



RESPONSE TO FREEDOM OF
INFORMATION ACT (FOIA) REQUEST

FOIA - 94-403

RESPONSE TYPE

FINAL

☒ PARTIAL ☐ ST

DATE

DEC - 9 1994

DOCKET NUMBER(S) (if applicable)

REQUESTER

W. Brad Sims

PART I. AGENCY RECORDS RELEASED OR NOT LOCATED (See checked boxes)

No agency records subject to the request have been located.

No additional agency records subject to the request have been located.

Requested records are available through another public distribution program. See Comments section.

Agency records subject to the request that are identified in Appendix(es) _____ are already available for public inspection and copying at the NRC Public Document Room, 2120 L Street, N.W., Washington, DC.

Agency records subject to the request that are identified in Appendix(es) _____ are being made available for public inspection and copying at the NRC Public Document Room, 2120 L Street, N.W., Washington, DC, in a folder under this FOIA number.

The nonproprietary version of the proposal(s) that you agreed to accept in a telephone conversation with a member of my staff is now being made available for public inspection and copying at the NRC Public Document Room, 2120 L Street, N.W., Washington, DC, in a folder under this FOIA number.

Agency records subject to the request that are identified in Appendix(es) _____ may be inspected and copied at the NRC Local Public Document Room identified in the Comments section.

XX Enclosed is information on how you may obtain access to and the charges for copying records located at the NRC Public Document Room, 2120 L Street, N.W., Washington, DC.

* Agency records subject to the request are enclosed.

Records subject to the request have been referred to another Federal agency(ies) for review and direct response to you.

Fees

You will be billed by the NRC for fees totaling \$ _____.

You will receive a refund from the NRC in the amount of \$ _____.

In view of NRC's response to this request, no further action is being taken on appeal letter dated _____, No. _____.

PART II. A—INFORMATION WITHHELD FROM PUBLIC DISCLOSURE

X Certain information in the requested records is being withheld from public disclosure pursuant to the exemptions described in and for the reasons stated in Part II, B, C, and D. Any released portions of the documents for which only part of the record is being withheld are being made available for public inspection and copying in the NRC Public Document Room, 2120 L Street, N.W., Washington, DC in a folder under this FOIA number.

COMMENTS

*Enclosed is a computer printout of records which are already available in the NRC Public Document Room. We have enclosed a notice which provides information on how you may obtain access to records in the Public Document Room.

The review of one remaining document is continuing. We will contact you upon completion of the review.

SIGNATURE, DIRECTOR, DIVISION OF FREEDOM OF INFORMATION AND PUBLICATIONS SERVICES

9611270132 961114

PDR FOIA

SIMS96-380

PDR

Mr. Hayden G. Schoen
Senior Environmental Specialist
Dow Chemical U.S.A.
1261 Building
Midland, Michigan 48657

Dear Mr. Schoen:

Enclosed are the Nuclear Regulatory Commission staff comments regarding the review of the Health and Safety Plan, submitted October 12, 1995, the 1993 Decommissioning Work Plan, submitted October 12, 1993, and the 1995 Supplement to the Decommissioning Work Plan, submitted December 6, 1995, for the decommissioning of Dow's Midland and Bay City, Michigan, magnesium-thorium slag piles.

In order for us to complete our review of these documents, such that we may amend your license to approve your proposed work activities, it is necessary that you provide a written response to these comments to this office within 45 days from the date of this letter.

Should you have any questions regarding the above, please do not hesitate to contact Jack Parrott, of my staff, at (301) 415-6700.

Sincerely,

Michael F. Weber, Chief
Low-Level Waste and Decommissioning
Projects Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Docket: 40-17
License: STB-527

Enclosures: As stated

cc: See attached list

B/1

DISTRIBUTION LIST:

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NRC Comments on Dow Chemical Company's
1995 Supplement to the Decommissioning Work Plan for the
Mg-Th Piles at Dow's Midland & Bay City Sites

1. Section 1.0 INTRODUCTION

- A. There needs to be a declaration here that the statements and commitments made in this supplement to the decommissioning plan supersede any conflicting statements and commitments made in the original decommissioning plan.
- B. NRC will not allow the movement of material from Midland to Bay City without reasonable assurance that the material will then be moved to Envirocare. Please provide a copy of the signed agreement between Dow and Envirocare which indicates Envirocare's acceptance of the material.

2. Section 2.1 PROJECT ORGANIZATION

This section needs to describe and identify the level of management that has the authority to commit funds and make license commitments for this decommissioning project.

