

**NEW YORK
CODES, RULES AND REGULATIONS
21 NYCRR — Part 502**

**CODE OF FEDERAL REGULATIONS
10 CFR — Section 61.55**

**NEW YORK STATE
Public Authorities Law
Section 1854-d (1)**

New York State Energy Research and Development Authority

21 NYCRR

PART 502

REPORTS BY GENERATORS OF LOW-LEVEL RADIOACTIVE WASTE

Section 502.1. Purpose. Ch. 673, L. 1986, the Low-Level Radioactive Waste Management Act, provides that the New York State Energy Research and Development Authority has responsibility for the construction and operation by 1993 of facilities in New York for permanent disposal of low-level radioactive waste generated within New York. The Act establishes the Commission for Siting Low-Level Radioactive Waste Disposal Facilities and empowers the Commission to make site and disposal method selections, sufficient to accommodate low-level radioactive waste generated in New York over at least thirty years. The Act also provides related responsibilities for the New York State Department of Environmental Conservation ("DEC") and the New York State Department of Health ("DOH"). The Act provides that the Authority shall establish by regulation and collect rates, charges, and other fees upon the disposal of low-level radioactive waste sufficient to recover from generators costs of the State associated with low-level radioactive waste management facilities, and authorizes the Authority to establish terms and conditions for receipt, acceptance, and disposal of low-level radioactive waste at the permanent disposal facilities. The Act requires the Authority to submit annually to the Governor and the Legislature a report summarizing low-level radioactive waste generated within New York during the previous calendar year. In addition, the Act requires each generator of low-level radioactive waste within New York to submit to the Authority no less frequently than annually a report detailing low-level radioactive waste generated, stored for decay or later transfer, or transferred by the generator. The purpose of these rules is to set forth the requirements for reports to be submitted by generators to the Authority. The purpose of the reporting requirements is to assist the Authority in constructing low-level radioactive waste management facilities, establishing rates, charges, and other fees for disposal of low-level radioactive waste, and terms and conditions for its receipt, acceptance, and disposal at permanent disposal facilities, and preparing the reports to be submitted annually by the Authority to the Governor and the Legislature. In addition, the reports are intended to provide information useful to the DEC, the Commission for Siting Low-Level Radioactive Waste Disposal Facilities, and the Advisory Committee on Permanent Disposal Facilities Siting and Disposal Method Selection in meeting their responsibilities under the Act.

Section 502.2. Definitions. For purposes of this Part:

(a) "Act" means the Low-Level Radioactive Waste Management Act (Ch.673, L. 1986).

(b) "Authority" means the New York State Energy Research and Development Authority, and any successor thereto.

(c) "Class" means the classes of low-level radioactive waste, Class A, Class B, and Class C, as described in sections 61.55 and 61.56 of Title 10, Code of Federal Regulations, as in effect on January 26, 1983.

(d) "Director" means the Program Director, Radioactive Waste Management Program, or his designee, New York State Energy Research and Development Authority, Two Rockefeller Plaza, Albany, N.Y. 12223.

(e) "Generate" means to produce or cause the production of, or to engage in an activity which otherwise results in the creation or increase in the volume, of low-level radioactive waste.

(f) "Generator" means a person who by his actions within New York, or through the actions within New York of any agent, employee, or independent contractor, generates low-level radioactive waste. For purposes of this Part, a person who only provides a service by arranging for the collection, transportation, treatment, storage, or disposal of lowlevel radioactive waste generated by others within or outside of New York is a generator only if and to the extent that such person himself generates low-level radioactive waste as a result of such activities. In such event, such person shall submit a report, pursuant to section 502.3, only for the low-level radioactive waste such person himself generates.

(g) "Licensed LLRW disposal facility" means any of the three disposal facilities existing upon the effective date of these regulations at Barnwell, South Carolina, Richland, State of Washington, and Beatty, Nevada.

