A site screening report under § 236.107 (relating to screening report).
- (2) A site justification under § 236.108 (relating to site justification).
- (3) An environmental impact report under § 236.109 (relating to environmental impact report).

(c) At the same time that the proposal is submitted, the applicant shall submit to the Department a social and economic impact study for each site. Each study shall propose a host municipality and affected municipalities.

(d) The Department will evaluate the proposal and submit its recommendations to the EQB.

(e) The EQB will evaluate the three potentially suitable sites in accordance with section 307(e) of the act (35 P. S. § 7130.307(e)).

§ 236.106. Selection procedure for the proposed site.

(a) Prior to initiating detailed site characterization studies, the applicant shall prepare and submit for the Department's approval a detailed plan for characterizing the three preferred potentially suitable sites.

(b) The site characterization plan shall include:

- (1) Detailed plans and procedures, including quality assurance/quality control, for collecting detailed site specific information for compliance with the Phase I and Phase II siting requirements.
- (2) The method for determining the proposed site for licensing.

(c) Upon approval of the three preferred potentially suitable sites by the EQB and Department approval of the site characterization plan, the applicant shall obtain access to the sites and commence detailed characterization studies.

(d) Information collected shall be compiled and included as part of the content of the license application as specified in § 236.204 (relating to content of a license application).

§ 236.107. Screening report.

(a) The applicant shall submit a site screening report to the EQB as part of its proposal for approval of three preferred potentially suitable sites. The report shall include the following:

- (1) A comprehensive presentation of the information collected.
- (2) The analyses conducted.

- (3) The evaluation process that was used in screening this Commonwealth to identify the preferred potentially suitable sites.
- (b) The screening report shall identify the stages incorporated in the process to narrow the search from the entire Commonwealth to the level at which the three preferred potentially suitable sites are identified.
- (c) The screening report shall include a description of how the Phase I screening requirements were utilized in the process and a description of how meaningful public input was solicited and incorporated in each stage of the process.
- (d) The screening report shall include a detailed discussion of how requests for consideration as a potentially suitable site from interested municipalities were considered.
- (e) The screening report shall include documentation and references to substantiate the validity of the information presented and the conclusions reached through every stage of analysis. The report shall describe the research and analytical techniques and identify the principal persons responsible for conducting the research and preparing the report. Presentations of information shall be clear, concise and complete to the level that allows for independent evaluation by the EQB.

Cross References

This section cited in 25 Pa. Code § 236.105 (relating to preferred potentially suitable site selection procedure).

§ 236.108. Site justification.

- (a) The applicant shall submit site justifications which explain the reasons for the choice of each preferred potentially suitable site.
- (b) The applicant shall use the process established in the proposal and the siting plan as approved by the Department, for applying the requirements of §§ 236.121—236.128 (relating to Phase I screening requirements) and show how the process was used to identify each preferred potentially suitable site.
- (c) Site justifications shall predict the ability of each preferred site to meet the Phase II site suitability requirements and the performance objectives in Subchapter A (relating to general provisions).
- (d) Site justifications shall utilize comparisons of information collected and analyzed during the screening process to defend and justify the choice of a preferred potentially suitable site.

Cross References

This section cited in 25 Pa. Code § 236.105 (relating to preferred potentially suitable site selection procedure).

§ 236.109. Environmental impact report.

An environmental impact report shall be prepared for each of the preferred potentially suitable sites and affected areas. The report shall consider the short and long term effects that a disposal facility would have on public health and safety and the environment at each preferred potentially suitable site and affected areas.

Cross References

This section cited in 25 Pa. Code § 236.105 (relating to preferred potentially suitable site selection procedure).

§ 236.110. Social and economic impact study.

(a) A social and economic impact study shall be prepared for each of the preferred potentially suitable sites. The study shall include information, analyses and discussion to clearly identify social and economic impacts. The level of information that is submitted shall be sufficient to permit the Department to conduct an independent evaluation.

(b) Each social and economic impact study shall:

(1) Propose to the Department a host municipality and affected municipalities.

(2) Evaluate the long and short term potential impacts of the facility on social and economic conditions including the following:

(i) Tax revenue.

(ii) Public and private infrastructure compatibility with regional and local economic goals.

(iii) Emergency management capabilities.

(iv) Loss of resources.

(v) Social service demands.

(c) The Department will use the social and economic impact reports in its consideration for identifying host and affected municipalities.

(d) The Department will identify the host and affected municipalities and incorporate them into the disposal facility license.

§ 236.111. Distances.

The distances from a facility to a feature or structure described in this chapter shall be measured from the boundary of the disposal site.

PHASE I SCREENING REQUIREMENTS**§ 236.121. General requirements.**

(a) This section and §§ 236.122—236.128 contain both disqualifying criteria and evaluation requirements.

(b) Disqualifying criteria denote conditions that are unacceptable for the siting of a low-level radioactive waste disposal facility. Implementation of disqualifying criteria requires that areas be evaluated to determine the existence of disqualifying conditions. Siting a low-level radioactive waste disposal facility in an area containing disqualifying conditions is prohibited. The EQB will deny a proposed site without further review if the proposed site contains disqualifying conditions. The applicant bears the burden of proving that the site contains no disqualifying conditions.

(c) Evaluation requirements denote conditions that require identification, investigation and assessment to determine acceptability. The EQB will not approve a site unless the applicant successfully demonstrates with clear and convincing evidence that the site complies with the evaluation requirements.

Cross References

This section cited in 25 Pa. Code § 236.101 (relating to scope and applicability); 25 Pa. Code § 236.104 (relating to siting process); and 25 Pa. Code § 236.108 (relating to site justification).

§ 236.122. Demography and land use.

(a) *Disqualifying criteria.* Potentially suitable sites may not be located where nearby facilities, activities, population or development will mask monitoring of the disposal site or affect the disposal site's compliance with the performance objectives.

(b) *Evaluation requirements.* Demographic and land use characteristics that could be affected by a potentially suitable site relate to items, such as population distribution and future growth, land use, nearby facilities, safety and support services and economic conditions. Evaluations shall be made to determine the effects a proposed site location could have on existing and projected future conditions.

(1) Conditions of ownership, such as surface ownership, mineral rights, rights-of-way and liens shall be identified and evaluated with respect to site acquisition requirements of section 307 of the act (35 P. S. § 7130.307).

(2) An evaluation of compatibility with adopted county and municipal plans for land use and zoning, population distribution, projected population growth and restrictions shall be on record.

(3) The evaluations shall show potential impacts on facilities and structures, including schools, parks, hospitals, churches, retail centers, nursing homes and business establishments.

(4) An evaluation of support and safety services, including utilities, fire protection, police and medical capabilities shall be currently available upon which the disposal facility would rely. The evaluation shall include an assessment of future service needs necessary to adequately support the disposal facility.

(5) Economic conditions within the affected area of a potentially suitable site shall be described and analyzed. Potential impacts on the existing conditions shall be determined. Sufficient information and analysis shall be provided to allow for assessment of benefits and guarantees under section 318 of the act (35 P. S. § 7130.318).

Cross References

This section cited in 25 Pa. Code § 236.101 (relating to scope and applicability); 25 Pa. Code § 236.104 (relating to siting process); 25 Pa. Code § 236.108 (relating to site justification); and 25 Pa. Code § 236.121 (relating to general requirements).

§ 236.123. Evaluation requirements for transportation.

Existing and projected access roads, from potentially suitable sites to points of exit off existing interstate or limited access highways, shall be identified, described and evaluated with respect to:

- (1) Their general type, conditions, upgrade or construction needs.
- (2) Potential hazards for transportation.
- (3) Residential dwellings per road mile.
- (4) Facilities such as schools, parks or hospitals, per road mile.
- (5) A total travel distance between a potentially suitable site and points of exit from existing interstate or limited access highways.
- (6) Past highway safety records.

Cross References

This section cited in 25 Pa. Code § 236.101 (relating to scope and applicability); 25 Pa. Code § 236.104 (relating to siting process); 25 Pa. Code § 236.108 (relating to site justification); and 25 Pa. Code § 236.121 (relating to general requirements).

§ 236.124. Evaluation requirements for meteorology and climatology.

Averages and extremes for regional climatic and site-specific meteorology characteristics, such as temperature, precipitation, humidity, freeze-thaw characteristics and historical trends for airflow patterns, pressure systems and frontal movements, shall be described and evaluated to determine potential effects on a potentially suitable site. The potential for severe weather phenomena such as tornadoes and other storm events based on historical data shall be evaluated.

Cross References

This section cited in 25 Pa. Code § 236.101 (relating to scope and applicability); 25 Pa. Code § 236.104 (relating to siting process); 25 Pa. Code § 236.108 (relating to site justification); and 25 Pa. Code § 236.121 (relating to general requirements).

§ 236.125. Seismology.

- (a) *Disqualifying criteria.* Potentially suitable sites may not be located within 1 mile of an active fault.
- (b) *Evaluation requirements.*

(1) Potentially suitable sites shall be evaluated with respect to regional tectonic history and geologic structure, including stability, faults, folds, joints and fractures.

(2) Capable faults identified in the vicinity of a site shall be evaluated to determine correlation of the fault with recorded or suspect earthquake activity and potential impact on site stability.

(3) Potentially suitable sites shall be evaluated to determine the proximity to known or reported seismic epicenters within 200 miles. The probable seismic risk and impact associated with those epicenters that reported a Mercalli intensity of (IV) or greater shall be evaluated.

Cross References

This section cited in 25 Pa. Code § 236.101 (relating to scope and applicability); 25 Pa. Code § 236.104 (relating to siting process); 25 Pa. Code § 236.108 (relating to site justification); and 25 Pa. Code § 236.121 (relating to general requirements).

§ 236.126. Surface geology and hydrology.

(a) *Disqualifying criteria.* Potentially suitable sites may not be located:

(1) Within the limits of the 100-year floodplain of a waterway as defined in the Flood Plain Management Act (32 P. S. §§ 679.101—679.601).

(2) Within the limits of a coastal floodplain as defined in Federal Executive Order 11988, *Flood Plain Management Guidelines* (42 U.S.C.A. § 4321, note).

(3) Within the area below a dam which may be threatened with loss of life or serious damage to property if a failure of the dam occurs.

(4) Where erosional processes or mass movement of landforms, such as mass wasting and landslides, would affect the long term stability and isolation of waste.

(5) Where there are slopes greater than 15% on areas of the disposal site where disposal units may be located, as mapped on USGS 7.5-minute quadrangles utilizing a scale of 1:24,000 with a contour interval of either 10 feet or 20 feet or on county topographic maps that utilize a scale of 1:50,000 and a contour interval of 20 feet.

(b) *Evaluation requirements.* Potentially suitable sites shall be evaluated:

(1) With respect to regional and local geomorphology. Evaluations shall discuss geomorphic features pertinent to site stability and the relationships between regional and local geomorphic features.

(2) With respect to local and site-specific surface hydrology. Characteristics to be evaluated include:

- (i) Site drainage conditions.
- (ii) Rates of evapotranspiration and infiltration.
- (iii) Rates and directions of runoff.
- (iv) Fluvial features.

- (v) Historical flow conditions.
- (vi) Chemical and physical properties of the waters.
- (3) To determine the potential for, and the impacts from, major modifications of upstream drainage by others.
- (4) With respect to local and site specific erosional processes. Characteristics such as rates, types and directions of erosion shall be described. The potential for mass movement of landforms, including landslides, slumping and mass wasting, shall also be evaluated.
- (5) To determine the probable existence and extent of surface water features, including wetlands, springs and ponds that are sustained by groundwater. This evaluation shall also address the potential for future ponding and surface water discharges.
- (6) To determine the magnitude, frequency and duration of storm events that would cause inundating floods and probable maximum flood conditions.

Cross References

This section cited in 25 Pa. Code § 236.101 (relating to scope and applicability); 25 Pa. Code § 236.104 (relating to siting process); 25 Pa. Code § 236.108 (relating to site justification); and 25 Pa. Code § 236.121 (relating to general requirements).

§ 236.127. Subsurface geology and hydrology.

(a) *Disqualifying criteria.* Potentially suitable sites may not be located in areas where there is limestone or other predominantly carbonate lithologic units which exhibit one of the following characteristics:

- (1) Outcrop at the surface.
- (2) Occur within 50 feet of the surface and are greater than 5 feet thick.
- (3) Have been identified as areas with a potential for subsidence.
- (4) Currently exhibit evidence of subsidence at the surface.

(b) *Evaluation requirements.*

(1) The geology at potentially suitable sites shall be evaluated with respect to regional and local stratigraphy, lithologies and potential impact on site stability. Descriptions, illustrations and evaluations shall include characteristics such as local stratigraphic units and their accepted names, relative ages, lithologic descriptions and genetic relationships.

(2) Depths to local and regional zones of permanent saturations including seasonal fluctuations, shall be evaluated. The probability and extent of both permanent and seasonal perched water tables potentially affected by a site shall be evaluated.

