

September 28, 2006

Mr. Ben Baker
Project Manager
Michigan Operators
47 Bldg.
Midway, MI 48667

SUBJECT: RELEASE OF THE DOW CHEMICAL COMPANY, BAY CITY, MICHIGAN SITE,
AND TERMINATION OF LICENSE (LICENSE NO. STB-527)

Dear Mr. Baker:

This letter is to inform the Dow Chemical Company (TDCC) that the U.S. Nuclear Regulatory Commission (NRC) has terminated NRC License STB-527 and is authorizing the release of land at the Bay City, Michigan site for unrestricted use.

TDCC has completed final status surveys (FSSs) at the site in accordance with the approved Decommissioning Plan (DP). Based on the NRC's review of those surveys and the results of NRC confirmatory surveys, NRC concludes that the site is suitable for unrestricted use. A Safety Evaluation Report (SER) which supports this conclusion is attached.

NRC does not plan to take any further actions regarding TDCC site and will not require additional decommissioning in response to future NRC criteria or standards, unless additional contamination is found that is a significant threat to public health and safety.

We have discussed this action with the staff of the Michigan Department of Environmental Quality, and they have no objections. However, release of TDCC site for unrestricted use does not relieve TDCC from complying with other local, state, and federal requirements.

B. Baker

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If you have any questions on this matter, please contact David Nelson, Project Manager for the site, at: (301) 415-6626.

Sincerely,

/RA/

Keith I. McConnell, Deputy Director
Decommissioning Directorate
Division of Waste Management
and Environmental Protection
Office of Nuclear Material Safety
and Safeguards

Docket No.: 040-00017

License No.: STB-527

Enclosures:

1. Amendment 13 to STB-527
2. Safety Evaluation Report

cc: TDCC Distribution List

B. Baker

- 3 -

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cc: TDCC Distribution List

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| NAME | DNelson | RTadesse | STreby | KMcConnell |
| DATE | 9/21/06 | 9/21/06 | 9/26/06 | 9/27/06 |

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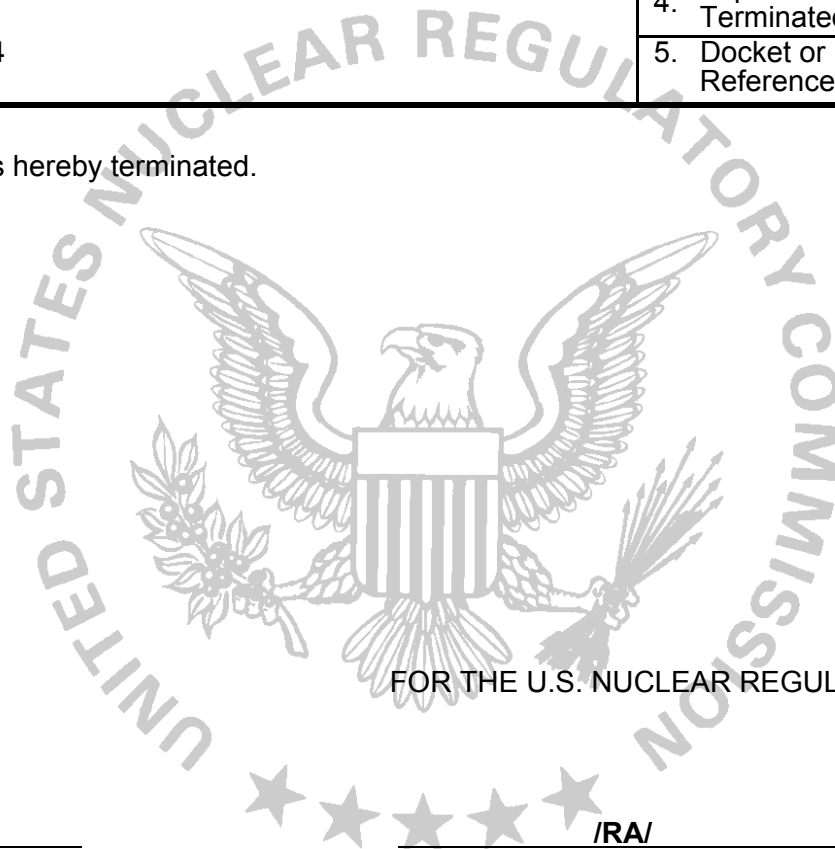
Enclosure 1:
Terminated License

