

R313. Environmental Quality, Radiation Control.

R313-25. License Requirements for Land Disposal of Radioactive Waste - General Provisions.

R313-25-1. Purpose and Authority.

- (1) The purpose of this rule is to prescribe the requirements for the issuance of licenses for the land disposal of wastes received from other persons.
- (2) The rules set forth herein are adopted pursuant to the provisions of Subsections 19-3-104(4), 19-3-104(8), 19-3-104(11), and 19-3-104(12).
- (3) The requirements of Rule R313-25 are in addition to, and not in substitution for, other applicable requirements of these rules.

R313-25-2. Definitions.

As used in Rule R313-25, the following definitions apply:

"Active maintenance" means significant activity needed during the period of institutional control to maintain a reasonable assurance that the performance objectives in Sections [R313-25-19 and]R313-25-20 and R313-25-21 are met. Active maintenance may include the pumping and treatment of water from a disposal unit, the replacement of a disposal unit cover, or other episodic or continuous measures. Active maintenance does not include custodial activities like repair of fencing, repair or replacement of monitoring equipment, revegetation, minor additions to soil cover, minor repair of disposal unit covers, and general disposal site upkeep.

"Approval application" means an application by a radioactive waste facility regulated under Title 19, Chapter 3 or Title 19, Chapter 5, for a permit, permit modification, license, license amendment, or other authorization.

"Buffer zone" means 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.

"Commencement of construction" means clearing of land, excavation, or other substantial action that could adversely affect the environment of a land disposal facility. The term does not mean 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.

"Custodial agency" means an agency of the government designated to act on behalf of the government owner of the disposal site.

"Day" means calendar day.

"Disposal" means the isolation of wastes from the biosphere by placing them in a land disposal facility.

"Disposal site" means that portion of a land disposal facility which is used for disposal of waste. It consists of disposal units and a buffer zone.

"Disposal unit" means a discrete portion of the disposal site into which waste is placed for disposal. For near-surface disposal, the disposal unit may be a trench.

"Engineered barrier" means a man-made structure or device intended to improve the land disposal facility's performance under Rule R313-25.

"Groundwater permit" means a groundwater quality discharge permit issued under the authority of Title 19, Chapter 5 and Rule R317-6.

"Hydrogeologic unit" means a soil or rock unit or zone that has a distinct influence on the storage or movement of ground water.

"Inadvertent intruder" means a person who may enter the disposal site after closure and engage in activities unrelated to post closure management, such as agriculture, dwelling construction, or other pursuits which could, by disturbing the site, expose individuals to radiation.

"Intruder barrier" means a 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 performance objectives set forth in Rule R313-25, or engineered structures that provide equivalent protection to the inadvertent intruder.

"Land disposal facility" means the land, buildings and structures, and equipment which are intended to be used for the disposal of radioactive waste.

"Monitoring" means observing and making measurements to provide data to evaluate the performance and characteristics of the disposal site.

"Near-surface disposal facility" means a land disposal facility in which waste is disposed of within approximately the upper 30 meters of the earth's surface.

"Site closure and stabilization" means those 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" means structural stability.

"Surveillance" means monitoring and observation of the disposal site to detect needs for maintenance or custodial care, to observe evidence of intrusion, and to ascertain compliance with other license and regulatory requirements.

"Tolling period," for purposes of this Rule, means a period during which days are not counted toward the deadlines specified in Subsections R313-25-6(3)(c), (4)(c)(i), (5)(b)(i), and (6)(b)(i).

"Treatment" means the stabilization or the reduction in volume of waste by a chemical or a physical process.

"Waste" means those low-level radioactive wastes containing radioactive material that are acceptable for disposal in a land disposal facility. For the purposes of this definition, low-level radioactive waste means radioactive waste not classified as high-level radioactive waste, transuranic waste, spent nuclear fuel, or byproduct material as defined in (b), (c), and (d) of the definition for byproduct material found in ~~S[ub]s~~ection R313-12-3.

R313-25-3. Pre-licensing Plan Approval Criteria for Siting of Commercial Radioactive Waste Disposal Facilities.

- (1) Persons proposing to construct or operate commercial radioactive waste disposal facilities, including waste incinerators, shall obtain a plan approval from the Director before applying for a license. Plans shall meet the siting criteria and plan approval requirements of Section R313-25-3.
- (2) The siting criteria and plan approval requirements in Section R313-25-3 apply to prelicensing plan approval applications.

- (3) Treatment and disposal facilities, including commercial radioactive waste incinerators, shall not be located:
- (a) within or underlain by:
 - (i) national, state, and county parks, monuments, and recreation areas; designated wilderness and wilderness study areas; wild and scenic river areas;
 - (ii) ecologically and scientifically significant natural areas, including wildlife management areas and habitats for listed or proposed endangered species as designated by federal law;
 - (iii) 100 year floodplains;
 - (iv) areas 200 feet distant from Holocene faults;
 - (v) underground mines, salt domes and salt beds;
 - (vi) dam failure flood areas;
 - (vii) areas subject to landslide, mud flow, or other earth movement, unless adverse impacts can be mitigated;
 - (viii) farmlands classified or evaluated as "prime", "unique", or of "statewide importance" by the U.S. Department of Agricultural Soil Conservation Service under the Prime Farmland Protection Act;
 - (ix) areas five miles distant from existing permanent dwellings, residential areas, and other habitable structures, including schools, churches, and historic structures;
 - (x) areas five miles distant from surface waters including intermittent streams, perennial streams, rivers, lakes, reservoirs, and wetlands;
 - (xi) areas 1000 feet distant from archeological sites to which adverse impacts cannot reasonably be mitigated;
 - (xii) recharge zones of aquifers containing ground water which has a total dissolved solids content of less than 10,000 mg/l; or
 - (xiii) drinking water source protection areas designated by the Utah Drinking Water Board;
 - (b) in areas:
 - (i) above or underlain by aquifers containing ground water which has a total dissolved solids content of less than 500 mg/l and which aquifers do not exceed state ground water standards for pollutants;
 - (ii) above or underlain by aquifers containing ground water which has a total dissolved solids content between 3000 and 10,000 mg/l when the distance from the surface to the ground water is less than 100 ft.;
 - (iii) areas of extensive withdrawal of water, mineral or energy resources.
 - (iv) above or underlain by weak and unstable soils, including soils that lose their ability to support foundations as a result of hydrocompaction, expansion, or shrinkage;
 - (v) above or underlain by karst terrains.
- (4) Commercial radioactive waste disposal facilities may not be located within a distance to existing drinking water wells and watersheds for public water supplies of five years ground water travel time plus 1000 feet.
- (5) The plan approval siting application shall include hydraulic conductivity and other information necessary to estimate adequately the ground water travel distance.

