

March 20, 2000

Mr. Ben Baker
Project Manager
The Dow Chemical Company
1261 Building
Midland, MI 48667

SUBJECT: REPORT OF THE MEETING HELD ON MARCH 3, 2000, AT THE
U.S. NUCLEAR REGULATORY COMMISSION HEADQUARTERS

Dear Mr. Baker:

I am enclosing a report of the meeting between the U.S. Nuclear Regulatory Commission (NRC) and DOW Chemical Company, held at NRC Headquarters, in Rockville, Maryland, on March 3, 2000 (Enclosure 1). In addition, I have enclosed the list of attendees that participated in the meeting (Enclosure 2), and a copy of Dow Chemical Company's Presentation Overviews (Enclosure 3).

If you have any questions on the meeting report, please contact Sam Nalluswami of my staff at (301) 415-6694.

Sincerely,
[Original signed by:]
Larry W. Camper, Chief
Decommissioning Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Docket: 040-00017
License STB-527

Enclosures:

- 1. Meeting Report
- 2. List of Attendees
- 3. Dow's Presentation Overviews

cc: D. Minnaar, MDEQ

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DF03.

From: Bruce Jorgensen
To: Sam Nalluswami
Date: Thu, Mar 16, 2000 4:50 PM
Subject: Re: DOW - CONCURRENCE ON MARCH 3, 2000, MEETING REPORT

You have my concurrence.

Regards,

>>> Sam Nalluswami 03/16 2:23 PM >>>
Bruce/Ed:

Please review and provide your input/concurrence on the attached letter enclosing the report of the meeting held on March 3, 2000, at the NRC headquarters. Ed Kulzer attended the meeting. Janette Copeland (Licensing Assistant), Robert Nelson and myself have concurred. After your concurrence, I will give it to my Branch Chief for his review and concurrence.

If you have any questions, please contact me. Thanks.

Sam N.

From: Sam Nalluswami
To: Bruce Jorgensen , Edward Kulzer
Date: Thu, Mar 16, 2000 3:23 PM
Subject: DOW - CONCURRENCE ON MARCH 3, 2000, MEETING REPORT

Bruce/Ed:

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If you have any questions, please contact me. Thanks.

Sam N.

CC: Robert Nelson



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

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cc: D. Minnaar, MDEQ

ENCLOSURE 1

MEETING REPORT

Date: March 3, 2000

Time: 9:00 a.m. until 11:00 a.m.

Place: U.S. Nuclear Regulatory Commission
11545 Rockville Pike, Room: T-7C1
Rockville, Maryland 20852

Purpose: To discuss the status of Dow Chemical Company's Bay City, Michigan decommissioning project.

Attendees: [Enclosure 2]

Background:

The meeting was requested by the licensee to brief the NRC staff and to discuss Dow Chemical Company's (DOW's) decommissioning project with regard to the remaining remediation work at the Bay City site, and the associated technical, schedule, financial assurance, and related issues. The licensee's presentation overview is enclosed (Enclosure 3). In addition, the removal of the Midland site from DOW's license was also discussed.

Discussion:

1. The licensee was notified that the NRC staff tentatively proposed to visit the Bay City site sometime in April/May 2000.
2. According to the licensee the site is fenced and no offsite migration has occurred. Some remediated areas have been released earlier.
3. Discussion on the decommissioning plan, site characteristics, sampling methods, characteristics of contaminated material, site/remediation status, site radiological surveys, hot spot criteria, groundwater, challenges of meeting the existing Site Decommissioning Management Plan (SDMP) cleanup criteria, excavation challenges and related items were discussed. The approved decommissioning plan did not anticipate the extensive excavation that was determined to be required as remediation progressed. The best strategy to finish the task was explored including risk-based versus concentration-based approaches.
4. NRC staff informed DOW of the need for filing an application for extension of the time needed to complete decommissioning because the decommissioning plan was approved more than 24 months ago.
5. Completion of the remaining work under either the SDMP Action Plan (concentration) criteria or the License Termination Rule (dose basis) was explored.

Actions:

Because the decommissioning plan was approved more than 24 months ago, the licensee must submit an amendment request to extend the time period for decommissioning [see 10 CFR 40.42(h)(2)].

