

Central Midwest Interstate Low-Level Radioactive Waste Commission

THIRTY-SEVENTH ANNUAL REPORT

July 1, 2021 – June 30, 2022

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

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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 202lb 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.

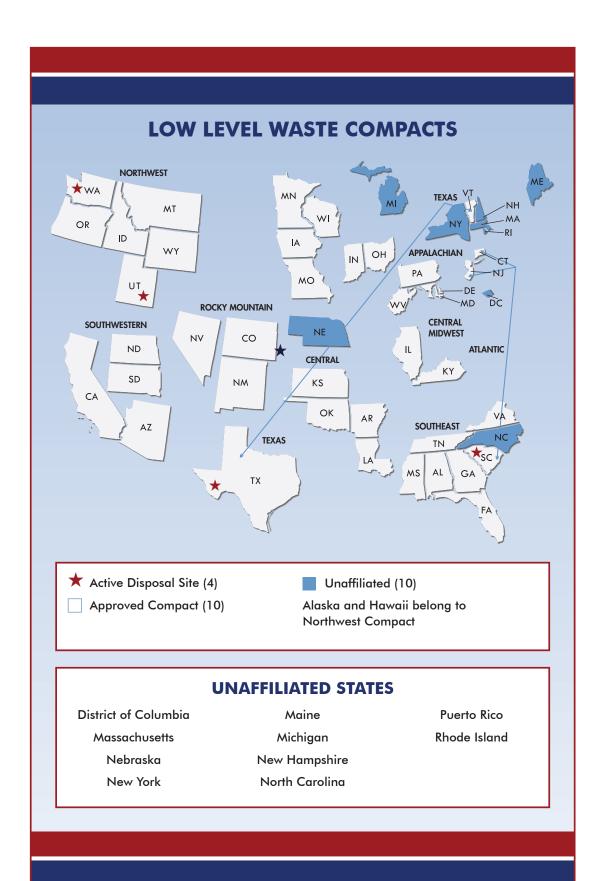
MISSION OF CENTRAL MIDWEST COMPACT

A three-member Commission administers the CMC. Illinois Commissioners are Chairman Gary W. McCandless and Joseph Klinger. 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 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.

- 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 2021 continued to demonstrate the typical variation in year to year production. The number of generators decreased in 2021 by twelve.

Illinois LLRW Generator Survey Response by Generator Category 2017 – 2021

Category	2017	2018	2019	2020	2019	2020	2021
Academic	29	26	26	25	25	26	25
Fuel Cycle	2	2	2	2	2	2	2
Governmental	17	20	20	16	14	15	15
Industrial	63	61	61	57	70	81	74
Medical	288	288	288	279	276	275	271
Reactor	7	7	7	7	7	7	7
Total	406	404	404	385	394	406	394

LLRW Volume Projections (ft³) 2022 - 2028

	2022	2023	2024	2025	2026	2027	2028
Academic	134	134	127	129	123	124	119
Fuel Cycle	20050	20250	20050	20100	20150	20200	20250
Government	3523	15	15	15	15	15	15
Industrial	6820	5729	5851	5951	6552	5651	5351
Medical	169	171	156	156	156	156	156
Reactor	143290	146426	153955	141471	141686	148555	141471
Total	173986	172725	180154	167822	168682	174701	167362

The IEMA 2021 Annual Survey required generators to project the amount of LLRW they expect to produce or possess between 2022 and 2028. 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 LLW survey of all byproduct and source material licensees within the Commonwealth. Licensees that possess, store and dispose of byproduct or source material with half-lives greater than 120 days, complete 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.

The Kentucky Radioactive Materials Section inspects and issues licenses to approximately 315 radioactive materials users in the fields of medicine, industry, research and academia. In addition, the program has issued 127 general licenses. The program also assists with oversight of byproduct material, source material and nuclear waste transportation throughout the state. The following report specifies the amount of radioactive waste material disposed or stored in 2021.