- (6) The plan approval siting application shall include the results of studies adequate to identify the presence of ground water aquifers in the area of the proposed site and to assess the quality of the ground water of all aquifers identified in the area of the proposed site.
- (7) Emergency response and safety.
 - (a) The plan approval siting application shall demonstrate the availability and adequacy of services for on-site emergencies, including medical and fire response. The application shall provide written evidence that the applicant has coordinated on-site emergency response plans with the local emergency planning committee (LEPC).
 - (b) The plan approval siting application shall include a comprehensive plan for responding to emergencies at the site.
 - (c) The plan approval siting application shall show proposed routes for transportation of radioactive wastes within the state. The plan approval siting application shall address the transportation means and routes available to evacuate the population at risk in the event of on-site accidents, including spills and fires.
- (8) The plan approval siting application shall provide evidence that if the proposed disposal site is on land not owned by state or federal government, that arrangements have been made for assumption of ownership in fee by a state or federal agency.
- (9) Siting Authority. The Director recognizes that Titles 10 and 17 of the Utah Code give cities and counties authority for local use planning and zoning. Nothing in Section R313-25-3 precludes cities and counties from establishing additional requirements as provided by applicable state and federal law.

R313-25-4. License Required.

- (1) Persons shall not receive, possess, or dispose of waste at a land disposal facility unless authorized by a license issued by the Director pursuant to Rules R313-25 and R313-22.
- (2) Persons shall file an application with the Director pursuant to Section R313-22-32 and obtain a license as provided in Rule R313-25 before commencement of construction of a land disposal facility. Failure to comply with this requirement may be grounds for denial of a license and other penalties established by law and rules.

R313-25-5. Content of Application.

In addition to the requirements set forth in Section R313-22-33, an application to receive from others, possess, and dispose of wastes shall consist of general information, specific technical information, institutional information, and financial information as set forth in Sections R313-25-[6]7 through R313-25-1[0]1.

R313-25-6. Director Review of Application.

- (1) The Director shall review each approval application to determine whether it complies with applicable statutory and regulatory requirements. Approval applications will be categorized as Category 1, 2, 3 and 4 applications, as provided in paragraphs (2) through (5).
- (2) Category 1 applications.
 - (a) A Category 1 applications is an applications that:
 - (i) is administrative in nature;
 - (ii) requires limited scrutiny by the Director; and

- (iv) does not require public comment.
 - (b) Examples of a Category 1 application includes an application to:
 - (i) correct typographical errors;
 - (ii) change the name, address, or phone number of persons or agencies identified in the license or permit;
 - (iii) change the procedures or location for maintaining records; or
 - (iv) extend the date for compliance with a permit or license requirement by no more than 120 days.
 - (c) The Director shall review and approve or deny a Category 1 application within 30 days after the day on which the director receives the application.
- (3) Category 2 applications.
 - (a) A Category 2 application is one that is not a Category 1, 3 or 4 application.
 - (b) Examples of a Category 2 applications include an application to:
 - (i) Increase in process, storage, or disposal capacity;
 - (ii) Change engineering design, construction, or process controls;
 - (iii) Approve a proposed corrective action plan; or
 - (iv) Transfer direct control of a license or groundwater permit.
 - (c) (i) The Director shall review and approve or deny a Category 2 application within 180 days after the day on which the director receives the application.
 - (ii) The period described in subparagraph (c)(i) shall be tolled as provided in paragraph (7).
- (4) Category 3 applications.
 - (a) A Category 3 application is an application for:
 - (i) a radioactive waste license renewal;
 - (ii) a groundwater permit renewal;
 - (iii) an amendment to an existing radioactive waste license or groundwater permit to allow a new disposal cell;
 - (iv) an amendment to an existing radioactive waste license or groundwater permit that would allow the facility to eliminate groundwater monitoring; or
 - (v) approval of a radioactive waste disposal facility closure plan.
 - (b) (i) The Director shall review and approve or deny a Category 3 application within 365 days after the day on which the director receives the application.
 - (ii) The period described in subparagraph (b)(i) shall be tolled as provided in paragraph (7).
- (5) Category 4 applications.
 - (a) A Category 4 application is an application for:
 - (i) a new radioactive waste license; or
 - (ii) a new groundwater permit.
 - (b) (i) The Director shall review and approve or deny a Category 4 application within 540 days after the day on which the director receives the application.
 - (ii) The period described in subparagraph (b)(i) shall be tolled as provided in paragraph (7).
- (6) (a) Within 60 days after the day on which the Director receives a Category 2, 3 or 4 approval application, the Director shall determine whether the application is complete and contains all the information necessary to process it for approval and make a finding by

issuance of a written:

- (i) notice of completeness to the applicant; or
- (ii) notice of deficiency to the applicant, including a list of the additional information necessary to complete the application.
- (b) The Director shall review written information submitted in response to a notice of deficiency within 30 days after the day on which the Director receives the supplemental information and shall again follow the procedures specified in Subsection R313-25-6(1)(a).
- (c) If a document that is submitted as an application is substantially deficient, the Director may determine that it does not qualify as an application. Any such determination shall be made within 45 days of the document's submission and will include the Director's written findings.
- (7) Tolling Periods. The periods specified for the Director's review and approval or denial under subparagraphs (3)(c)(i), (4)(b)(i), and (5)(b)(i) shall be tolled:
 - (a) while an owner or operator of a facility responds to the Director's request for information;
 - (b) during a public comment period; and
 - (c) while the federal government reviews the application.
- (8) The Director shall prepare a detailed written explanation of the technical and regulatory basis for the Director's approval or denial of an approval application.