(3) Local and potentially affected aquifers shall be described, evaluated and illustrated with respect to the following:

- (i) Characteristics, such as lateral extent and thickness.
- (ii) Rates, directions and volumes of groundwater flow.
- (iii) Porosities and permeabilities.

- (iv) Recharge areas and discharge areas.
- (v) Reported chemical properties.
- (4) Site-specific and local soil conditions shall be evaluated with respect to physical, chemical and mineralogical properties. Characteristics to be evaluated include:
 - (i) Lateral extent and thickness of soil horizons.
 - (ii) Classification names.
 - (iii) Relative ages.
 - (iv) Genetic relationships.
 - (v) Porosities and permeabilities.
 - (vi) Rates, directions and conditions of surface and subsurface flow.

Cross References

This section cited in 25 Pa. Code § 236.101 (relating to scope and applicability); 25 Pa. Code § 236.104 (relating to siting process); 25 Pa. Code § 236.108 (relating to site justification); and 25 Pa. Code § 236.121 (relating to general requirements).

§ 236.128. Natural resources.

- (a) *Disqualifying criteria.* Potentially suitable sites may not be located:
 - (1) Within 1/2 mile of a well or spring which is used as a public water supply.
 - (2) Within 1/2 mile of either side of a stream or impoundment for a distance of 5 stream miles upstream of a surface water intake for a public water supply.
 - (3) Within 1/2 mile of an existing important wetland, as defined in Chapter 105 (relating to dam safety and waterway management).
 - (4) Within the boundaries of the following:
 - (i) National Park Systems.
 - (ii) National Forests.
 - (iii) Natural Landmarks designated by the National Park Service.
 - (iv) National Wildlife Refuges.
 - (v) National Fish Hatcheries.
 - (vi) National Wild and Scenic River Systems, including study rivers designated under section 5(a) of the Wild and Scenic River Act (15 U.S.C.A. § 1276(a)).
 - (vii) National System of Trails.
 - (viii) National Wilderness Preservation Systems.
 - (ix) Exceptional Value Watersheds.
 - (x) Historic sites listed on the National Register of Historic Places.
 - (xi) State, county or municipal park systems.
 - (xii) Land owned by the Historical and Museum Commission.
 - (xiii) Lands protected by the Wild and Scenic Rivers Program.
 - (xiv) Designated natural and wild areas.

(5) Within the boundaries of State Forest and State Game Lands unless the agency administering the lands has been given authority by statute or ordinance to allow the siting and operation of the regional disposal facility.

(6) In areas over active or inactive oil and gas wells or gas storage areas. The phrase “active or inactive oil and gas wells or storage areas” has the same meaning as used in the Oil and Gas Act (58 P. S. §§ 601.101—601.605).

(7) On agricultural land established under the Agricultural Area Security Law (3 P. S. §§ 901—915) or Class I agricultural land as defined by the United States Soil Conservation Service.

(8) In areas over active or inactive mines that are identified and substantiated by public records.

(b) *Evaluation requirements.* Potentially suitable sites shall be evaluated:

(1) With respect to water use characteristics of potentially affected water supplies. Existing private, public and community water supplies located onsite or within 3 miles shall be identified and evaluated. The ability to replace existing water supplies with alternate supplies of like quality and quantity shall be evaluated.

(2) To determine potential impact on designated high quality watersheds that may be affected.

(3) To determine the existence of, and potential impact on, endangered and threatened species as defined in the Endangered Species Act of 1973 (16 U.S.C.A. §§ 460K-1, 4601-9, 668aa—668cc-6, 668dd, 715i, 715s, 1362, 1371, 1372, 1402 and 1531—1543).

(4) To determine the existence of, and potential impact on, biologic habitats identified as either endangered, threatened, rare or exemplary; and geologic features identified as outstanding on the Pennsylvania Natural Diversity Inventory.

(5) To determine to what extent previous exploration or exploitation practices have disturbed the natural geologic setting in the area. Evaluations shall identify locations, types and extent of disturbances; and estimate potential impact on site stability.

(6) To determine the types, quantities and physical locations of the natural resources contained therein and shall include an evaluation of the availability of these resources from other areas outside the site. Priority shall be given to avoid areas where natural resources that may be rare or unique to the site exist.

(c) *Wetlands.* The preferred potentially suitable sites submitted to the EQB for approval will be evaluated by the Department to determine the existence of wetlands. The results of this evaluation will be part of the Department’s review that will be submitted to the EQB.

Cross References

This section cited in 25 Pa. Code § 236.101 (relating to scope and applicability); 25 Pa. Code § 236.104 (relating to siting process); 25 Pa. Code § 236.108 (relating to site justification); and 25 Pa. Code § 236.121 (relating to general requirements).

PHASE II SITE SUITABILITY REQUIREMENTS**§ 236.141. General requirements.**

(a) This section and §§ 236.142—236.149 establish and identify the requirements that a site is required to meet to be considered suitable for the proposed low-level radioactive waste disposal facility. Phase II, site-specific characterization of the three preferred potentially suitable sites, begins after approval is granted by the EQB under § 236.104 (relating to siting process) and after the Department approves the site characterization plan. Site characterization will require access to the sites.

(b) Implementation of the site suitability requirements requires the collection, documentation, analysis, discussion and illustration of detailed site-specific data to supplement the data collected during Phase I screening. The Phase II effort will substantiate or disprove the validity of evaluations and projections made for the three preferred potentially suitable sites chosen in Phase I. The applicant shall clearly demonstrate that the preferred site meets the Phase I and Phase II siting requirements and contributes to compliance with the performance objectives of Subchapter A (relating to general provisions). The findings from the detailed site characterization studies shall be presented as part of the license application required in Subchapter C (relating to regional facility license).

(c) For the type of criteria in which the data collected are considered time variant by the Department, there shall be a minimum of 1 year of data acquisition to substantiate the validity of analyses and conclusions.

(d) The issuance of a license by the Secretary constitutes final approval of the site for the disposal facility.

Cross References

This section cited in 25 Pa. Code § 236.101 (relating to scope and applicability); and 25 Pa. Code § 236.104 (relating to siting process).

§ 236.142. Characterization and modeling.

A disposal site shall be capable of being characterized, modeled, analyzed and monitored. Characterization shall be adequate to define characteristics and conditions, both onsite and offsite, through monitoring, analysis, modeling and demonstration, to substantiate that the site can satisfy site suitability requirements and meet the performance objectives.

Cross References

This section cited in 25 Pa. Code § 236.101 (relating to scope and applicability); 25 Pa. Code § 236.104 (relating to siting process); and 25 Pa. Code § 236.141 (relating to general requirements).

§ 236.143. Demography and land use.

A disposal site shall be located so that projected population growth and future developments are not likely to affect the ability of the disposal site to meet the performance objectives in Subchapter A (relating to general provisions).

Cross References

This section cited in 25 Pa. Code § 236.101 (relating to scope and applicability); 25 Pa. Code § 236.104 (relating to siting process); and 25 Pa. Code § 236.141 (relating to general requirements).

§ 236.144. Transportation.

A disposal site shall be located so that the roads connecting the site to an existing or limited access highway allow for safe transportation so that risks to the general population will be as low as reasonably achievable.

Cross References

This section cited in 25 Pa. Code § 236.101 (relating to scope and applicability); 25 Pa. Code § 236.104 (relating to siting process); and 25 Pa. Code § 236.141 (relating to general requirements).

§ 236.145. Meteorology and climatology.

A disposal site shall be located so that adverse climatic and meteorologic conditions will not affect the ability of the disposal site to meet the performance objectives in Subchapter A (relating to general provisions).

Cross References

This section cited in 25 Pa. Code § 236.101 (relating to scope and applicability); 25 Pa. Code § 236.104 (relating to siting process); and 25 Pa. Code § 236.141 (relating to general requirements).

§ 236.146. Seismology.

A disposal site shall be tectonically stable to meet the performance objectives in Subchapter A (relating to general provisions). An area shall be avoided where tectonic processes such as faulting, folding or seismic activity may occur with a frequency and to an extent which may affect the isolation of waste and the long term stability of the site.

Cross References

This section cited in 25 Pa. Code § 236.101 (relating to scope and applicability); 25 Pa. Code § 236.104 (relating to siting process); and 25 Pa. Code § 236.141 (relating to general requirements).

§ 236.147. Surface geology and hydrology.

(a) A disposal site area shall be located where topography and surface geologic processes occur at rates, frequency and extent that they will not affect meeting the performance objectives in Subchapter A (relating to general provisions).

(b) A disposal site shall be generally well drained and free of areas of flooding or frequent ponding. The disposal facility may not be located in a wetland, as defined in Chapter 105 (relating to dam safety and waterway management).

(c) A disposal site shall be located so that upstream drainage areas are minimized to decrease the amount of runoff which could erode or inundate waste disposal units.

Cross References

This section cited in 25 Pa. Code § 236.101 (relating to scope and applicability); 25 Pa. Code § 236.104 (relating to siting process); and 25 Pa. Code § 236.141 (relating to general requirements).

§ 236.148. Subsurface geology and hydrology.

(a) A disposal site may not be located where hydrologic conditions such as hydraulic conductivity or geologic features such as fractured bedrock occur at rates, frequency or extent that could adversely affect the isolation of waste or the ability to meet the performance objectives in Subchapter A (relating to general provisions).

(b) A disposal site shall be located in a hydrogeologic setting that provides sufficient separation from the groundwater, so that water intrusion into disposal units, perennial or otherwise, will not occur.

Cross References

This section cited in 25 Pa. Code § 236.101 (relating to scope and applicability); 25 Pa. Code § 236.104 (relating to siting process); and 25 Pa. Code § 236.141 (relating to general requirements).

§ 236.149. Natural resources.

(a) A disposal site shall be located so that resources, such as those protected by law, those suitable for human consumption and those culturally or historically unique, can be protected during siting, design, construction, operation, closure, decommissioning and long term care.

(b) A disposal site may not be located where exploration or exploitation of natural resources, such as hydrocarbons, industrial minerals, metallic ores and mineral fuels located on the site or in adjacent areas could affect isolation of waste or, the ability to meet the performance objectives in Subchapter A (relating to general provisions).

Cross References

This section cited in 25 Pa. Code § 236.101 (relating to scope and applicability); 25 Pa. Code § 236.104 (relating to siting process); and 25 Pa. Code § 236.141 (relating to general requirements).

Subchapter C. REGIONAL FACILITY LICENSE**LICENSE APPLICATION**

- Sec.
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 - 236.202. License required.
 - 236.203. License application fee.
 - 236.204. Content of a license application.
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LICENSE REVIEW PROCEDURES AND STANDARDS

- 236.221. Verification of receipt of application.
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- 236.241. Amendments for closure and transfer.
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- 236.245. Content of a license application for closure.
- 236.246. Application and transfer of license to the Commonwealth.
- 236.247. Termination of license.

Cross References

This subchapter cited in 25 Pa. Code § 236.141 (relating to general requirements).

LICENSE APPLICATION

§ 236.201. Scope.

This subchapter addresses the requirements for licensing the regional disposal facility operator. The requirements included are as follows:

- (1) Application for a license.
- (2) License application review procedures and standards.
- (3) Procedures for requesting changes to the disposal facility.

§ 236.202. License required.

(a) A person may not construct, alter, own or operate a low-level waste disposal facility or may receive, possess or dispose of waste received from other persons at the regional disposal facility unless authorized by a license issued by the Department under this chapter.

(b) A person shall file an application with the Department under § 236.212 (relating to filing and distribution of license application) and obtain a license as provided in this subchapter before commencement of construction of the disposal facility. Failure to comply with this requirement will be grounds for denial of a license.

§ 236.203. License application fee.

The license application fee is \$800,000.

§ 236.204. Content of a license application.

In addition to the requirements in § 236.212 (relating to filing and distribution of license application), an application to receive from others, possess and dispose of wastes shall consist of:

- (1) General information, program plans, a quality assurance/quality control program, specific technical information, institutional control information and financial information as set forth in §§ 236.205—236.211.
- (2) An impact analysis report. The report shall address the impact of licensing the activity and include:
 - (i) A detailed assessment of the radiological and nonradiological impacts to the public health and the environment.
 - (ii) A detailed assessment of the impact on the quality and quantity of the surface and groundwater within a 5-mile radius of the site.
 - (iii) A discussion of the long term public health and environmental impacts, including closure, decommissioning, decontamination and reclamation of the site and facilities associated with the licensed activities and management of radioactive materials which will remain on the site after closure, decommissioning, decontamination and reclamation.
 - (iv) A discussion of the short and long term social and economic impacts of the regional disposal facility on the host and affected municipali-

ties. These impacts will be used to create a minimum set of items to be considered as part of the host and affected municipality benefit negotiations. At a minimum, the study shall include the impacts on local tax revenues, public and private infrastructures, emergency management capabilities and social service demands.

(v) A preoperational environmental radiation survey and a preoperational health survey of cancer and other disease rates and birth defects within 5 miles of the site.

(vi) Justification for the choice of the proposed site over the other two preferred potentially suitable sites.

Cross References

This section cited in 25 Pa. Code § 236.106 (relating to selection procedure for the proposed site).

§ 236.205. General information.