(h) "Low-level radioactive waste" and "LLRW" means radioactive waste:

(i) (A) that is not high-level radioactive waste, transuranic waste, spent nuclear fuel, or the tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content; and

(B) which consists of or contains Class A, B, or C radioactive waste as described in sections 61.55 and 61.56 of Title 10, Code of Federal Regulations, as in effect on January 26, 1983.

(ii) provided that, for purposes of this Part, low-level radioactive waste does not include radioactive waste:

(A) owned or generated by the United States Department of Energy;

(B) owned or generated by the United States Navy as a result of the decommissioning of vessels of the United States Navy; or

(C) owned or generated by the Federal Government as a result of any research, development, testing, or production of any atomic weapons.

(i) "Person" means an individual, partnership, corporation, or other legal entity, including any state, interstate, federal, or municipal governmental entity.

(j) "Waste" means material which is not in use and is no longer useful.

Section 502.3. Reports. (a) No later than April 27, 1987, and no later than March 1 of each year thereafter, each generator shall submit to the Director a report (one copy), containing the information set forth in paragraph (c) of this section, for the preceding calendar year; provided, that if a generator generated low-level radioactive waste at facilities located more than twenty-five miles apart, or at facilities located twenty-five miles or less apart for which separate authorizations are held, issued by the operator of a licensed LLRW disposal facility (e.g., site use permit) or the host state in which a licensed LLRW disposal facility is located, which authorize transfer of LLRW to a licensed LLRW disposal facility, the generator shall submit a separate report (one copy) for each such facility.

(b) In the event two or more persons are generators with respect to the same low-level radioactive waste (for instance, because of their relationship as employer and employee or principal and agent, those persons shall designate between or among themselves one person who shall submit the report required by this section. The designee shall indicate on the report required by this section the identities of each of the other generators who are not submitting the report, and the nature of the relationships between or among the designee and such other generators. Notwithstanding the foregoing provisions of this paragraph (b), an employer may submit the report on behalf of its employees, and a medical institution or university may submit the report on behalf of its physicians, interns, staff, or students who generate LLRW as independent contractors to such medical institution or university, without identifying the employees, physicians, interns, staff, or students on behalf of whom the report is submitted.

(c) Each report shall contain the following information:

(i) calendar year reporting period;

(ii) name, principal office address (and, if different, address of the facility at which LLRW was generated), and telephone number of the generator;

(iii) type of generator (e.g., medical, university, industrial, electric utility, or governmental) and a description of the activity, process, or use of radioactive material which results in the generation of LLRW;

(iv) the information with respect to other generators, if applicable, described in paragraph (b) of this section;

(v) name, title, and telephone number of the individual who prepared the report;

(vi) identification of any and all radioactive material and nuclear facility licenses issued by the United States Nuclear Regulatory Commission, the New York State Department of Health, the New York State Department of Labor, or the New York City Department of Health under which LLRW is generated, including identification of the respective licensing agency;

(vii) identification of any and all authorizations held by the generator, issued by the operator of a licensed LLRW disposal facility (e.g., site use permit) or the host state in which a licensed LLRW disposal facility is

located, which authorize transfer of LLRW to a licensed LLRW disposal facility;

(viii) details regarding LLRW transferred, either directly or through a broker or agent, for disposal at a licensed LLRW disposal facility during the reporting period, including:

(A) the total volume, volume by class, and activity by radionuclide and class;

(B) the types and specifications of individual containers used and the number of each type transferred for disposal;

(C) the maximum surface radiation exposure level on any single container of LLRW transferred, the number of disposal containers with surface radiation exposure levels that exceed 200 mR/hour, and the identification of the contents of each such container by volume, class, and activity by radionuclide;

(D) the volume of Class A LLRW that meets the United States Nuclear Regulatory Commission stability requirements, as set forth in section 61.56(b) of Title 10, Code of Federal Regulations;

(E) the identification of each licensed LLRW disposal facility to which LLRW was transferred, either directly or through a broker or agent, and the volume and activity by class of LLRW transferred to each licensed LLRW disposal facility;

