

**SUBCHAPTER K: COMMERCIAL DISPOSAL OF NATURALLY OCCURRING  
RADIOACTIVE MATERIAL WASTE FROM PUBLIC WATER SYSTEMS  
§§336.1001, 336.1003, 336.1005, 336.1007, 336.1009, 336.1011, 336.1013,  
336.1015, 336.1017, 336.1019  
Effective July 21, 2005**

**§336.1001. Scope and General Provisions.**

This subchapter establishes additional criteria, terms, and conditions under which the commission may issue, amend, or renew a license for commercial disposal of naturally occurring radioactive material waste from public water systems by injection into Class I injection wells.

Adopted June 29, 2005

Effective July 21, 2005

**§336.1003. Definitions.**

Most terms used in this subchapter are defined in §336.2 of this title (relating to Definitions). The following words and terms, when used in this subchapter, have the following meanings, unless the context clearly indicates otherwise.

(1) Commercial disposal - The disposal by well injection of naturally occurring radioactive material waste received by the licensee from other persons.

(2) Naturally occurring radioactive material waste disposal facility - The land, buildings, structures, and equipment that are used in the disposal of naturally occurring radioactive material (NORM) waste. This includes the land, buildings and structures, and equipment used for the receipt, storage, processing, or handling of NORM waste for purposes of disposal.

(3) Public water system - A public water system as defined in §290.38 of this title (relating to Definitions).

(4) Site - The contiguous land area where any naturally occurring radioactive material (NORM) waste disposal facility or activity is physically located or conducted including adjacent land used in connection with the land disposal facility or activity, and includes soils and groundwater contaminated by radioactive material. Activity includes the receipt, storage, processing, or handling of radioactive material for purposes of disposal at a NORM waste disposal facility.

Adopted June 29, 2005

Effective July 21, 2005

**§336.1005. Disposal Method.**

A person licensed for the commercial disposal of naturally occurring radioactive material (NORM) waste from public water systems may dispose of NORM waste only by injection into a Class I injection well permitted under Chapter 331 of this title (relating to Underground Injection Control) that

is specifically permitted for the disposal of NORM waste.

Adopted June 29, 2005

Effective July 21, 2005

**§336.1007. License Application for Commercial Disposal of Naturally Occurring Radioactive Material Waste.**

(a) In addition to other application requirements of this title, an applicant for a license to authorize commercial disposal of naturally occurring radioactive material (NORM) waste shall submit:

- (1) a projected inventory of radionuclides in the wastes to be disposed and the estimated concentration, specific activity, and total radioactivity by radionuclide;
- (2) the estimated frequency and volume of each disposal;
- (3) a description of waste packaging and other waste acceptance criteria;
- (4) a detailed description of the nonradiological constituents in the waste (e.g., hazardous wastes, metals, absorbents, acids, and chelating agents), including the chemical and physical characteristics of the waste;
- (5) a site characterization, including:
  - (A) the identification of all soil layers by classification according to the Unified Soil Classification System, as described in the American Society for Testing and Materials standard D2487, *Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)*;
  - (B) a description of site stratigraphy from the surface to at least the base of the lower confining layer of the injection zone;
  - (C) a description of potential geologic hazards, including faulting, seismic activity, sink holes, solution depressions, geopressurized zones, and flooding, including identification of the 100-year floodplain;
  - (D) a description of applicable site hydrogeological data including:
    - (i) identification of aquifers and confining units, including depths, saturated intervals, overall thicknesses, lithologies, and environments of deposition;
    - (ii) the processes of recharge and discharge of site groundwaters;
    - (iii) porosities and hydraulic conductivities; and
    - (iv) hydraulic gradients, flow directions, and flow velocities;

(E) identification of water wells within a one-mile radius of the facility, including location, use (e.g., commercial, livestock, drinking water, etc.), total depth, aquifer, and screened interval;

(F) a description and analysis of surface water and surface drainage areas, including the location and identification of surface water bodies and wetlands and uses, if any;

