



Central Midwest Interstate
Low-Level Radioactive
Waste Commission

THIRTY-SIXTH
ANNUAL REPORT

July 1, 2020 – June 30, 2021

Prepared by the
Central Midwest Interstate
Low-Level Radioactive Waste Commission

Gary W. McCandless
Chairman

Hugh Henry, Ph.D
Secretary/Treasurer

Joseph G. Klinger
Commissioner

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HISTORY

In response to a federal policy, declared in the Low-Level Radioactive Waste Policy Act of 1980 (1980 Act) (42 USC 2021b et seq.), that each state is responsible for assuring that disposal capacity is available for certain categories of low-level radioactive waste (LLRW) generated within its borders, the State of Illinois and the Commonwealth of Kentucky entered into the Central Midwest Interstate Low-Level Radioactive Waste Compact (CMC). Congress has consented to the CMC and the Southeast, Midwest, Central States, Rocky Mountain, Atlantic, Appalachian, Southwestern, Northwest and Texas Interstate Compacts.

MISSION OF CENTRAL MIDWEST COMPACT

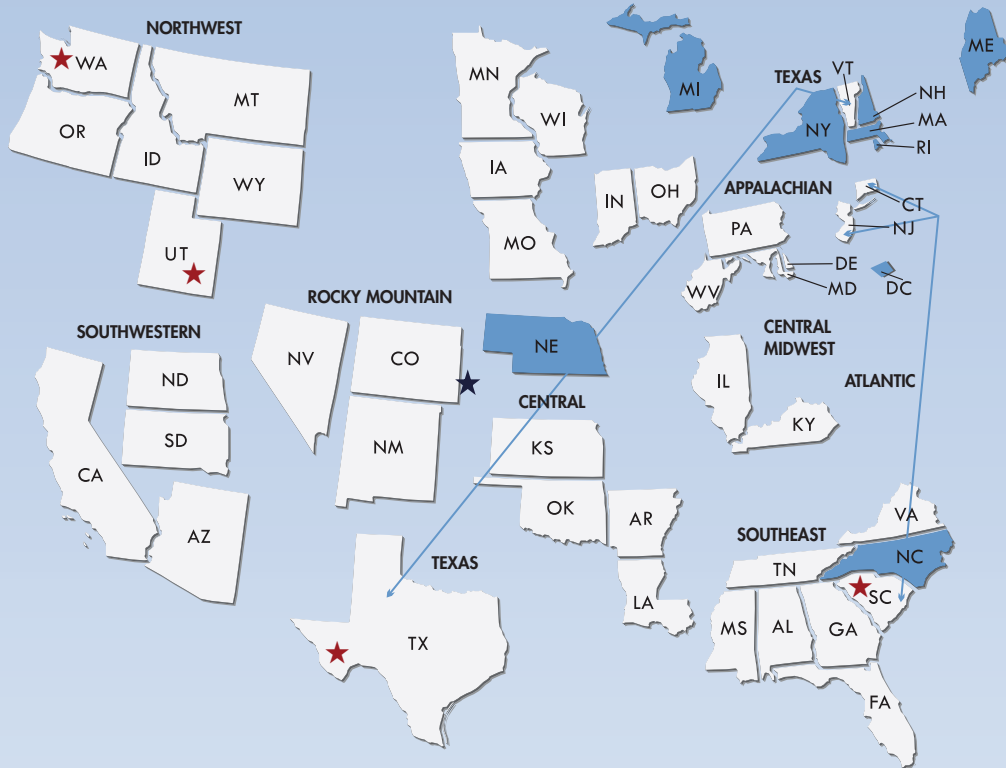
A three-member Commission administers the CMC. Illinois Commissioners are Chairman Gary W. McCandless and Joseph Klingler. Dr. Hugh Henry is the Commissioner representing Kentucky and serves as the Secretary/Treasurer.