R313-25-[6]7. General Information.

The general information shall include the following:

- (1) identity of the applicant including:
 - (a) the full name, address, telephone number, and description of the business or occupation of the applicant;
 - (b) if the applicant is a partnership, the names and addresses of the partners and the principal location where the partnership does business;
 - (c) if the applicant is a corporation or an unincorporated association;
 - (i) the state where it is incorporated or organized and the principal location where it does business; and
 - (ii) the names and addresses of its directors and principal officers; and
 - (d) if the applicant is acting as an agent or representative of another person in filing the application, the applicant shall provide, with respect to the other person, information required under Subsection R313-25-[6]7(1).
- (2) Qualifications of the applicant shall include the following;
 - (a) the organizational structure of the applicant, both offsite and onsite, including a description of lines of authority and assignments of responsibilities, whether in the form of administrative directives, contract provisions, or otherwise;
 - (b) 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 Subsection R313-25-[6]7(2)(a) shall be provided;
 - (c) a description of the applicant's personnel training program; and
 - (d) 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:
 - (a) the location of the proposed disposal site;
 - (b) the general character of the proposed activities;
 - (c) the types and quantities of waste to be received, possessed, and disposed of;
 - (d) plans for use of the land disposal facility for purposes other than disposal of wastes;
and
 - (e) the proposed facilities and equipment; and
- (4) proposed schedules for construction, receipt of waste, and first emplacement of waste at the proposed land disposal facility.

R313-25-[7]8. Specific Technical Information.

The application shall include certain technical information. The following information is needed to determine whether or not the applicant can meet the performance objectives and the applicable technical requirements of Rule R313-25:

- (1) A description of the natural and demographic disposal site characteristics shall be based on and determined by disposal site selection and characterization activities. The description shall include geologic, geochemical, geotechnical, hydrologic, ecologic, archaeologic, meteorologic, climatologic, and biotic features of the disposal site and vicinity.
- (2) Descriptions of the design features of the land disposal facility and of the disposal units for near-surface disposal shall include those design features related to infiltration of water; integrity of covers for disposal units; structural stability of backfill, wastes, and covers; contact of wastes with standing water; disposal site drainage; disposal site closure and stabilization; elimination to the extent practicable of long-term disposal site maintenance; inadvertent intrusion; occupational exposures; disposal site monitoring; and adequacy of the size of the buffer zone for monitoring and potential mitigative measures.
- (3) Descriptions of the principal design criteria and their relationship to the performance objectives.
- (4) Descriptions of the natural events or phenomena on which the design is based and their relationship to the principal design criteria.
- (5) Descriptions of codes and standards which the applicant has applied to the design, and will apply to construction of the land disposal facilities.
- (6) Descriptions of the construction and operation of the land disposal facility. The description shall include as a minimum the methods of construction of disposal units; waste emplacement; the procedures for and areas of waste segregation; types of intruder barriers; onsite traffic and drainage systems; survey control program; methods and areas of waste storage; and methods to control surface water and ground water access to the wastes. The description shall also include a description of the methods to be employed in the handling and disposal of wastes containing chelating agents or other non-radiological substances which might affect meeting the performance objectives of Rule R313-25
- (7) A description of the disposal site closure plan, including those design features which are intended to facilitate disposal site closures and to eliminate the need for active maintenance after closure.
- (8) Identification of the known natural resources at the disposal site whose exploitation could result in inadvertent intrusion into the wastes after removal of active institutional control.
- (9) Descriptions of the kind, amount, classification, and specifications of the radioactive

- material proposed to be received, possessed, and disposed of at the land disposal facility.
- (10) Descriptions of quality assurance programs, tailored to low-level waste disposal, including audit and managerial controls, for the determination of natural disposal site characteristics and for quality control during the design, construction, operation, and closure of the land disposal facility and the receipt, handling, and emplacement of waste.
 - (11) A description of the radiation safety program for control and monitoring of radioactive effluents to ensure compliance with the performance objective in Section R313-25-[49]20 and monitoring of occupational radiation exposure to ensure compliance with the requirements of Rule R313-15 and to control contamination of personnel, vehicles, equipment, buildings, and the disposal site. The applicant shall describe procedures, instrumentation, facilities, and equipment appropriate to both routine and emergency operations.
 - (12) A description of the environmental monitoring program to provide data and to evaluate potential health and environmental impacts and the plan for taking corrective measures if migration is indicated.
 - (13) Descriptions of the administrative procedures that the applicant will apply to control activities at the land disposal facility.
 - (14) A description of the facility electronic recordkeeping system as required in Section R313-25-33.

R313-25-[8]9. Technical Analyses.

