



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




GRETCHEN WHITMER
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VIA E-MAIL

TO: Governor Gretchen Whitmer
Senate Environmental Quality Committee Members
Senate Natural Resources Committee Members
House Natural Resources and Outdoor Recreation Committee Members

FROM: Liesl Eichler Clark, Director 

DATE: November 16, 2021

SUBJECT: Report on the Low-Level Radioactive Waste 2020 Survey

In accordance with Section 18a of the Low-Level Radioactive Waste Authority Act, 1987 PA 204, as amended, generators of low-level radioactive waste (LLRW) are required to report annually to the Department of Environment, Great Lakes, and Energy (EGLE), Low-Level Radioactive Waste Authority, certain information on the volume, type, and activity of the LLRW produced. This report is a summary of the information submitted by generators for waste generated in calendar year 2020.

Summary:

In the calendar year of 2020, 23 facilities reported the generation of waste requiring disposal in a licensed LLRW facility. Of the 23 facilities that generated waste, 14 of them disposed of waste off-site during 2020. LLRW generated in 2020, but not disposed of off-site, remains in storage at the generating facilities. The following tables summarize the waste generated and disposed in 2020.

Table 1: Waste Generated and Disposed by Facility Type

Type of Facility	Number of Reporting Facilities in 2020 Generator (Disposer)	Volume of LLRW Generated in 2020 (ft ³)	Volume of LLRW Disposed in 2020 (ft ³)
Utility	3 (3)	138,333	135,376
Academic	7 (4)	871	682
Industry	12 (6)	700	603
Medical	0 (0)	0	0
Government	1 (1)	5	5
TOTAL	23 (14)	139,909	136,666

The government facility listed in Table 1 is EGLE's Materials Management Division (MMD), Radiological Protection Section (RPS). During 2020, the RPS disposed of numerous low-level radioactive sources it had acquired over a period of decades. The RPS uses its expertise to remove radiological hazards from the public domain that would otherwise be left uncontrolled or unrecognized. The 2020 disposal represents a periodic cleanout of the RPS's licensed source storage location.

Table 2: Waste Generated and Disposed by Waste Classification

Waste Class	Number of Reporting Generator Facilities in 2020	Volume of LLRW Generated in 2020 (ft ³)
Class A	23	139,740
Class B	3	123
Class C	2	46

In 2020 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 is the least hazardous. As the waste class and hazard increase, the regulations require progressively greater controls to protect the health and safety of the public and the environment. 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.

Challenges:

Disposal of huge volumes of material *potentially* contaminated through licensed activities presents a challenge to generating facilities. Demolition material originating from sites licensed by the U.S. Nuclear Regulatory Commission is generally considered LLRW, although it may have little or no chance of containing radioactivity from licensed activity. Contaminated demolition wastes can be segregated from non-contaminated wastes by technicians using standard survey instruments or through automated monitoring and conveyance systems (e.g., Green is Clean). Volumetric assay is performed on the waste, verifying it is free of contamination and can be released as non-radioactive.

The Palisades Nuclear Generating Station is scheduled to end commercial operation in 2022, which will eventually lead to a large volume of waste generation. The Green is Clean program was utilized in 2006 during the decommissioning of Big Rock Point, a nuclear power station in Charlevoix County. By separating clean material and disposing of the non-impacted material in a Type II solid waste landfill, capacity at LLRW landfills is preserved for the waste that only they are capable of handling. There are currently only four licensed LLRW landfills in the United States.

Historical Trends:

