

2008 Low-Level Radioactive Waste Generator Report
Ohio Department of Health – Bureau of Radiation Protection

Licensee Information

Licensee Name	_____	Organization Classification
Street Address	_____	<input type="checkbox"/> Academic
	_____	<input type="checkbox"/> Industrial
	_____	<input type="checkbox"/> Medical
		<input type="checkbox"/> Utility
Telephone number (_____) _____ - _____		<input type="checkbox"/> Government Office
Federal Tax ID number _____		<input type="checkbox"/> Uranium Enrichment
		<input type="checkbox"/> Academic and Medical

I/We did not generate, possess, or store any low-level radioactive waste in CY 2008.

-----Remainder for Generators Only -----

Person completing LLRW annual report

Name _____ Title _____
Phone number (_____) _____ - _____

Radiation Safety Officer

Name (printed) _____ Title _____

RSO Signature _____ Date _____

Radioactive Material License Number: _____

Generator Reporting Exemption

This facility is exempt from low-level radioactive waste generator reporting requirements under Ohio Administrative Code (OAC) rule 3701:1-54-02(D) since this facility exclusively generates and disposes of LLRW in accordance with paragraphs (D) to (G) of OAC rule 3701:1-38-19.

2008 Low-Level Radioactive Waste Generator Report
 Ohio Department of Health - Bureau of Radiation Protection
 Radioactive Materials License Number: _____

Table 1a - 2008 LLRW Generated and Not Placed in Storage
 [OAC 3701:1-54-02(A)(2), - 02(E)]

Complete the following table for the types and amount of waste generated in CY 2008 and not placed into storage. Summarize from your records, and subtotal based on waste class and type, the information requested in the table below.

- In the column “Waste Class,” enter the waste classification of A, B or C as defined in OAC 3701:1-54-10.
- In the column “Waste Type,” enter the waste type as a generic description of the physical characteristics of the waste. Examples of generic descriptions are dry solid, aqueous liquid, scintillation vials, biological (animal carcasses) or high-volume, low-level radioactive waste (HV-LLRW) from decommissioning or decontamination. HV-LLRW is defined in OAC 3701:1-54-02(C).
- Enter the predominant radionuclides contained in each waste class and type in the column labeled “Radionuclide.”
- Enter the total radionuclide activity for each waste class and type in the column labeled “Activity.” Indicate by check mark the units of activity that are being used.
- In the column labeled “Volume Generated,” enter the volume of waste generated in cubic feet before using waste treatment techniques.
- If the waste was treated, enter the volume of waste after treatment in cubic feet in the column labeled “Volume after Treatment.” [Complete information on the processor in table “Generator Certification of Processed Waste” as applicable.]
- Treatment is defined in OAC 3701:1-54-01.
- In the column labeled “Type of Disposal,” indicate the disposition of the waste as land burial, vitrification, etc.

[] Does not apply - no data to report for this table.

Waste Class	Waste Type	Radionuclide	Activity		Volume Generated (cu ft)	Volume after treatment (cu ft)	Type of Disposal
			<input type="checkbox"/> Ci	<input type="checkbox"/> mCi			
			<input type="checkbox"/>	<input type="checkbox"/>			
			<input type="checkbox"/>	<input type="checkbox"/>			
			<input type="checkbox"/>	<input type="checkbox"/>			
			<input type="checkbox"/>	<input type="checkbox"/>			
			<input type="checkbox"/>	<input type="checkbox"/>			
			<input type="checkbox"/>	<input type="checkbox"/>			
			<input type="checkbox"/>	<input type="checkbox"/>			
			<input type="checkbox"/>	<input type="checkbox"/>			

2008 Low-Level Radioactive Waste Generator Report
 Ohio Department of Health - Bureau of Radiation Protection
 Radioactive Materials License Number: _____

Table 1b - 2008 LLRW Generated and Placed into Storage
 [OAC 3701:1-54-02(A)(2), -02(A)(3), -02(E)]

Complete the following table for the types and amount of waste generated in the CY 2008 and placed into storage. Summarize, from your records, and subtotal, based on the waste class and type, the information requested in the table below.