The Commission is required to adopt, and amend as necessary, a Regional Management Plan. The Regional Management Plan describes the number and type of regional storage, treatment, and disposal facilities needed; adopts policies regarding source and volume reductions; and describes alternative means for treatment, storage, and disposal of LLRW. The Commission is authorized to designate a host state for each regional facility, but only a state that generates more than 10 percent of their region's total volume of low-level radioactive waste. Illinois has been designated as the host state for a regional disposal facility. Use of storage, treatment, and disposal facilities in the region for LLRW originating from outside the region, and export of LLRW from the CMC region, is subject to Commission approval. The Commission may enter into an agreement or contract with a state, a group of states, or persons for access to a facility in the region.



Central Midwest Interstate Low-Level Radioactive Waste Commission

LOW LEVEL WASTE COMPACTS



★ Active Disposal Site (4)

□ Approved Compact (10)

■ Unaffiliated (10)

Alaska and Hawaii belong to Northwest Compact

UNAFFILIATED STATES

District of Columbia

Massachusetts

Nebraska

New York

Maine

Michigan

New Hampshire

North Carolina

Puerto Rico

Rhode Island

LOW-LEVEL WASTE DISPOSAL FACILITIES

There are four active, licensed low-level waste disposal facilities that are located in Agreement States (see [map](#)), however, only three are available to generators in the Central Midwest Compact. Additional information about the facilities may be found at the Web sites maintained by the respective Agreement States.

- **EnergySolutions Barnwell Operations, located in Barnwell, South Carolina**
Barnwell previously accepted waste from all U.S. generators except those in the Rocky Mountain and Northwest [Compacts](#). Since 2008, Barnwell only accepts waste from the Atlantic compact states (Connecticut, New Jersey, and South Carolina). Barnwell is licensed by the State of South Carolina to receive wastes in Classes A-C.
- **U.S. Ecology, located in Richland, Washington**
Richland accepts waste from the Northwest and Rocky Mountain [compacts](#). Richland is licensed by the State of Washington to receive wastes in Classes A-C.
- **EnergySolutions Clive Operations, located in Clive, Utah**
Clive accepts waste from all regions of the United States. Clive is licensed by the State of Utah for Class A waste only.
- **Waste Control Specialists (WCS), LLC, located near Andrews, Texas**
WCS accepts waste from the Texas Compact generators and outside generators with permission from the Compact. WCS is licensed by the State of Texas for Classes A, B, and C waste.

<http://www.nrc.gov/waste/llw-disposal/licensing/locations.html>



Disposal Options for CMC

Generators in the Central Midwest Region continue to have access to the *EnergySolutions* disposal facility located in Clive, Utah for certain radioactive wastes. This facility accepts Class A waste, both containerized and un-containerized and naturally occurring radioactive materials. This facility also accepts mixed waste (i.e., waste that is both radioactive and chemically hazardous) generated in the Central Midwest region. The Commission anticipates that Illinois and Kentucky generators will continue to have access to the *EnergySolutions* facility.



Some of our generators, including our largest generator Exelon Corporation, have agreements with Waste Control Specialists LLC and dispose of their Class B and C wastes at the facility. CMC generators are very fortunate to have this disposal capability. Without this capacity the Class B and C waste would need to be stored indefinitely at the point of generation.



Waste considered to be naturally occurring radioactive material (NORM) can be disposed at the US Ecology Richland, Washington disposal facility, or at several US EPA RCRA Subtitle C landfills (NORM material with lower concentrations).



Illinois Waste Generation – Current and Future Projections

In compliance with the Management Act, the Illinois Emergency Management Agency (IEMA) conducts an annual survey of the LLRW generators located in Illinois and any broker or processor that handles Illinois LLRW within or outside of the state. Each generator provides IEMA with information by completing the Generators Annual Survey about the types, quantities, and activity of LLRW generated, stored, treated, and disposed of and future LLRW shipment projections. Brokers and processors provide information regarding any and all Illinois waste received, treated, processed, and shipped for disposal by completing the Brokers' and Processors' Annual Survey.