MATERIALS LICENSE

Amendment No. 13

| | |
|---|--|
| Licensee | |
| 1. The Dow Chemical Co. | 3. License Number |
| 2. 2020 Dow Center Midland, MI 48674 | 4. Expiration Date Terminated |
| | 5. Docket or Reference Not Applicable |

License STB-527 is hereby terminated.



FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Dated: 9/27/06

/RA/

Keith I. McConnell, Deputy Director
 Decommissioning Directorate
 Division of Waste Management
 and Environmental Protection
 Office of Nuclear Material Safety
 and Safeguards

DOCKET NO: 040-00017

LICENSE NO: STB-527

FACILITY: THE DOW CHEMICAL COMPANY (TDCC), BAY CITY, MI

SUBJECT: SAFETY EVALUATION REPORT FOR ISSUANCE OF AMENDMENT NO. 13
TO MATERIALS LICENSE NO. STB-527, TDCC (TAC #60463)

1. EXECUTIVE SUMMARY

This Safety Evaluation Report (SER) has been prepared as part of the U.S. Nuclear Regulatory Commission (NRC) staff's review of the Dow Chemical Company's (TDCC) request to terminate license No. STB-527 and release Dow's Bay City, MI, site for unrestricted use. On-site decommissioning activities included excavation of contaminated soils, loading contaminated soil and shipment to a waste disposal facility, and conducting final status surveys (FSS). The NRC conducted multiple inspections and confirmatory surveys at the site.

Based on this safety evaluation and review of the FSS reports, NRC has determined that the licensee has provided sufficient information to terminate License No. STB-527. The NRC concludes that the site meets the NRC's radiological criteria for unrestricted use (10 CFR Part 20.1401).

2. FACILITY OPERATING HISTORY

The radioactive material at the Bay City, Michigan site consisted primarily of foundry slag containing low-levels of thorium. This material was produced in the period from 1940 to 1970 as the residual material from the production of magnesium-thorium alloy. This lightweight alloy was used for defense purposes, including aircraft engines and aeronautical structural components. The slag was originally stored in piles at this site (Bay City) and a site in Midland, Michigan. Some other thorium-contaminated material from a decommissioned third site was added to the Bay City pile in 1985.

A single license (STB-527) was originally granted by the Atomic Energy Commission in 1973 for the Bay City and Midland sites to store up to 200,000 pounds of thorium as slag. In July, 1996, the license was amended (Amendment 6) to allow the removal of the slag from the Bay City and Midland sites. The amendment also incorporated a Decommissioning Work Plan (October 12, 1993) and a Supplement to the Decommissioning Work Plan (December 6, 1995) into the license. In 1997, the license was amended (Amendment 7) to approve the use of alternate Site Decommissioning Management Plan (SDMP) criteria at the site, and to approve the final survey plan for both sites. The 1993 Work Plan, the 1995 supplement to the Work Plan, the Amendment 7 release criteria, and final survey plan were consolidated in amendment 7 and became the Decommissioning Plan (DP). Opportunities for hearings regarding the DP were offered to the public in support of Amendments 6 and 7 in *Federal Register* Notices published July 19, 1996 (Volume 61, Number 140), and July 10, 1997 (Volume 62, Number 132). The Midland site was adequately decommissioned and removed from the license on March 31, 1978 (Amendment 8).

