

March 6, 2001

Mr. Ben Baker  
Project Manager  
The Dow Chemical Company  
9008 Bldg., Office 154  
Midland, Michigan 48674

SUBJECT: APPROVAL OF HEALTH AND SAFETY PLAN DATED JANUARY 2001 AND  
AMENDMENT OF THE DOW CHEMICAL COMPANY LICENSE (TAC# L60463)

Dear Mr. Baker:

In accordance with statements and representations specified in your license amendment request submittals dated October 5, 1998, February 1, 2000, March 3, 2000, August 22, 2000, November 27, 2000, January 2001 and February 7, 2001, and pursuant to Title 10, Code of Federal Regulations, Part 40, the U.S. Nuclear Regulatory Commission (NRC) hereby issues Amendment No. 11 to Source Materials License No. STB-527 (Enclosure 1). Dow currently holds NRC's Materials License No. STB-527 for possession of thorium at its Bay City site in Michigan. Amendment No. 11 to License No. STB-527 approves in Condition 14, the Radiological Health and Safety Plan (RHSP) pertaining to the decommissioning of the thorium slag storage piles at the Dow Chemical Company's (Dow's) site in Bay City, Michigan.

On October 5, 1998, Dow requested the NRC to amend License STB-527 to incorporate revisions to the Radiological Health and Safety Plan (RHSP) and the corresponding Standard Operating Procedures (SOPs). The NRC staff reviewed the RHSP and SOPs and on December 8, 1999, requested additional information (RAI).

On February 1, 2000, Dow responded to the NRC staff comments dated December 8, 1999. After reviewing Dow's responses dated February 1, 2000, some unresolved issues and comments were discussed with Dow staff in a teleconference call on February 28, 2000. In a letter dated March 3, 2000, Dow committed to provide additional information and clarification on the issues and comments which were not adequately addressed in Dow's February 1, 2000, responses. In a letter dated April 3, 2000, the NRC staff documented the commitments made by Dow to address the unresolved issues. On August 22, 2000, Dow submitted a revised RHSP dated June 2000 (Revision 01). The NRC staff reviewed the June 2000 RHSP, and asked questions and requested clarification from Dow on some items during a teleconference call on September 23, 2000. Based on the September 23, 2000, teleconference call, Dow submitted on November 27, 2000, replacement pages for the June 2000 RHSP, with additional information and clarification on some issues. Based on the review of the November 27, 2000, submittal and input by the NRC staff, Dow made minor revisions and resubmitted the RHSP in January 2001 (Revision 02).

The NRC staff's review of the license amendment request is documented in a Safety Evaluation Report (Enclosure 2).

The NRC staff has concluded that this license amendment concerns administrative changes and meets the requirements, for a categorical exclusion in accordance with 10 CFR 51.22(c)(11), because: (i) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite; (ii) there is no significant increase in individual or cumulative occupational radiation exposure; (iii) there is no significant construction impact; and (iv) there is no significant increase in the potential for, or consequences from radiological accidents. Therefore, neither an environmental assessment nor an environmental impact statement is required.

As indicated in your letter dated February 7, 2001, ground water monitoring will be conducted by Dow as part of the final decommissioning at the Bay City site and this information will be included in a planned license amendment request that will be submitted in April 2001. Because ground water assessment is required at the Bay City site for license termination, ground water monitoring is included as License Condition 14.A.

New license condition 14 to the NRC License No. STB-527 reads as:

- 14.A. The Dow Chemical Company shall conduct ground water monitoring at the Bay City site in accordance with the letter dated February 7, 2001, and include a ground water assessment in a proposed revision to the decommissioning plan.
- 14.B. The radiological health and safety issues during decommissioning at the Bay City site by the Dow Chemical Company shall be governed by the Radiological Health and Safety Plan dated January 2001 (Revision 02).

All other conditions of this license will remain the same. Please review the enclosed revised Materials License No. STB-527. If you have any questions, please contact Sam Nalluswami of my staff, at (301) 415-6694.

