



GRETCHEN WHITMER  
GOVERNOR


STATE OF MICHIGAN  
DEPARTMENT OF  
ENVIRONMENT, GREAT LAKES, AND ENERGY  
LANSING



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VIA EMAIL

TO: Governor Gretchen Whitmer  
Senate Energy and Environment Committee Members  
Senate Natural Resources and Agriculture Committee Members  
House Natural Resources, Environment, Tourism and Outdoor  
Recreation Committee Members

FROM: Phillip D. Roos, Director 

DATE: September 25, 2023

SUBJECT: Report on the Low-Level Radioactive Waste 2022 Survey

In accordance with Section 18a of the Low-Level Radioactive Waste Authority Act, 1987 PA 204, as amended, following is the Department of Environment, Great Lakes, and Energy's (EGLE) report on the Low-Level Radioactive Waste (LLRW) 2022 Survey. Generators of LLRW are required to report annually to EGLE's Low-Level Radioactive Waste Authority certain information on the volume, type, and activity of the LLRW generated. This report is a summary of the information submitted by generators for LLRW generated in calendar year 2022.

**Summary:**

In the calendar year of 2022, 19 facilities reported the generation of waste requiring disposal in a licensed LLRW facility. Eleven facilities reported the disposal of waste off-site during 2022. The following tables summarize the waste generated and disposed in 2022.

Table 1: Waste Generated and Disposed by Facility Type

Type of Facility	Number of Reporting Facilities in 2022 Generator (Disposer)	Volume of LLRW Generated in 2022 (ft <sup>3</sup> )	Volume of LLRW Disposed in 2022 (ft <sup>3</sup> )
Utility	3 (3)	81,348	33,204
Academic	7 (4)	514	514
Industry	7 (4)	1,211	870
Medical	1 (0)	14	0
Government	1 (0)	10	0
<b>TOTAL</b>	<b>19 (11)</b>	<b>83,097</b>	<b>34,588</b>

Table 2: Waste Generated by Waste Classification

Waste Class	Number of Reporting Generator Facilities in 2022	Volume of LLRW Generated in 2022 (ft <sup>3</sup> )
Class A	19	36,300
Class B	2	92
Class C	2	102

All waste-reporting facilities generated Class A waste, Class B waste was generated by utilities and industrial facilities, and all Class C waste was generated by utility companies.

LLRW is categorized by Classes A, B, and C in Title 10 of the Code of Federal Regulations, Part 61, Licensing Requirements for Land Disposal of Radioactive Waste, Subsection 61.55. The classification of LLRW is dependent upon the waste’s isotopic composition and abundance, as well as the waste’s chemical and physical stability. Class A waste is usually segregated from other waste classes at the disposal site. Class B waste is subjected to stricter requirements on waste packaging to ensure stability after disposal. Class C waste must not only meet more rigorous requirements on waste packaging to ensure stability, but also requires additional measures at the disposal facility to protect against inadvertent intrusion.

**Waste Streams:**

Survey respondents were asked to provide the volume and activity for the different types of wastes that were generated in 2022. Table 3 displays the volume and activity for the various waste types or “streams.”

Table 3: Generated Volumes and Activities by Waste Stream

Waste Stream	Volume (ft <sup>3</sup> )	Percent of Total Volume	Activity (millicuries)	Percent of Total Activity
Dry Active Waste	79,389	95.5%	29,765	4.4%
Medical Generators	<1	<0.1%	<1	<0.1%
Aqueous Liquids	134	0.2%	170	<0.1%
Organic Liquids (Not Oils)	12	<0.1%	1	<0.1%
Oils	100	0.1%	581	0.1%
Animal Carcasses	<1	<0.1%	1	<0.1%
Biological Waste (Excludes Carcasses)	171	0.2%	194	0.0%
Ash	0	0.0%	0	0.0%
Activated Equipment or Shielding	2	<0.1%	7,180	1.0%
Contaminated Hazardous Material	26	<0.1%	6	<0.1%
Rubble, Sand, Soil, Etc.	<1	<0.1%	<1	<0.1%
Sludge	0	0.0%	0	0.0%
Evaporator Concentrates	0	0.0%	0	0.0%
Air Filter Media, Cartridges	0	0.0%	0	0.0%
Liquid Filter Media, Cartridges	21	<0.1%	33,250	4.9%
Ion Exchange Resins	3,232	3.9%	252,983	37.0%
Sealed Sources	3	<0.1%	360,031	52.6%
Contaminated Equipment	5	<0.1%	1	<0.1%
<b>TOTAL</b>	<b>83,097</b>		<b>684,165</b>	

**Historical Trends:**

Figures 1 through 3 show the changes in disposal of LLRW over time.