- (1) The licensee or applicant shall conduct a site-specific performance assessment and receive Director approval prior to accepting any radioactive waste if:
 - (a) the waste was not considered in the development of the limits on Class A waste and not included in the analyses of the Draft Environmental Impact Statement on 10 CFR Part 61 "Licensing Requirements for Land Disposal of Radioactive Waste," NUREG-0782. U.S. Nuclear Regulatory Commission. September 1981, or
 - (b) the waste is likely to result in greater than 10 percent of the dose limits in Section R313-25-[49]20 during the time period at which peak dose would occur, or
 - (c) the waste will result in greater than 10 percent of the total site source term over the operational life of the facility, or
 - (d) the disposal of the waste would result in an unanalyzed condition not considered in Rule R313-25.
- (2) A licensee that has a previously-approved site-specific performance assessment that addressed a radioactive waste for which a site-specific performance assessment would otherwise be required under Subsection R313-25-[8]9(1) shall notify the Director of the applicability of the previously-approved site-specific performance assessment at least 60 days prior to the anticipated acceptance of the radioactive waste.
- (3) The licensee shall not accept radioactive waste until the Director has approved the information submitted pursuant to Subsections R313-25-[8]9(1) or (2).
- (4) The licensee or applicant shall also include in the specific technical information the following analyses needed to demonstrate that the performance objectives of Rule R313-25 will be met:
 - (a) Analyses demonstrating that the general population will be protected from releases of radioactivity shall consider the pathways of air, soil, ground water, surface water, plant

uptake, and exhumation by burrowing animals. The analyses shall clearly identify and differentiate between the roles performed by the natural disposal site characteristics and design features in isolating and segregating the wastes. The analyses shall clearly demonstrate a reasonable assurance that the exposures to humans from the release of radioactivity will not exceed the limits set forth in Section R313-25-[49]20.

- (b) Analyses of the protection of inadvertent intruders shall demonstrate a reasonable assurance that the waste classification and segregation requirements will be met and that adequate barriers to inadvertent intrusion will be provided.
 - (c) Analysis of the protection of individuals during operations shall include assessments of expected exposures due to routine operations and likely accidents during handling, storage, and disposal of waste. The analysis shall provide reasonable assurance that exposures will be controlled to meet the requirements of Rule R313-15.
 - (d) Analyses of the long-term stability of the disposal site shall be based upon analyses of active natural processes including erosion, mass wasting, slope failure, settlement of wastes and backfill, infiltration through covers over disposal areas and adjacent soils, surface drainage of the disposal site, and the effects of changing lake levels. The analyses shall provide reasonable assurance that there will not be a need for ongoing active maintenance of the disposal site following closure.
- (5) (a) Notwithstanding Subsection R313-25-[8]9(1), any facility that proposes to land dispose of significant quantities of concentrated depleted uranium (more than one metric ton in total accumulation) after June 1, 2010, shall submit for the Director's review and approval a performance assessment that demonstrates that the performance standards specified in 10 CFR Part 61 and corresponding provisions of Utah rules will be met for the total quantities of concentrated depleted uranium and other wastes, including wastes already disposed of and the quantities of concentrated depleted uranium the facility now proposes to dispose. Any such performance assessment shall be revised as needed to reflect ongoing guidance and rulemaking from NRC. For purposes of this performance assessment, the compliance period shall be a minimum of 10,000 years. Additional simulations shall be performed for the period where peak dose occurs and the results shall be analyzed qualitatively.
- (b) No facility may dispose of significant quantities of concentrated depleted uranium prior to the approval by the Director of the performance assessment required in Subsection R313-25-[8]9(5)(a).
 - (c) For purposes of this Subsection R313-25-[8]9(5) only, "concentrated depleted uranium" means waste with depleted uranium concentrations greater than 5 percent by weight.

R313-25-[9]10. Institutional Information.

The institutional information submitted by the applicant shall include:

- (1) A certification by the federal or state agency which owns the disposal site that the agency is prepared to accept transfer of the license when the provisions of Section R313-25-1[6]7 are met and will assume responsibility for institutional control after site closure and for post-closure observation and maintenance.
- (2) Evidence, if the proposed disposal site is on land not owned by the federal or a state government, that arrangements have been made for assumption of ownership in fee by the

federal or a state agency.

R313-25-1[0]1. Financial Information.

This information shall demonstrate that the applicant is financially qualified to carry out the activities for which the license is sought. The information shall meet other financial assurance requirements of Rule R313-25.

R313-25-1[1]2. Requirements for Issuance of a License.

A license for the receipt, possession, and disposal of waste containing radioactive material will be issued by the Director upon finding that:

- (1) the issuance of the license will not constitute an unreasonable risk to the health and safety of the public;
- (2) the applicant is qualified by reason of training and experience to carry out the described disposal operations in a manner that protects health and minimizes danger to life or property;
- (3) the applicant's proposed disposal site, disposal design, land disposal facility operations, including equipment, facilities, and procedures, disposal site closure, and post-closure institutional control, are adequate to protect the public health and safety as specified in the performance objectives of Section R313-25-[19]20;
- (4) the applicant's proposed disposal site, disposal site design, land disposal facility operations, including equipment, facilities, and procedures, disposal site closure, and post-closure institutional control are adequate to protect the public health and safety in accordance with the performance objectives of Section R313-25-2[0]1;
- (5) the applicant's proposed land disposal facility operations, including equipment, facilities, and procedures, are adequate to protect the public health and safety in accordance with Rule R313-15;
- (6) the applicant's proposed disposal site, disposal site design, land disposal facility operations, disposal site closure, and post-closure institutional control plans are adequate to protect the public health and safety in that they will provide reasonable assurance of the long-term stability of the disposed waste and the disposal site and will eliminate to the extent practicable the need for continued maintenance of the disposal site following closure;
- (7) the applicant's demonstration provides reasonable assurance that the requirements of Rule R313-25 will be met;
- (8) the applicant's proposal for institutional control provides reasonable assurance that control will be provided for the length of time found necessary to ensure the findings in Subsections R313-25-1[1]2(3) through (6) and that the institutional control meets the requirements of Section R313-25-2[8]9.
- (9) the financial or surety arrangements meet the requirements of Rule R313-25.