The license application shall include general information as follows:

- (1) The identity of the applicant, including:
 - (i) The full name, address, telephone number and description of the business or occupation of the applicant.
 - (ii) The name and address of each partner and the principal location where the partnership does business, if the applicant is a partnership.
 - (iii) The following, if the applicant is a corporation or an unincorporated association:
 - (A) The state in which it is incorporated or organized and the principal location at which it does business.
 - (B) The names and addresses of its directors and principal officers.
 - (iv) Information required under this section with respect to the other person, if the applicant is acting as an agent or representative of another person in filing the application.
- (2) Qualifications of the applicant as follows:
 - (i) The organizational structure of the applicant, both offsite and onsite, including a description of lines of authority, key positions and assignments of responsibilities, whether in the form of administrative directives, contract provisions or otherwise.
 - (ii) The technical qualifications, including training and experience, of the applicant and members of the applicant's staff to engage in the proposed activities. Minimum training and experience requirements for personnel filling key positions described in subparagraph (i) shall be provided.
 - (iii) A description of the applicant's personnel training program.
 - (iv) The plan to maintain an adequate complement of trained personnel to carry out waste receipt, handling and disposal operations in a safe manner.
- (3) A description of:
 - (i) The location of the proposed disposal site.

- (ii) The general character of the proposed activities.
- (iii) The types and quantities of waste to be received, possessed and disposed of.
- (iv) The proposed facilities and equipment.
- (4) Proposed schedules for construction, receipt of waste and first emplacement of waste at the disposal facility.
- (5) A description of the applicant's compliance with State and Federal environmental protection statutes including the Radiation Protection Act and Low-Level Radioactive Waste Disposal Act, the Appalachian States Low-Level Radioactive Waste Compact Act or other state or Federal statute relating to environmental protection or to protect the public health and safety.

Cross References

This section cited in 25 Pa. Code § 236.204 (relating to content of a license application); and 25 Pa. Code § 236.226 (relating to conditions of the license).

§ 236.206. Program plans.

- (a) The applicant shall submit the following detailed program plans:
 - (1) A siting plan under § 236.103 (relating to siting plan).
 - (2) A quality assurance/quality control plan under § 236.207 (relating to quality assurance/quality control program).
 - (3) A monitoring plan under § 236.409 (relating to monitoring plan).
 - (4) A security plan under § 236.403(a)(1) (relating to facility operation plan).
 - (5) An operations plan under § 236.403.
 - (6) A contingency plan under § 236.404 (relating to contingency plans).
 - (7) A radiation control plan under § 236.403(c).
 - (8) A construction plan under § 236.402 (relating to construction plan).
 - (9) A site closure and decommissioning plan under § 236.411 (relating to site closure and decommissioning plan).
- (b) The plans set forth in subsection (a), and subsequent changes thereto, will be reviewed and approved by the Department. The requirement to implement the approved plans will be incorporated into the facility license.
- (c) The plans shall demonstrate that the necessary technical information and analyses can be obtained and used to demonstrate compliance with the performance objectives.

Cross References

This section cited in 25 Pa. Code § 236.204 (relating to content of a license application); and 25 Pa. Code § 236.245 (relating to content of license application for closure).

§ 236.207. Quality assurance/quality control program.

A quality assurance/quality control plan shall be submitted to the Department for approval. The plan shall include a description of the quality assurance/quality

control program for the determination of natural disposal site characteristics and for quality assurance/quality control during the design, construction, operation and closure of the disposal facility and the receipt, handling and emplacement of waste. Audits and managerial controls shall be included.

Cross References

This section cited in 25 Pa. Code § 236.204 (relating to content of a license application); and 25 Pa. Code § 236.206 (relating to program plans).

§ 236.208. Specific technical information.

The specific technical information shall include information needed for demonstrating that the performance objectives and the applicable technical requirements of this chapter will be met. The following shall be included:

- (1) A description of the natural and demographic disposal site characteristics as determined by site screening and characterization activities contained in Subchapter B (relating to requirements for siting the regional disposal facility). The description shall include demographic, meteorologic, climatologic, biotic, ecologic, hydrologic, geologic (including geochemical and geotechnical) and natural resource features of the disposal site and vicinity.
- (2) A description of the design features of the disposal facility and the disposal units. The description shall include those design features related to the following:
 - (i) Minimization of water intrusion.
 - (ii) Integrity of covers for disposal units.
 - (iii) Structural stability.
 - (iv) Contact of wastes with standing water.
 - (v) Disposal site drainage.
 - (vi) Closure and stabilization.
 - (vii) Recoverability.
 - (viii) Elimination to the extent practicable of long term active maintenance.
 - (ix) Protection from inadvertent intrusion.
 - (x) Occupational exposures.
 - (xi) Monitoring.
 - (xii) Adequacy of the size of the buffer zone for monitoring and potential remedial measures.
- (3) A description of the principal design features and their relationship to the performance objectives.
- (4) A description of the engineered structures which the applicant has incorporated into the design and which will apply to construction of the disposal facility.
- (5) A description of codes and standards which the applicant has applied to the design and which will apply to construction of the disposal facility.

- (6) A description of the construction and operation of the disposal facility. The description shall include at a minimum:
- (i) Methods of constructing the disposal units.
 - (ii) Waste emplacement.
 - (iii) Procedures for and areas of waste segregation.
 - (iv) Types of intruder barriers.
 - (v) Onsite traffic and drainage systems.
 - (vi) Survey control program.
 - (vii) Methods and areas of waste storage.
 - (viii) Methods to control water access to the wastes.
 - (ix) The methods to be employed in the handling and disposal of wastes containing chelating agents or other nonradiological substances that might affect meeting the performance objectives of Subchapter A (relating to general provisions).
- (7) A description of the disposal site closure and decommissioning plan under § 236.411 (relating to site closure and decommissioning plan); specifically those design features which are intended to facilitate disposal site closure and to eliminate the need for ongoing active maintenance.
- (8) An identification of the known natural resources at the disposal site, exploitation of which could result in inadvertent intrusion into the waste after removal of active institutional control.
- (9) A description of the various low-level waste streams and the physical and chemical properties, and the volumes and different classes of waste proposed to be received, possessed and disposed of at the disposal facility. The description shall include consideration of projected variations in future waste streams and volumes and their potential affect on the disposal facility.
- (10) A description of the radiation safety program for control and monitoring of radioactive effluents to ensure compliance with the performance objective in Subchapter A and occupational radiation exposure to ensure compliance with Chapter 219 (relating to standards for protection against radiation) and to control contamination of personnel, vehicles, equipment, buildings and the disposal site. Both routine operations and accidents shall be addressed. The program description shall include procedures, instrumentation, facilities and equipment. Application of as low as reasonably achievable shall be discussed.
- (11) A description of the monitoring program under § 236.409 (relating to monitoring plan) to provide data to evaluate disposal facility performance, potential health and environmental impacts and the plan for taking remedial measures.
- (12) A description of the administrative procedures that the applicant will apply to control activities at the disposal facility.
- (13) A description of potential operational accidents and the methodology to assure that likely accident scenarios are bounded.

Cross References

This section cited in 25 Pa. Code § 236.204 (relating to content of a license application).

§ 236.209. Technical analyses.

The specific technical information shall also include the following analyses needed to demonstrate that the performance objectives of Subchapter A (relating to general provisions) will be met:

(1) Analyses of the pathways demonstrating protection of the general population from releases of radioactivity. Pathways analyzed shall include air, soil, groundwater, surface water, plant uptake and exhumation by burrowing animals. The analyses shall clearly identify and differentiate between the roles performed by the natural site characteristics and design features in isolating and segregating the wastes. The analyses shall clearly demonstrate that there is assurance that the exposures to humans from the release of radioactivity will not exceed the limits set forth in the performance objectives in Subchapter A.

(2) Analyses of the protection of individuals from inadvertent intrusion. The analyses shall include a demonstration that there is assurance that the waste classification and segregation requirements will be met and that barriers to inadvertent intrusion will be provided.

(3) Analyses of the protection of individuals during operations. The analyses shall include assessments of expected exposures due to routine operations and likely accidents during handling, storage and disposal of waste. The analyses shall provide assurance that exposures will be controlled to meet the requirements of Chapter 219 (relating to standards for protection against radiation).

(4) Analyses of the long term stability of the disposal site to determine the need for ongoing active maintenance after closure. These analyses shall consider active natural processes, including erosion, mass wasting, slope failure, settlement of wastes, infiltration through disposal covers and surface drainage of the disposal site. The analyses shall provide assurance that there will not be a need for ongoing active maintenance of the disposal site following closure.

Cross References

This section cited in 25 Pa. Code § 236.204 (relating to content of a license application).

§ 236.210. Institutional control information.

The institutional control information submitted by the applicant shall include:

(1) A certification by the Commonwealth that the custodial agency is prepared to accept transfer of the license when § 236.246 (relating to application and transfer of license to the Commonwealth) is met and will assume responsibility for institutional control after site closure and the postclosure observation and maintenance period.

(2) If the proposed disposal site is on land not owned by the Federal government or the Commonwealth, the applicant shall submit evidence that arrangements have been made for assumption of ownership by the Commonwealth before the Department issues a license.

Cross References

This section cited in 25 Pa. Code § 236.204 (relating to content of a license application); and 25 Pa. Code § 236.225 (relating to requirements for issuance of a license).

§ 236.211. Financial information.

The financial information shall be sufficient to demonstrate that the financial qualifications of the applicant are adequate to carry out the activities for which the license is sought and meet the financial assurance requirements of section 316 of the act (35 P. S. § 7130.316) and Subchapter G (relating to financial assurances and liability). The applicant shall provide documented evidence of the availability of funds. If debt capital will be used, letters of commitment from the financial sources shall be provided.

Cross References

This section cited in 25 Pa. Code § 236.204 (relating to content of a license application).

§ 236.212. Filing and distribution of license application.

(a) An application package to obtain a license under this chapter and the Department licenses and permits necessary to construct and operate the disposal facility shall be filed with the Secretary. The applicant shall submit one signed original and 35 copies to the Secretary.

(b) The application package shall contain a statement, signed by a responsible official of the applicant and attested by a notary public, that certifies that the information contained in the application package is true and correct to the best of the official's information and belief.

(c) The application package shall consist of the following:

- (1) The application for a license.
- (2) An impact analysis report.
- (3) The Department license and permit applications necessary for construction and operation of the disposal facility.

Cross References

This section cited in 25 Pa. Code § 236.202 (relating to license required); 25 Pa. Code § 236.204 (relating to content of a license application); 25 Pa. Code § 236.241 (relating to amendments for closure and transfer); and 25 Pa. Code § 236.247 (relating to termination of license).

§ 236.213. Contact person.

Except as otherwise specified, communications and reports concerning this chapter and applications filed under it shall be addressed to the Secretary, Department of Environmental Resources, Post Office Box 2063, Harrisburg, Pennsylvania 17120.

LICENSE REVIEW PROCEDURES AND STANDARDS**§ 236.221. Verification of receipt of application.**

The Department will notify the applicant of its receipt of the license application.

§ 236.222. Public notice.

(a) Upon receipt of the license application, the Department will notify the public of receipt of the application. The notification will include a listing of the locations in which the application can be reviewed by the public. Notification will be provided in the *Pennsylvania Bulletin*, local media, newspapers of wide general circulation and newspapers in the area the regional facility is proposed to be located.

(b) The Department will make the license application available for review in the host municipality.

Cross References

This section cited in 25 Pa. Code § 236.223 (relating to public comment and hearing); 25 Pa. Code § 236.224 (relating to revising the license application); and 25 Pa. Code § 236.241 (relating to amendments for closure and transfer).

§ 236.223. Public comment and hearing.

(a) The Department will hold one public hearing and one public information meeting on the initial license application in the area the regional facility is proposed to be located. The Department will issue a 30-day public notice in the *Pennsylvania Bulletin* and newspapers of general circulation in the area of the proposed host municipality to announce the hearing and meeting dates. There will be a minimum of 30 days time between the public hearing and the public meeting.

(b) Interested persons may submit to the Department written comments regarding the application. Comments shall be submitted within 180 days after notification has been made under § 236.222 (relating to public notice). Interested persons may submit comments at the hearing. A person wishing to examine witnesses shall submit to the Department a numbered list of contentions. The contentions shall be limited to failure of the license application and its contents to conform with the act and this chapter. The applicant shall submit two copies of its testimony 2 weeks before the date the hearing is scheduled. The applicant or

licensee shall make its staff available to answer questions. The Department may establish the duration for oral testimony and may limit the scope of questioning during the hearing.

(c) Written comments and the transcript of the hearing will be considered in the Secretary's decision on the application and become part of the public record.

(d) The Department will provide a written response to comments or testimony at the time a final action is taken.

Cross References

This section cited in 25 Pa. Code § 236.241 (relating to amendments for closure and transfer).

§ 236.224. Revising the license application.

(a) If the license application is rejected, a revised application may be submitted and may incorporate the portions of the previous application that were not the bases of the rejection.