IEMA operates a system to administratively track shipments of LLRW that have a point of origination or destination in the state of Illinois. Persons who ship LLRW into, out of, or within the state must obtain a permit from IEMA and report shipment information electronically to the tracking system. Brokers can provide the Electronic Data Transmission (EDT) files on behalf of their generator customers. IEMA provides the information collected by the tracking system back to the generators in the form of completed annual survey tables for generator verification.

Illinois LLRW generation in 2020 continued to demonstrate the typical variation in year to year production. The number of generators increased in 2020 by twelve.

Illinois LLRW Generator Survey Response by Generator Category 2014 – 2020

Category	2014	2015	2016	2017	2018	2019	2020
Academic	31	29	26	26	25	25	26
Fuel Cycle	2	2	2	2	2	2	2
Governmental	16	17	20	20	16	14	15
Industrial	64	63	61	61	57	70	81
Medical	296	288	288	288	279	276	275
Reactor	7	7	7	7	7	7	7
Total	416	406	404	404	385	394	406

**LLRW Volume Projections (ft³)
2021 – 2027**

	2021	2022	2023	2024	2025	2026	2027
Academic	177	170	170	165	165	160	160
Fuel Cycle	600	850	600	650	700	750	800
Government	5	5	5	5	5	5	5
Industrial	5435	4788	4288	4288	4288	3848	3848
Medical	145	143	143	143	143	143	143
Reactor	150677	142842	142912	150177	142842	97912	100775
Total	157039	148798	148118	155428	148143	102818	105732

The IEMA 2020 Annual Survey required generators to project the amount of LLRW they expect to produce or possess between 2021 and 2027. This information is used by the agency for determining the development timeframe for a regional disposal facility or the need for an interim storage facility. Past history has indicated that the non-reactor generators underestimated volumes and activities by three to four times what was actually generated and disposed.

Kentucky Waste Generation

Kentucky Cabinet for Health Services, Radiation Health Branch (RHB) conducts an annual survey of the LLRW generators located within the Commonwealth. Each generator completes the Annual Survey by listing the types, quantities, and activity of LLRW generated, stored, treated, and disposed. Additionally, Brokers and processors provide information regarding any and all waste received, treated, processed, and shipped out of the state for disposal. Shippers of LLRW into and out of the state must obtain authorization from RHB and identify the shipment. Please note that Kentucky's report is for calendar year 2020.

The Kentucky Radioactive Materials Section inspects and issues licenses to 332 radioactive materials users in the fields of medicine, industry, research and academia. In addition, the program has issued 2 in vitro/in vivo general licenses and 129 other general licenses. The program also assists with oversight of radioactive materials and waste transportation throughout the state. The following report specifies the amount of radioactive waste material disposed or stored in 2020.

Kentucky LLRW Waste Generator Report for 2020									
Waste Generator	Year	Generator Category	Class of Waste	Form	Total Volume ft3	Rad Quantity mCi	Rad Nuclides	Disposal Method	Shipper/ Broker Comments
Centre College	2020	Academic	A	Liquid/Solid	0	0	NR	NR	
Murray State University	2020	Academic	A	Liquid/Solid	21.5	0.82	3H, 14C, 137Cs	DIS/SS	
Northern Kentucky University	2020	Academic	A	Mixed	0	0.00E+00	0	RML terminated	Termination 4/9/19
Western Kentucky University	2020	Academic	A	NR	0	0	NR	NR	
University of Kentucky	2020	Academic	A	Liquid/Solid	85	2.1	3H, 14C, 125I, 35S	Broker	Bionomics
University of Kentucky	2020	Academic	A	Liquid/Solid	24.06	0.8	3H, 14C, 209Po, 35S	Decay In Storage	
TOTAL	2020	Academic			130.56	3.72			
Corporation Clariant	2020	Industrial	A	Liquid/Solid	0	NR	238U	Storage	
Corporation	2020	Industrial	A	Solid	756.71	242.6	238U	Broker	Chase Environmental
Transport Logistics International	2020	Industrial	A	Solid	1170	0.05	238U, 235U, 234Th, 234-Pa	Broker	Waste Control Specialists, LLC
Transport Logistics International	2020	Industrial	A	Solid	35	0.00005	238U, 235U, 234Th, 234-Pa	Storage	
TOTAL	2020	Industrial			1961.71	242.6501			
PETNET	2020	Medical	A	Liquid/Solid	4.8	6.2	57Co, 3H	Storage	Philotechnics
TOTAL	2020	Medical			4.8	5			
RML/RHB Kentucky	2020	Government State	A	(Gel) Liquid	2.1	NR	238dU, 242Pu	Storage	
EPPC/DEP	2020	Government	A	&	0	0	3H	Broker	Bionomics
TOTAL	2020	State Gov.			2.1	0			
					SUM TOTAL	2099.17	251.3701		

