



Minnesota Pollution Control Agency

Report to the Legislature:
**Activities of the Midwest
Interstate Low-Level
Radioactive Waste
Compact Commission
2005-2006**

Estimated Cost of Report Preparation

12 Hours of Staff Time	\$600.00
Duplication Cost for 80 copies	<u>\$80.00</u>
TOTAL	\$680.00

*Printed on recycled paper containing
at least 20 percent fibers from paper recycled by consumers.*

Activities of the Midwest Interstate Low-Level Radioactive Waste Compact Commission, 2005-2006

Biennial Report

Prepared by

**Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, Minnesota 55155-4194
(651) 296-6300
1-800-657-3864
TTY: 651-282-5332**

*This material may be made available in others formats such as
Braille, large type, or audio tape upon request*

Background and History

The Low-Level Radioactive Waste Policy Act of 1980 allowed existing disposal facilities to close their doors to generators of low-level radioactive waste (LLRW) nationwide in 1994 with the intention that this would provide an incentive to states and groupings of states to become self-sufficient by developing their own disposal facilities. At the time there were three facilities receiving LLRW from businesses and institutions (“generators”) nationwide. These were located at Barnwell, South Carolina; Richland, Washington; and Beatty, Nevada.

Congress also authorized a nationwide system of interstate compacts under the law. Minnesota and six other Midwest states joined in 1983 to form the Midwest Interstate Low-Level Radioactive Waste Compact (“Midwest Compact”) which would construct and operate a regional LLRW disposal facility. A state law designated the Commissioner of the Minnesota Pollution Control Agency (MPCA) as the state’s representative on the Midwest Compact Commission. This responsibility has been delegated to the deputy commissioner of the MPCA.

To support the efforts for a reliable disposal system, the U.S. Department of Energy levied surcharges during the 1980s and 1990s on companies and institutions disposing of LLRW, with the bulk of the cost falling on electric utilities using nuclear reactors for power generation. The Midwest Compact received several million dollars from surcharges on waste disposal, using these funds to cover ongoing expenses of the Commission. The Midwest Compact also accumulated surcharges from the region’s nuclear utilities, including Northern States Power, to be earmarked for site development activities only.

Michigan was selected as the first host state for the Midwest Compact’s regional disposal facility, but was expelled from the Midwest Compact in 1991 for failure to fulfill its obligations to proceed in establishing a facility. This left six states in the Midwest Compact, and Ohio was selected as host state. Ohio began its site development process, introducing facility siting legislation and negotiating compact amendments with other states in the ensuing years. Ohio adopted the legislation and associated compact amendments in 1995. Minnesota incorporated the compact amendments and related statutory changes into state law during the 1996 legislative session (H.F. 2207, Chapter 428), as did the other Midwest Compact states during 1996 and 1997. During this time, Ohio proceeded to set up a facility development authority and began site screening activities. Ohio projected a disposal facility to be operational by 2005.

As expected, on July 1, 1994, the Midwest Compact states lost access to LLRW disposal facilities. One year later, however, the Barnwell, South Carolina, facility unexpectedly reopened to LLRW generators nationwide. (See the next section for current and near-term availability of disposal options for generators in Midwest Compact states.)

As a result, the pressure on states and Midwest Compacts to develop their own facilities diminished greatly after Barnwell’s reopening for out-of-state disposal in 1995. In 1997 the Commission suspended its efforts to site an LLRW disposal facility in the six-state Midwest Compact region. The Midwest Compact Commission cited three reasons for halting site development activities:

- Dwindling volumes of LLRW produced from the Midwest Compact states,

- Continued access to existing disposal facilities outside of the Midwest Compact, and
- The high cost and long timeline of opening a new facility.

Minnesota remains a member of the Midwest Compact. This is the fifth biennial report required by the 1996 amendments to Minn. Stat. 116C.833, subdivision 2, covering the activities of the Midwest Compact Commission.

Low-Level Radioactive Waste - the Background

Radioactive waste is an extremely broad set of materials, of which LLRW is only one portion.

Regulated LLRW is discarded material with artificial radioactivity that does not fall in certain categories. LLRW is not high-level radioactive waste, which is waste produced by nuclear reactor fuel usage; it is not waste that has more than certain quantities of elements that are higher in the periodic table than uranium, and it is not uranium-ore mill residues.