(b) The Department will notify the public of an application rejection. Notification will be issued under § 236.222 (relating to public notice).

§ 236.225. Requirements for issuance of a license.

A license will not be issued unless the applicant affirmatively demonstrates to the satisfaction of the Department that:

(1) The operation will not endanger public health, safety and welfare or the environment.

(2) The application is accurate and complete and the requirements of the act and this chapter have been satisfied.

(3) The applicant is qualified by reason of training and experience to carry out the disposal operations requested in a manner that protects health and minimizes danger to life or property.

(4) The applicant's proposed disposal site, disposal facility design, disposal facility operations, including equipment, facilities and procedures, disposal site closure and postclosure institutional control are adequate to protect the public health and safety by providing assurance that the general population will be protected from releases of radioactivity as specified in the performance objective in § 236.13 (relating to protection of the general population and environment from releases of radioactivity).

(5) The applicant's proposed disposal site, disposal facility design, disposal facility operations, including equipment, facilities and procedures, disposal site closure and postclosure institutional control are adequate to protect the public health and safety by providing assurance that individual inadvertent intruders are protected in accordance with the performance objective in § 236.14 (relating to protection of individuals from inadvertent intrusion).

(6) The applicant's proposed disposal facility design and disposal facility operations, including equipment, facilities and procedures, are adequate to pro-

tect the public health and safety by providing assurance that the standards for radiation protection in Chapter 219 (relating to standards for protection against radiation) will be met.

(7) The applicant's proposed disposal site, disposal facility design, disposal facility operations, disposal site closure and postclosure institutional control are adequate to protect the public health and safety by providing assurance that long term stability of the disposed waste and the disposal site will be achieved and will eliminate to the extent practicable the need for ongoing active maintenance following closure.

(8) The technical requirements of Subchapters B and D—F will be met.

(9) The applicant's proposal for institutional control, as required in § 236.210 (relating to institutional control information), provides assurance that the control will be provided for the long term care period.

(10) The financial or surety arrangements meet the requirements of Subchapter G (relating to financial assurances and liability).

Cross References

This section cited in 25 Pa. Code § 236.241 (relating to amendments for closure and transfer); 25 Pa. Code § 236.242 (relating to other amendments); and 25 Pa. Code § 236.246 (relating to application and transfer of license to the Commonwealth).

§ 236.226. Conditions of the license.

(a) A license issued under this chapter, or a right thereunder, may not be transferred, assigned or disposed of, either voluntarily or involuntarily, directly or indirectly, through transfer of control of the license to another person, unless the Department finds, after securing full information, that the transfer is in accordance with the act and the Department gives its consent in writing in the form of a license amendment.

(b) The licensee shall submit written statements under oath upon request of the Department, before termination of the license, to enable the Department to determine whether the license should be modified, suspended or revoked.

(c) The license will be transferred to the custodial agency on the full implementation of the site closure and decommissioning plan as approved by the Department, including postclosure observation and maintenance.

(d) The licensee shall be subject to the act and to this title and orders of the Department. The terms and conditions of the license are subject to amendment, by reason of amendments to, or by reason of this title and order issued under the act.

(e) The person licensed by the Department under this chapter shall confine possession and use of materials to the locations and purposes authorized in the license.

(f) The licensee may not dispose of waste until the Department has inspected the disposal facility and has found it to be in conformance with plans described in the application for a license and approved by the Department.

(g) The Department may incorporate in the license at the time of issuance, or thereafter, by appropriate rule, regulation or order, additional requirements and conditions with respect to the licensee's receipt, possession and disposal of waste as the Department deems appropriate or necessary to:

(1) Protect health or minimize danger to life or the environment.

(2) Provide for inspections or activities under the license that may be necessary or appropriate to effectuate the purposes of the act and regulations thereunder.

(3) Require tests, reports and the keeping of records.

(h) The authority to dispose of wastes expires on the date stated in the license. The Department will, on a 5-year basis, review the license and conditions of the license. An expiration date on the license applies only to operational activities and to the authority to dispose of waste. Failure to revise the license does not relieve the licensee of responsibility for implementing site closure and decommissioning, postclosure observation and transfer of the license to the Commonwealth.

(i) The license may be revoked, suspended or modified for a material false statement in the application, or because of conditions revealed by a report, record or inspection or other means which would warrant the Department to refuse to grant a license for the original application.

(j) The licensee shall allow the Department, its agents and employees, and the host municipality and host county inspectors, without advance notice or search warrant, upon presentation of appropriate credentials and without delay, to have access to areas where disposal activities are conducted and to examine the records and books relating thereto.

(k) The licensee shall update on an annual basis the general information required under § 236.205 (relating to general information) and other information the Department may require.

§ 236.227. Effective date of decision.

The initial decision to issue a license under this chapter or an amendment to the license shall become effective immediately upon signed order of the Secretary or a delegated representative.

CHANGES TO THE REGIONAL FACILITY LICENSE

§ 236.241. Amendments for closure and transfer.

An application for a license amendment for site closure or license transfer shall be filed under § 236.212 (relating to filing and distribution of license application) and shall fully describe the changes desired. The application shall be subject to

the notice, comment and hearing requirements of §§ 236.222 and 236.223 (relating to public notice; and public comment and hearing). The application for site closure or transfer will not be approved by the Department unless the applicant has demonstrated to the Department's satisfaction that the standards in § 236.225 (relating to requirements for issuance of a license) have been met.

§ 236.242. Other amendments.

Except for site closure or license transfer, if the operator wishes to amend the license, the licensee shall notify the Department and the host municipality of the proposed amendments. The Department will provide public notice of the application in the *Pennsylvania Bulletin*. The public shall have opportunity to comment on the proposed amendments during a period of 60 days after the notification has been published. The application for license amendment will not be approved by the Department unless the applicant has demonstrated to the Department's satisfaction that the standards in § 236.225 (relating to requirements for issuance of a license) have been met.

§ 236.243. Fees.

The Department will determine license amendment application fees on a case by case basis. The fees will be based on administrative costs incurred by the Department.

§ 236.244. Application for closure.

(a) An application for closure under § 236.245 (relating to content of a license application for closure) shall be filed at least 90 days prior to license expiration.

(b) An application for closure shall be filed under § 236.245. Information contained in previous applications, statements or reports filed with the Department under the license may be incorporated by reference if the references are clear and specific.

§ 236.245. Content of a license application for closure.

(a) Prior to final closure of the disposal site, or as otherwise directed by the Department, the licensee shall submit an application to amend the license for closure. This closure application shall include a final revision and specific details of the disposal site closure and decommissioning plan submitted under § 236.206 (relating to program plans) that includes the following:

- (1) Additional geologic, hydrologic or other data pertinent to the long term containment of emplaced wastes obtained during the operational period.
- (2) The results of tests, experiments or other analyses relating to the long term containment of emplaced waste within the disposal facility.
- (3) Proposed revision of plans for:
 - (i) Decontamination or dismantlement of facilities, or both.

- (ii) Stabilization of the disposal site for postclosure care.
- (4) Significant new information regarding the environmental impact of closure activities and long term performance of the disposal site.
- (b) Upon review and consideration of an application to amend the license for closure submitted under this section, the Department will issue an amendment authorizing closure if there is assurance that the long term performance objectives of Subchapter A (relating to general provisions) will be met.

Cross References

This section cited in 25 Pa. Code § 236.244 (relating to application for closure).

§ 236.246. Application and transfer of license to the Commonwealth.

(a) Following closure and the postclosure observation and maintenance period, the licensee may apply for an amendment to transfer the license to the Commonwealth. The license will not be transferred unless the licensee demonstrates to the Department's satisfaction that:

- (1) The closure of the disposal site has been made in conformance with the licensee's site closure and decommissioning plan, as approved as part of the license.
- (2) The performance objectives of Subchapter A (relating to general provisions) have been met and will continue to be satisfied.
- (3) Funds collected for the Account and necessary records for care have been transferred to the Commonwealth.
- (4) The monitoring program is operational for implementation by the Commonwealth.
- (5) The custodial agency which will assume responsibility for institutional control of the disposal site is prepared to assume responsibility and ensure that the institutional requirements found necessary under § 236.225(i) (relating to requirements for issuance of a license) will be met.

(b) Upon demonstration of the requirements of subsection (a), the disposal facility license will be transferred to the Commonwealth and the operator's license will be terminated.

Cross References

This section cited in 25 Pa. Code § 236.210 (relating to institutional control information); 25 Pa. Code § 236.414 (relating to radiation dose rates at the surface); and 25 Pa. Code § 236.415 (relating to postclosure observation and maintenance).

§ 236.247. Termination of license.

- (a) At any period of time during the long term care period, the custodial agency—licensee—may apply for an amendment to terminate the license.
- (b) The application shall be filed under § 236.212 (relating to filing and distribution of license application) and the requirements of this section.

(c) The licensee shall demonstrate to the satisfaction of the Department that the standards of § 236.508 (relating to determination of hazardous life of the waste) are met.

Subchapter D. DESIGN REQUIREMENTS FOR THE REGIONAL DISPOSAL FACILITY

GENERAL

Sec.

236.301. Scope and purpose.

DESIGN CRITERIA

- 236.311. General requirements.
- 236.312. Compatibility with site.
- 236.313. Acceptance of diverse waste streams.
- 236.314. Enhanced containment.
- 236.315. Recoverability.
- 236.316. Passive isolation.
- 236.317. Minimization of water intrusion during operations.
- 236.318. Water management.
- 236.319. Disposal facility cover system.
- 236.320. Protection from inadvertent intruders.
- 236.321. Protection of workers.
- 236.322. Long term stability of disposal units.
- 236.323. Disruptive external events.
- 236.324. Disposal unit monitoring.
- 236.325. Material performance monitoring.
- 236.326. Remedial measures.
- 236.327. Class C waste.
- 236.328. Mixed waste.
- 236.329. Nonradiological hazards.
- 236.330. Performance assessment.

Cross References

This subchapter cited in 25 Pa. Code § 236.225 (relating to requirements for issuance of a license).

GENERAL

§ 236.301. Scope and purpose.

(a) This subchapter implements section 305 of the act (35 P. S. § 7130.305). The requirements of this subchapter specify the design criteria for an above-grade low-level radioactive waste disposal facility.

(b) The selected disposal technology shall meet the design criteria that are established in this subchapter and as a goal, be designed and constructed for zero release of radioactive material. The design requirements for addressing containment of waste and the goal of zero release are specified in § 236.314 (relating to enhanced containment). Furthermore, the site in which the disposal facility is to be located shall independently comply with Subchapter B (relating to requirements for siting the regional disposal facility). Consequently, the design criteria have been established to require the applicant to demonstrate that the disposal technology can complement and augment the site's ability to meet the performance objectives of Subchapter A (relating to general provisions).

DESIGN CRITERIA

§ 236.311. General requirements.

(a) Shallow land burial, as defined in § 236.2 (relating to definitions) is prohibited.

(b) Waste emplaced in the disposal facility shall be above the natural grade of the land which shall be known as above-grade disposal. An above-grade disposal facility shall be used unless the applicant can demonstrate that other designs provide significant improvement for recoverability, monitoring and protection of public health and the environment.

(c) The design and construction methods may not adversely affect the ability of the disposal facility to meet the performance objectives of Subchapter A (relating to general provisions).

§ 236.312. Compatibility with site.

(a) The disposal facility shall be compatible with the natural characteristics of the site, as identified in Subchapter B (relating to requirements for siting the regional disposal facility).

(b) The disposal facility shall complement and augment the natural disposal site's ability to assure that the performance objectives of Subchapter A (relating to general provisions) are met.

§ 236.313. Acceptance of diverse waste streams.

(a) The disposal facility shall be capable of accepting low-level radioactive waste generated within the Appalachian Compact region that is classified as a state responsibility under the Low-Level Radioactive Waste Policy Amendments Act of 1985 (42 U.S.C.A. §§ 2021b—2021j).

(b) The disposal facility shall have sufficient capacity to accommodate at least a 30-year useful facility life, as required by the Appalachian State Low-Level Radioactive Waste Compact. Design consideration for disposal capacity shall be based on reasonable waste projections and be capable of accommodating unanticipated changes in waste streams or volumes.

2(c) The disposal facility shall be capable of accommodating low-level waste streams with different physical and chemical properties.

§ 236.314. Enhanced containment.

(a) The disposal facility shall include engineered structures. The engineered structures shall provide additional measures for isolation of waste from the environment. For the purpose of this section, the container by itself cannot satisfy requirements for enhanced containment.

(b) At a minimum, the engineered structures shall provide:

(1) Leak resistance for a minimum of 100 years, following the postclosure observation and maintenance period.

(2) Structural stability to the disposal units. Design goals for the material integrity and stability of the engineered structure shall be commensurate with the time periods specified in subsection (d).

(c) The disposal facility shall independently comply with performance objectives in §§ 236.13 and 236.16 (relating to protection of the general population and environment from releases of radioactivity; and stability of the disposal site) without consideration of natural site features, through the active institutional control period.