(F) the identification of all brokers or agents to which LLRW was transferred, the volume and activity by class of LLRW transferred to each, and the volume and activity by class of the generator's LLRW transferred by each such broker or agent to each licensed LLRW disposal facility;

(G) the weight of source material by type (e.g., natural uranium, depleted uranium, or thorium);

(H) the total number of grams of special nuclear material by radionuclide, and the maximum number of grams of special nuclear material in any single shipment by radionuclide;

(I) as complete a description as practicable of the principal chemical and physical form of the LLRW by volume and radionuclide, including the identification of any known hazardous properties, other than its radioactive property;

(J) for solidified or sorbed liquids, the nature of the liquid, the solidifying or sorbing agent used, and the final volume;

(K) for LLRW containing more than 0.1 percent by weight chelating agents, the identification of the chelating agent, the volume and weight of the LLRW and the weight percentage of chelating agent; and

(L) where LLRW identified in this subparagraph (viii) was treated, either by the generator or its agent or independent contractor, in preparation for transfer to a licensed LLRW disposal facility, to reduce its volume or activity (including reduction by storage for decay) or to change its physical or chemical characteristics (other than by solidification or sorption of liquids as addressed in clause (J)), a description of the treatment process and the generator's best estimate of the effectiveness in terms of the quantitative volume or activity reduction, or in quantitative or other relevant terms for changes in physical or chemical characteristics, as applicable;

(ix) the radionuclides originally contained in any LLRW generated during the reporting period which was held for decay and disposed of as non-radioactive waste;

(x) a description, including the capacity in terms of volume of LLRW, of any facilities or parts thereof which the generator has dedicated to the storage of LLRW for periods in excess of 90 days prior to transfer, either directly or through a broker or agent, to a licensed LLRW disposal facility, and the volume of LLRW stored by the generator in such facilities at the end of the reporting period;

(xi) the volume, volume by class, and activity by radionuclide and class of that LLRW, if any, which the generator is holding at the end of the reporting period because the generator knows or has reason to believe that LLRW will not be accepted for disposal at any of the licensed LLRW disposal facilities, and a description of the LLRW and the reason it is known or believed to be unacceptable for disposal at any of the licensed LLRW disposal facilities; and

(xii) an estimate of the period of time the generator could store its LLRW at its facilities without disruption of its LLRW generating activities, should the generator be unable to transfer LLRW, either directly or through a broker or agent, to a licensed LLRW disposal facility.

(d) In addition to the information required by paragraph (c) of this

section, each report shall contain the generator's best estimate in terms of total volume, and volume and activity by class and radionuclide, of LLRW that the generator expects to transfer to licensed LLRW disposal facilities in each of the next five calendar years.

Section 502.4. Registry and Forms. Commencing September 1, 1987, the Director shall maintain and update annually a registry of generators which have submitted reports for the preceding calendar year. Commencing November 1, 1987 and by November 1 of each year thereafter, the Director shall forward a blank reporting form to each generator listed on the most recent registry, at the address indicated on the registry. The foregoing notwithstanding, each generator, including new generators, shall be responsible for obtaining blank reporting forms from the Director.

Section 502.5. Trade Secrets. In the event a generator submitting a report required by section 502.3 makes a request pursuant to section 89(5) of the Public Officers Law that information in the report be excepted from disclosure, the generator shall clearly identify that specific information in the report for which the request is made by labeling that specific information as "trade secret" or "proprietary data." Pending a final determination of the request pursuant to section 89(5) of the Public Officers Law, the Director shall maintain the report or relevant portion thereof in a separate and secure file, and shall deny access to the report or relevant portion thereof to all persons other than employees of the Authority who require access in order to use the report or relevant portion thereof to carry out responsibilities under the Act. Nothing contained in this section shall prohibit the Authority from using or disclosing information which is the subject of the request, without detail which identifies the generator, for the purpose of carrying out its responsibilities under the Act or enabling other State governmental entities to carry out their responsibilities under the Act.