- In the column “Waste Class,” enter the waste classification of A, B or C as defined in OAC 3701:1-54-10.
- In the column “Waste Type,” enter the waste type as a generic description of the physical characteristics of the waste. Examples of generic descriptions include dry solid, aqueous liquid, scintillation vials, biological (animal carcasses) or high- volume, low- level radioactive waste (HV-LLRW) from decommissioning or decontamination. HV-LLRW is defined in OAC 3701:1-54-02(C).
- Enter the predominant radionuclides for the waste class and type in the column labeled “Radionuclide.”
- Enter the total radionuclide activity for the waste class and type in the column labeled “Activity.” Indicate by check mark the units of activity that are being used.
- In the column labeled “Volume Generated,” enter the volume in cubic feet of waste generated before treating the waste.
- If the waste was treated, enter the volume of waste (in cubic feet) placed into storage after treatment in the column labeled “Volume After Treatment.” [Complete information on the processor in table “Generator Certification of Processed Waste” as applicable.]
- Treatment is defined in OAC 3701:1-54-01.

[] Does not apply - no data to report for this table.

Waste Class	Waste Type	Radionuclide	Activity [] Ci [] mCi [] MBq	Volume generated (cu ft)	Volume after treatment (cu ft)

2008 Low-Level Radioactive Waste Generator Report
 Ohio Department of Health - Bureau of Radiation Protection
 Radioactive Materials License Number: _____

Pre-2008 LLRW Remaining in Storage
 [OAC 3701:1-54-02(A)(3)]

Complete the following table for the types and amounts of LLRW that was placed in storage before Jan. 1, 2008, and continued to be held in storage as of Dec. 31, 2008. Summarize from your records, subtotal based on the waste class and type by year, the information requested in the table below.

- In the column labeled “Year Generated,” enter the year that the waste was placed into storage.
- Enter the waste classification of A, B or C as defined in OAC 3701:1-54-10 in the column labeled “Waste Class.”
- Enter the waste type as a description of the physical characteristics of the waste in the column labeled “Waste Type.” Examples of the generic descriptions include dry solid, aqueous liquid, scintillation vials, biological (animal carcasses) or high- volume, low-level radioactive waste (HV-LLRW) from decommissioning or decontamination. HV-LLRW is defined in OAC 3701:1-54-02(C).
- In the column “Radionuclide,” enter the predominant radionuclides remaining in the waste as of December 31, 2008.
- Enter the decay corrected activity of the waste remaining in storage as of Dec. 31, 2008, in the column labeled “Activity.” Indicate by check mark the units of activity that are being used.
- In the column “Volume,” enter the volume (in cubic feet) of waste held in storage after any treatment techniques were used.

[] Does not apply - no data to report for this table.

Year Generated	Waste Class	Waste Type	Radionuclide(s)	Activity (12/31)			Volume (cu ft)
				<input type="checkbox"/> Ci	<input type="checkbox"/> mCi	<input type="checkbox"/> MBq	

2008 Low-Level Radioactive Waste Generator Report
Ohio Department of Health - Bureau of Radiation Protection
Radioactive Materials License Number: _____

LLRW Shipment Information
[OAC 3701:1-54-02(A)(4)]

Identify the types and amount of LLRW shipped in CY 2008, including carrier or broker, shipment dates and modes of transportation. Provide a summary of the information from your individual waste manifest forms. The summaries may be subtotaled by carrier and destination for a shipment period in lieu of specifying individual dates. For example, a period may be a calendar quarter or a year. Make additional copies of this page if needed.

- In the column "Waste Class," enter the waste classification of A, B or C as defined in OAC 3701:1-54-10.
- In the column "Waste Type," enter the waste type as a generic description of the physical characteristics of the waste as entered on your waste manifest (ref. OAC 3701:1-38-19 Appendix A, OAC 3701:1-50-05).
- In the column "Radionuclide," enter the predominant radionuclides contained in each waste class and type.
- Enter the total radionuclide activity in the column labeled "Activity" for each waste class and type. Indicate by check mark the units of activity that are being used.
- In the column labeled "Volume," enter the volume of waste transported by the carrier/broker in cubic feet. (Note: there are 35.3 cu. ft. in a cubic meter.)
- Enter the *final* destination/disposal site (e.g. Energy Solutions). List only one disposal site per table.
- Make as many copies of this page as needed.

[] Does not apply - no data to report for this table.

Carrier/Broker: _____ Shipment date(s)/period: _____

Final Destination: _____ Disposal Site: _____

Mode of Transportation (OAC 3701:1-50-05)

[] public highway [] air [] vessel [] rail

Truck carrier permitted by Ohio PUCO to transport hazardous materials

Waste Class	Waste Type	Radionuclide	Activity [] Ci [] mCi [] MBq	Volume (cu ft)

LLRW General Information

Was any LLRW stored or shipped in CY 2007 that was not reported in last year's report?

Yes No [OAC 3701:1-54-02(A)(5)]

If yes, describe the types and amounts.