R313-25-1[2]3. Conditions of Licenses.

- (1) A license issued under Rule R313-25, 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 a person, unless the Director finds, after securing full information, that the transfer is in accordance with the provisions of the Radiation Control Act and Rules and gives his consent in writing in the form of a license amendment.

- (2) The Director may require the licensee to submit written statements under oath.
- (3) The license will be terminated only on the full implementation of the final closure plan, including post-closure observation and maintenance, as approved by the Director.
- (4) The licensee shall submit to the provisions of the Act now or hereafter in effect, and to all findings and orders of the Director. The terms and conditions of the license are subject to amendment, revision, or modification, by reason of amendments to, or by reason of rules, and orders issued in accordance with the terms of the Act and these rules.
- (5) Persons licensed by the Director pursuant to Rule R313-25 shall confine possession and use of the materials to the locations and purposes authorized in the license.
- (6) The licensee shall not dispose of waste until the Director has inspected the land disposal facility and has found it to conform with the description, design, and construction described in the application for a license.
- (7) The Director may incorporate, by rule or order, into licenses at the time of issuance or thereafter, additional requirements and conditions with respect to the licensee's receipt, possession, and disposal of waste as the Director deems appropriate or necessary in order to:
 - (a) protect health or to minimize danger to life or property;
 - (b) require reports and the keeping of records, and to provide for inspections of licensed activities as the Director deems necessary or appropriate to effectuate the purposes of the Radiation Control Act and Rules.
- (8) The authority to dispose of wastes expires on the expiration date stated in the license. An expiration date on a license applies only to the above ground activities and to the authority to dispose of waste. Failure to renew the license shall not relieve the licensee of responsibility for implementing site closure, post-closure observation, and transfer of the license to the site owner.

R313-25-1[3]4. Application for Renewal or Closure.

- (1) An application for renewal or an application for closure under Section R313-25-1[4]5 shall be filed at least 90 days prior to license expiration.
- (2) Applications for renewal of a license shall be filed in accordance with Sections R313-25-5 and R313-25-7 through R313-25-1[0]1. Applications for closure shall be filed in accordance with Section R313-25-1[4]5. Information contained in previous applications, statements, or reports filed with the Director under the license may be incorporated by reference if the references are clear and specific.
- (3) If a licensee has filed an application in proper form for renewal of a license, the license shall not expire unless and until the Director has taken final action to deny application for renewal.
- (4) In evaluating an application for license renewal, the Director will apply the criteria set forth in Section R313-25-1[+]2.

R313-25-1[4]5. Contents of Application for Site Closure and Stabilization.

- (1) Prior to final closure of the disposal site, or as otherwise directed by the Director, 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 plan included in the original license application submitted and approved under Subsection

R313-25-[7]8(7). The plan shall include the following:

- (a) additional geologic, hydrologic, or other data pertinent to the long-term containment of emplaced wastes obtained during the operational period;
 - (b) the results of tests, experiments, or other analyses relating to backfill of excavated areas, closure and sealing, waste migration and interaction with emplacement media, or other tests, experiments, or analyses pertinent to the long-term containment of emplaced waste within the disposal site;
 - (c) proposed revision of plans for:
 - (i) decontamination or dismantlement of surface facilities;
 - (ii) backfilling of excavated areas; or
 - (iii) stabilization of the disposal site for post-closure care.
 - (d) Significant new information regarding the environmental impact of closure activities and long-term performance of the disposal site.
- (2) Upon review and consideration of an application to amend the license for closure submitted in accordance with Subsection R313-25-1[4]5(1), the Director shall issue an amendment authorizing closure if there is reasonable assurance that the long-term performance objectives of Rule R313-25 will be met.

R313-25-1[5]6. Post-Closure Observation and Maintenance.

The licensee shall observe, monitor, and carry out necessary maintenance and repairs at the disposal site until the site closure is complete and the license is transferred by the Director in accordance with Section R313-25-1[6]7. The licensee shall remain responsible for the disposal site for an additional five years. The Director may approve closure plans that provide for shorter or longer time periods of post-closure observation and maintenance, if sufficient rationale is developed for the variance.

R313-25-1[6]7. Transfer of License.

Following closure and the period of post-closure observation and maintenance, the licensee may apply for an amendment to transfer the license to the disposal site owner. The license shall be transferred when the Director finds:

- (1) that the disposal site was closed according to the licensee's approved disposal site closure plan;
- (2) that the licensee has provided reasonable assurance that the performance objectives of Rule R313-25 have been met;
- (3) that funds for care and records required by Subsections R313-25-33(4) and (5) have been transferred to the disposal site owner;
- (4) that the post-closure monitoring program is operational and can be implemented by the disposal site owner; and
- (5) that the Federal or State 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 Subsection R313-25-1[4]2(8) will be met.

R313-25-1[7]8. Termination of License.

- (1) Following the period of institutional control needed to meet the requirements of Section R313-25-1[4]2, the licensee may apply for an amendment to terminate the license.

- (2) This application will be reviewed in accordance with the provisions of Section R313-22-3[2]3.
- (3) A license shall be terminated only when the Director finds:
 - (a) that the institutional control requirements of Subsection R313-25-1[4]2(8) have been met;
 - (b) that additional requirements resulting from new information developed during the institutional control period have been met;
 - (c) that permanent monuments or markers warning against intrusion have been installed; and
 - (d) that records required by Subsections R313-25-33(4) and (5) have been sent to the party responsible for institutional control of the disposal site and a copy has been sent to the Director immediately prior to license termination.

R313-25-1[8]9. General Requirement.