3. Section 2.2.1 Midland Material

- A. Identify the route or routes that will be used to transport material from Midland to Bay City. Will the trucks be checked for external contamination upon receipt of material in Bay City? Provide procedures for identification of loss of material during transport from Midland to Bay City.
- B. Provide the procedure for screening soil and other materials that will be segregated into contaminated and uncontaminated portions.

4. Section 2.2.2 Bay City Site

How will the area to be cleared for the laboratory be verified clean? In any case, this area will need to be resurveyed for the final status survey since licensed activities (the lab) will have been conducted there.

5. Section 2.2.3 Material Handling

This section states that all the Dow material will be moved inside the fenced area at the Bay City site where it will be mixed to achieve a relatively uniform radiation level, a requirement for disposal at Envirocare. This mixing procedure does not appear to be the ALARA alternative for handling this material. Can the loading of this material into the train cars be done in a way to provide for the required mixing?

6. Section 2.3 PROJECT SCHEDULE

Provide a revised schedule for remediation activities and a commitment to notify NRC whenever significant phases of the decommissioning are to be conducted. This will allow NRC the opportunity to observe and inspect the work.

7. Table 2.1 COST ESTIMATE

According to this table the cost for the proposed decommissioning method is \$18,830,000. The current financial assurance mechanism for Dow license STB-527 is valued at \$4,800,000. Because the decommissioning cost estimate has changed, the financial assurance mechanism for this license should be updated per 10 CFR § 40.42(f)(4)(v).

8. Section 3.1 RELEASE CRITERIA

Provide the data which supports the thorium concentrations and isotopic ratios described here.

9. Section 3.2 REMEDIATION CONTROL SURVEY

For the Midland and Bay City sites, identify the affected and unaffected areas, per NUPFG/CR-5849, that will be used for the final status survey.

NRC Comments on Dow Chemical Company's
1993 Decommissioning Work Plan for the
Mg-Th Piles at Dow's Midland & Bay City Sites

1. Section 2.1 PROGRAM MANAGEMENT

Describe what changes to the work plan the project manager can change. There are certain aspects of the plan that should not be changed except by amendment of Dow's license.

2. Section 3.2.3 Remediation Control Survey

Is part of the remediation control survey intended to be used for the final status survey? If so, verify that the sampling and analysis scheme described here will meet the sampling sensitivity and elevated activity guidelines of NUREG/CR-5849 relative to the proposed site specific residual contamination criteria.

3. Section 3.3 SLAG/SOIL EXCAVATION AND REMOVAL PROCEDURES

Provide the procedure for screening soil and other materials that will be segregated into contaminated and uncontaminated portions.

4. Section 3.8 EQUIPMENT AND VEHICLE DECONTAMINATION STANDARDS AND PROCEDURES

The release limit for objects less than 100 cm² in area should be addressed. NRC Regulatory Guide 1.86 indicates that the release limit should be reduced proportionately to the surface area.

5. Section 3.9.1 Instrument Calibration and Operational Checks

- A. Who will do the instrument calibrations?
- B. What are the acceptance criteria?
- C. What correction factors will be applied?
- D. Will the meter be used if the daily constancy check is greater than 10 percent?
- E. There is a commitment to perform an operational check at beginning of the day, however, there should be an end of day check and periodic checks throughout the day.

6. Section 3.9.4 Laboratory Quality Control

Submit a description of laboratory instrumentation/capabilities and the name and qualifications of individuals doing the analysis.

NRC Comments on Dow Chemical Company's
Health & Safety Plan for the Decommissioning of the
Mg-Th Piles at Dow's Midland & Bay City Sites

1. Section 3.2 PERSONNEL RESPONSIBILITIES

- A. This section needs to describe and identify the level of management that has the authority to commit funds and make license commitments for radiological health and safety for this project.
- B. What percent of the time will the Radiation Safety Officer be onsite? How many health physics technicians will there be? What is the length of worker training? Is there a test for competence?

2. Section 4.0 ALARA

- A. Describe in greater detail how the ALARA program will work regarding: 1) reviews and approvals of administrative changes, i.e., how will ALARA reviews for revisions to RWPs and work instructions be documented, and 2) the establishment of administrative limits.
- B. The plan indicates that a management ALARA audit will be conducted quarterly. Given the short time frame for the decommissioning project (< 1 year) justify this audit schedule.

3. Section 5.0 BACKGROUND INFORMATION

Figure 5-1 depicts the previously surveyed area at the Bay City site. Is the surveyed area at Bay City equivalent to the affected area as defined by NUREG/CR-5849?