Describe the methods used to treat, store and dispose of LLRW.
[OAC 3701:1-54-02(A)(6)]

Describe actions taken, or planned to be taken, to reduce the LLRW volume or production
[OAC 3701:1-54-02(A)(7)]

2008 Low-Level Radioactive Waste Generator Report
 Ohio Department of Health - Bureau of Radiation Protection
 Radioactive Materials License Number: _____

Anticipated 2009 LLRW Generation
 [OAC 3701:1-54-02(A)(8)]

If the anticipated types and amount of waste to be generated or placed in storage during CY 2009 will be approximately the same as CY 2008, check the box below. Otherwise, complete the table below estimating the type and amount of LLRW to be generated or placed in storage during CY 2009.

Approximately the same as CY 2008.

Waste Class	Waste Type	Radionuclide	Activity <input type="checkbox"/> Ci <input type="checkbox"/> mCi <input type="checkbox"/> MBq	Volume (cu ft)

Generator Certification of Processed Waste
 [OAC 3701:1-54-02(E)]

Was any low-level radioactive waste sent to a processor for the purpose of treating the low-level radioactive waste, and either returning the waste to the generator or disposing of the waste on behalf of the generator?

Yes No

If yes, complete the following table for low level radioactive waste that was sent out for volume reduction. The date is the date shipped. The volume shipped is the initial volume of the shipment being sent out for volume reduction. Indicate who the processor was and what treatment was used (e.g. compaction, incineration). Indicate for that particular shipment the volume of waste returned or disposed on behalf of the generator. If the waste was returned to the generator, include the date of the return by the processor.

Date	Volume Shipped	Processor	Process Technique	Volume Returned or Disposed	Return Date

Supplemental Information to the 2008 LLRW Generator Report

Introduction

The enclosed forms consisting of questions and tables are provided on behalf of the director. Requested information is required for the annual LLRW report submission. Efforts were taken to minimize the required effort on the part of the waste generator while fulfilling the information collection requirements in accordance with Ohio Administrative Code (OAC) rule 3701:1-54-02.

The contents of the annual LLRW report are:

- Licensee Information (with generator information)
- Table 1a - 2008 LLRW Generated and Not Placed in Storage
- Table 1b - 2008 LLRW Generated and Placed Into Storage
- Pre-2008 LLRW Remaining in Storage
- LLRW Shipment Information
- LLRW General Information
- Anticipated LLRW Generation
- Generator Certification of Processed Waste

Each report page has its own instructions on how to complete the table for that page. If the table does not apply to your facility, mark the box indicating that you have no data to report. The following information is intended to clarify potential or common questions that generators may have when completing the reports. Address specific questions with the LLRW Generator Report to the Bureau of Radiation Protection, Decommissioning and Waste Management.

Who needs to file a LLRW generator report?

A LLRW generator report needs to be completed if:

- any LLRW as defined in OAC 3701:1-38-01(88) was generated, possessed, stored, or shipped during CY 2008

Facilities may be exempted from low level radioactive waste generator reporting requirements under OAC 3701:1-45-02 if they exclusively generate and dispose of LLRW in accordance with paragraphs (D) to (G) of OAC 3701:1-38-19. Those wastes include decay in storage (DIS), sewerage, and incinerated wastes which were previously reportable.

Licensee Information

The organization classification is determined by the licensee. Licensees that are both medical and academic facilities can choose whether they want to identify themselves as academic or medical or both, depending on how they interpret their waste streams. All commercial facilities that do not have a general category are listed under "Industrial". Utilities can be any electrical power generator (including coal), and water and sewer treatment facilities.

LLRW Generation and Storage Information

NORM and NARM radioactive wastes do not meet the definition of LLRW and are not required to be reported, and should not be reported. Reporting of such wastes may artificially increase the volume of low-level radioactive waste generated. NARM and NORM radioactive materials are defined in OAC 3701:1-38-01. Examples of NORM/NARM material include F-18, Tl-201, Ga-68, Gd-153, and Ra-226.

Tables 1a and 1b request information on the activity and volumes of waste generated in calendar year 2008 and their final volume after treatment. The two tables segregate the listing of waste based on the disposition (storage vs. disposal) of the waste. Any waste listed in Table 1a should not be listed in Table 1b, or vice versa.

Table 1a is for LLRW generated and disposed in the current reporting year.

Table 1b is for LLRW generated and placed for storage awaiting disposal. LLRW held in storage more than forty-two months are subject to fees in accordance with OAC 3701:1-54-02 (B)(2). Licensees that continue to hold LLRW beyond five years may be subject to additional conditions as found in OAC 3701:1-54-03, the Assured Isolation Facility rule.