(d) The design goal for the disposal facility to provide containment of the different classes of waste shall be for the following minimum time periods:

- (1) Class A radioactive waste—100 years.
- (2) Class B radioactive waste—300 years.
- (3) Class C radioactive waste—500 years.
- (4) Mixed waste—500 years.

Cross References

This section cited in 25 Pa. Code § 236.301 (relating to scope and purpose); 25 Pa. Code § 236.324 (relating to disposal unit monitoring); and 25 Pa. Code § 236.502 (relating to classes of waste).

§ 236.315. Recoverability.

(a) The disposal facility design shall allow for recovery of the waste. This section may not compromise or otherwise lessen the ability of the disposal facility to meet the performance objectives of Subchapter A (relating to general provisions) and the stability requirements of § 236.322 (relating to long term stability of disposal units).

(b) Determinations for recovery of the waste shall be based on the analysis of information collected under §§ 236.324, 236.325 and 236.410 (relating to disposal unit monitoring; material performance monitoring; and environmental monitoring).

Cross References

This section cited in 25 Pa. Code § 236.327 (relating to class C waste); and 25 Pa. Code § 236.328 (relating to mixed waste).

§ 236.316. Passive isolation.

The disposal facility shall be designed for long term isolation and avoidance of the need for remedial action after site closure.

§ 236.317. Minimization of water intrusion during operations.

(a) The design goal for the disposal facility shall be to prevent the contact of waste and waste containers with water prior to and during disposal.

(b) The disposal facility design shall preclude the contact of waste containers with standing water during emplacement into the disposal units.

§ 236.318. Water management.

(a) The design goal for the disposal facility shall be to prevent infiltration of water and eliminate the accumulation of standing water in the disposal units following waste disposal.

(b) The disposal facility shall be designed to direct surface water drainage away from disposal units at velocities and gradients which would not result in erosion that would require ongoing active maintenance.

§ 236.319. Disposal facility cover system.

The disposal units shall include an engineered cover. The design goal for the cover shall be to prevent water infiltration. The cover shall be designed to:

(1) Provide long term stability without the need for active maintenance.

The engineered cover shall perform through the long term care period.

(2) Direct surface runoff away from the disposal unit.

(3) Minimize erosion, differential settlement, ponding, piping, mass wasting and slumping.

§ 236.320. Protection from inadvertent intruders.

(a) The disposal facility shall include intruder barriers for Class B, Class C and mixed wastes. At a minimum, these disposal units shall include an intruder barrier that is an engineered structure, designed to resist inadvertent intrusion for:

(1) Class B waste—300 years.

(2) Class C waste—500 years.

(3) Mixed waste—500 years.

(b) If more than one class of waste is disposed of in the same unit, the more stringent intruder requirement shall be met.

(c) The disposal facility design shall, to the extent practicable, limit radiation exposures to the inadvertent intruder to an annual whole body dose equivalent of 25 millirems.

Cross References

This section cited in 25 Pa. Code § 236.2 (relating to definitions); and 25 Pa. Code § 236.502 (relating to classes of waste).

§ 236.321. Protection of workers.

The disposal facility design shall incorporate systems and features which shall maintain exposures to workers which are as low as reasonably achievable.

§ 236.322. Long term stability of disposal units.

(a) The disposal facility shall be designed to provide long term stability to the engineered structures of the disposal units.

(b) At a minimum, the stability requirements for the engineered structures for the different classes of waste shall be:

- (1) Class A radioactive waste—100 years.
- (2) Class B radioactive waste—300 years.
- (3) Class C radioactive waste—500 years.
- (4) Mixed waste—500 years.

(c) If more than one class of waste is disposed of in the same disposal unit, the more stringent stability requirement shall be met.

(d) Waste containers or modules shall be emplaced in the disposal unit in a manner that maintains physical integrity.

(e) Waste containers or modules shall be designed and emplaced in the disposal unit in a manner that minimizes void space.

Cross References

This section cited in 25 Pa. Code § 236.315 (relating to recoverability); and 25 Pa. Code § 236.502 (relating to classes of waste).

§ 236.323. Disruptive external events.

The disposal facility shall be designed to maintain its structural integrity and provide waste containment capability during an external, disruptive, natural or manmade event which may occur in the area.

§ 236.324. Disposal unit monitoring.

(a) The disposal facility design shall include provisions for a continuous monitoring program. The program shall commence upon placement of the waste into the disposal units and continue through the long term care period.

(b) The disposal unit monitoring system that is used to support the continuous monitoring program shall be capable of detecting and identifying the location, within each disposal unit, of leached radioactive materials. The disposal unit monitoring system shall be designed to be compatible with design provisions for waste recovery in § 236.314 (relating to enhanced containment).

Cross References

This section cited in 25 Pa. Code § 236.315 (relating to recoverability); 25 Pa. Code § 236.327 (relating to class C waste); 25 Pa. Code § 236.328 (relating to mixed waste); and 25 Pa. Code § 236.409 (relating to monitoring plan).

§ 236.325. Material performance monitoring.

(a) An analysis of the materials and components of the engineered structures shall be conducted to demonstrate that the disposal facility can perform through the long term care period.

(b) The disposal facility design shall include provisions for a monitoring program which can provide ongoing verification of the performance of the engineered structure. At a minimum, the program shall provide performance verification beginning at initial operation and up to and including the active institutional control period.

Cross References

This section cited in 25 Pa. Code § 236.315 (relating to recoverability); 25 Pa. Code § 236.327 (relating to class C waste); 25 Pa. Code § 236.328 (relating to mixed waste); and 25 Pa. Code § 236.409 (relating to monitoring plan).

§ 236.326. Remedial measures.

The disposal facility shall be designed to facilitate remedial action. This criterion may not compromise or otherwise lessen the ability of the disposal facility to meet the performance objectives of Subchapter A (relating to general provisions).

§ 236.327. Class C waste.

(a) Class C waste disposal shall be performed apart from other low-level radioactive waste disposal, and Class C waste shall be placed in individual modules.

(b) A Class C module shall be monitored under §§ 236.324 and 236.325 (relating to disposal unit monitoring; and material performance monitoring) and be recoverable under § 236.315 (relating to recoverability).

Cross References

This section cited in 25 Pa. Code § 236.502 (relating to classes of waste).

§ 236.328. Mixed waste.

(a) Mixed waste disposal shall comply with this chapter and Article VII (relating to hazardous waste management).

(b) Mixed waste shall be in a solid and stable form and shall be disposed apart from other low-level radioactive waste disposal.

(c) Mixed waste shall be placed in individual modules. A mixed waste module shall be monitored under §§ 236.324 and 236.325 (relating to disposal unit

monitoring; and material performance monitoring) and be recoverable under § 236.315 (relating to recoverability).

§ 236.329. Nonradiological hazards.

The disposal facility design and operational procedures shall reduce nonradiological hazards to individuals to levels as low as reasonably achievable.

§ 236.330. Performance assessment.

The performance of the disposal facility shall be characterized, analyzed and modeled in order to predict interactions of the disposal units with the environment and compliance with the performance objectives in Subchapter A (relating to general provisions).

**Subchapter E. REQUIREMENTS FOR THE
CONSTRUCTION, OPERATION AND CLOSURE OF THE
REGIONAL DISPOSAL FACILITY**

- Sec.
236.401. Scope and purpose.
236.402. Construction plan.
236.403. Facility operation plan.
236.404. Contingency plans.
236.405. Receipt and handling of waste.
236.406. Package integrity.
236.407. Minimization of void space.
236.408. Operational activity.
236.409. Monitoring plan.
236.410. Environmental monitoring.
236.411. Site closure and decommissioning plan.
236.412. Boundary locations.
236.413. Buffer zone.
236.414. Radiation dose rates at the surface.
236.415. Postclosure observation and maintenance.
236.416. Institutional control.

Cross References

This subchapter cited in 25 Pa. Code § 236.225 (relating to requirements for issuance of a license).

§ 236.401. Scope and purpose.

(a) Only Classes A, B, C and mixed waste are acceptable for disposal at the regional disposal facility. Waste disposal activities at the regional facility shall meet the construction, operation and closure requirements of this subchapter. The planning and implementation of these activities shall contribute to the goal of zero release of radioactive material.

(b) A mixed waste is not acceptable for disposal at the regional disposal facility if either the facility operator or the Department has reason to believe that the hazardous waste, as originally generated, was not radioactive.

(c) Waste received at the regional disposal facility may not be intentionally diluted by the licensee to alter its classification as identified on the manifest received under § 236.536 (relating to disposal facility operator requirements).

§ 236.402. Construction plan.

The applicant shall submit a construction plan. The plan shall describe procedures that will be implemented to ensure quality work that will consistently conform to applicable standards and codes.

Cross References

This section cited in 25 Pa. Code § 236.206 (relating to program plans).

§ 236.403. Facility operation plan.

(a) The applicant shall submit a facility operation plan for approval by the Department. The plan shall:

(1) Include detailed descriptions of the method of construction of the disposal units, waste emplacement, procedures for and areas of waste segregation, onsite traffic and drainage systems, site security, methods and areas of waste storage, methods to control access of water, mixed wastes or other nonradiological substances or waste that may affect meeting the performance objectives of Subchapter A (relating to general provisions).

(2) Be compatible with other plans required by this chapter.

(b) The plan shall include detailed descriptions of closure and stabilization measures that will be carried out as each disposal unit is filled.

(c) A site health and safety plan which addresses radiological health under Chapter 219 (relating to standards for protection against radiation) and occupational hazards shall be submitted. The plan shall be adequate to protect public health and safety, and the environment and provide reasonable assurance that the standards for radiation protection in Chapter 219 will be met. The plan shall identify measures that are intended to provide assurance that radiation exposures to workers are as low as reasonably achievable.

Cross References

This section cited in 25 Pa. Code § 236.206 (relating to program plans).

§ 236.404. Contingency plans.

(a) The applicant shall submit contingency plans for unplanned occurrences, such as fire, industrial accidents, radiological contamination, severe natural events, disposal unit repairs and waste recovery which may adversely affect the health and safety of disposal facility workers or the general public.

(b) The plans shall identify the necessary training, management, procedures, equipment and human resources required to provide emergency response.

(c) The operator shall include one of the following in the license application:

(1) Signed agreements from necessary emergency response units that they will respond to requests from the operator.

(2) Provisions by the operator for adequate emergency response capability as identified in subsections (a) and (b), approved by the Department.

Cross References

This section cited in 25 Pa. Code § 236.206 (relating to program plans).

§ 236.405. Receipt and handling of waste.

(a) The applicant shall submit a plan for the receipt, inspection and handling of waste entering the disposal facility. The plan shall include waste acceptance criteria that define specifications for waste acceptable for disposal at the facility and waste containers that are acceptable for disposal.

(b) The plan shall be designed to ensure that:

(1) Waste that arrives at the disposal site complies with Subchapter F (relating to waste classification, waste characteristics, labeling and manifests).

(2) The procedures and equipment for moving, segregating and storing the waste will be carried out in a safe manner and eliminate, to the maximum extent practicable, the contact of the waste with water.

§ 236.406. Package integrity.

Wastes shall be emplaced in a manner that maintains the container integrity and minimizes the void spaces between containers.

§ 236.407. Minimization of void space.

Void spaces between waste containers shall be minimized to reduce the potential for future subsidence.

§ 236.408. Operational activity.

Active waste disposal operations may not have an adverse effect on disposal units for which closure and stabilization measures have been completed.

§ 236.409. Monitoring plan.

(a) The applicant shall submit a monitoring plan. The monitoring plan shall discuss the function and interrelationship of the requirements of §§ 236.324, 236.325 and 236.410 (relating to disposal unit monitoring; material performance monitoring; and environmental monitoring).

(b) The licensee shall have a contingency plan for taking remedial measures including recovery of waste if the disposal unit monitoring system or environmental monitoring system detects radioactive material which would indicate that

the performance objectives of Subchapter A (relating to general provisions) may not be met. The plan shall identify the necessary training, management procedures and equipment required for corrective action.

(c) The plan shall specifically address monitoring during the preoperational, operational, closure and long term care periods.

(d) An offsite radiation measurement that exceeds the natural background, as established during preoperational environmental monitoring, shall be reported immediately to the Department and host municipality and county. Actions shall be initiated by the licensee to identify and abate the source of the offsite radiation that exceeds the natural background.

Cross References

This section cited in 25 Pa. Code § 236.206 (relating to program plans); 25 Pa. Code § 236.208 (relating to specific technical information); and 25 Pa. Code § 236.413 (relating to buffer zone).

§ 236.410. Environmental monitoring.

(a) At the time a license application is submitted, the applicant shall have conducted a preoperational monitoring program to establish background radiation levels and to provide basic environmental data on the site characteristics. The applicant shall obtain information about the ecology, meteorology, climate, hydrology, geology, geochemistry and seismology of the site. For those characteristics that are subject to seasonal variation, data shall cover at least a 12-month period.

(b) During disposal facility construction and operation, the licensee shall maintain an onsite and offsite environmental monitoring program. Measurements and observations shall be made and recorded to provide data to evaluate the potential health and environmental impacts from all significant pathways during the construction and the operation of the facility and to enable the evaluation of long term effects and the need for mitigating measures. The monitoring system shall be capable of providing early warning of releases of waste from the disposal units.