The size of the contaminated area at the Bay City site is approximately 41 acres. After the remediation of approximately 32 acres of the stockpiled surface material, Dow discovered that there was a significant volume of contaminated material in the remaining 9.1 acres below the water table, in the saturated zone. In 2005, the license was amended (Amendment 12) to incorporate Revision 2 of the Supplement to the DP. Revision 2 addressed the material remaining in the 9.1 acres as well as potentially contaminated surfaces on four temporary structures on site, and surface soil contamination within two small pieces of land located adjacent to the site.

3. FACILITY DESCRIPTION

The site is located adjacent to the Saginaw River near the discharge to Saginaw Bay. The site is surrounded by a series of industrial service water ditches located to the north, west, and south. The only access to the site is through a gated fence and the only permanent structures near the site include the Old Coast Guard Lighthouse to the north and a water pump house adjacent to the southern service water ditch near the Saginaw River. Most of the topography can be characterized as generally flat, low lying land. Most of the variation in topography is a result of excavated areas, or due to the temporary flood control earthen berm located along the eastern and northern sides of the site. Following remediation, the only facilities left on site include a pole barn and a truck ramp for loading railcars.

4. RADIOLOGICAL STATUS OF FACILITY

TDCC intends to release the site for unrestricted use in compliance with the requirements of 10 CFR Part 20 Subpart E. Therefore, residual radioactivity levels cannot exceed those detailed in letters dated:

- October 6, 2005, "Amendment No 12 to Source Material License No. STB-527 Authorizing the Incorporation of Changes to License Conditions and Changes to the Decommissioning Plan (DP) for the Dow Chemical Company (TDCC) Bay City MI. Site into the License" (ADAMS ML052550213),
- April 13, 2005, "Revised RAs and Revision 2 of Supplement to the Decommissioning Plan for the TDCC Bay City, MI, Site" (ADAMS ML0510040383),
- July 21, 1997, "Issuance of License Amendment to the Dow Chemical Company to Approve the Decommissioning Criteria and Final Survey Plan for the Decommissioning of Thorium Contaminated Slag Storage Piles at the Dow Chemical Company's Sites in Midland and Bay City, Michigan" (ADAMS ML050750212).

Residual radioactivity must also be at levels that are as low as reasonably achievable.

In letters dated March 1, 2003, January 24, 2005, March 24, 2006, July 13, 2006, August 28, 2006, September 6, 2006, and September 12, 2006, TDCC submitted the FSS reports (FSSRs) for the entire site. The staff reviewed the reports and conducted multiple on-site inspections and confirmatory surveys. Review of the FSSRs and the results of the NRC's inspections and surveys confirmed that TDCC has met the release criteria in the DP, and that its Bay City site can be released for unrestricted use. The staff performed a dose assessment of the site, which considered multiple scenarios including recreational and industrial use of the land, which were considered reasonably foreseeable land uses. A bounding scenario of using the land for residential use was also evaluated. The dose assessments all were less than 0.25 milliSievert/year (25 millirem/yr).

5.0 Documents Required for License Termination

NRC license termination regulations also have requirements for forwarding specific records to the NRC prior to license termination. The licensee has met these requirements prior to license termination to the extent applicable.

6.0 Environmental Considerations

Pursuant to 10 CFR Parts 51.21, 51.32, and 51.35, an environmental assessment (EA) and a finding of no significant impact (FONSI) was published in the Federal Register on July 25, 2005 (70 FR 141), for approval of Revision 2 to the Supplement to the DP. Accordingly, no EA or FONSI will be prepared for the termination of License No. STB-527.

7.0 Summary and Conclusion of Safety Evaluations

NRC staff finds that the licensee has completed decommissioning in accordance with its approved DP. Therefore, the staff concludes that the site is acceptable for unrestricted use with no further action, and the license can be terminated.