Kentucky LLRW Volumes (ft³)

TABLE 2

2013 – 2020

Year	2013	2014	2015	2016	2017	2018	2019	2020
Academic		8.3	0.5	328.69	203.72	42.18	39.02	130.56
Fuel MGF (PGDP) DOE Facility		5,623	590.9	168.9	NR	NR	NR	NR
State Governmental		60.5	14	43.1	45.3	24.81	6.51	2.10
Industrial	91	463	220	6,246	3,189	2,068	1,991	1,962
Medical	2	7.6	0.12	19.1	18.8	23.8	3.7	4.8
Reactor								
Total	93	6,162	826	6,806	3,457	2,159	2,040	2,099

The above Table 2 include volumes of LLRW stored for decay and quantities shipped. Tabulation is derived from facility reports to the Kentucky RHB and Shipper reports. Volumes specified as "DOE Facility" are the direct regulatory responsibility of the Department of Energy and the Nuclear Regulatory Commission.

Kentucky TENORM Update: In response to the dumping of oil and gas "fracking" wastewater sludges from West Virginia into two Kentucky landfills, new regulations were adopted in order to improve protection the public by oversight of TENORM associated with oil and gas operations. 902 KAR 100:180 became effective December 07, 2017. The regulation may be viewed at <https://apps.legislature.ky.gov/law/kar/TITLE902.HTM>. Kentucky RHB is currently considering disposal issues related to TENORM generated from sources other than gas and oil derived, such as refractory brick, coal combustion residues, etc.

Maxey Flats: In November 2012, Maxey Flats Disposal Site was placed into the Final Closure Period which includes installation of a permanent vegetative cap, installation of permanent surface water control features, and installation of surface monuments to identify the location of buried waste. The Environmental Protection Agency (EPA) has declared the Final Closure Period complete and installation of the final landfill cap has been constructed. A 100-year institutional control period is in progress. The fourth Five-Year-Review of the remedy was approved on September 28, 2017. Additional information may be found at:

<https://eec.ky.gov/Environmental-Protection/Waste/superfund/maxey-flats-project/Pages/MaxeyFlatsSection.aspx>.

Paducah Gaseous Diffusion Plant: The Paducah Gaseous Diffusion Plant was in operation from September 1952 to June 2013 and was operated historically for national defense purposes until 1964, after which it produced fuel-grade uranium used to generate electricity in nuclear reactors. The U.S. Environmental Protection Agency (EPA) declared it a Superfund site in 1988. All operations have ceased at the plant and deconstruction and remediation continue at the site. According to the DOE, Office of Environmental Management, the current end state completion baseline date for Paducah is 2030. Additional information may be obtained at; <https://eec.ky.gov/Environmental-Protection/Waste/hazardous-waste/Pages/paducah-gaseous-diffusion-plant.aspx>.