Sincerely,

*/s/*

Larry W. Camper, Chief  
Decommissioning Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

Docket No.: 040-00017  
License No.: STB-527

Enclosures: 1. Materials License STB-527  
2. Safety Evaluation Report

cc: D. Minnaar, MDEQ

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Sincerely,

Larry W. Camper, Chief  
Decommissioning Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
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Docket No.: 040-00017 License No.: STB-527

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cc: D. Minnaar, MDEQ

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**MATERIALS LICENSE**

**Amendment No. 11**

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and the applicable parts of Title 10, Code of Federal Regulations, Chapter I, Parts 19, 20, 30, 31, 32, 33, 34, 35, 36, 39, 40, 51, 70, and 71, and in reliance on statements and representations heretofore made by the licensee, a licensee is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

<b>Licensee</b>		<b>3. License Number</b>  <b>STB-527 is amended In its entirety to read as follows:</b>
<b>1. The Dow Chemical Co.</b>		
<b>2. 2020 Dow Center Midland, MI 48674</b>		
		<b>4. Expiration Date</b>  <b>June 30, 2003</b>
		<b>5. Docket or Reference</b>  <b>040-00017</b>
<b>6. Byproduct, Source, and/or Special Nuclear Material</b>	<b>7. Chemical and/or Physical Form</b>	<b>8. Maximum Amount that Licensee May Possess at Any One Time Under This License</b>

- |                   |   |   |
|-------------------|---|---|
| <b>A. Thorium</b> | <b>A. Contaminated soil, sludge, sediment, trash, building rubble, structures, and any other contaminated material.</b> | <b>A. All residual contamination which currently exists at Dow's Bay City, MI, site</b> |
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**CONDITIONS**

- 9. Authorized Use:** Licensed material shall be possessed and used during site activities leading to its removal from the Bay City site in accordance with the statements, representations, and procedures contained in the amendment request dated October 12, 1995; and the supplemental information submitted by letters dated December 6, 1995; March 11, 1996; May 24, 1996.
- 10. Authorized Place of Use:** The existing Dow site in Bay City, MI.
- 11. A. Licensed materials shall be kept under the supervision of the Radiation Safety Officer, who shall have the following education, training, and experience:**
  - 1. Education:** A bachelor's degree in the physical sciences, industrial hygiene, or engineering from an accredited college or university or an equivalent combination of training and relevant experience in radiological protection. Two years of relevant experience are generally considered equivalent to one year of academic study.
  - 2. Health physics experience:** At least one year of work experience in applied health physics, industrial hygiene, or similar work relevant to radiological hazards associated with site remediation. This experience should involve actually working with radiation detection and measurement equipment, not strictly administrative or "desk" work.

**MATERIALS LICENSE  
SUPPLEMENTARY SHEET**

License Number **STB-527**

Docket or Reference  
Number **040-00017**

Amendment No. **11**

3. **Specialized knowledge:** A thorough knowledge of the proper application and use of all health physics equipment used for thorium and its daughters, the chemical and analytical procedures used for radiological sampling and monitoring, methodologies used to calculate personnel exposure to thorium and its daughters, and a thorough understanding of how thorium was used at the location and how the hazards are generated and controlled.
- 11.B. The licensee, without prior NRC approval, may appoint a Radiation Safety Officer provided: a) the licensee maintain documentation demonstrating that the requirements of condition 11A are met; and b) the NRC is informed of the name of the new Radiation Safety Officer by letter to the Regional Administrator, [Region III], within 30 days of the appointment.
- 12.A. The Dow Chemical Company shall conduct the final survey of the Bay City site in accordance with the final survey plans submitted by letters dated October 12, 1993; December 6, 1995; March 11, 1996; and March 31, 1997.
- 12.B. The Dow Chemical Company shall use the release criteria for surfaces and soil established in submittal of March 11, 1996.
13. Decommissioning at the Bay City site shall be completed by December 31, 2002.
- 14.A. The Dow Chemical Company shall conduct ground water monitoring at the Bay City site in accordance with the letter dated February 7, 2001, and include a ground water assessment in a proposed revision to the decommissioning plan.
- 14.B. The radiological health and safety issues during decommissioning at the Bay City site by the Dow Chemical Company shall be governed by the Radiological Health and Safety Plan dated January 2001 (Revision 02).

FOR THE U.S. NUCLEAR REGULATORY COMMISSION

Dated: \_\_\_\_\_ By: \_\_\_\_\_ /s/  
 Larry W. Camper, Chief  
 Decommissioning Branch  
 Division of Waste Management  
 Office of Nuclear Material Safety  
 and Safeguards