(G) a description and analysis of local meteorological data, including hourly, daily, and/or monthly averages of precipitation, evapotranspiration, temperature, wind speed and direction, relative humidity, and atmospheric stability over annual and quarterly periods;

(H) maps and cross sections, as follows:

(i) United States Geological Survey (USGS) 7.5-minute topographic map(s);

(ii) Bureau of Economic Geology (BEG) Geologic Atlas of Texas map(s), or other site-specific surface geology map;

(iii) United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) soil map, or other site soil map;

(iv) potentiometric surface maps of all aquifers; and

(v) structural cross sections along dip and strike;

(I) area resources (e.g., local land use, locations of nearby residences, etc.);

(J) site performance history, including erosion, flooding, subsidence, etc.; and

(K) a summary of any past disposals, including inventories of any radiological parameters, and any observed effects;

(6) a description of the proposed design and construction of the NORM waste disposal facility;

(7) a description of the proposed design and construction of the final closed NORM waste disposal facility and of proposed closure procedures;

(8) information on the depth of NORM waste disposal and proposed operational and safety procedures for disposal of NORM waste;

(9) proposed inspection, maintenance, and emergency procedures;

(10) the applicant's radiological impact assessment consisting of modeling of

radionuclide releases to site-specific critical exposure pathways and the projection of potential radiological doses to an individual on site and to a member of the public off site;

(11) proposed radiation safety procedures during operations and closure. Proposed procedures must include:

(A) administrative procedures;

(B) operating procedures;

(C) radiation safety program, including procedures for posting restricted areas, procedures for conducting surveys and monitoring, procedures for respiratory protection, procedures for worker protection and monitoring, and procedures for implementing controls to limit exposure in restricted areas;

(D) procedures for decontamination of equipment and facilities;

(E) industrial safety program; and

(F) quality assurance/quality control procedures;

(12) a description of proposed radiological monitoring of the site;

(13) the organizational structure of the applicant, a description of lines of authority and assignment of responsibilities, and technical qualifications of personnel responsible for radiation safety functions;

(14) information on the applicant's proposed methods of restricting access to the site (e.g., fencing) and proposed permanent site markers;

(15) proposed recordkeeping procedures, including electronic recordkeeping as required in §336.1015 of this title (relating to Maintenance of Records and Reports);

(16) information on land ownership and any covenants or restrictions on land use;

(17) the applicant's justification for the proposed disposal method; and

(18) a decommissioning plan that meets the standards in Subchapter G of this chapter (relating to Decommissioning Standards) including an evaluation of the alternatives to disposing of NORM waste at a licensed NORM waste disposal facility.

(b) The applicant shall submit sufficient information to allow the executive director to assess the potential hazard to public health and safety and to determine whether the NORM waste disposal facility will have a significant impact on the environment as required under §336.1011 of this title (relating to Performance Objectives).

(c) The applicant shall provide any other information that may be requested by the executive director.

Adopted June 29, 2005

Effective July 21, 2005

**§336.1009. Standards for Issuance of a License, License Amendment, or License Renewal.**

A license, license amendment, or license renewal for the receipt, storage, processing, and disposal of naturally occurring radioactive material (NORM) waste from public water systems may be issued by the commission upon finding that the issuance of the license will not constitute an unreasonable risk to the health and safety of the public or have a long-term detrimental impact on the environment and that:

(1) the applicant is qualified by reason of training and experience to carry out the disposal operations requested in a manner that protects public health and safety and the environment;

(2) the applicant's proposed NORM waste disposal facility siting, design, construction, operation, and closure are adequate to protect the public health and safety in that the facility will provide reasonable assurance that the general population will be protected from releases of radioactivity as specified under §336.1011 of this title (relating to Performance Objectives);

(3) the applicant has provided reasonable assurance that the applicable technical requirements of this chapter will be met;

(4) the financial assurance meets the requirements of this chapter;

(5) the location of the NORM waste disposal facility is compatible with the uses of surrounding environs (both the applicant's and adjacent properties'); and

(6) the applicant meets all additional applicable requirements under the rules of the commission.