4. Section 9.0 WORK AREA CONTROL

What are the contamination action limits for each zone? Are they based on the NRC guidelines for release of equipment and soil contamination limits? If an RWP will be used for the contaminated zone, what work controls or descriptions or permits will be used for the other zones?

5. Section 10.0 RADIOLOGICAL MONITORING

How will compliance with internal and external radiological monitoring requirements be met (see comments 7 and 10)?

6. Section 10.1 MONITORING EQUIPMENT CALIBRATION AND MAINTENANCE

The equipment description is too general. Provide more specifics on the types of meters and probes to be used and their MDAs. For example, will 30 mg/cm² or 1.8 mg thin windows be used, NaI detectors?

7. Section 10.2 PERSONNEL MONITORING AND PROTECTIVE EQUIPMENT

- A. This section indicates that a alpha monitor will be used to check for personal contamination. Since alpha contamination is easy to mask, and due to the presence of beta-emitting thorium decay products, a thin-window GM should also be used to measure beta contamination. In fact, because of the presence of beta-emitting thorium decay products, the beta measurements can substitute for alpha measurements if an alpha to beta ratio is established. If beta measurements are used to substitute for alpha measurements, please provide the calculations, assumptions and beta limit to be applied.
- B. Confirm that the basis for not monitoring every individual who works with licensed material or in an area where licensed material is present will be documented.
- C. The air sampling program indicates that the administrative limit for airborne concentrations of radioactivity is 25 percent of the insoluble Th-230 10 CFR Part 20 limit. However, under the new Part 20, the airborne concentration of Th-232 would be limiting. NRC Regulatory Guide 8.25 recommends sampling at 10 percent of ALI. Licensee needs to specify whether they will be measuring ALIs or DACs.
- D. Since there is a commitment to use respirators for inhalation protection, the licensee must submit their respirator fitting program for review and approval or demonstrate that they satisfy the provisions of 10 CFR § 20.1701. A commitment to follow NRC Regulatory Guide 8.25 would be helpful.
- E. This section indicates that potentially contaminated personnel are going to be monitored for external radiation only. External and internal dose needs to be accounted for.
- F. A commitment to do bioassay is recommended, preferably using the guidance of NRC Regulatory Guide 8.9 and NUREG-4884, and a description of who will do the bioassays. If they are done in-house, a description of the equipment to be used and the personnel qualifications are needed.

8. Section 10.4 CLEAN AREA AND LABORATORY MONITORING

- A. Describe the location of the onsite lab.
- B. Describe the laboratory equipment that will be available.

9. Section 10.5 SAMPLE CONTROL, HANDLING, PACKAGING AND SHIPPING

What will be done with the sediment upon completion of the laboratory work? What is the significance of testing the sediments in the laboratory holding tank to ensure that the Th-232 activity is below 5

pCi/g above background? If the sediment does not meet the remediation criteria agreed upon in the decommissioning plan it must be disposed of as radioactive waste.

10. Section 11.0 GENERAL STANDARD OPERATING PROCEDURES FOR FIELD OPERATIONS

- A. It is suggested that the air sampling program follow the guidance of NRC Regulatory Guides 8.25 and 8.34.
- B. Provide the sampling, counting, and analytical procedures for air sampling. It is suggested that the sample size and counting system minimal detectable activity be such that the minimal detectable concentration is less than 10 percent of the Th-232 limit in 10 CFR Part 20, Appendix B, Table 1.
- C. The lapel personnel air sampler described may not provide a large enough volume of sample to be able to determine the Th-232 air concentration.
- D. Provide a copy of the lab QA procedures.
- E. Provide methodology for converting air sampling results into dose.

11. Section 12.0 DECONTAMINATION

- A. How were the limits in Table 12.1 derived? The Th-230 to Th-232 ratio used to calculate this table (2 to 1) has been revised in the 1995 supplement to the decommissioning plan (and cover letter) to 3 to 1. Adjust Table 12.1 accordingly.
- B. The licensee should establish a beta limit for measuring fixed contamination on buildings and equipment for unrestricted release (see comment 7A).

12. Section 12.2.3 Waste Disposal Procedures

How will contaminated wash water, and any sediment associated with it, be disposed of?

13. Standard Operating Procedure 1.10 RADIATION WORK PERMIT

- A. Clarify who can act as designee for the RSO.
- B. Does this SOP allow the health physics staff to approve a RWP with oral approval of the RSO or designee?
- C. Who reviews the RWPs?