ENCLOSURE 2

SUBJECT OF MEETING: DOW CHEMICALS
DECOMMISSIONING ISSUES
SIGN UP SHEET

DATE: 3/3/2000

LOW AND DECOMMISSIONING PROJECTS BRANCH/DWM/NMSS
 U.S. NUCLEAR REGULATORY COMMISSION

NAME	ORGANIZATION	TEL. NO.:
ED KULZER	US NRC Region III	(639) 9875
BEN BAKER	The Dow Chemical Company	(517) 6360787
Coney McDaniel	The EOP Group	(202) 833-8940
Joe Herzir	" "	() " "
Sam Nallessian	NRC (NMSS) / DWM / DEB	(301) 415 6694
Rich Clement	NRC NMSS / DWM PCB	(301) 415-6125
Bob Nelson	NRC NMSS / DWM PCB	(301) 415 7290
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ENCLOSURE 3

Presentation Overview

- 1) Characteristics of the Site
- 2) Characteristics of Contaminated Material
- 3) Site/Remediation Status
- 4) Site Survey
- 5) Challenges of Meeting Existing SDMP Soil Concentration Criteria
- 6) Possible “Critical Group” Assumptions
- 7) Excavation Challenges

Characteristics of the Site

- Entire site is at or below the water table (i.e., wetlands); requires 404 permit to excavate (permit expires 5/2000)
- Site floods during winter, winds often blow river above site elevation
- “Ponds” as deep as 10 feet resulted from past subsurface excavations
- Site is “pocked”; surface contamination depth varies widely
- Wetland vegetation grows (thrives) on-site
- Cat-tail vegetation covers the site within months of inactivity
- Site is nestled within zoned industrial facilities and undeveloped wetlands owned by Dow and other companies.
- No public road access, nearest public road 1/4 mile, resident 1/2 mile
- No physical access to site other than recreational boats, intruders
- Boat intruders illegally visit/hunt on-site several times per year

Characteristics of Contaminated Material

- Thorium and daughters are insoluble (no well contaminants detected)
- Daughters are ~30 years born, resulting in maximum Th-232 exposure
- No detection/indications of any air, water, or surface migration
- Contamination is secure in place (i.e., immobile)
- Visible appearance varies (i.e., metal, slag, powder, soil, mixed)
- Contamination is not identifiable/removable with an untrained eye
- Non-homogenous, no consistent average concentration
- Some subsurface veins, some isolated spots, no uniform point source
- Subsurface veins are unpredictable and uncharacterizable
- Surface and subsurface “shine” confound survey data

Site/Remediation Status

	Original SDMP (Fall 1997)	Current Status
Area	25 acres	8 acres (17 acres free-release)
Estimated Volumes	48,000 cyds	>80,000 cyds shipped off-site
Cost	\$15 million estimated	> \$23 million spent

Site Survey

- 363 grids total have not been free-released
- 220 grids are below 5 pCi/g
- 54 grids are above between 5 and 10 pCi/g
- 39 grids are above 10 pCi/g
- 50 grids are still unsampled (under water)
- Site average concentration is about 15 pCi/g (mean is 11.5 pCi/g)

Challenges of Meeting Existing SDMP Soil Concentration Criteria

- Contamination is indistinguishable from uncontaminated soil
- Substantially more uncontaminated than contaminated soil is typically excavated
- “Ponds” are a safety hazard to trespassers, must be pumped to survey
- Contamination is largely below the watertable (excavation leads to flooding)
- Excavation of the remaining area could require extensive subsurface (underwater) remediation operations to meet SDMP criteria (may be technically infeasible)
- Unpredictable technical and scheduling uncertainties due to unknown extent of subsurface contamination (may be prohibitively expensive)
- Past excavations on a smaller scale presented worker risks, environmental damage, other hazards

Possible “Critical Group” Assumptions

- Full-time resident is not plausible for wetland conditions
- Recreational intruder is the most likely/probable MEI
- Non-resident farmer also plausible
- >95% of intruder exposure is from external radiation pathway
- Off-site exposure is negligible (no migration demonstrated)
- Site location is unattractive for regular public access/use
- Conservative recreational intruder scenario may entail spending up to 2 half days on-site per month, or ~3% (best guess estimate)

Excavation Challenges

- Some grids have relatively low soil concentrations, but high surface scans - - suggesting subsurface contamination.
- Contamination is unevenly distributed (pock-marked). More than half of the remaining area (220 grids) is at levels less than 5 pCi/g (average ~3.5 pCi/g) and have an average concentration of 3.5 pCi/g, but these grids are not contiguous - - complicating free release sequencing.
- Grids with relatively high soil concentrations levels are largely in the “drying area”, but they also cover several isolated spots. Extensive excavation of the drying area is made difficult by flooding over a very large portion of the site.