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

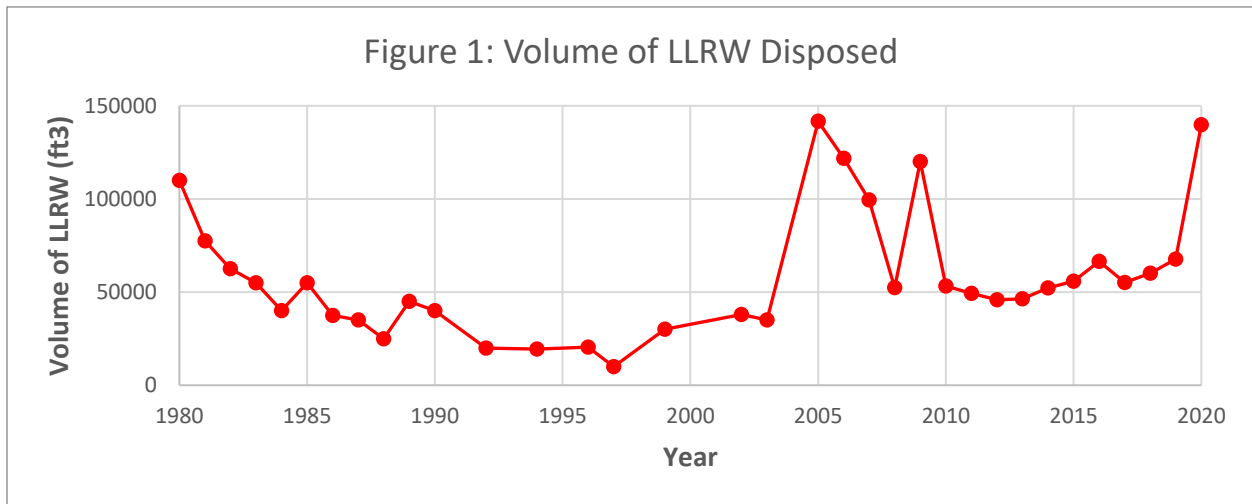
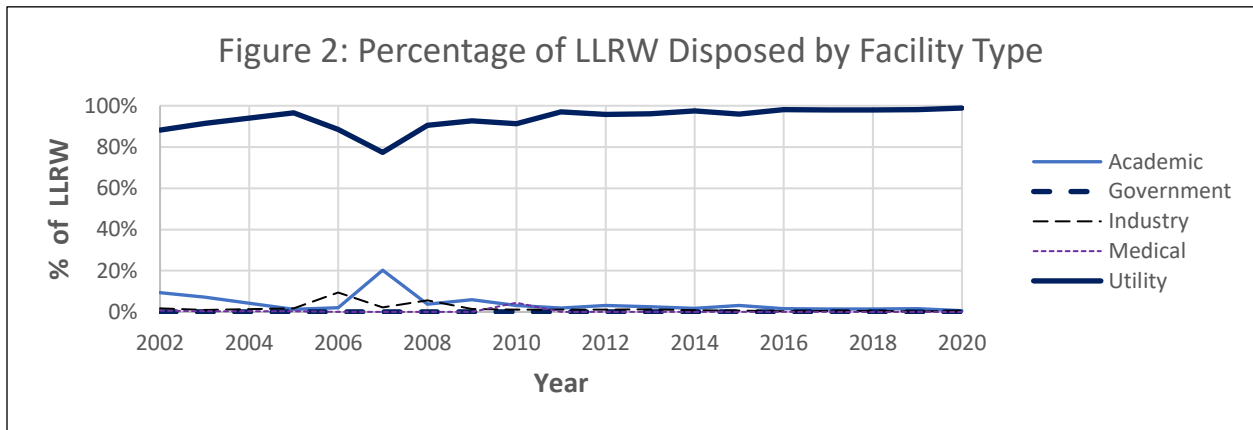
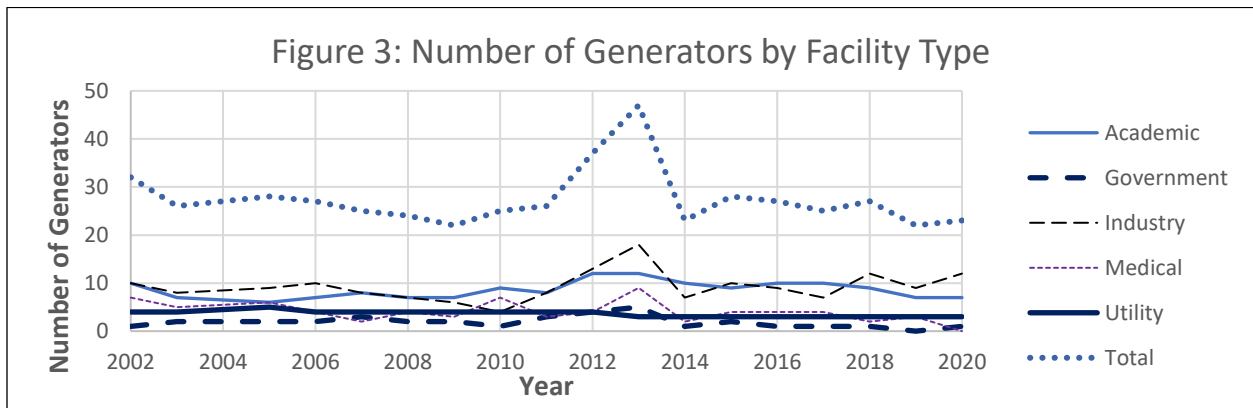


Figure 1 shows the annual volume of LLRW disposed since 1980. The spikes in LLRW disposal are from the decommissioning activities at Consumers Energy’s Big Rock Point nuclear power station from 2005 to 2007 and DTE Energy’s Enrico Fermi Unit 1 nuclear power station in 2009. In 2020 DTE Energy’s Enrico Fermi Unit II reactor completed a torus recoating project, which generated a large volume of LLRW. The primary generators of LLRW are utilities operating nuclear power plants.



As shown in Figure 2, utilities have accounted for greater than 90 percent of the volume disposed in 18 of the last 19 years. The remainder is from facilities that routinely dispose of small amounts of waste and facilities needing a one-time disposal. The academic spike in 2007 was due to the decommissioning of the University of Michigan’s Ford Reactor.



If you need further information, please contact T.R. Wentworth II, Manager, RPS, MMD, at 517-915-8881; or you may contact me at 517-512-5992.

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