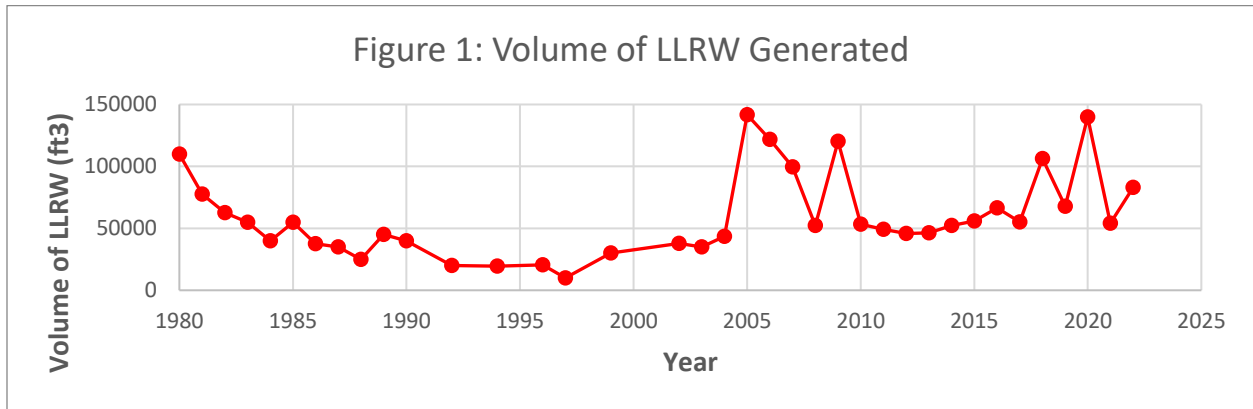
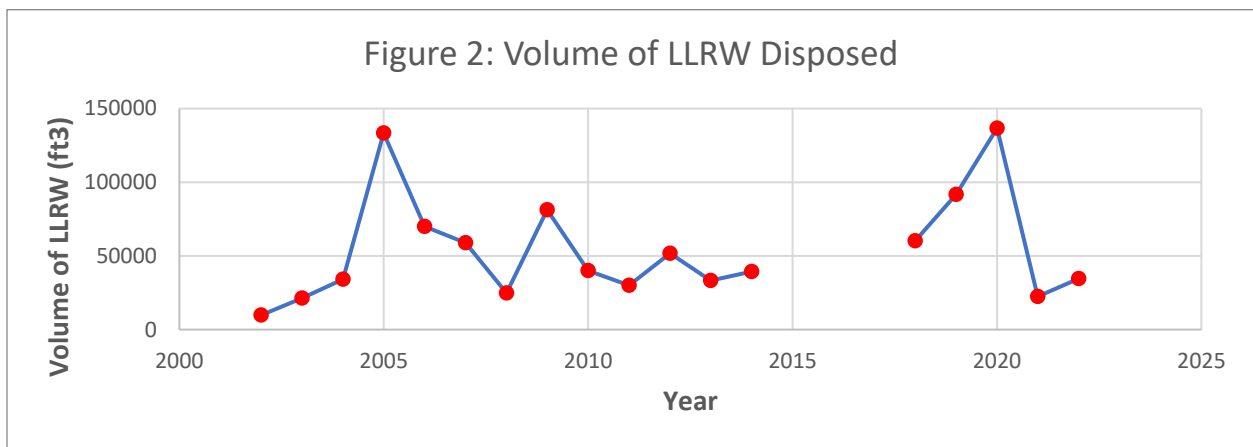
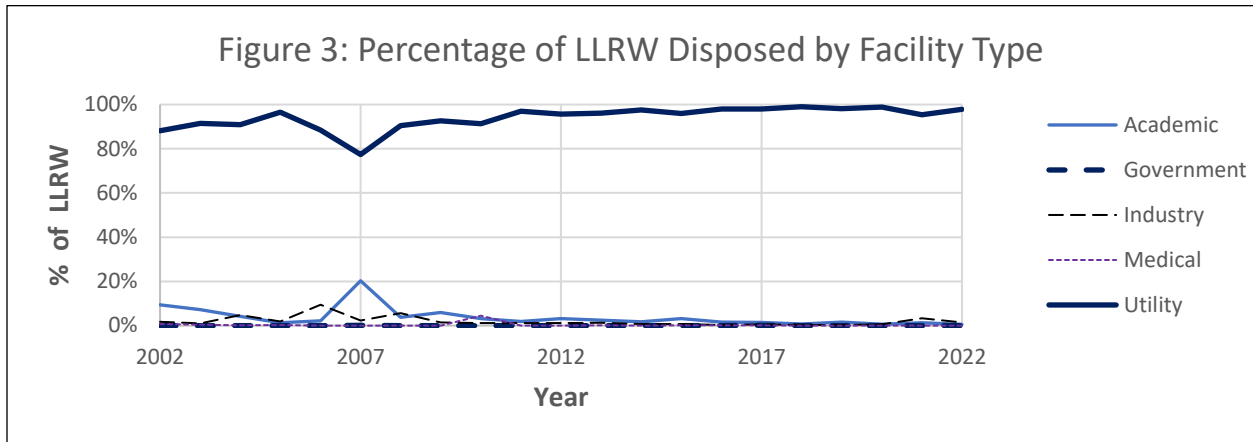


Figure 1 shows the annual volume of LLRW generated since 1980. The spikes in LLRW generation are from the decommissioning activities at Consumers Energy’s Big Rock Point Nuclear Power Plant from 2005 to 2007 and refurbishing the torus at DTE Energy’s Enrico Fermi Unit 1 Nuclear Generating Station in 2009. The primary generators of LLRW are utilities operating nuclear power plants.



As included in the previous year’s report, Figure 2 is included to demonstrate the trends and differences between waste volumes generated and disposed. Figure 2 displays the amount of LLRW that survey respondents have reported from 2002-2021. Disposal volumes were not surveyed for in 2015-2017.



As shown in Figure 3, utilities have accounted for greater than 90 percent of the volume generated in 18 of the last 21 years. Utilities accounted for approximately 98 percent of the volume of LLRW generated in 2022. The remainder is from facilities that routinely dispose of small amounts of waste and facilities needing a one-time disposal.

If you need further information, please contact T.R. Wentworth II, Manager, Radiological Protection Section, Materials Management Division, at 517-915-8881; or you may contact me at 517-512-5992.

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