Typical wastes commonly disposed as LLRW include:

- Plastic pellets used for water treatment in nuclear power plants;
- Cleaning supplies such as mops and rags;
- Discarded equipment, tools, and building rubble;
- Discarded clothing such as gloves, shoe covers, and lab coats; and
- Filter media and fluids.

Under federal regulations, LLRW is made up of four classes, which are listed in order of the length of time that the material needs to be isolated from the environment. This is usually denoted in terms of its half-life. (A “half-life” is a measure of the longevity of a radiation source. If a source has a half-life of five years, the intensity of radiation emitted from that source drops by 50% each five years.)

- Class A wastes: Suited for near-surface burial. Radioactivity is the lowest among all LLRW classes. Most of the radionuclides have half-lives less than five years. Disposal facilities are privately operated.
- Class B wastes: Suited for near-surface burial but requires more environmental confinement than Class A. Radioactivity has a higher concentration than Class A and more of the radionuclides have half-lives over five years. Disposal facilities are privately operated.
- Class C wastes: Acceptable for near-surface burial but will have more confinement and for longer periods than Class B. Radioactivity levels are higher than Class B. Disposal facilities are privately operated.

Any LLRW that arises from defense activities is handled by the U.S. Department of Energy, and is not part of the Midwest Compact Commission's purview nor of its member governments.

As a general rule, disposal of non-defense LLRW is the financial responsibility of the waste generator, but there are two exceptions. First, disposal of any “Greater than Class C” LLRW is handled by the U.S. Department of Energy exclusively. Disposal must be in a geologic repository, which currently is the Waste Isolation Pilot Project near Carlsbad, New Mexico. Second, the National Nuclear Security Administration offers a free-of-charge disposal option for all sealed sources that emit beta and gamma radiation. This federal initiative intends to reduce the

risk that such sources might get into the wrong hands. It is called the Off-Site Source Recovery Project.

The responsibility can be charted as follows:

LLRW From civilian activities	LLRW From defense activities
Class A wastes: Generator pays disposal costs	Class A wastes: Federal government pays disposal costs
Class B wastes: Generator pays	Class B wastes: Federal government pays
Class C wastes: Generator pays, unless the material qualifies for the Off-site Source Recovery Project	Class C wastes: Federal government pays
"Greater than Class C wastes": Federal government pays disposal costs	"Greater than Class C wastes": Federal government pays

Currently, there are less than 20 actual or potential generators of LLRW in Minnesota. In any given year less than five ship more than 100 cubic feet per year of LLRW, the threshold at which a state fee is due the MPCA. The others ship none at all or else very small quantities of LLRW for disposal. The total quantity of LLRW shipped from Minnesota non-defense generators for the last three calendar years is as follows.

	To EnergySolutions at Barnwell, S.C. (cu. ft.)	To EnergySolutions at Clive, Utah (cu. ft.)
2004	56	31,676
2005	460	21,671
2006	35	8,253
Total shipped from Minn.	551	61,600

The national trend is toward less LLRW volume due to compaction, and toward fewer LLRW generators who need to ship waste for disposal. Some firms and institutions that once generated LLRW do not use radioactive sources now, and others have shifted to very short-lived radioisotopes, which if stored will decay below regulated levels.

Minnesota generators have the capability to safely store LLRW at their location for at least three years, and in some cases for more than 10 years. Private vendors could provide storage services past this point. Therefore, in the short- to medium-term, the impact of a Barnwell closure to "B" and "C" wastes, if it happens, can be accommodated by Minnesota generators.

LLRW Disposal Options Relating to the Midwest Compact

There are three operating LLRW disposal facilities in the U.S. and a fourth facility may open in Texas. (The first-generation facility in Beatty, Nevada, has closed.)

The U.S. Ecology disposal facility in Richland, Washington, accepts Class A, B, and C wastes but only from states in the Northwest and Rocky Mountain Midwest Compacts.

EnergySolutions Barnwell Operations at Barnwell, S.C., accepts Class A, B, and C wastes from 39 states, including the six Midwest Compact states. Barnwell has been the disposal destination for Class B and C wastes shipped from Minnesota businesses and institutions. Class A waste typically goes to the facility at Clive.