The table "Pre-2008 LLRW Remaining in Storage" requests information on the volume and activity of LLRW remaining in storage as of December 31, 2008, that was generated before January 1, 2008. The information is to be broken down by its waste class and waste type with the calculated radionuclide activity of the waste as of December 31, 2008, and subtotaled by the year that the waste was placed into storage.

LLRW class descriptions of Class A, B, and C may be referenced in OAC 3701:1-54-10.

All radioactive waste containing exclusively radionuclides with a half-life of less than five years is class A waste regardless of the activity.

Typical waste types include, but are not limited to; animal carcass; bulk aqueous liquid; bulk scintillation fluid; construction debris; dry/solid or dry active waste (less than 0.5% free standing liquid); liquid mixed waste (radioactive and hazardous); scintillation vials; sealed sources and devices; biological or pathological media; ion exchange resin and media; and contaminated soils.

The activity of the radioactive waste is the activity contained within the waste container when the container is segregated for disposal or it has been closed to preclude further additions of radioactive materials and waste.

Mixed hazardous waste is waste that contains radioactive and hazardous waste. Scintillation fluid and scintillation vials are a special category of mixed radioactive / hazardous that should be entered separately as bulk scintillation fluid or scintillation vials. (Note: mixed

Supplemental Information to the 2008 LLRW Generator Report

wastes must be maintained in accordance with EPA regulations and guidelines. Contact Ohio EPA for the current regulation and policy on handling mixed waste.)

The volume after commercial treatment may be estimated from the treatment of generated waste in prior years if this information is not available from the commercial facility at the time of reporting.

For the purposes of this report, the return of nuclear medicine radioactive materials to the originating pharmacy, or returning a sealed source or device to the manufacturer, is considered a transfer of radioactive material and not a waste generation or a waste shipment.

Questions regarding the accounting of satellite waste accumulation are occasionally raised. The radioactive waste at satellite accumulation sites must be accounted for and reported, but when it is accounted for and reported depends on the licensee's operation. It is the responsibility of the licensee to verify that all the waste is accounted for, whether the waste is included in the current year's report or the following year's report. Therefore, if the satellite accumulation containers are partially filled, then the low-level radioactive waste does not need to be reported in the current year, if it will be reported in the following year when the waste container is closed and/or collected for disposal.

LLRW Shipment Information

Calculate by carrier/broker and destination/disposal site the subtotals of the waste class and type shipped in 2008. Do not list more than one disposal location in a single table. If the destination of the shipment is not the final disposal site, also list the land disposal facility.

Licensed land disposal facilities available to most Ohio generators are Energy Solutions in Barnwell, SC, and EnergySolutions in Utah. The Barnwell facility closed to Ohio generators in July, 2008.

The LLRW shipments to be reported in this section are those that required completion of a manifest in accordance with OAC 3701:1-38-19 Appendix A when shipped for ultimate disposal.

Licensees should ensure carriers of LLRW are permitted by Ohio PUCO to transport hazardous materials.

LLRW General Information

Methods used to treat, or dispose of LLRW may include, but are not limited to, decay-in-storage; compaction; incineration; freeze dry; fuel blending; evaporation; distillation; vitrification; digestion; sewer disposal; decontamination; and solidification/ stabilization.

Methods used to store LLRW may include, but are not limited to, seal in steel drums; hold in waste container; hold in liquid waste container; hold in "structurally stable" high integrity container (HIC) for land disposal; keep frozen in a freezer.

Supplemental Information to the 2008 LLRW Generator Report

Methods used to reduce the volume of LLRW requiring off-site disposal or production of LLRW may include, but are not limited to, reuse or recycle contaminated item; substitute use of radioactive with non-radioactive material; substitute longer-lived with shorter-lived radionuclides; decontamination; compaction; incineration; decay-in-storage; process changes. NCRP Report 143 "Management Techniques for Laboratories and Other Small Institutional Generators to Minimize Off-Site Disposal of Low-Level Radioactive Waste" may provide additional information of use to generators.

Generator Certification of Processed Waste

This section is for LLRW sent to a processor with the radioactive waste residue either returned to the generator or disposed of on behalf of the generator.

A common form of LLRW processing to be entered on this table includes incineration of LLRW at a commercial facility. For the fuel blending and incineration of scintillation vials, the final volume is normally zero. For the incineration of dry active waste, the final volume is the volume of the ash either returned to the generator or disposed on behalf of the generator.

