STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

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VIA E-MAIL

TO: Governor Rick Snyder
Senate Natural Resources Committee Members
House Natural Resources Committee Members

FROM: C. Heidi Grether, Director

DATE: August 23, 2018

SUBJECT: Report on the Low-Level Radioactive Waste 2017 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 Environmental Quality (DEQ), 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 2017.

Twenty-five facilities reported that they generated waste requiring off-site disposal. The following table compares 2017 data with that of 2016.

Type of Facility	Number of Facilities Reporting Waste in 2017	Volume of LLRW Disposed in 2017 (ft^3)	Number of Facilities Reporting Waste in 2016	Volume of LLRW Disposed in 2016 (ft^3)
Academic	10	771.47	10	1,025
Government	1	62.5	1	0.02
Industry	7	269.19	9	217
Medical	4	30.2	4	53
Utility	3	53,986	3	65,221
TOTAL	25	55,119.36	27	66,516.02

The volume of waste disposed in 2017 was 54,835 cubic feet of Class A waste, 280 cubic feet of Class B waste, and 4.5 cubic feet of Class C waste. Figure 1 shows by percentage the amount of waste by Class. In 2017 all waste-reporting facilities disposed of Class A waste, and two of the three utilities were responsible for all the Class B and Class C waste. All LLRW disposal takes place outside of the state of Michigan.

Figure 1: Percentage of Waste by Class

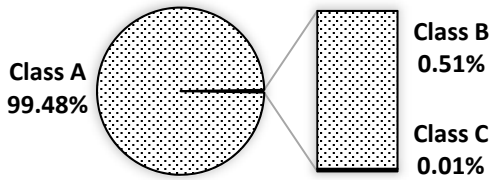
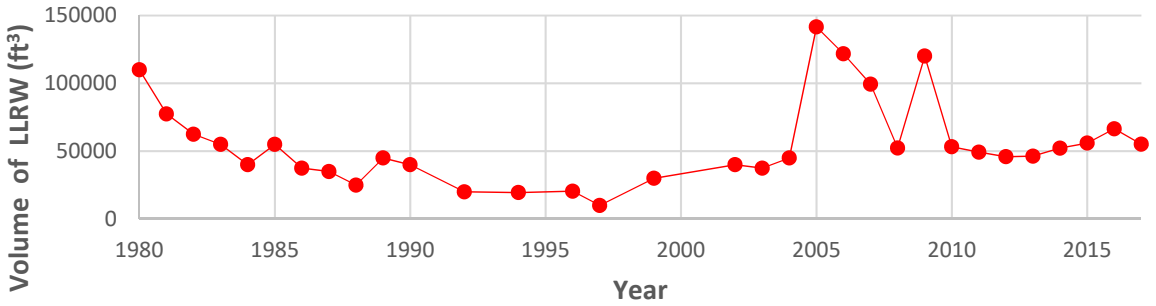


Figure 2 shows the annual volume of LLRW disposed since 1980. The spikes in LLRW disposal are from the decommissioning activities at Consumers Energy's Big Rock Point Nuclear Power Plant from 2005 to 2007 and DTE Energy's Enrico Fermi Nuclear Generating Station, Fermi 1 unit, in 2009. The primary generators of LLRW are utility companies that operate nuclear power plants.

Figure 2: Volume of LLRW Disposed



As shown in Figure 3, utilities have accounted for greater than 90 percent of the volume disposed in 14 of the last 15 years. The remaining percentage is from a small number of facilities that routinely dispose of small amounts of waste and facilities needing a one-time disposal. This results in the total number of generators in a year ranging from as low as 22 to 47, as seen in Figure 4. The academic spike in 2007 was due to the decommissioning of the University of Michigan's Ford Reactor.

Figure 3: Percentage of LLRW Disposed by Facility Type

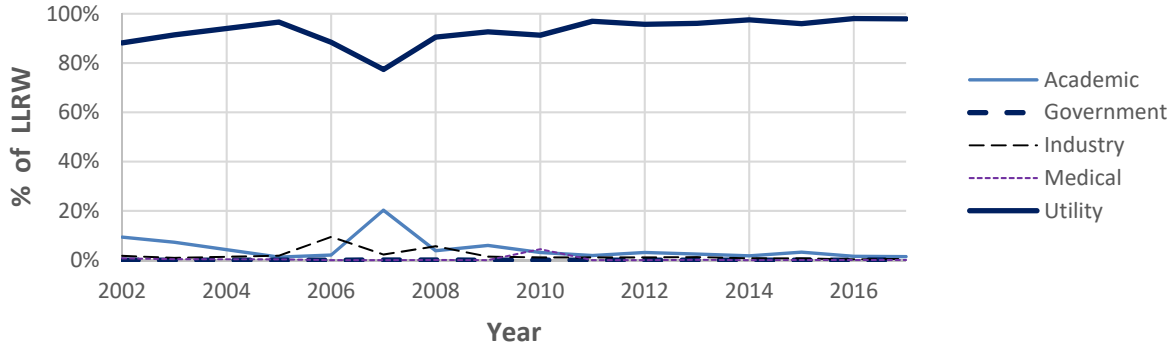
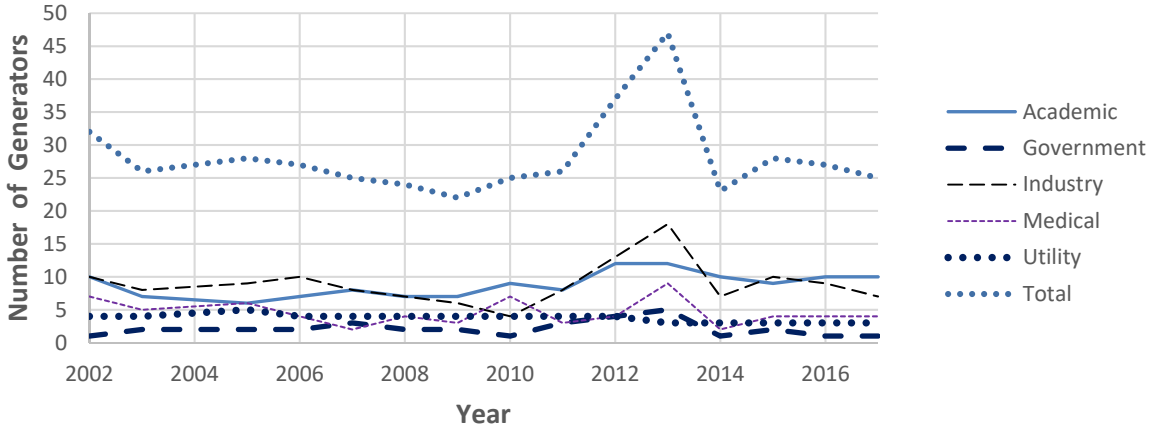


Figure 4: Number of Generators by Facility Type



An example of a one-time generator for 2017 was an academic institution that had small check sources and chemical reagents from the 1950s containing uranium-238, strontium-90, cesium-137, and carbon-14. The volume of the Class A LLRW disposed was 0.7 ft^3 and contained 40 microcuries of activity. Disposal required the involvement of a waste broker, a waste processer, and the disposal site. In total, the 0.7 ft^3 shipment cost the institution over $10,000.

LLRW is categorized by Classes A, B, and C as defined in Title 10 of the Code of Federal Regulations, Part 61, 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.

If you need further information, please contact Mike Neller, Manager, Radiological Protection Section, Waste Management and Radiological Protection Division, at 517-512-5859; or you may contact me at 517-284-6708.

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