The third U.S. facility for LLRW is EnergySolutions Clive Operations, near Clive, Utah. It has disposed of nearly 140 million cubic feet Class A LLRW since 1991 and if current discussions continue as expected, has 150 million cubic feet of disposal capacity remaining for Class A waste. Measured by volume, most of Minnesota's LLRW generation goes to this facility.

The disposal prospects are as follows for LLRW originating in the six Midwest Compact states:

- For Class A wastes: adequate space is available for another decade or more at Clive, Utah.
- For Class B and C wastes: Midwest Compact states are not relying on continued access to disposal services at Barnwell, S.C. past 2008, though this situation may change. Interim measures such as storage at the generator's location or at commercial storage companies could manage the situation without major disruption in the near term. There is no current plan to change the state license at Clive to allow such wastes for disposal. In summary, there is no commercial disposal facility guaranteed to be available after 2008 for such wastes.
- For "Greater than Class C" wastes: the U.S. Department of Energy accepts these wastes currently for storage. Permanent disposal is expected at the Waste Isolation Pilot Project near Carlsbad, N.M.

Midwest Compact Activities in 2005-2006

With the demise of the facility siting program originally tasked to each interstate compact, the main purpose of the Midwest Compact Commission is to track national and regional LLRW developments in order to ensure continuing access to disposal for LLRW generators who are located in the Midwest Compact states.

In FY 2005 the six members of the Midwest Compact provided \$25,000 in funding to support the second phase of a study by the National Research Council of the National Academy of Sciences to make recommendations about reforming the regulation of wastes that are low in radioactivity. The National Research Council report found that while government has sufficient authority to limit risks from disposal of millions of cubic feet of "low activity" wastes, current rules and laws make disposal inefficient and inconsistent. The committee recommended that government regulation be based on risk assessment and risk management rather than the type of enterprise that generated the waste.

Development of risk-based standards is underway in the European Commission and the International Atomic Energy Agency. The full report, *Improving the Regulation and Management of Low-Activity Radioactive Wastes*, is available from the National Academies Press at: http://books.nap.edu/catalog.php?record_id=11595

The Midwest Compact Commission and its member states rely on information provided by the Low-Level Radioactive Waste Forum, a national organization of officials representing compacts

and states. The Midwest Compact Commission pays membership fees for access to the Forum's regular updates.

MPCA will continue to track disposal availability issues that may affect Minnesota generators. MPCA will monitor developments to ensure that environmentally safe disposal options are available into the foreseeable future. MPCA staff will remain active participants in the Midwest Compact Commission and will continue tracking national LLRW-related developments. Minnesota's member on the compact commission is MPCA Deputy Commissioner Leo Raudys, and MPCA staff member Jim Chiles is his alternate.

Appendix

Selected Statutes and Laws Pertinent to the Midwest Compact (Source: Minnesota Statutes 2004)

116C.833

116C.833 Midwest Compact commission member.

Subdivision 1. Commissioner. The commissioner of the Pollution Control Agency shall serve as Minnesota's voting member of the Interstate Commission. The commissioner shall tender the state's membership fee to the Interstate Commission by August 1, 1983, or, if the commission has not come into existence by August 1, 1983, when the first meeting of the commission is convened as provided in the Midwest Compact.

Subd. 2. Biennial report. In addition to other duties specified in sections 116C.833 to 116C.843, the commissioner shall report by January 31, 1997, and biennially thereafter, to the governor and the legislature concerning the activities of the Interstate Commission. The report shall include any recommendations the commissioner deems necessary to assure the protection of the interest of the state in the proper functioning of the Midwest Compact. The commissioner also shall report to the governor and the legislature any time there is a change in the status of a host state or other party states in the Midwest Compact.

HIST: 1983 c 353 s 3; 1987 c 186 s 15; 1996 c 428 s 4



Minnesota Pollution Control Agency

**Activities of the Midwest
Interstate Low Level
Radioactive Waste Compact
Commission
2005-2006 Biennial Report**

For more information on the Compact Commission, contact Jim Chiles at (651) 296-7273 at the Minnesota Pollution Control Agency or via electronic mail at jim.chiles@state.mn.us.

The MPCA may be contacted at (651) 296-6300, toll-free/TDD at (800) 657-3864, or through the MPCA's web site at <http://www.pca.state.mn.us>.

This report cover is printed on paper containing 100% post consumer waste, and the report contents on paper containing at least 20 percent post consumer waste.