Land disposal facilities shall be sited, designed, operated, closed, and controlled after closure so that reasonable assurance exists that exposures to individuals do not exceed the limits stated in Sections R313-25-[49]20 and R313-25-2[2]3.

R313-25-[49]20. Protection of the General Population from Releases of Radioactivity.

Concentrations of radioactive material which may be released to the general environment in ground water, surface water, air, soil, plants or animals shall not result in an annual dose exceeding an equivalent of 0.25 mSv (0.025 rem) to the whole body, 0.75 mSv (0.075 rem) to the thyroid, and 0.25 mSv (0.025 rem) to any other organ of any member of the public. No greater than 0.04 mSv (0.004 rem) committed effective dose equivalent or total effective dose equivalent to any member of the public shall come from groundwater. Reasonable efforts should be made to maintain releases of radioactivity in effluents to the general environment as low as is reasonably achievable.

R313-25-2[0]1. Protection of Individuals from Inadvertent Intrusion.

Design, operation, and closure of the land disposal facility shall ensure protection of any individuals inadvertently intruding into the disposal site and occupying the site or contacting the waste after active institutional controls over the disposal site are removed.

R313-25-2[1]2. Protection of Individuals During Operations.

Operations at the land disposal facility shall be conducted in compliance with the standards for radiation protection set out in Rule R313-15 of these rules, except for release of radioactivity in effluents from the land disposal facility, which shall be governed by Section R313-25-[49]20. Every reasonable effort should be made to maintain radiation exposures as low as is reasonably achievable, ALARA.

R313-25-2[2]3. Stability of the Disposal Site After Closure.

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.

R313-25-2[3]4. Disposal Site Suitability Requirements for Land Disposal - Near-Surface Disposal.

- (1) The primary emphasis in disposal site suitability is given to isolation of wastes and to disposal site features that ensure that the long-term performance objectives are met.
- (2) The disposal site shall be capable of being characterized, modeled, analyzed and monitored.
- (3) Within the region where the facility is to be located, a disposal site should be selected so that projected population growth and future developments are not likely to affect the ability of the disposal facility to meet the performance objectives of Rule R313-25.
- (4) Areas shall be avoided having known natural resources which, if exploited, would result in failure to meet the performance objectives of Rule R313-25.
- (5) The disposal site shall be [~~generally~~]well drained and free of areas of flooding or [~~frequent~~] ponding. Waste disposal shall not take place in a 100-year flood plain, coastal high-hazard area or wetland, as defined in Executive Order 11988, "Floodplain Management Guidelines."
- (6) Upstream drainage areas shall be minimized to decrease the amount of runoff which could erode or inundate waste disposal units.
- (7) The disposal site shall provide sufficient depth to the water table that ground water intrusion, perennial or otherwise, into the waste will not occur. The Director will consider an exception to this requirement to allow disposal below the water table if it can be conclusively shown that disposal site characteristics will result in molecular diffusion being the predominant means of radionuclide movement and the rate of movement will result in the performance objectives being met. In no case will waste disposal be permitted in the zone of fluctuation of the water table.
- (8) The hydrogeologic unit used for disposal shall not discharge ground water to the surface within the disposal site.
- (9) Areas shall be avoided where tectonic processes such as faulting, folding, seismic activity, vulcanism, or similar phenomena may occur with such frequency and extent to significantly affect the ability of the disposal site to meet the performance objectives of Rule R313-25 or may preclude defensible modeling and prediction of long-term impacts.
- (10) Areas shall be avoided where surface geologic processes such as mass wasting, erosion, slumping, landsliding, or weathering occur with sufficient such frequency and extent to significantly affect the ability of the disposal site to meet the performance objectives of Rule R313-25, or may preclude defensible modeling and prediction of long-term impacts.
- (11) The disposal site shall not be located where nearby facilities or activities could adversely impact the ability of the site to meet the performance objectives of Rule R313-25 or significantly mask the environmental monitoring program.

R313-25-2[4]5. Disposal Site Design for Near-Surface Land Disposal.

- (1) Site design features shall be directed toward long-term isolation and avoidance of the need for continuing active maintenance after site closure.
- (2) The disposal site design and operation shall be compatible with the disposal site closure and stabilization plan and lead to disposal site closure that provides reasonable assurance that the performance objectives will be met.

- (3) The disposal site shall be designed to complement and improve, where appropriate, the ability of the disposal site's natural characteristics to assure that the performance objectives will be met.
- (4) Covers shall be designed to minimize, to the extent practicable, water infiltration, to direct percolating or surface water away from the disposed waste, and to resist degradation by surface geologic processes and biotic activity.
- (5) Surface features shall direct surface water drainage away from disposal units at velocities and gradients which will not result in erosion that will require ongoing active maintenance in the future.
- (6) The disposal site shall be designed to minimize to the extent practicable the contact of water with waste during storage, the contact of standing water with waste during disposal, and the contact of percolating or standing water with wastes after disposal.

R313-25-2[5]6. Near Surface Land Disposal Facility Operation and Disposal Site Closure.