Section 502.6. Materials Incorporated by Reference. (a) The term "low-level radioactive waste" is defined in section 502.2 hereof, in part, by federal descriptions of Class A, B, or C radioactive waste as set forth in sections 61.55 and 61.56 of Title 10, Code of Federal Regulations, as in effect on January 26, 1983 ("federal provisions"). In summary, the federal provisions are as follows. Of the three classes, Class A is the least and Class C the greatest potential hazard to the public and the environment. Classification is determined by concentration of long- and short-lived radionuclides. All three classes must meet minimum waste form and packaging characteristics to facilitate handling and worker protection. Class B and C radioactive wastes must also meet stability requirements intended to minimize water infiltration and leachability of radionuclides from the waste. Disposal of Class C radioactive waste requires measures to protect against inadvertent intrusion.

(b) The federal provisions are set forth in Subpart D, entitled "Technical Requirement for Land Disposal Facilities," of Part 61, entitled "Licensing Requirements for Land Disposal of Radioactive Waste," of the rules of the United States Nuclear Regulatory Commission, published in the first volume of Title 10, entitled "Energy," of the Code of Federal Regulations, containing Parts 0 to 199, revised as of January 1, 1986, on pages 645-647 of such volume. The publisher of the volume is the Office of the Federal Register, National Archives and Records Administration. A copy of the volume may be obtained by writing to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. A copy of the volume is available for public inspection and copying at the offices of the Authority, located at Two Rockefeller Plaza, Albany, New York 12223.

NOTE: Since promulgation of these regulations, NYSERDA has moved and the program name has been changed. Inquiries should be addressed to:

**Radioactive Waste Policy and Nuclear Coordination
New York State Energy Research and
Development Authority
17 Columbia Circle
Albany, New York 12203-6399**

Materials Incorporated by Reference - Excerpts from Title 10, Code of Federal Regulations, Part 61

Section 61.55. Waste Classification.

(a) *Classification of waste for near surface disposal.*

(1) *Considerations. Determination of the classification of radioactive waste involves two considerations. First, consideration must be given to the concentration of long-lived radionuclides (and their shorter-lived precursors) whose potential hazard will persist long after such precautions as institutional controls, improved waste form, and deeper disposal have ceased to be effective. These precautions delay the time when long-lived radionuclides could cause exposures. In addition, the magnitude of the potential dose is limited by the concentration and availability of the radionuclide at the time of exposure. Second, consideration must be given to the concentration of shorter-lived radionuclides for which requirements on institutional controls, waste form, and disposal methods are effective.*

(2) *Classes of waste.*

(i) *Class A waste is waste that is usually segregated from other waste classes at the disposal site. The physical form and characteristics of Class A waste must meet the minimum requirements set forth in section 61.56(a). If Class A waste also meets the stability requirements set forth in section 61.56(b), it is not necessary to segregate the waste for disposal.*

(ii) *Class B waste is waste that must meet more rigorous requirements on waste form to ensure stability after disposal. The physical form and characteristics of Class B waste must meet both the minimum and stability requirements set forth in section 61.56.*

(iii) *Class C waste is waste that not only must meet more rigorous requirements on waste form to ensure stability but also requires additional measures at the disposal facility to protect against inadvertent intrusion. The physical form and characteristics of Class C waste must meet both the minimum and stability requirements set forth in section 61.56.*

(iv) *Waste that is not generally acceptable for near-surface disposal is waste for which waste form and disposal methods must be different, and in general more stringent, than those specified for Class C waste. In the absence of specific requirements in this part, proposals for disposal of this waste may be submitted to the [Nuclear Regulatory] Commission for approval, pursuant to section 61.58 of this part.*

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

(i) *If the concentration does not exceed 0.1 times the value in Table 1, the waste is Class A.*

(ii) *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.*

(iii) *If the concentration exceeds the value in Table 1, the waste is not generally acceptable for near-surface disposal.*

(iv) *For wastes containing mixtures of radionuclides listed in Table 1, the total concentration shall be determined by the sum of fractions rule described in paragraph (a)(7) of this section.*