8.0 Principle Contributors

David Nelson, Project Manager
Duane Schmidt, Senior Health Physicist

9.0 References

- Nuclear Regulatory Commission, "Decision Methods for Dose Assessment to Comply With Radiological Criteria For License Termination." NUREG-1549, July 1998. Office of Nuclear Regulatory Research. Washington, DC.
- Nuclear Regulatory Commission,, "Amendment No 12 to Source Material License No. STB-527 Authorizing the Incorporation of Changes to License Conditions and Changes to the Decommissioning Plan (DP) for the Dow Chemical Company (TDCC) Bay City MI. Site into the License", October 6, 2005, ADAMS ML052550213.
- Nuclear Regulatory Commission, "Issuance of License Amendment to the Dow Chemical Company to Approve the Decommissioning Criteria and Final Survey Plan for the Decommissioning of Thorium Contaminated Slag Storage Piles at the Dow Chemical Company's Sites in Midland and Bay City, Michigan", July 21, 1997, ADAMS ML050750212.
- The Dow Chemical Company, "Revised RAIs (Request for Additional Information) and Revision 2 of Supplement to the Decommissioning Plan for the TDCC Bay City, MI, Site" April 13, 2005, ADAMS ML051040383.
- The Dow Chemical Company, "Response to NRC RAI dated January 12, 2004 on Revision 1 of the Final Status Survey Reports for Areas VA-I through VA-VI", January 25, 2005, ADAMS ML050330360.
- The Dow Chemical Company, "Final Status Survey Report for VA-I, VA-II, VA-III, VA-VI, VA-V, and VA-VI Magnesium-Thorium Slag Storage Areas," Revision 1, March 1, 2003, ADAMS ML032820323.
- Final Status Survey Report for Survey Units 1 and 2 of Remaining 9.2 Acres of TDCC Bay City, MI, Site," March 24, 2006, ADAMS ML062360348.
- Final Status Survey Report for Survey Units 3 and 4 of Remaining 9.2 Acres of TDCC Bay City, MI, Site," July 13, 2006, ADAMS ML062360351.
- Final Status Survey Report for Support Zone Area, the Personnel Decontamination Building and Survey Unit 5 of Remaining 9.2 Acres of TDCC Bay City, MI, Site," August 28, 2006, ADAMS ML062440062, ML062440063, ML062360351.

- Final Status Survey Report for the Rail Loading Area for the TDCC Bay City, MI, Site,” July 13, 2006, ADAMS ML062570186.
- The Dow Chemical Company, “Response to Remaining Two Comments from NRC Letter Dated January 12, 2004, Evaluation of Revision 1 of Final Survey Reports for Areas VA-I through VA-VI, Dow Chemical Company’s Bat City Site. ADAMS ML040130662.
- Nuclear Regulatory Commission, Method for Surveying and Averaging Concentrations of Thorium in Contaminated Subsurface Soil, February 1997.
- NUREG-5849, Manual for Conducting Radiological Surveys in Support of License Termination, June 1992.
- NUREG-1757, Volume 1, Rev. 1, Consolidated NMSS Decommissioning Guidance, Decommissioning Process for Materials Licensees, Final Report, September 2003.
- Title 10 Code of Federal Regulations, Part 20, Subpart E, “Radiological Criteria for License Termination”.
- Title 10, Code of Federal Regulations, Part 51, “Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions”.

TDCC Site Remediation Service List

cc:

Rhonda Klann
Remediation and Redevelopment Division
Saginaw Bay District Office
Michigan Department of Environmental
Quality
503 N Euclid Avenue
Bay City, MI 48706

David Fauver
Director, Decommissioning Services
1840 Termination Drive
Richland, WA 99352

Thor Strong
Waste and Hazardous Materials Division
Michigan Department of Environmental
Quality
P. O. Box 30241
Lansing, MI 48909-7741

Mr. Dennis Fedewa
Chief Deputy
Michigan Department of Natural Resources
P. O. Box 30028
Lansing, MI 48909