Kentucky LLRW Waste Generator Report for 2021

		K	entuck	y LLKW W	aste Ge	nerator Ke	port for 2021		
Waste Generator	Year	Generator Category	Class of Waste	Form	Total Volume ft3	Rad Quantity mCi	Rad Nuclides	Disposal Method	Shipper/ Broker Comments
Centre College	2021	Academic	А	Liquid/ Solid	8	0.001	1251	DIS	
Murray State University	2021	Academic	А	Liquid/ Solid	28.1	0.187	3H, 14C, 137Cs	DIS	
Northern Kentucky University	2021	Academic	A	Mixed	0	0.00E+00	0	RML terminated	Termination 4/9/19
Western Kentucky University	2021	Academic	А	NR	0	0	NR	NR	
University of Kentucky	2021	Academic	А	Liquid/ Solid	85.01	1.24	241Am, 3H, 14C, 209Po, 35S	Broker	Bionomics
University of Kentucky	2021	Academic	A	Liquid/ Solid	78	20.76	3H, 14C, 209Po, 35S	Decay In Storage	
TOTAL	2021	Academic			199.11	22.188			
Clariant Corporation	2021	Industrial	A	Liquid/Solid	0	NR	238U	Storage	
Clariant Corporation	2021	Industrial	A	Solid	270	37.53	238U	Broker	Chase Environmental Group
Transport Logistics	2021	Industrial	A	Solid	319	3.52	238U, 235U, 234Th 234-Pa	Broker	WCS, LLC
Transport Logistics International	2021	Industrial	А	Solid	35	0.00004	238U, 235U, 234Th 234-Pa	Storage	
TOTAL	2021	Industrial			624	41.05004			
PETNET	2021	Medical	Α	Liquid/Solid	10	8.5	3H	Storage	
PETNET	2021	Medical	А	Liquid/Solid	15	2.2	57Co, 3H, 56Co, 54Mn, 65Zn, 109Cd	Broker	Philotechnics
TOTAL	2021	Medical			15	5			
Kentucky RML/RHB	2021	State Government	A	Liquid (Gel)	3.7	NR	3H, 99Tc, 238dU,242Pu	Storage	
Kentucky EPPC/DEP	2021	State Government	A	Liquid & Material	0	0	3H	Broker	Bionomics
TOTAL	2021	State Gov.			3.7	0			
			sui	M TOTAL	841.81	68.23804			

Kentucky LLRW Volumes (ft³)

2013 - 2021

Year	Actual 2013	Actual 2014	Actual 2015	Actual 2016	2017	2018	2019	2020	2021
Academic			0.5	328.69	203.72	42.18	39.02	130.56	199.11
Fuel MGF (PGDP) DOE Facility			590.9	168.9	NR	NR	NR	NR	NR
State Governmental			14	43.1	45.3	24.81	30.91	2.1	3.7
Industrial	91		220	6,246	3,189	2,068	1,991	1,962	624
Medical	2		0.12	19.1	18.8	23.8	3.7	4.8	15
Reactor	0	0	0	0	0	0	0	0	0
Total	93	10,070	826	6,806	3,457	2,159	2,065	1,969	

The above volumes include 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.

The Branch is currently working with the KY Energy and Environment Cabinet to establish rules for acceptance of TENORM from sources other than those derived from the Oil and Gas Industry, and establishment of Subtitle D landfills that are permitted to accept such material.

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.

The Radioactive Environmental Monitoring Laboratory (REML) actively monitors the site for contamination leaving the restricted areas to the perimeter, buffer and non-restricted areas around the site and is currently evaluating markers other than tritium, such as, gross alpha-beta measurements, as an estimate of contamination departing the site.

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.

The REML actively monitors the areas outside of the US DOE restricted and controlled areas on the site.

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 12-13, 2021 (Denver, CO) and the April 5-6, 2022 (San
 Antonio, TX) meetings held in-person and virtually.
- During the past fiscal year the CMCC completed its review and analysis of 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 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 13, 2022 Annual Meeting the Commissioners approved a Resolution 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 Disused Sources Working Group met in person at the conclusion of the LLW Forum Fall 2021 and Spring 2022 meetings.

• The US Department of Energy's National Nuclear Security Administration (NNSA) asked the LLW Forum's <u>Disused Sources Working Group</u> (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 in available through the Internet address (URL) http://www.cmcompact.org or by calling the Commission office at (217) 836-3018.

COMMISSION ACTIVITIES

September 21, 2021 – Annual Meeting held in Frankfort, KY and online via Webex Meetings.

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 Pehlman & Dold, P.C., Robin L. Malloy, CPA performed the audit of the Commission's records finding that the financial statements accurately represent the Commission's financial position according to generally accepted accounting principles.

STATEMENTS OF FINANCIAL POSITION June 30, 2022 and 2021

ASSETS

\$<u>2,417,559</u>

\$<u>2,497,957</u>

Current Assets: Cash and cash equivalents Accounts receivable Prepaid expenses Total current assets	2022 \$ 205,632 2,368 1,316 209,316	2021 \$ 712,337 6,232 1,343 719,912
Non-Current Assets: Long-Term Investments Certificates of deposit Total non-current assets	<u>2,208,243</u> <u>2,208,243</u>	1,778,045 1,778,045
TOTAL ASSETS	\$ <u>2,417,559</u>	\$ <u>2,497,957</u>
LIAB	ILITIES AND NET ASSETS	
Current Liabilities:	\$	¢
Total current liabilities	φ <u> </u>	Ψ
Net Assets: Without donor restrictions Total net assets	2,417,559 2,417,559	2,497,957 2,497,957

See Accompanying Notes to Consolidated Financial Statements.