News Release

The Dow Chemical Company
Michigan Division
Midland, MI 48667

FOR MORE INFORMATION
CONTACT: Cindy Newman
(517) 636-5783

FOR RELEASE ON: November 30, 1995

DOW CONTRACTS WITH ENVIROCARE TO DISPOSE OF LOW-LEVEL RADIOACTIVE WASTE IN UTAH

The Dow Chemical Company has contracted with Envirocare of Utah, Inc. for disposal of 60,000 cubic yards of low-level radioactive waste which has been in licensed storage on Dow property in Midland and Bay City, Michigan for up to 50 years. The waste will be shipped by rail to Envirocare's disposal site in Clive, Utah over the next year at a total cost of more than \$17 million.

From the early 1940's to the early 1970's, Dow produced a lightweight metallic magnesium alloy for use in aircraft applications. As a byproduct, the production process yielded a slag material consisting mainly of magnesium and less than 0.2 percent of thorium, a naturally occurring radioactive element, which is also a regulated radioactive substance. The thorium imparted strength to improve the structural properties of the alloy.

"The storage sites we've been using to date for this magnesium-thorium waste material have served their purpose well," said Hayden Schoen, environmental associate in Michigan Division Environmental Services and Operations. "The sites are licensed by the Nuclear Regulatory Commission (NRC) and have been continuously monitored by Dow. But we realize that we cannot leave the waste there forever. We fully anticipate that with changing environmental requirements, material of this nature will have to be placed in facilities that are specifically designed for permanent disposal of low level radioactive waste. Envirocare was chosen because we believe it fits all the needs of what future regulations will probably require."

How Radioactive Is It?

"This material is in the lowest regulatory category of radioactivity concentration," said Schoen. "If you stood on the storage site for 48 hours, you would be exposed to approximately the same amount of radiation as if you had one medical x-ray," said Schoen. Additionally, for transportation purposes, the Department of Transportation does not consider this low concentration to be radioactive, and, therefore, it does not need to be placarded as radioactive material.

Dow's current NRC license allows storage of 10 curies of thorium in Midland and Bay City. At the Midland site, about 0.5 curies of the slag material is contained in some 12,000 cubic yards of soil, and at the Bay City site, approximately 9.2 curies are stored in 48,000 cubic yards of soil. The material is isolated, and

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because the total thorium amount is mixed with a significant amount of soil, the potential for exposure to significant levels of radiation is greatly minimized. The material can be safely handled with appropriate techniques and safeguards.

A number of agencies have been consulted over the years by Dow in an attempt to identify permanent disposal options for this material. These include: NRC, Environmental Protection Agency, Michigan Department of Natural Resources (now the Michigan Department of Environmental Quality or MDEQ), Michigan Department of Public Health, Department of Transportation, Low-Level Radioactive Waste Authority, and Army Corp of Engineers.

In the late 1980's, Dow submitted a disposal permit application to the NRC in order to dispose of the material at Dow's Salzburg hazardous waste landfill in Midland. When Dow started the application process to dispose in Salzburg Landfill, other options were limited for this type of waste, according to Schoen.

Since 1992, Envirocare has been disposing of mixed radioactive and RCRA hazardous waste materials--the first facility of its kind in the nation. The Envirocare facility is licensed and regulated by the EPA, NRC, and the Utah Department of Environmental Quality. Serving both government and private industry, Envirocare has properly disposed of millions of cubic feet of radioactive and mixed waste materials. The disposal site is in a desert with geological characteristics very appropriate for disposal of this type of material, such as naturally low-permeability clay soils, only 4.8 inches of annual precipitation, and is 45 miles from the nearest population.

"Envirocare was not an option when we first started the permit process to dispose in Salzburg Landfill," said Schoen. "There is also no licensed disposal facility in the Midwest for this type of waste. By sending this material to Envirocare, we can extend the long-term viability of Salzburg Landfill for process waste associated with manufacturing. After thorough analysis of the limited number of options, the most environmentally and economically sound solution is to use Envirocare for disposal of Dow's waste," said Schoen.

Transportation Safety Measures

The material will be shipped by rail to Envirocare with the first shipment leaving the Bay City location in early 1996. It is anticipated that the shipping process might take up to a year.

"Safe transportation of this material is of utmost concern to us," said Schoen. "To assure safe transportation of the material from Michigan to Utah, a variety of safety measures will be taken." These include:

- A comprehensive health and safety plan establishing criteria for removal and transfer of the magnesium-thorium slag material.
- A carefully chosen transportation route;
- Specially-designed and securely sealed and covered railcars;
- Vehicle inspection before departure from controlled areas; and
- Proper protective clothing for workers.