(c) After the disposal site is closed, the custodial agency responsible for postoperational surveillance of the disposal site shall maintain a monitoring system based on the operating history and the closure and stabilization of the disposal site. The monitoring system shall be capable of providing early warning of releases of waste from the disposal units.

Cross References

This section cited in 25 Pa. Code § 236.315 (relating to recoverability); and 25 Pa. Code § 236.409 (relating to monitoring plan).

§ 236.411. Site closure and decommissioning plan.

(a) The applicant shall submit a plan for closure and decommissioning. The plan shall describe:

- (1) Closure, stabilization and monitoring of individual disposal units and their relationship to the final site closure and decommissioning plan.
 - (2) Methods and procedures that will be implemented to ensure that closed disposal units are not adversely affected by final site closure and decommissioning.
 - (3) A compatible approach for final closure, decommissioning and stabilization of the regional disposal facility.
- (b) The site closure and decommissioning plan will be incorporated into the facility license and will be reviewed every 5 years or at the request of the Department.

Cross References

This section cited in 25 Pa. Code § 236.206 (relating to program plans); and 25 Pa. Code § 236.208 (relating to specific technical information).

§ 236.412. Boundary locations.

The boundaries and locations of each disposal unit shall be accurately located and mapped by means of a land survey. Disposal units shall be marked so that the boundaries of each unit can be easily defined. Three permanent survey marker control points, referenced to United States Geological Survey (USGS) or National Geodetic Survey (NGS) survey control stations, shall be established on the site to facilitate surveys. The USGS or NGS control stations shall provide horizontal and vertical controls as checked against USGS or NGS record files.

§ 236.413. Buffer zone.

A buffer zone of land shall be maintained between disposed waste and the disposal site boundary and beneath the disposed waste. The buffer zone shall be of adequate dimensions to carry out monitoring activities specified in § 236.409 (relating to monitoring plan) and take remedial measures if needed.

§ 236.414. Radiation dose rates at the surface.

Waste shall be emplaced in a manner that limits the radiation dose rate at the surface of the engineered cover to levels that at a minimum will permit the licensee to comply with this chapter at the time the license is transferred under § 236.246 (relating to application and transfer of license to the Commonwealth).

§ 236.415. Postclosure observation and maintenance.

The licensee shall observe and monitor the disposal site, and carry out necessary maintenance and repairs until the site closure and decommissioning is complete and the license is transferred by the Department under § 236.246 (relating to application and transfer of license to the Commonwealth). Responsibility for postclosure observation and maintenance for the disposal site shall be maintained by the licensee for at least 5 years.

§ 236.416. Institutional control.

(a) The Commonwealth's custodial agency shall conduct an institutional control program to physically control access to the disposal site following transfer of control from the disposal site operator. During the active institutional control period, the program shall include active methods for access control, surveillance, monitoring, custodial care and administration of funds to cover the costs for these activities.

(b) During the passive institutional control period, the program shall include passive access control, monitoring and administration of funds to cover the costs for these activities.

Subchapter F. WASTE CLASSIFICATION, WASTE CHARACTERISTICS, LABELING AND MANIFESTS**LOW-LEVEL RADIOACTIVE WASTE CLASSIFICATION SYSTEM**

Sec.

- 236.501. Scope and considerations.
- 236.502. Classes of waste.
- 236.503. Waste classification.
- 236.504. Classification by long- and short-lived radionuclides.
- 236.505. Classification of wastes other than § 236.503.
- 236.506. Sum of fractions rule.
- 236.507. Determination of radionuclide concentrations in waste.
- 236.508. Determination of hazardous life of the waste.

LOW-LEVEL RADIOACTIVE WASTE CHARACTERISTICS

- 236.521. Minimum requirements for classes of waste.
- 236.522. Stability requirements for waste form.
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LABELING AND WASTE MANIFESTS

- 236.531. Labeling.
- 236.532. Waste manifest.
- 236.533. Generator requirements.
- 236.534. Carrier requirements.
- 236.535. Broker requirements.
- 236.536. Disposal facility operator requirements.
- 236.537. Nonacknowledgment.

Cross References

This subchapter cited in 25 Pa. Code § 236.225 (relating to requirements for issuance of a license); and 25 Pa. Code § 236.405 (relating to receipt and handling of waste).

**LOW-LEVEL RADIOACTIVE
WASTE CLASSIFICATION SYSTEM****§ 236.501. Scope and considerations.**

Determination of the classification of waste involves the following considerations:

- (1) Consideration shall be given to the concentration of long-lived radionuclides—and their short-lived precursors—whose potential hazard will persist long after precautions such as the active institutional control period and improved waste form have ceased to be effective. These precautions delay the time when long-lived radionuclides could cause exposures. The magnitude of the potential dose is limited by the concentration and availability of the radionuclides at the time of exposure.
- (2) Consideration shall be given to the concentration of shorter-lived radionuclides for which requirements on institutional controls, waste form and disposal methods are effective.

§ 236.502. Classes of waste.

- (a) Class A waste is a waste that is usually segregated from other waste classes at the disposal site. The physical form and characteristics of Class A waste shall meet the minimum requirements in § 236.521 (relating to minimum requirements for classes of waste). Class A waste shall also be emplaced in a disposal facility that meets the requirements in §§ 236.314 and 236.322 (relating to enhanced containment; and long term stability of disposal units).
- (b) Class B waste is waste that meets more rigorous requirements on waste form to ensure stability after disposal. The physical form and characteristics of Class B waste shall meet both the minimum and stability requirements in §§ 236.521 and 236.522 (relating to stability requirements for waste form). Class B waste shall also be emplaced in a disposal facility that meets the requirements in §§ 236.314 and 236.322. In addition, Class B waste requires protection against inadvertent intrusion, as set forth in § 236.320 (relating to protection from inadvertent intruders).
- (c) Class C waste is waste that not only meets more rigorous requirements on waste form to ensure stability but also requires additional measures at the disposal facility including measures to protect against inadvertent intrusion. The physical form and characteristics of Class C waste shall meet both the minimum and stability requirements in §§ 236.521 and 236.522. Class C waste shall also be emplaced in a disposal facility that meets the requirements in §§ 236.314,

236.320 and 236.322. In addition, Class C waste shall be disposed of in accordance with § 236.327 (relating to Class C waste).

§ 236.503. Waste classification.

(a) *Classification by long-lived radionuclides.* If the waste contains only radionuclides listed in Table 1, classification shall be determined as follows:

- (1) If the concentration does not exceed 0.1 times the value in Table 1, the waste is Class A.
- (2) If the concentration exceeds 0.1 times the value in Table 1 but does not exceed the value in Table 1, the waste is Class C.
- (3) If the concentration exceeds the value in Table 1, the waste is not generally acceptable for disposal.
- (4) For waste containing mixtures of radionuclides listed in Table 1, the total concentration shall be determined under § 236.506 (relating to sum of fractions rule).

Table 1

Radionuclide	Concentration (curies/cubic meter)*
C-14	8
C-14 in activated metal	80
Ni-59 in activated metal	220
Nb-94 in activated metal	0.2
Tc-99	3
I-129	0.08
Alpha-emitting radionuclides with half-life greater than 5 years except Uranium	100**
Pu-241	3,500**
Cm-242	20,000**
Ra-226	100**

*To convert nanocuries to becquerels (Bq), multiply by 37. To convert curies to gigabecquerels (GBq), multiply by 37.

**Units are nanocuries per gram.

(b) *Classification by short-lived radionuclides.* If the waste does not contain any radionuclide listed in Table 1, classification shall be determined based on the concentrations shown in Table 2. If the waste does not contain a radionuclide listed in Table 1 or Table 2, it is Class A.

- (1) If the concentration does not exceed the value in Table 2, Column 1, the waste is Class A.
- (2) If the concentration exceeds the value in Table 2, Column 1, but does not exceed the value in Table 2, Column 2, the waste is Class B.
- (3) If the concentration exceeds the value in Table 2, Column 2, but does not exceed the value in Table 2, Column 3, the waste is Class C.

(4) If the concentration exceeds the value in Table 2, Column 3, the waste is not generally acceptable for disposal.

(5) For waste containing mixtures of the radionuclides listed in Table 2 the total concentration shall be determined under § 236.506.

Table 2

Radionuclide	Concentration (curies/cubic meter)		
	Col. 1	Col. 2	Col. 3
Total of all radionuclides with less than 5-year half-life	700	**	**
H-3	40	**	**
Co-60	700	**	**
Ni-63	3.5	70	700
Ni-63 in activated metal	35	700	7,000
Sr-90	0.04	150	7,000
Cs-137	1	44	4,600

To convert nanocuries to becquerels (Bq), multiply by 37. To convert curies to gigabecquerels (GBq), multiply by 37.

**There are no limits established for these radionuclides in Class B or C wastes. Practical considerations such as the effects of external radiation and internal heat generation on transportation, handling and disposal will limit the concentrations for these wastes. These wastes shall be Class B unless the concentrations of other radionuclides in Table 1 determine the waste to be Class C independent of these radionuclides.

Cross References

This section cited in 25 Pa. Code § 236.504 (relating to classification by long- and short-lived radionuclides); 25 Pa. Code § 236.505 (relating to classification of wastes other than § 236.503); and 25 Pa. Code § 236.506 (relating to sum of fractions rule).

§ 236.504. Classification by long- and short-lived radionuclides.

If the waste contains a mixture of radionuclides, some of which are listed in Table 1 of § 236.503 (relating to waste classification) and some of which are listed in Table 2 of § 236.503 classification shall be determined as follows:

(1) If the concentration of a radionuclide listed in Table 1 of § 236.503 does not exceed 0.1 times the value listed in Table 1, the class shall be that determined by the concentration of radionuclides listed in Table 2 of § 236.503.

(2) If the concentration of a radionuclide listed in Table 1 of § 236.503 exceeds 0.1 times the value listed in Table 1, but does not exceed the value in

Table 1, the waste shall be Class C, if the concentration of radionuclides listed in Table 2 of § 236.503 does not exceed the value shown in Table 2, Column 3.

§ 236.505. Classification of wastes other than § 236.503.

If the waste does not contain a radionuclide listed in either Table 1 or Table 2 of § 236.503 (relating to waste classification), it is Class A waste.

§ 236.506. Sum of fractions rule.

For determining classification for waste that contains a mixture of radionuclides, it is necessary to determine the sum of fractions by dividing each radionuclide's concentration by the appropriate limit and adding the resulting values. The appropriate limits shall be taken from the same column of the same table. The sum of the fractions for the column shall be less than, or equal to, 1 if the waste class is to be determined by that column.

Example: A waste contains Sr-90 in a concentration of 50 Ci/m (1.85 TBq/m) and Cs-137 in a concentration of 22 Ci/m (814 GBq/m). Since the concentrations both exceed the values in Table 2 of § 236.503, Column 1, they must be compared to Column 2 values. For Sr-90 fraction, $50/150 = 0.33$; for Cs-137 fraction, $22/44 = .5$; the sum of the fractions = 0.83. Since the sum is less than 1, the waste is Class B.

Cross References

This section cited in 25 Pa. Code § 236.503 (relating to waste classification).

§ 236.507. Determination of radionuclide concentrations in waste.

The concentration of a radionuclide may be determined by indirect methods such as use of scaling factors which relate the inferred concentration of one radionuclide to another that is measured; or radionuclide material accountability, if there is reasonable assurance that the indirect methods can be correlated with actual measurements. The concentration of a radionuclide may be averaged over the volume of the waste, or weight of the waste if the units are expressed as nanocuries per gram.

§ 236.508. Determination of hazardous life of the waste.

The hazardous life of the waste is the amount of time that it takes for the disposed low-level radioactive waste to decay to levels so that it can be demonstrated that unrestricted use of the site would result in a dose to a member of the public using the site that is no greater than the dose from natural background radioactivity, in the soil, prior to the site being used for disposal.

Cross References

This section cited in 25 Pa. Code § 236.247 (relating to termination of license).

**LOW-LEVEL RADIOACTIVE WASTE
CHARACTERISTICS****§ 236.521. Minimum requirements for classes of waste.**

The following are minimum requirements for classes of waste and are intended to facilitate handling and provide protection of health and safety of personnel at the disposal site. The requirements are as follows:

- (1) Waste shall be packaged in conformance with the conditions of the license issued to the site operator to which the waste will be shipped. If the conditions of the site license are more restrictive than this chapter, the site license conditions shall govern.
- (2) Waste may not be packaged for disposal in cardboard, wooden or fiber-board boxes.
- (3) Liquid waste shall be solidified.
- (4) Waste that has been dewatered shall contain as little free-standing liquid as is reasonably achievable, but the liquid may not exceed 1% of the volume.
- (5) Waste may not be capable of detonation or of explosive decomposition or reaction at normal pressures and temperatures, or of explosive reaction with water.
- (6) Waste may not contain, or be capable of generating, quantities of toxic gases, vapors or fumes harmful to persons transporting, handling or disposing of the waste. This restriction does not apply to radioactive gaseous waste packaged under paragraph (8).
- (7) Waste may not be pyrophoric. Pyrophoric materials contained in wastes shall be treated, prepared and packaged to be nonflammable.
- (8) The Department will review on a case-by-case basis, requests for disposal of gaseous waste. Gaseous waste disposal is required to receive Department approval prior to disposal. Waste in gaseous form shall be packaged at a gauge pressure that does not exceed 1.5 atmospheres at 20°C. Total activity may not exceed 100 curies—3.7 TBq—per container.
- (9) Waste containing hazardous, biological, pathogenic or infectious material shall be treated to reduce to the maximum extent practicable the potential hazard from the nonradiological materials.