Total net assets TOTAL LIABILITIES AND NET ASSETS

STATEMENT OF ACTIVITIES Year Ended June 30, 2022 and 2021

Revenue, Gains and other Support:	2022 Without Donor <u>Restrictions</u>	2021 Without Donor <u>Restrictions</u>
Investment income, net Net unrealized gains (losses) on investments Total revenue and other support	\$ 32,049 (<u>69.237</u>) (<u>37,188</u>)	\$ 45,291 (<u>26,735)</u> <u>18,556</u>
Expenses:		
Long-Term Investments		
Administrative expense	30,576	12,986
Contractual services	2,409	2,508
Insurance	3,429	3,459 200
Meeting Professional fees	3,000	3,000
Travel	3,795	3,000 871
Total expenses	43,209	23,024
Change in Net Assets	(80,397)	(4,468)
Net Assets – Beginning of Year	<u>2,497,956</u>	2,463,343
Prior Period Adjustment		39,081
Net Assets – End of Year	\$ <u>2,417,559</u>	\$ <u>2,497,956</u>

See Accompanying Notes to Consolidated Financial Statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS June 30, 2022 and 2021

Note 2. LIQUIDITY AND AVAILABILITY OF FINANCIAL ASSETS

The following reflects the Commission's financial assets as of the balance sheet date, reduced by amounts not available for general use because of contractual or donor-imposed restrictions within one year of the balance sheet date.

	2022	<u>2021</u>
Financial assets at year-end	\$2,416,243	\$2,496,614
Less those unavailable for general expenditures within one year due to:		
None		
Financial assets available to meet cash needs for general expenditure within one year	\$ <u>2,416,243</u>	\$ <u>2,496,614</u>

Note 3. INVESTMENTS

The fair values of long-term investments totaled \$2,208,243 and \$1,778,045 at June 30, 2022 and 2021, respectively.

The following schedule summarizes investment returns and their classification in the statement of activities for the vears ended:

Investment income	2022 \$ 32,049
Net realized gains (losses) on investments Net unrealized gains (losses) on investments Investment return	(<u>69,237)</u> \$(<u>37,186</u>)
Investment income Net realized gains (losses) on investments	2021 \$ 45,291
Net unrealized gains (losses) on investments Investment return	(<u>26,735)</u> \$ <u>18,556</u>

The general investment objectives are to maintain a high level of stability and security within invested funds by minimizing risk and volatility insofar as possible, to maintain a range of liquidity as determined by the Commission Treasurer for all anticipated withdrawals and invest in issues with sufficient marketability to provide for unexpected withdrawals, to avoid the risk of large losses, the potential opportunity for gain from high-risk investments will be sacrificed in favor of a more stable return.

Note 4. FAIR VALUE MEASUREMENTS

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (exit price) in the principal or most advantageous market for the asset or liability in an orderly hierarchy, which required an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The standard describes three levels that may be used to measure fair value:

- Level 1 Inputs are based on unadjusted quoted market prices within active markets.
- Level 2 Inputs are based primarily on quoted prices for similar assets in active or inactive markets.
- Level 3 Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

STATEMENT OF CASH FLOWS Years Ended June 30, 2022 and 2021

	2022	<u>2021</u>
Cash Flows from Operating Activities:		
Change in net assets	\$(80,397)	\$(4,468)
Adjustements to reconcile changes in net assets to		
net cash provided by (used in) operating activities Net unrealized and realized (gains) losses on investments	69,237	26,735
(increase) decrease in operating assets:	09,237	20,733
Interest receivable	3,864	3,339
Prepaid expense	28	(19)
Net cash provided (used) by operating acitivites	(<u>7,268</u>)	25,587
Cash Flows from Investing Activities:		
Purchase of investments	(2,841,490)	(531,790)
Proceeds from sale of investments	<u>2,342,053</u>	<u>1,017,000</u>
Net cash provided (used) in investing activities	(<u>499,437</u>)	<u>485,210</u>
Change in Cash and Cash Equivalents	(506,705)	510,797
Cash and Cash Equivalents – Beginning of Year	712,337	201,540
Cash and Cash Equivalents – End of Year	\$ <u>205,632</u>	\$ <u>712,337</u>

See Accompanying Notes to Consolidated Financial Statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS June 30, 2022 and 2021

Note 4. FAIR VALUE MEASUREMENTS - continued

The fair value measurements and levels within the fair value hierarchy of those measurements for the assets reported at fair value on a recurring basis at June 30, 2022 and 2021 are as follows:

	2	022
	Fair Value	Level 1
Short-term investments: Cash and money market funds	\$ <u>198,981</u>	\$ <u>198,981</u>
Long-term investments: Certificates of deposit Total long-term investments	2,208,243 2,208,243	2,208,243 2,208,243
Total investments	\$ <u>2,407,224</u>	\$ <u>2,407,224</u>
	2	021
	<u>Fair Value</u>	021 <u>Level 1</u>
Short-term investments: Cash and money market funds		
Chieft term in Councille.	Fair Value	Level 1

Note 5. SUBSEQUENT EVENTS

Subsequent events were evaluated through August 31, 2022, which is the date the financial statements were available to be issued.

Note 6. PRIOR PERIOD ADJUSTMENT

The prior period financial statements listed the investments of the Commission at cost rather than fair market value. An adjustment was needed to record the unrealized loss on investments in 2021 of \$26,735, correct interest income by increasing it \$14,809 and report the fair market value of the investments by increasing it to \$27,155. The total adjustment increased Net Assets by \$39,081.

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