OBSERVATIONS AND CURRENT ACTIVITIES

- Participating member of the Low-Level Waste Forum. The LLW Forum’s goals are to educate policy makers and the public about the management and disposal of low-level radioactive wastes, and to foster information sharing and the exchange of views between states and compacts. The Central Midwest Compact Commissioners participated at the October 14-15, 2020 and the April 7-8, 2021 meetings held virtually using Webex Events. Both meetings were held virtually due to the COVID-19 outbreak and travel restrictions.
- The CMCC is reviewing the definition change to By-Product material in the Energy Policy Act of 2005 (EP Act) that added 11 e (3) and 11 (e) 4. This modification resulted in narrowing the definition of low level radioactive waste (LLRW) that previously existed in the 1985 LLRW Policy Act Amendments. The EP Act of 2005 also removed CMCC authority to restrict imports and exports of 11E(3) and 11E(4) materials that previously existed in the 1985 Policy Act Amendments for LLRW. The EP Act of 2005 and the Nuclear Regulatory Commission’s Final Rule in 2007 regarding the “Requirements for Expanded Definition of Byproduct Material” presents many issues for the member states of Illinois and Kentucky in regard to Agreement States compatibility and the implications to CMCC’s authority and Regional Management Plan (RMP) policy statements are complex. CMCC has retained a legal firm to analyze the ramifications of the Policy Act modifications, and received a draft legal opinion on the Federal Statutory Authority to require CMCC to adopt and apply these changes to its governing documents. At the September 21, 2021 Annual Meeting the Commissioners moved to prepare a Resolution to be considered at its March 2022 meeting recognizing the statutory requirements of the LLRW Act and EP act and NRC regulations, as it relates to

LLRW and NARM materials. The Commission will undertake an evaluation and review of CMCC policies, regulations and the RMP and will enact the amendments necessary to ensure full compliance with all applicable federal law and to protect public health and safety.

- In addition to the LLW Forum activities, Commissioner Klinger Chaired the Disused Sources Working Group (DSWG) to develop recommendations for improving the management of disused sealed sources that pose a threat to national security. The Working Group, which is comprised of eight directors of the LLW Forum, solicited input from a broad range of stakeholders at 19 meetings over a 30-month period. A Summary of Findings and Recommendations can be found here: <http://www.disusedsources.org/recommendations-of-the-dswg/>.
- The US Department of Energy's National Nuclear Security Administration (NNSA) asked the LLW Forum's [Disused Sources Working Group](#) (DSWG) to evaluate the impact that the US Nuclear Regulatory Commission's (NRC) 2015 revision to the Branch Technical Position (BTP) on Concentration Averaging and Encapsulation has had on the disposal of radioactive sealed sources. That report can be found here: <http://llwforum.org/wp-content/uploads/2021/06/May-2021-Report-on-2015-NRC-BTP-on-CA-and-E.pdf>

AGREEMENTS AND PLANS

Interregional Facility Access Agreements

Interregional Facility Access Agreements ensure that Illinois and Kentucky waste generators can continue to use the existing facilities outside the region to treat or temporarily store their waste.

On November 4, 1997, the Commission voted in favor of signing the National Interregional Access Agreement for Waste Management (October 23, 1992). To date this leaves only the Atlantic Compact, New Hampshire, Puerto Rico, and Rhode Island who have not signed the National Agreement. At a Regular Meeting in April 2006, the Commission voted not to renew previous agreements with other states and compacts (the Rocky Mountain, Southwestern, Northeast, Midwest and Southeast Compacts, the State of Michigan and the Commonwealth of Massachusetts) when these agreements expired in 2011. However, the Central Midwest Compact has an Interregional Agreement with the Atlantic Compact.

Regional Management Plan

The Commission is required to adopt and amend, as appropriate, a plan for managing the region's low-level radioactive waste. The Regional Management Plan was adopted in 1988. In May of 1999 at a meeting held in Chicago, Illinois, the Commission unanimously voted to accept the revised 1999 Regional Management Plan. A copy of the plan is available through the Internet address (URL) <http://www.cmcompact.org> or by calling the Commission office at (217) 836-3018.

COMMISSION ACTIVITIES

September 22, 2020 – Annual Meeting held in Springfield, IL.

March 30, 2021- Spring Meeting held via Webex Meetings due to COVID-19 restrictions.