Adopted June 29, 2005

Effective July 21, 2005

**§336.1011. Performance Objectives.**

(a) The performance objectives of this section apply to the naturally occurring radioactive material (NORM) waste disposal facility and any underground source of drinking water, as defined in §331.2 of this title (relating to Definitions), that may be impacted by activities at the NORM waste disposal facility. The performance objectives of this section do not apply to NORM waste in the injection zone as defined in §331.2 of this title.

(b) Radiation exposure and release of radioactive materials from a NORM waste disposal facility must be maintained as low as is reasonably achievable (ALARA). Concentrations of radioactive material that may be released to the general environment in groundwater, surface water, air, soil,

plants, or animals must not result in an annual dose above background exceeding an equivalent of 25 millirems to the whole body, 75 millirems to the thyroid, or 25 millirems to any other organ of any member of the public.

(c) Operations at the NORM waste disposal facility must be conducted in compliance with the standards for radiation protection set out in Subchapter D of this chapter (relating to Standards for Protection Against Radiation), except for releases of radioactivity in effluents from the NORM waste disposal facility, which are governed by subsection (b) of this section. Analyses of the protection of individuals during operations must include assessments of expected doses due to routine operations and potential accidents during handling, storage, processing, and disposal of NORM waste.

(d) The location and characteristics of a NORM waste disposal facility must preclude potential off-site migration or transport of radioactive materials or ready access to critical exposure pathways.

(e) Pathways analyzed in demonstrating protection of the general population from releases of radioactivity must include air, soil, groundwater, surface water, plant uptake, and exhumation by animals.

(f) A NORM waste disposal facility for which authorization is requested under this subchapter must be located, designed, constructed, operated, and closed so that long-term isolation and custodial care for long-term stability will not be required beyond the time the licensee occupies the NORM waste disposal facility.

Adopted June 29, 2005

Effective July 21, 2005

### **§336.1013. Terms and Conditions of License.**

(a) At any time before termination of the license, the licensee shall submit written statements under oath upon request of the commission or executive director to enable the commission to determine whether or not the license should be modified, suspended, or revoked.

(b) The licensee is subject to the applicable provisions of Texas Health and Safety Code, Chapter 401, also known as the Texas Radiation Control Act (TRCA) now or hereafter in effect and to applicable rules and orders of the commission. The terms and conditions of the license are subject to amendment, revision, or modification, by reason of amendments to the TRCA or by reason of rules and orders issued in accordance with terms of the TRCA.

(c) Any license may be revoked, suspended, or modified, in whole or in part, for any material false statement in the application or any statement of fact required under provisions of the TRCA, or because of conditions revealed by any application or statement of fact or any report, record, or inspection or other means that would warrant the commission to refuse to grant a license on the original application, or for failure to operate the naturally occurring radioactive material (NORM) waste disposal facility in accordance with the terms of the license, or for any violation of or failure to observe any of the terms and conditions of the TRCA or the license or of any rule or order of the commission.

(d) Each person licensed by the commission under this subchapter shall confine possession and use of NORM waste to the locations and purposes authorized in the license.

(e) The licensee may not dispose of NORM waste at a NORM waste disposal facility until the licensee has submitted to the executive director by certified mail or hand delivery a letter signed by the licensee and a Texas licensed professional engineer stating that the NORM waste disposal facility has been constructed in compliance with the license and the application and the executive director has inspected the NORM waste disposal facility and finds it is in compliance with the conditions of the license and the application.

(f) The licensee may not receive NORM waste for disposal at the NORM waste disposal facility until the executive director has approved the licensee's financial assurance in writing.

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

(1) protect the health and safety of the public and the environment; or

(2) require reports and recordkeeping and to provide for inspections of activities under the license that may be necessary or appropriate to effectuate the purposes of the TRCA and the rules adopted under the TRCA.