TABLE 1

<i>Radionuclide</i>	<i>Concentration, curies per cubic meter</i>
<i>C-14</i>	<i>8</i>
<i>C-14 in activated metal</i>	<i>80</i>
<i>Ni-59 in activated metal</i>	<i>220</i>
<i>Nb-94 in activated metal</i>	<i>0.2</i>
<i>Tc-99</i>	<i>3</i>
<i>I-129</i>	<i>0.08</i>
<i>Alpha emitting transuranic nuclides with half-life greater than five years</i>	<i>¹100</i>
<i>Pu-241</i>	<i>¹3,500</i>
<i>Cm-242</i>	<i>¹20,000</i>

¹Units are nanocuries per gram.

(4) *Classification determined by short-lived radionuclides. If radioactive waste does not contain any of the radionuclides listed in Table 1, classification shall be determined based on the concentrations shown in*

Table 2. However, as specified in paragraph (a)(6) of this section, if radioactive waste does not contain any nuclides listed in either Table 1 or 2, it is Class A.

(i) *If the concentration does not exceed the value in Column 1, the waste is Class A.*

(ii) *If the concentration exceeds the value in Column 1, but does not exceed the value in Column 2, the waste is Class B.*

(iii) *If the concentration exceeds the value in Column 2, but does not exceed the value in Column 3, the waste is Class C.*

(iv) *If the concentration exceeds the value in Column 3, the waste is not generally acceptable for near-surface disposal.*

(v) *For wastes containing mixtures of the nuclides listed in Table 2, the total concentration shall be determined by the sum of fractions rule described in paragraph (a)(7) of this section.*

TABLE 2

<i>Radionuclide</i>	<i>Concentration, curies per cubic meter</i>		
	<i>Col. 1</i>	<i>Col. 2</i>	<i>Col. 3</i>
<i>Total of all nuclides with less than 5 year half life</i>	<i>700</i>	<i>(¹)</i>	<i>(¹)</i>
<i>H-3</i>	<i>40</i>	<i>(¹)</i>	<i>(¹)</i>
<i>Co-60</i>	<i>700</i>	<i>(¹)</i>	<i>(¹)</i>
<i>Ni-63</i>	<i>3.5</i>	<i>70</i>	<i>700</i>
<i>Ni-63 in activated metal</i>	<i>35</i>	<i>700</i>	<i>7000</i>
<i>Sr-90</i>	<i>0.04</i>	<i>150</i>	<i>7000</i>
<i>Cs-137</i>	<i>1</i>	<i>44</i>	<i>4600</i>

¹*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 nuclides in Table 2 determine the waste to the Class C independent of these nuclides.*

(5) *Classification determined by both long- and short-lived radionuclides. If radioactive waste contains a mixture of radionuclides, some of which are listed in Table 1, and some of which are listed in Table 2, classification shall be determined as follows:*

(i) *If the concentration of a nuclide listed in Table 1 does not exceed 0.1 times the value listed in Table 1, the class shall be that determined by the concentration of nuclides listed in Table 2.*

(ii) *If the concentration of a nuclide listed in Table 1 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, provided the concentration of nuclides listed in Table 2 does not exceed the value shown in Column 3 of Table 2.*

(6) *Classification of wastes with radionuclides other than those listed in Tables 1 and 2. If radioactive waste does not contain any nuclides listed in either Table 1 or 2, it is Class A.*

(7) *The sum of the fractions rule for mixtures of radionuclides. For determining classification for waste that contains a mixture of radionuclides, it is necessary to determine the sum of fractions by dividing each nuclide's concentration by the appropriate limit and adding the resulting values. The appropriate limits must all be taken from the same column of the same table. The sum of the fractions for the column must be less than 1.0 if the waste class is to be determined by that column. Example: A waste contains Sr-90 in a concentration of 50 Ci/m³ and Cs-137 in a concentration of 22 Ci/m³. Since the concentrations both exceed the values in Column 1, Table 2, they must be compared to Column 2 values. For Sr-90 fraction 50/150 = 0.33; for Cs-137 fraction, 22/44 = 0.5; the sum of the fractions = 0.83. Since the sum is less than 1.0, the waste is Class B.*

(8) *Determination of concentrations in wastes. 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*

Materials Incorporated by Reference (continued)

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.