- (1) Wastes designated as Class A pursuant to Section R313-15-1009 of these rules shall be segregated from other wastes by placing them in disposal units which are sufficiently separated from disposal units for the other waste classes so that any interaction between Class A wastes and other wastes will not result in the failure to meet the performance objectives of Rule R313-25. This segregation is not necessary for Class A wastes if they meet the stability requirements of Subsection R313-15-1009(2)(b).
- (2) Wastes designated as Class C pursuant to Section R313-15-1009 shall be disposed of so that the top of the waste is a minimum of five meters below the top surface of the cover or shall be disposed of with intruder barriers that are designed to protect against an inadvertent intrusion for at least 500 years.
- (3) Except as provided in Subsection R313-25-1(1), only waste classified as Class A, B, or C shall be acceptable for near-surface disposal. Wastes shall be disposed of in accordance with the requirements of Subsections R313-25-2[5]6(4) through (11).
- (4) Wastes shall be emplaced in a manner that maintains the package integrity during emplacement, minimizes the void spaces between packages, and permits the void spaces to be filled.
- (5) Void spaces between waste packages shall be filled with earth or other material to reduce future subsidence within the fill.
- (6) Waste shall be placed and covered in a manner that limits the radiation dose rate at the surface of the cover to levels that at a minimum will permit the licensee to comply with all provisions of Section R313-15-105 at the time the license is transferred pursuant to Section R313-25-1[6]7.
- (7) The boundaries and locations of disposal units shall be accurately located and mapped by means of a land survey. Near-surface disposal units shall be marked in such a way that the boundaries of the units can be easily defined. Three permanent survey marker control points, referenced to United States Geological Survey or National Geodetic Survey control stations, shall be established on the site to facilitate surveys. The United States Geological Survey or National Geodetic Survey control stations shall provide horizontal and vertical controls as checked against United States Geological Survey or National Geodetic Survey record files.

- (8) A buffer zone of land shall be maintained between any buried waste and the disposal site boundary and beneath the disposed waste. The buffer zone shall be of adequate dimensions to carry out environmental monitoring activities specified in Subsection R313-25-2[6]7(4) and take mitigative measures if needed.
- (9) Closure and stabilization measures as set forth in the approved site closure plan shall be carried out as the disposal units are filled and covered.
- (10) Active waste disposal operations shall not have an adverse effect on completed closure and stabilization measures.
- (11) Only wastes containing or contaminated with radioactive material shall be disposed of at the disposal site.
- (12) Proposals for disposal of waste that are not generally acceptable for near-surface disposal because the wastes form and disposal methods shall be different and, in general, more stringent than those specified for Class C waste, may be submitted to the Director for approval.

R313-25-2[6]7. Environmental Monitoring.

- (1) At the time a license application is submitted, the applicant shall have conducted a preoperational monitoring program to provide basic environmental data on the disposal site characteristics. The applicant shall obtain information about the ecology, meteorology, climate, hydrology, geology, geochemistry, and seismology of the disposal site. For those characteristics that are subject to seasonal variation, data shall cover at least a 12-month period.
- (2) During the land disposal facility site construction and operation, the licensee shall maintain an environmental monitoring program. Measurements and observations shall be made and recorded to provide data to evaluate the potential health and environmental impacts during both the construction and the operation of the facility and to enable the evaluation of long-term effects and need for mitigative measures. The monitoring system shall be capable of providing early warning of releases of waste from the disposal site before they leave the site boundary.
- (3) After the disposal site is closed, the licensee responsible for post-operational 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 site before they leave the site boundary.
- (4) The licensee shall have plans for taking corrective measures if the environmental monitoring program detects migration of waste which would indicate that the performance objectives may not be met.

R313-25-2[7]8. Alternative Requirements for Design and Operations.

The Director may, upon request or on ~~his~~the Director's own initiative, authorize provisions other than those set forth in Section R313-25-2[4]5 and R313-25-26 for the segregation and disposal of waste and for the design and operation of a land disposal facility on a specific basis, if it finds reasonable assurance of compliance with the performance objectives of Rule R313-25-

R313-25-2[8]9. Institutional Requirements.

- (1) Land Ownership. Disposal of waste received from other persons may be permitted only on land owned in fee by the Federal or a State government.
- (2) Institutional Control. The land owner or custodial agency shall conduct an institutional control program to physically control access to the disposal site following transfer of control of the disposal site from the disposal site operator. The institutional control program shall also include, but not be limited to, conducting an environmental monitoring program at the disposal site, periodic surveillance, minor custodial care, and other equivalents as determined by the Director, and administration of funds to cover the costs for these activities. The period of institutional controls will be determined by the Director, but institutional controls may not be relied upon for more than 100 years following transfer of control of the disposal site to the owner.

R313-25-30. Applicant Qualifications and Assurances.

The applicant shall show that it either possesses the necessary funds, or has reasonable assurance of obtaining the necessary funds, or by a combination of the two, to cover the estimated costs of conducting all licensed activities over the planned operating life of the project, including costs of construction and disposal.

R313-25-31. Funding for Disposal Site Closure and Stabilization.

- (1) The applicant shall provide assurances prior to the commencement of operations that sufficient funds will be available to carry out disposal site closure and stabilization, including:
 - (a) decontamination or dismantlement of land disposal facility structures, and
 - (b) closure and stabilization of the disposal site so that following transfer of the disposal site to the site owner, 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 Director approved cost estimates reflecting the Director approved plan for disposal site closure and stabilization. The applicant's cost estimates shall take into account total costs that would be incurred if an independent contractor were hired to perform the closure and stabilization work.
- (2) In order to avoid unnecessary duplication and expense, the Director will accept financial sureties that have been consolidated with earmarked financial or surety arrangements established to meet requirements of Federal or other State agencies or local governmental bodies for decontamination, closure, and stabilization. The Director will accept these arrangements only if they are considered adequate to satisfy the requirements of Section R313-25-31 and if they clearly identify that the portion of the surety which covers the closure of the disposal site is clearly identified and committed for use in accomplishing these activities.
- (3) The licensee's financial or surety arrangement shall be submitted annually for review by the Director to assure that sufficient funds will be available for completion of the closure plan.
- (4) The amount of the licensee's financial or surety arrangement shall change in accordance with changes in the predicted costs of closure and stabilization. Factors affecting closure and stabilization cost estimates include inflation, increases in the amount of disturbed land, changes in engineering plans, closure and stabilization that have already been accomplished, and other conditions affecting costs. The financial or surety arrangement

shall be sufficient at all times to cover the costs of closure and stabilization of the disposal units that are expected to be used before the next license renewal.