(h) Each license may be issued for an initial term of ten years from the date of issuance. After the initial ten years, the commission may renew the license for one or more terms of ten years. The authority to dispose of radioactive material expires on the date stated in the license. In any case in which a licensee has timely filed an application for renewal of a license, the authority for continued receipt and disposal of licensed materials does not expire until the commission has taken final action on the application for renewal.

Adopted June 29, 2005

Effective July 21, 2005

**§336.1015. Maintenance of Records and Reports.**

(a) Each licensee shall maintain any records and submit any reports required by the conditions of the license, by the rules in this chapter, or by orders of the commission. Copies of any records or reports required by the license, rules, or orders must be submitted to the executive director or commission upon request. All records and reports required by the license, rules, or orders must be complete and accurate.

(b) Records that are required by the rules in this chapter or by license conditions must be maintained for a period specified by the appropriate rules or by license condition. If a retention period is not otherwise specified, these records must be maintained and transferred to the executive director as specified in subsection (e) of this section as a condition of license termination unless the executive

director otherwise authorizes their disposition.

(c) Each record required by this chapter must be legible throughout the specified retention period. The record must be the original or a reproduced copy or a microform, provided that the copy or microform is authenticated by authorized personnel and that the microform is capable of producing a clear copy throughout the required retention period. The record may also be stored in electronic media with the capability for producing legible, accurate, and complete records during the required retention period. Records, such as letters, drawings, and specifications, must include all pertinent information, such as stamps, initials, and signatures. The licensee shall maintain adequate safeguards against tampering with and the loss of records.

(d) If there is a conflict between the commission's rules, license condition, or other written approval or authorization from the executive director pertaining to the retention period for the same type of record, the longest retention period specified takes precedence.

(e) Notwithstanding subsections (a) - (d) of this section, the licensee shall record the location, the quantity of wastes, and the radioactivity content by radionuclide of waste disposed and shall transfer these records upon license termination to the executive director and to such other government agencies or officials as designated by the commission.

(f) The licensee shall maintain copies of waste manifests of shipments received at the disposal facility. Following receipt and acceptance of a shipment of naturally occurring radioactive material (NORM) waste, the licensee shall record the date that the shipment was received at the disposal facility; the date of disposal of the NORM waste; a traceable shipment manifest number; the containment integrity of the NORM waste disposal containers as received; any discrepancies between materials listed on the manifest and those received; the volume of any pallets, bracing, or other shipping materials, or of materials generated on site, that are contaminated and are disposed of as contaminated or suspect materials; and any evidence of leaking or damaged disposal containers or radiation or contamination levels in excess of limits specified in rules of the United States Department of Transportation or the Department of State Health Services. The licensee shall briefly describe any repackaging operations of any of the disposal containers included in the shipment, plus any other information required by the commission as a license condition. The licensee shall retain these records until the commission transfers or terminates the license that authorizes the activities described in this section.

(g) Each licensee authorized to dispose of NORM waste received from other persons shall file a copy of its financial report or a certified financial statement annually with the executive director in order to update the information base for determining financial qualifications.

(h) Annual reports must be submitted.

(1) Each licensee authorized to dispose of NORM waste received from other persons under this subchapter shall submit annual reports to the executive director. Reports must be submitted by the end of the first calendar quarter of each year for the preceding year.

(2) The annual reports must include:



(A) specification of the quantity of each radionuclide released to unrestricted areas in liquid and in airborne effluents during the preceding year;

(B) the results of the environmental monitoring program;

(C) a summary of radioactivities and quantities of radionuclides disposed of;

(D) any instances in which observed site characteristics were significantly different from those described in the application for a license; and

(E) any other information that the executive director may require.

(3) If the quantities of radioactive materials released during the reporting period, monitoring results, or maintenance performed are significantly different from those expected in the documents previously reviewed as part of the licensing action, the annual report must cover this specifically.