Cross References

This section cited in 25 Pa. Code § 236.502 (relating to classes of waste); 25 Pa. Code § 236.523 (relating to stabilization of liquid waste); and 25 Pa. Code § 271.1 (relating to definitions).

§ 236.522. Stability requirements for waste form.

- (a) The requirements of this section and §§ 236.523 and 236.524 (relating to stabilization of liquid waste; and minimization of void spaces within waste packages) are minimum requirements that are intended to provide stability of the

waste. Stability is intended to ensure that the waste does not degrade and affect overall stability of the site through slumping, collapse or other failure of the disposal unit. Stability is also a factor in limiting exposure to an inadvertent intruder, since it provides a recognizable and nondispersible waste.

(b) Waste shall have structural stability. A structurally stable waste form will generally maintain its physical dimensions and its form, under the expected disposal conditions such as weight of overburden and compaction equipment, the presence of moisture and microbial activity, and internal factors, such as radiation effects and chemical changes. Structural stability can be provided by the waste form itself, processing the waste to a stable form or placing the waste in a disposal container or structure that provides stability after disposal.

Cross References

This section cited in 25 Pa. Code § 236.502 (relating to classes of waste).

§ 236.523. Stabilization of liquid waste.

Notwithstanding § 236.521(3) and (4) (relating to minimum requirements for classes of waste), liquid waste or waste containing liquid, shall be converted into a form that contains as little freestanding liquid as is reasonably achievable. The liquid may not exceed 1% of the volume of the waste when the waste is in a disposal container designed to ensure stability, or .5% of the volume of the waste for waste processed to a stable form.

Cross References

This section cited in 25 Pa. Code § 236.522 (relating to stability requirements for waste form).

§ 236.524. Minimization of void spaces within waste packages.

Void spaces within the waste and between the waste and its package shall be reduced to the extent practicable.

Cross References

This section cited in 25 Pa. Code § 236.522 (relating to stability requirements for waste form).

LABELING AND WASTE MANIFESTS

§ 236.531. Labeling.

A container of waste shall be clearly labeled to identify whether it is Class A, Class B or Class C Waste or mixed waste, under this subchapter.

§ 236.532. Waste manifest.

(a) A shipment of waste shall be accompanied by a shipment manifest that contains the name, address, telephone number and Department permit identifica-

tion number of the generator, the carrier who is to transport the waste and the broker who will manage the waste. The manifest may also designate alternate carriers or brokers.

(b) The manifest shall contain a physical description of the waste, the waste volume, radionuclide identity and quantity, the total radioactivity, the principal chemical form and the waste classification—for example, Class A, Class B, Class C or mixed waste in accordance with this chapter. Waste containing more than .1% chelating agents by weight shall be identified and the weight percentage of the chelating agent shall be identified. The manifest shall show the total quantity of the radionuclides H-3, C-14, Tc-99 and I-129.

(c) The manifest shall have a manifest identification number, and if the shipment contains hazardous waste, an EPA hazardous waste identification number.

(d) The waste manifest shall be on a form prepared by the Department. The information provided shall be sufficient to develop a waste data base and conduct performance assessment analyses.

(e) The manifest shall include a certification by the waste generator that the transported materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to 49 CFR Parts 170—179, 10 CFR Part 71 (relating to packaging and transportation of radioactive material) and this title. The certification shall acknowledge that the signer is subject to penalties for violation of the law. The manifest shall be signed and dated by an authorized representative of the generator.

Cross References

This section cited in 25 Pa. Code § 236.534 (relating to carrier requirements).

§ 236.533. Generator requirements.

A generator who transfers waste to the disposal facility or a broker shall:

(1) Prepare waste so that the waste is classified and characterized under this chapter.

(2) Conduct a quality assurance/quality control program approved by the Department to assure compliance with this subchapter. The program shall include management evaluation of audits.

(3) Prepare a complete manifest. The manifest shall contain the number of copies which will provide the generator, carriers, brokers and the disposal facility with one copy for their records and copies to be returned to the generator and to be forwarded to the disposal facility and the Department.

(4) Obtain the handwritten signature of the initial carrier and date of acceptance on the manifest.

(5) Retain a copy of the manifest with documentation of acknowledgment of receipt as the record of transfer.

(6) Forward a copy of the manifest to the disposal facility and another copy to the Department.

- (7) Give the carrier the remaining copies of the manifest.
- (8) Conduct an investigation under § 236.537 (relating to nonacknowledgment), for a shipment or part of a shipment for which acknowledgment of receipt has not been received within the time set forth in § 236.537.

Cross References

This section cited in 25 Pa. Code § 236.535 (relating to broker requirements).

§ 236.534. Carrier requirements.

(a) No carrier may accept waste from a generator or broker unless it is accompanied by and conforms with a complete and valid manifest under § 236.532 (relating to waste manifest).

(b) Before transporting waste, a carrier shall sign and date the manifest acknowledging acceptance of the waste from the generator or broker before leaving the generator's or broker's property.

(c) The carrier shall ensure that the manifest accompanies the waste, and shall deliver it to the carrier, broker or regional facility, as designated on the manifest. The carrier shall contact the generator or broker who delivered the waste to him for further instructions, and shall revise the manifest in accordance with instructions written and signed by the generator or broker. Upon making the designated delivery, the carrier shall:

- (1) Obtain a date of delivery and handwritten signature of the carrier, broker or regional facility operator.
- (2) Retain a copy of the manifest.
- (3) Forward a copy of the manifest to the Department.
- (4) Give the remaining copies of the manifest to the regional facility operator or the broker.
- (5) Retain the copies of the manifest signed by the person who delivered the waste to him, by himself and by the person receiving the waste from him for a period of 3 years.

(d) The carrier shall certify that nothing has been done to the waste which would invalidate the generator's or broker's certification.

§ 236.535. Broker requirements.

(a) No broker may receive waste from a generator, carrier or broker unless that waste is accompanied by a complete and valid manifest.

(b) The broker receiving waste shall:

- (1) Sign and date each copy of the manifest to certify that the waste was received.
- (2) Note in the manifest discrepancies between materials listed on the manifest and materials received. The broker shall also attempt to resolve discrepancies with the generator, carrier or broker. If the broker is unable to

resolve the discrepancies within 15 days of receiving the waste, he shall notify the Department in writing, and include a copy of the manifest with the letter.

- (3) Give the carrier delivering the waste a copy of the signed manifest.
- (4) Notify the generator that the waste has been received.
- (5) Obtain the handwritten signature of the next carrier as designated on the manifest and date of acceptance.
- (6) Retain a copy of the manifest with documentation of acknowledgment of receipt as a record of transfer for a period of 3 years.
- (7) Forward a copy of the manifest to the disposal facility and another copy to the Department.
- (8) Give the carrier the remaining copies of the manifest.
- (9) Retain the copies of the manifest signed by the person receiving the waste from him for a period of 3 years.
- (10) Conduct an investigation under § 236.537 (relating to non-acknowledgment), for a shipment or part of a shipment for which acknowledgment of receipt has not been received within the time set forth in § 236.537.

(c) If the broker repackages, processes, incinerates, solidifies, treats, evaporates or performs another process which results in the generation of a new waste or waste form, the broker shall comply with the generator requirements of § 236.533 (relating to generator requirements), including preparation and implementation of a quality assurance/quality control program, waste preparation and preparation of a new manifest. If the broker consolidates prepackaged waste into one shipment but does not generate a new waste or waste form, he may prepare a new manifest under § 236.533, or he may combine the several manifests of the consolidated shipments.

§ 236.536. Disposal facility operator requirements.

- (a) The disposal facility operator may not receive waste from a generator, broker or carrier unless it is accompanied by a complete and valid manifest.
- (b) The disposal facility operator shall:
 - (1) Sign and date the manifest to certify that the waste was received.
 - (2) Note in the manifest discrepancies between materials listed on the manifest and materials received. The operator shall also attempt to resolve any discrepancies with the operator generator, carrier or broker. If the disposal operator is unable to find an explanation for the discrepancies within 15 days of receiving the waste, the operator shall notify the Department in writing, explaining the discrepancies and attempts to resolve them, and include a copy of the manifest with the letter.
 - (3) Give the carrier delivering the waste a copy of the signed manifest.
 - (4) Notify the generator and broker within 15 days of its receipt.
 - (5) Retain the copies of completed manifests until the license is transferred to the custodial agency. During license transfer, the disposal facility operator

shall transfer the manifests to the custodial agency. The custodial agency shall maintain copies of the manifest until the license is terminated.

Cross References

This section cited in 25 Pa. Code § 236.401 (relating to scope and purpose).

§ 236.537. Nonacknowledgment.

A generator or broker who has not received acknowledgment of receipt of the waste shipment from the next broker or the regional facility operator within 15 days of delivery shall immediately investigate why the shipment has not been received by the person so designated on the manifest. If the generator or broker is unable to locate the shipment, he shall prepare a report on the investigation conducted and shall file the report with the Department within 2 weeks after completion of the investigation.

Cross References

This section cited in 25 Pa. Code § 236.533 (relating to generator requirements); and 25 Pa. Code § 236.535 (relating to broker requirements).

**Subchapter G. FINANCIAL ASSURANCES
AND LIABILITY**

Sec.

- 236.601. Scope.
- 236.602. Applicant qualifications and assurance.
- 236.603. Assurance for onsite cleanup during operation.
- 236.604. Assurance for liability during operation.
- 236.605. Funding for site closure and decommissioning.
- 236.606. Assurance for long term care.
- 236.607. Assurance for liability following site closure.

Cross References

This subchapter cited in 25 Pa. Code § 236.211 (relating to financial information); and 25 Pa. Code § 236.225 (relating to requirements for issuance of a license).

§ 236.601. Scope.

The applicant is required to demonstrate, prior to receipt of a license, that funds are available to cover costs for all phases of the facility life. The applicant is provided with several examples of financial or surety arrangements that are acceptable for demonstrating that the necessary funds are available.

§ 236.602. Applicant qualifications and assurance.

Prior to the issuance of a license the applicant shall show to the satisfaction of the Department that the applicant has or can reasonably expect to have necessary

funds to cover the estimated costs of conducting licensed activities over the planned operating life of the project, including costs for construction, operation, closure, postclosure monitoring and emergencies related to the disposal facility.

§ 236.603. Assurance for onsite cleanup during operation.

(a) Prior to receipt of a license, and annually thereafter, the applicant shall provide assurances to the satisfaction of the Department that sufficient funds are available to cover emergency actions necessary to prevent the unpermitted release of radioactive material to the general environment. See §§ 236.13 and 236.15 (relating to protection of the general population and environment from releases of radioactivity; and protection of individuals during operations). In determining the cost of taking emergency actions, the applicant shall provide to the Department any information requested by the Department related to the management, transportation and disposal of low-level radioactivity waste.

(b) The Department will consider factors that may affect the cost of taking emergency actions. The factors include site and waste characteristics, facility design and operating procedures. Based on consideration of the factors, the Department will determine an amount necessary for compliance with the financial assurance requirements of this section. Its determination will include consideration of costs incurred if an independent contractor were hired to perform the work.

(c) Compliance with the financial assurance requirements of this section does not affect the licensee's duty to take emergency actions or have available funds that may be necessary to enable the licensee to take required emergency actions.

(d) Subject to the approval of the Department, the applicant may use financial assurance, insurance or surety arrangements or a combination of arrangements to meet the financial assurance requirements of this section.

§ 236.604. Assurance for liability during operation.

(a) Prior to accepting waste, the licensee shall have in effect insurance or other financial assurance approved by the Department to compensate persons for bodily injury or property damage from sudden or nonsudden incidents arising from the operation of the facility.

(b) In approving the licensee's insurance or other financial assurance, the Department will consider factors that may affect the licensee's potential exposure to liability. The factors include site and waste characteristics, facility design, operating procedures, population within 3 miles of the facility and industrial, commercial or other economic activity within 3 miles of the site.

(c) In approving the licensee's insurance or other financial assurance the Department will consider the licensee's potential exposure to liability as a result of claims for bodily injury or property damage brought against the licensee; and the licensee's duty to defend and indemnify the Commonwealth, the host municipi-

pality, the host county and their agents and employees against claims, actions, demands, liabilities and losses at law and equity.