If you have comments and/or suggestions on how to improve the report form, please contact the Decommissioning and Waste Management Section of the Bureau of Radiation Protection at 614-644-2727.

Ohio Licensure Requirements for Radioactive Waste Services

Pursuant to Ohio Revised Code Chapter 3748 and the rules adopted there under, a license is required from the Ohio Department of Health / Bureau of Radiation Protection (ODH/BRP) for those organizations offering radioactive waste services. Ohio licensees are to ensure appropriate requirements are met (as indicated below) for radioactive waste services they obtain. ODH/BRP may request confirmation records for radioactive waste services used by licensees in order to ensure compliance. Licensees offering radioactive waste services may have more than one radioactive materials license. The following license categories and titles apply.

Category

License Title

03232

Waste Disposal Service, Prepackaged Only

Waste Disposal Service Prepackaged Only licenses authorize the pick-up, Transportation, and temporary storage of only already packaged wastes. This license does not authorize the opening of the packages.

- Receipt of Packaged Waste Only
- Collection, Transportation, Temporarily Store (via carriage or storage incident to transportation)
- Possession of radioactive waste is not included
- Must have Public Utilities Commission of Ohio (PUCO) Hazardous Waste Permit for radioactive material or radioactive waste transportation in Ohio

03234

Waste Disposal Service Processing / Repackaging

Waste Disposal Service and/or Repackaging licenses authorize the receipt of packaged wastes from other persons, opening of the packages, compacting and repackaging of wastes, and transportation to an authorized waste disposal facility.

- Receipt of Packaged Waste Only
- Collection, Transportation, Temporarily Store
- Processing and/or Repackaging in accordance with OAC 3701:1-54-05
- Possession of radioactive waste is not included
- Financial Assurance May be Required
- Must have PUCO Hazardous Waste Permit for radioactive material or waste transportation in Ohio

03225

Other Services

Other Service licenses are issued to service organizations (those that offer their services to other licensees) for the possession and use of radioactive material for commercial services that are not covered in the descriptions for License Categories 03320-03224 *et seq.* This category also includes services provided by an individual or company to a licensee for the surveying and packaging of materials in preparation for transportation. The individual or company provides this service but does not take possession of the materials.

- Provides for Commercial Services to Licensees
- Allows for possession and use of radioactive materials for commercial services
- Provides Services for surveying and packaging of radioactive materials in preparation for transportation, but does not allow for possession of radioactive waste

Ohio Licensure Requirements for Radioactive Waste Services

03219

Decontamination Services

Decontamination Service licenses authorize the cleaning and release of contaminated material. This category includes decontamination services provided to licensees for the clean up of contaminated sites which may include, but is not limited to, buildings, soils, or scrap metals. Packaging radioactive waste for transportation is included in this category.

- Specific for Decommissioning sites only
- Must notify ODH/BRP **15** days before start and within **30** days when done
- Authorized for transportation of radioactive material, not radioactive waste
- Must have PUCO Hazardous Waste Permit for radioactive material or waste transportation in Ohio

Reciprocity

Out of State Licenses

Licenses from another agreement state or NARM licensing state, or the United States Nuclear Regulatory Commission and who maintains an office from which the licensee directs the licensed activity and retains radiation safety records in accordance with OAC 3701:1-40-28 or equivalent.

- Must have PUCO Hazardous Waste Permit for radioactive material or waste transportation in Ohio

Exempt

Common Carrier

Common and contract carriers, freight forwarders, warehousemen, and the United States postal service are exempt to the extent that they only transport or store byproduct or accelerator produced material in the regular course of carriage for another or storage incident to transportation.

- Must have a Motor Carrier # that can be verified by the Federal Motor Carrier Safety Administration (FMCSA) at the following website: <http://www.fmcsa.dot.gov>
- FMCSA requires proof of liability and proof of insurance
- Must have PUCO Hazardous Waste Permit for radioactive material or waste transportation in Ohio
- Must be licensed under 03225 or obtain Reciprocity if packaging radioactive material

License applications may be downloaded from the ODH website: <http://www.ODH.ohio.gov>. Follow the sequence: Programs → Radiation Protection → Forms → Nuclear Material Safety. Form HEA 5133 is the form number for license applications.

For further information on Hazardous Waste Permit requirements in Ohio contact PUCO at 614-728-9126 or 614-466-3392

For additional guidance on Ohio radioactive waste services applications or if you have any questions and/or comments on the enclosed information, please contact Jim Colleli in the Decommissioning / Waste Management Program of the Bureau of Radiation Protection at 614-644-2727 or by email at Jim.Colleli@odh.ohio.gov.