(i) An electronic recordkeeping system must be maintained. In addition to the other requirements of this section, the licensee shall store, or have stored, manifest and other information pertaining to receipt and disposal of NORM waste in an electronic recordkeeping system that is available for review by commission inspectors.

Adopted June 29, 2005

Effective July 21, 2005

**§336.1017. Tests at Naturally Occurring Radioactive Material Waste Disposal Facilities.**

Each licensee shall perform or allow the executive director to perform any tests that the executive director deems appropriate or necessary for the administration of the rules in this chapter during normal working hours, including tests of:

(1) wastes and facilities used for the receipt, storage, processing, handling, and disposal of wastes;

(2) radiation detection and monitoring instruments; and

(3) other equipment and devices used in connection with the receipt, possession, handling, processing, storage, or disposal of waste.

Adopted June 29, 2005

Effective July 21, 2005

**§336.1019. Liability Coverage and Funding for Naturally Occurring Radioactive Material Waste Disposal Facility Closure and Stabilization.**

(a) The applicant shall provide assurance 60 days prior to the initial receipt of waste that sufficient funds will be available to carry out closure and stabilization of the naturally occurring

radioactive material (NORM) waste disposal facility, including:

- (1) decontamination or dismantlement of NORM waste disposal facility structures;
- (2) disposal of any radioactive material remaining at the NORM waste disposal facility at closure; and
- (3) closure and stabilization of the NORM waste disposal facility so that the site may be released for unrestricted use.

(b) The assurance must be based on cost estimates approved by the executive director that reflect the approved plan for closure and stabilization of the NORM waste disposal facility. The applicant's cost estimates must take into account total costs that would be incurred if an independent contractor were hired to perform the closure and stabilization work.

(c) Financial assurance mechanisms submitted to comply with subsection (a) of this section must meet the requirements specified in Chapter 37, Subchapter S of this title (relating to Financial Assurance for Radioactive Material). The licensee's financial assurance mechanism and cost estimates must be reviewed by the executive director annually to assure that sufficient funds are available for completion of the closure plan, assuming that the work has to be performed by an independent contractor.

(d) The amount of financial assurance must be adjusted as required to meet the predicted cost of future closure and stabilization. Factors affecting cost estimates for closure and stabilization include inflation, increases in the amount of disturbed land, changes in engineering plans, closure and stabilization that have already been accomplished, and any other conditions affecting costs. The closure amount must be at least sufficient at all times to cover the costs of closure of the NORM waste disposal facility.

(e) Sixty days prior to the initial receipt of NORM waste, the licensee shall establish and maintain financial assurance for liability coverage for sudden and nonsudden bodily injury and property damage to third parties caused by accidental occurrences arising from operations of the NORM waste disposal facility that meets the requirements of this subsection, in addition to the requirements specified under Chapter 37, Subchapters A, E, F, and G of this title (relating to General Financial Assurance Requirements; Financial Assurance Requirements for Liability Coverage; Financial Assurance Mechanisms for Liability; and Wording of the Mechanisms for Liability, respectively).

(1) A licensee shall establish and maintain liability coverage for sudden accidental occurrences in the amount of at least \$1 million per occurrence with an annual aggregate of at least \$2 million, exclusive of legal defense costs.

(2) A licensee shall establish and maintain liability coverage for nonsudden accidental occurrences in the amount of at least \$3 million per occurrence with an annual aggregate of at least \$6 million, exclusive of legal defense costs.

(3) A licensee who combines coverage for sudden and nonsudden accidental occurrences shall maintain liability coverage in the amount of at least \$4 million per occurrence and \$8 million annual aggregate.

(4) A licensee may use any of the mechanisms specified in Chapter 37, Subchapter F of this title to demonstrate financial assurance for sudden and nonsudden liability.

(5) A licensee may not use a claims-made insurance policy as security unless the licensee places in escrow, as provided by the executive director, an amount sufficient to pay an additional year of premium for renewal of the policy by the state on notice of termination of coverage.

Adopted June 29, 2005

Effective July 21, 2005