(d) Based on consideration of the factors described in subsections (b) and (c), the Department will determine an amount initially sufficient for providing liability coverage in compliance with this section. The amount determined may not be less than the capital cost of bidding for, siting, acquiring, licensing, planning, developing and constructing the facility.

(e) After commencement of operation, the licensee shall annually provide to the Department information the Department deems necessary for its consideration in determining additional amounts of liability coverage necessary to meet the requirements of the act and this chapter. In determining the additional amounts of liability coverage required, the Department will consider the factors identified in subsections (b) and (c).

(f) The determination and approval by the Department of amounts or types of financial assurance under this section does not affect the licensee's liability or the duty of the licensee to have available funds that may be necessary to satisfy the liability.

(g) Subject to the approval of the Department, the licensee may use an insurance, financial or surety arrangement or combination of arrangements to provide the assurances required by this section. The licensee may provide evidence of commercial insurance, alone or in combination with other acceptable financial or surety arrangements, to satisfy the requirements of this section.

(h) Evidence of commercial insurance shall include the insurer's policy, including endorsements thereto, evidencing the liability insurance coverage it intends to issue covering the facility for third party claims for bodily injury and property damage caused by sudden incidents or nonsudden incidents arising from the operation of the facility.

(i) A commercial insurance policy offered to comply with the requirement for compensation of third parties for bodily injury and property damage caused by sudden or nonsudden incidents arising from the operation of the facility shall contain the following provisions:

(1) Bankruptcy or insolvency of the insured does not relieve the insurer of its obligations under the policy.

(2) The insurer is liable for the payment of any amount within a deductible which may apply to the policy, with a right of reimbursement by the insured or, in the alternative, the insurer includes, within the policy, a provision to pay on behalf of the insured a deductible amount.

(3) The beginning and ending dates, including tail periods, for the policy.

(4) The insurer will give at least 90 days notice to the Department and the insured before cancellation, termination or expiration of the policy, if upon expiration, the policy will not be renewed.

(5) The policy may not be cancelled by anyone before the expiration of the 90-day notice period.

(j) The insurance policy shall be issued by a primary insurer or coinsurers licensed or authorized to do business in this Commonwealth or designated by the Insurance Commissioner as an eligible surplus lines insurer. The primary insurer may reinsure the insurance policy with secondary insurers—reinsurers—who are licensed or authorized to do business in Canada, West Germany, Switzerland, France, or a state of the United States.

(k) The primary insurer may be a commercial insurer, a captive insurer—subject to subsection (j)—or a risk retention group as defined in the Product Liability Risk Retention Act of 1981 (15 U.S.C.A. §§ 3901—3906) as amended by the Liability Risk Retention Act of 1986 (15 U.S.C.A. §§ 3901—3903).

(l) The policy shall provide that the insurer will adhere to the insurance law of the Commonwealth regarding settlement of claims and will be bound by the Unfair Insurance Practices Act (40 P. S. §§ 1171.1—1171.15).

(m) The insurance policy shall follow the comprehensive general liability policy forms approved by the Insurance Department and shall include coverage for environmental impairment liability.

§ 236.605. Funding for site closure and decommissioning.

(a) The applicant shall provide assurances prior to the receipt of a license that sufficient funds are available to carry out disposal site closure and decommissioning, including decontamination or dismantlement of structures. The applicant shall also provide assurances regarding closure and stabilization of the disposal site so that following transfer of the disposal site to this Commonwealth, the need for ongoing active maintenance is eliminated to the extent practicable and only minor custodial care, surveillance and monitoring are required. These assurances shall be based on cost estimates submitted by the applicant and which reflect the Department approved plan for disposal site closure and decommissioning. The applicant's cost estimates shall take into account the total costs that would be incurred if an independent contractor were hired to perform the closure and decommissioning work.

(b) The licensee's financial or surety arrangement shall be submitted as part of the application, and annually thereafter, for review by the Department to assure that sufficient funds will be available for completion of the closure and decommissioning plan.

(c) The amount of the licensee's financial or surety arrangement shall change in accordance with changes in the predicted costs of closure and decommissioning. Factors affecting closure and decommissioning cost estimates include inflation, increases in the amount of disturbed land, changes in engineering plans, closure and stabilization that has already been accomplished, and other conditions affecting costs. The financial or surety arrangement shall be sufficient to cover the costs of closure and decommissioning of the disposal units that are expected to be used before the next 5 year review period.

(d) The surety arrangement shall be written for a specified period of time, shall name the Department as the obligee and shall be automatically renewable unless the surety notifies the Department, and the principal—the licensee—at least 90 days prior to the renewal date, of its intention not to renew. In this situation, the licensee shall submit a replacement surety within 30 days after notification of cancellation. If the licensee fails to provide a replacement surety acceptable to the Department within 30 days before the cancellation becomes effective, the failure constitutes grounds for forfeiture of the surety.

(e) Surety bonds will only be acceptable if issued by a surety authorized to do business in this Commonwealth. If the principal place of business of a surety is outside of this Commonwealth the surety bond shall be signed by an authorized Commonwealth resident agent of the surety.

(f) Proof of the licensee's failure to replace the surety is not necessary for the Department to exercise its right of default. The right of the Department to declare a default because of the licensee's failure to replace the surety shall be a condition of the obligation.

(g) Financial or surety arrangements generally acceptable to the Department include surety bonds, cash deposits, certificates of deposit, government securities rated at least BBB by Standard and Poor or Baa by Moody's Investor Services, trust accounts, irrevocable stand-by letters of credit, trust funds and combinations thereof or other types of arrangements that may be approved by the Department. Self-insurance, or an arrangement which essentially constitutes self-insurance, does not satisfy the financial or surety requirements as they apply to private-sector applicants.

(h) The licensee's financial or surety arrangement shall remain in effect until the closure and decommissioning program has been completed and approved by the Department, and the license has been transferred to the Commonwealth Custodial Agency.

§ 236.606. Assurance for long term care.

Prior to the issuance of the license, the applicant shall provide for the approval of the Department, an agreement between the applicant and the Commonwealth that binds the applicant to ensuring that funds will be collected by the applicant and transferred to the Commonwealth for the purpose of covering the costs of monitoring and required remedial action during the long term care period. The Department will review on an annual basis, funds collected by the operator and paid to the Commonwealth to ensure sufficient funds will be available to provide for long term care.

§ 236.607. Assurance for liability following site closure.

(a) Upon receipt of a license the operator shall collect and transfer to the Commonwealth, at least monthly, funds for paying liability claims against the site operator, Commonwealth, host municipality and host county.

(b) The Department will assure that surcharges levied for deposit into the Protection Fund are adequate to establish a fund of at least \$100 million indexed to increase with cost of living adjustments, upon the date of termination of the operator's license.

(c) The Protection Fund shall be used to pay liability claims, including personal injury or property damage, as follows:

(1) Against the Commonwealth, host municipality and host county arising from their responsibilities under the act.

(2) Against the regional facility licensee after the termination of the license and which arose from the operation of the regional facility during the term of the license.

(d) The Department will review the Protection Fund annually to ensure sufficient funds will be available to meet the requirements of subsection (a).

Subchapter H. INSPECTIONS, TESTS AND RECORDS

Sec.

236.701. Inspection of the regional disposal facility.

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§ 236.701. Inspection of the regional disposal facility.

The licensee shall provide the Department, its agents and employes, and the host municipality and host county inspectors, with immediate access to inspect the following for the purpose of determining compliance with the license conditions and applicable regulations and laws:

(1) Waste not yet disposed.

(2) Premises, equipment, operations and facilities in which wastes are received, possessed, handled, treated, stored or disposed.

§ 236.702. Inspection of records.

The licensee shall make available for inspection to the Department, its agents and employes, and the host municipality and host county inspectors records kept by it under this chapter. Authorized representatives of the Department, the host municipality or host county inspectors may copy and use any record required to be kept under this chapter.

§ 236.703. Penalties.

(a) A person who violates the act, this chapter or an order promulgated or issued under the act commits a summary offense and will, upon conviction, be sentenced to pay a fine of at least \$100 but not more than \$1,000 for each offense. Default of the fine payment will result in a prison term of a maximum of 90 days.

(b) A person who violates the act, this chapter, a license condition or an order promulgated or issued under the act, within 2 years of having been convicted of a summary offense under the act, commits a misdemeanor of the third degree and will, upon conviction, be sentenced to pay a fine of at least \$1,000 but not more than \$25,000 for each offense or a maximum prison term of 1 year, or both.

(c) A person who intentionally violates the act or this chapter, an order, permit condition or license condition of the Department under the act and whose action causes the possibility of a public nuisance or bodily harm to a person commits a felony of the second degree and shall, upon conviction, be sentenced to pay a fine of at least \$2,500 but not more than \$100,000 for each offense per day for each violation or be subject to a prison term of at least 1 year but not more than 10 years, or both.

(d) Each day of continued violation of the act or this chapter, an order, permit condition or license condition of the Department issued under the act shall constitute a separate offense.

(e) In addition to subsections (a)—(d) or in equity for a violation of the act or this chapter, an order, permit condition or license condition of the Department issued under the act, the Department may assess a civil penalty. The civil penalty will not exceed \$25,000 for each violation.

(f) Civil payments shall be paid under section 504(e) of the act (35 P. S. § 7130.504(e)).

§ 236.704. Enforcement and abatement.

(a) A violation of section 505 of the act (35 P. S. § 7130.505) or this chapter, an order, permit condition or license condition of the Department issued under the act constitutes a public nuisance. A person committing the violation shall be liable for the costs of abatement of the nuisance. The Environmental Hearing Board has jurisdiction over actions to recover costs of the abatement and civil penalties.

(b) The Department may issue orders, injunctions, declarations of emergency or take other actions as specified in section 505 of the act to abate a public nuisance or protect public health and safety and the environment.

§ 236.705. Tests of the regional disposal facility.

The licensee shall perform or permit the Department, its agents and employees, and the host municipality and host county inspectors to perform tests it deems appropriate or necessary for the administration of this chapter, including, but not limited to, tests of:

- (1) Waste.
- (2) Facilities used for the receipt, storage, treatment, handling or disposal of waste.
- (3) Radiation detection and monitoring instruments.
- (4) Other equipment and devices used in connection with the receipt, possession, handling, treatment, storage or disposal of waste.

§ 236.706. Maintenance of records.

(a) The licensee shall maintain records and make reports in connection with the licensed activities as may be required by the conditions of the license or by this chapter and orders of the Department.

(b) Records which are required by this chapter or by license conditions shall be maintained for a period specified by this chapter or by license condition. If a retention period is not otherwise specified, the records shall be maintained and transferred to the officials specified in § 236.709 (relating to transfer of records) as a condition of license transfer unless the Department otherwise authorizes their disposition.

(c) Records which shall be maintained under this subchapter may be the original or a reproduced copy of microfilm if the reproduced copy of microfilm is capable of producing a copy that is clear and legible at the end of the required retention period.

Cross References

This section cited in 25 Pa. Code § 236.709 (relating to transfer of records).

§ 236.707. Recording receipt of waste shipments.

Following receipt and acceptance of a shipment of waste, the licensee shall record the date of disposal of the waste, the location in the disposal unit, the condition of the waste packages as received, discrepancies between materials listed on the manifest and those received and evidence of leaking or damaged packages or radiation or contamination levels in excess of limits specified by United States Department of Transportation and this title. The licensee shall briefly describe repackaging operations of the waste packages included in the shipment, plus other information required by the Department as a license condition.

§ 236.708. Submittal of reports to the Department.

(a) *Annual reports.* The licensed disposal facility operator shall file a copy of its financial report or a certified financial statement annually with the Department in order to update the information base for determining financial qualifications.

(b) *Quarterly reports.*

(1) The licensed disposal facility operator shall submit its quarterly report to the Department, host municipality, host county, Low-Level Waste Advisory Committee and the public. The report shall include:

(i) Specification of the quantity of principal contaminants released to unrestricted areas in liquid and in airborne effluents during the preceding quarter.

(ii) The results of the monitoring program.

(iii) A summary of licensee disposal unit survey and maintenance activities.

(iv) A summary, by waste class, of activities and quantities of radionuclides disposed of.

(v) Instances in which observed site characteristics were significantly different from those described in the application for a license.

(vi) Other information the Department may require.

(2) If the quantities of waste released during the reporting period, monitoring results or maintenance performed are significantly different from those predicted, the report shall cover this specifically.

§ 236.709. Transfer of records.

Notwithstanding § 236.706 (relating to maintenance of records), copies of records of the location and the quantity of wastes contained at the disposal site shall be provided, upon license transfer to the Commonwealth Custodial Agency, to:

(1) The chief executive of the host municipality.

(2) The chief executive of the host county.

(3) The host county zoning board or land development and planning agency.

(4) The Governor.

(5) Other State, local and Federal government agencies as designated by the Department at the time of license transfer.

Cross References

This section cited in 25 Pa. Code § 236.706 (relating to maintenance of records).

§ 236.710. Submittal of reports by generators and brokers.

Generators and brokers shall submit, on a quarterly basis, reports to the Department. The reports shall include a listing of the quantities, types and classes of low-level radioactive waste generated during the previous quarter.

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