Section 61.56 Waste characteristics.

(a) The following requirements are minimum requirements for all classes of waste and are intended to facilitate handling at the disposal site and provide protection of health and safety of personnel at the disposal site.

(1) Waste must not be packaged for disposal in cardboard or fiberboard boxes.

(2) Liquid waste must be solidified or packaged in sufficient absorbent material to absorb twice the volume of the liquid.

(3) Solid waste containing liquid shall contain as little free standing and noncorrosive liquid as is reasonably achievable, but in no case shall the liquid exceed 1% of the volume.

(4) Waste must not be readily capable of detonation or of explosive decomposition or reaction at normal pressures and temperatures, or of explosive reaction with water.

(5) Waste must 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 does not apply to radioactive gaseous waste packaged in accordance with paragraph (a)(7) of this section.

(6) Waste must not be pyrophoric. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.

(7) Waste in a gaseous form must be packaged at a pressure that does not exceed 1.5 atmospheres at 20°C. Total activity must not exceed 100 curies per container.

(8) Waste containing hazardous, biological, pathogenic, or infectious material must be treated to reduce to the maximum extent practicable the potential hazard from the non-radiological materials.

(b) The requirements in this section are intended to provide stability of the waste. Stability is intended to ensure that the waste does not structurally degrade and affect overall stability of the site through slumping, collapse, or other failure of the disposal unit and thereby lead to water infiltration. Stability is also a factor in limiting exposure to an inadvertent intruder, since it provides a recognizable and nondispersible waste.

(1) Waste must 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.

(2) Notwithstanding the provisions in Section 61.56(a) (2) and (3), liquid wastes, or wastes containing liquid, must be converted into a form that contains as little free standing and noncorrosive liquid as is reasonably achievable, but in no case shall the liquid exceed 1% of the volume of the waste when the waste is in a disposal container designed to ensure stability, or 0.5% of the volume of the waste for waste processed to a stable form.

(3) Void spaces within the waste and between the waste and its package must be reduced to the extent practicable.

(Source of Regulatory Authority: Public Authorities Law, Section 1854-d (1))

Section 1854-d. Generator reporting and fees.

(1) Reports. (a) Any person who generates low-level radioactive waste in New York shall submit to the authority, on dates specified by the authority, but in no event later than nine months after the effective date of the low-level radioactive waste management act and, thereafter, no less frequently than annually, reports detailing the classes and quantities of low-level radioactive waste generated, stored by the generator for decay or for later transfer to other facilities, or transferred by the generator to other facilities, the general type of generator (e.g., medical, university, industry, electric utility, government), and such additional information as the authority may reasonably require on the nature and characteristics (including, without limitation, chemical and physical characteristics, properties, or constituents, radionuclides present, curie content or concentration of radioactivity) of such waste and the extent of reduction in quantity and the nature and extent of reduction or other change in the nature or characteristics of such waste as a result of treatment or interim

storage after generation and before delivery to facilities for permanent disposal of such waste. The authority shall provide by regulation appropriate procedures for the preparation and submission of such reports, including procedures to designate a person or persons responsible for such filing when more than one person is the generator of the same waste. Such reports shall be subject to the provisions of article six of the public officers law.

(b) Commencing no later than the first day of July nineteen hundred eighty-seven, the authority shall submit annually to the governor, the temporary president of the senate, the speaker of the assembly, the minority leader of the senate, and the minority leader of the assembly, and thereafter, not later than one hundred eighty days after the end of each calendar year, a report summarizing and categorizing, by type of generator and region of generation, the nature, characteristics, and quantities of low-level radioactive waste generated in New York during such calendar year.