- (5) The financial or surety arrangement shall be written for a specified period of time and shall be automatically renewed unless the person who issues the surety notifies the Director; the beneficiary, the site owner; and the principal, the licensee, not less than 90 days prior to the renewal date of its intention not to renew. In such a 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 Director, the beneficiary may collect on the original surety.
- (6) Proof of forfeiture shall not be necessary to collect the surety so that, in the event that the licensee could not provide an acceptable replacement surety within the required time, the surety shall be automatically collected prior to its expiration. The conditions described above shall be clearly stated on surety instruments.
- (7) Financial or surety arrangements generally acceptable to the Director include surety bonds, cash deposits, certificates of deposit, deposits of government securities, escrow accounts, irrevocable letters or lines of credit, trust funds, and combinations of the above or other types of arrangements as may be approved by the Director. Self-insurance, or an arrangement which essentially constitutes self-insurance, will not satisfy the surety requirement for private sector applicants.
- (8) The licensee's financial or surety arrangement shall remain in effect until the closure and stabilization program has been completed and approved by the Director, and the license has been transferred to the site owner.

R313-25-32. Financial Assurances for Institutional Controls.

- (1) Prior to the issuance of the license, the applicant shall provide for Director approval, a binding arrangement, between the applicant and the disposal site owner that ensures that sufficient funds will be available to cover the costs of monitoring and required maintenance during the institutional control period. The binding arrangement shall be reviewed annually by the Director to ensure that changes in inflation, technology, and disposal facility operations are reflected in the arrangements.
- (2) Subsequent changes to the binding arrangement specified in Subsection R313-25-32(1) relevant to institutional control shall be submitted to the Director for prior approval.

R313-25-33. Maintenance of Records, Reports, and Transfers.

- (1) Licensees shall maintain records and make reports in connection with the licensed activities as may be required by the conditions of the license or by the rules and orders of the Director.
- (2) Records which are required by these rules or by license conditions shall be maintained for a period specified by the appropriate rules or by license condition. If a retention period is not otherwise specified, these records shall be maintained and transferred to the officials specified in Subsection R313-25-33(4) as a condition of license termination unless the Director otherwise authorizes their disposition.
- (3) Records which shall be maintained pursuant to Rule R313-25 may be the original or a reproduced copy or microfilm if this reproduced copy or microfilm is capable of producing copy that is clear and legible at the end of the required retention period.

- (4) Notwithstanding Subsections R313-25-33(1) through (3), copies of records of the location and the quantity of wastes contained in the disposal site shall be transferred upon license termination to the chief executive of the nearest municipality, the chief executive of the county in which the facility is located, the county zoning board or land development and planning agency, the State Governor, and other state, local, and federal governmental agencies as designated by the Director at the time of license termination.
- (5) Following receipt and acceptance of a shipment of waste, the licensee shall record the date that the shipment is received at the disposal facility, the date of disposal of the waste, a traceable shipment manifest number, a description of any engineered barrier or structural overpack provided for disposal of the waste, the location of disposal at the disposal site, the condition of the waste packages as received, discrepancies between the materials listed on the manifest and those received, the volume of any pallets, bracing, or other shipping or onsite generated materials that are contaminated, and are disposed of as contaminated or suspect materials, and evidence of leakage or damaged packages or radiation or contamination levels in excess of limits specified in U.S. Department of Transportation and Director regulations or rules. The licensee shall briefly describe repackaging operations of the waste packages included in the shipment, plus other information required by the Director as a license condition.
- (6) Licensees authorized to dispose of waste received from other persons shall file a copy of their financial report or a certified financial statement annually with the Director in order to update the information base for determining financial qualifications.
- (7) (a) Licensees authorized to dispose of waste received from other persons, pursuant to Rule R313-25, shall submit annual reports to the Director. Reports shall be submitted by the end of the first calendar quarter of each year for the preceding year.
(b) The reports shall include:
 - (i) specification of the quantity of each of the principal contaminants released to unrestricted areas in liquid and in airborne effluents during the preceding year;
 - (ii) the results of the environmental 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; and
 - (vi) other information the Director may require.
(c) 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.
- (8) In addition to the other requirements in Section R313-25-33, the licensee shall store, or have stored, manifest and other information pertaining to receipt and disposal of radioactive waste in an electronic recordkeeping system.
 - (a) The manifest information that must be electronically stored is:
 - (i) that required in Appendix G of 10 CFR 20.1001 to 20.2402, (2006), which is incorporated into these rules by reference, with the exception of shipper and carrier telephone numbers and shipper and consignee certifications; and

- (ii) that information required in Subsection R313-25-33(5).
- (b) As specified in facility license conditions, the licensee shall report the stored information, or subsets of this information, on a computer-readable medium.

R313-25-34. Tests on Land Disposal Facilities.

Licensees shall perform, or permit the Director to perform, any tests the Director deems appropriate or necessary for the administration of the rules in Rule R313-25, including, but not limited to, tests of;

- (1) wastes;
- (2) facilities used for the receipt, storage, treatment, handling or disposal of wastes;
- (3) radiation detection and monitoring instruments; or
- (4) other equipment and devices used in connection with the receipt, possession, handling, treatment, storage, or disposal of waste.

R313-25-35. Director Inspections of Land Disposal Facilities.

- (1) Licensees shall afford to the Director, at reasonable times, opportunity to inspect waste not yet disposed of, and the premises, equipment, operations, and facilities in which wastes are received, possessed, handled, treated, stored, or disposed of.
- (2) Licensees shall make available to the Director for inspection, upon reasonable notice, records kept by it pursuant to these rules. Authorized representatives of the Director may copy and take away copies of, for the Director's use, any records required to be kept pursuant to Rule R313-25.