Meeting Minutes are available here: <http://cmcompact.org/pubs/>

AUDIT

The financial records of the Commission were audited in compliance with Article XI of the Commission's bylaws. The auditing firm of Robin L. Malloy, CPA performed an audit of the Commission's records finding that the financial statements accurately represent the Commission's financial position according to generally accepted accounting principles.

Central Midwest Interstate Low-Level
Radioactive Waste Compact Commission
BALANCE SHEETS
June 30, 2021 and 2020

Statement 1

	<u>2021</u>	<u>2020</u>
<u>Assets</u>		
CURRENT ASSETS		
Cash and cash equivalents	\$ 238,809	\$ 4,802
Investments	2,224,437	2,447,646
Interest receivable	6,213	9,571
Prepaid expense	<u>1,343</u>	<u>1,325</u>
TOTAL ASSETS	\$ <u>2,470,802</u>	\$ <u>2,463,344</u>
<u>Liabilities and Fund Balance</u>		
CURRENT LIABILITIES		
Accounts payable.....	\$ _____ -	\$ _____ -
FUND BALANCE	<u>2,470,802</u>	<u>2,463,344</u>
TOTAL LIABILITIES AND FUND BALANCE	\$ <u>2,470,802</u>	\$ <u>2,463,344</u>

The accompanying notes are an integral part of these financial statements.

Central Midwest Interstate Low-Level
Radioactive Waste Compact Commission
**STATEMENTS OF REVENUE, EXPENDITURES AND
CHANGES IN FUND BALANCE**
For the Years Ended June 30, 2021 and 2020

Statement 2

	<u>2021</u>	<u>2020</u>
REVENUE		
Interest	\$ <u>30,482</u>	\$ <u>54,594</u>
EXPENDITURES		
Administrative expense	12,986	12,690
Contractual services	2,508	2,535
Insurance	3,459	3,460
Meeting	200	5,000
Professional fees	3,000	3,000
Travel	<u>871</u>	<u>2,497</u>
Total expenditures	<u>23,024</u>	<u>29,182</u>
EXCESS OF REVENUE OVER EXPENDITURES	7,458	25,412
FUND BALANCE – BEGINNING	<u>2,463,344</u>	<u>2,437,932</u>
FUND BALANCE – ENDING	\$ <u>2,470,802</u>	\$ <u>2,463,344</u>

The accompanying notes are an integral part of these financial statements.

Central Midwest Interstate Low-Level
Radioactive Waste Compact Commission
STATEMENTS OF CASH FLOWS
For the Years Ended June 30, 2021 and 2020

Statement 3

	<u>2021</u>	<u>2020</u>
CASH FLOWS FROM OPERATING ACTIVITIES:		
Excess (deficiency) of revenue over expenditures	\$ 7,458	\$ 25,412
Adjustments to reconcile excess of revenues over expenditures to cash flows from operating activities:		
Changes in operating assets and liabilities:		
Decrease (increase) in interest receivable	3,358	3,657
Decrease (increase) in prepaid expense	(18)	31
Net cash provided by (used for) operating activities	<u>10,798</u>	<u>29,100</u>
CASH FLOWS FROM INVESTING ACTIVITIES:		
Investments matured.....	1,355,000	1,549,255
Investments purchased.....	(1,131,791)	(1,580,465)
Net cash provided by (used for) investing activities.....	<u>223,209</u>	(31,210)
NET INCREASE (DECREASE) IN CASH AND CASH EQUIVALENTS	234,007	(2,110)
CASH AND CASH EQUIVALENTS – BEGINNING	<u>4,802</u>	<u>6,912</u>
CASH AND CASH EQUIVALENTS – ENDING	<u>\$ 238,809</u>	<u>\$ 4,802</u>

The accompanying notes are an integral part of these financial statements.

All minutes, notices, and other announcements of the Central Midwest Interstate Low-Level Radioactive Waste Commission are available at: www.cmcompact.org.