The material in Midland will be moved first to Bay City where centralized packing and shipping will be handled for rail shipments to Utah. Trucks will carry this material to Bay City over the next four to six weeks. If winter weather conditions make roads treacherous, truck shipments will stop until roads are clear, said Schoen.

A number of permits must still be received before packing can begin in the areas where the material is stored. Permit application processes are underway with various agencies. Field work will be conducted by contractors, and they will wear personal protective equipment and radiation monitoring devices. Residents of Bay City or Midland should not see any activity, because the work will all be done on Dow property. Air monitoring stations will be installed around the worksites to ensure safety of workers and nearby Dow employees and residents, said Schoen.

When all of the material is removed, Dow will conduct a final decommissioning survey at the sites. Additionally, the NRC will conduct a confirmatory survey. While the bulk of the material is expected to be moved in 1996, the decommissioning survey could carry on into 1997.

"The disposal plan for this thorium material is one of the early steps in implementation of 'EVS 2000'--a comprehensive environmental management plan of the Michigan Division which will help to insure the environmental and economic viability of our manufacturing site here in Midland," said Schoen. "Environmental Services and Operations is working to sustain our almost 100 years of history of operating in an environmentally sound manner while producing products for a variety of businesses."

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Questions & Answers--For Internal Dow Use Only

THORIUM

Q: What is thorium?

A: Thorium is a naturally-occurring radioactive metallic element that has been used extensively in industry since its identification in 1828. It is commonly added to the tungsten filaments of light bulbs, and glass-containing thorium oxide is used in some camera lenses and scientific equipment.

Q: What does the thorium waste look like?

A: The thorium is mixed with sand and dirt and looks like soil.

Q: How "low-level" is the radioactivity of this waste?

A: This waste material is in the lowest regulatory category of radioactivity concentration. In fact, for transportation purposes, the Department of Transportation does not consider this low concentration to be radioactive. Because of its very low thorium content, the material is less radioactive per given volume than the mantle of a common camping lantern.

Q: What are the health risks of exposure to this waste?

A: The material is isolated, and because the total thorium amount is mixed with a significant amount of soil, the potential for exposure to significant levels of radiation is greatly minimized. The material can be safely handled with appropriate techniques and safeguards.

Q: What options have been explored for the thorium?

A: Based on years of consultation with agency representatives and consultants, a variety of options were explored. Some of these included leaving the material where it is, disposing in Dow's Salzburg Landfill, treating the slag and soil by reprocessing to recover the thorium and then dispose of the residual wastes, and disposing at a commercial disposal site. The latter has been determined to be the most environmentally and economically sound choice.

ENVIROCARE

Q: What is Envirocare?

A: For over seven years, Envirocare of Utah, Inc. has been safely disposing radioactive wastes at its environmentally suitable Clive, Utah site. In 1992, the company began the nation's first mixed waste disposal operation. The Envirocare facility is licensed and regulated by several organizations, including the Environmental Protection Agency, the Nuclear Regulatory Commission, and the Utah Department of Environmental Quality. Serving both government and private industry, Envirocare has properly disposed millions of cubic feet of radioactive and mixed waste materials.

Q: Why was the Envirocare option selected over disposing of the waste at the Salzburg Landfill, as previously planned?

A: In the late 1980's, after carefully researching all of the disposal options available at the time, Dow determined that obtaining a disposal permit for the Salzburg Landfill was the safest and most cost-effective option. But since that decision was made, Envirocare has emerged as an even better option for disposing of the waste. The site is in a desert with geology very appropriate for disposal of this material. Also, Envirocare's site is already licensed for the disposal of low-level radioactive waste.

Q: Tell me more about the Envirocare organization and why/when it became an option for Dow?

A: As a disposal option, Envirocare is the next economically viable solution after using Dow's own Salzburg Landfill. The annual rainfall at the Envirocare site is about 1/2 inch per year, and the annual evaporation rate is about 100 inches a year; so there is no leachate to be created, and if there was any wet material, it would evaporate before anything got off-site. So it's an excellent location for disposal of low-level radioactive waste. It's out in the desert, 80 miles southwest of Salt Lake City. Envirocare has been in operation since the mid-1980's.

Q: How long will the waste remain at Envirocare? Will it need to be moved again?

A: This will be the permanent disposal site for the material.

PERMITTING

Q: What has to be done from a regulatory standpoint before shipping can begin?

A: Three permits may ultimately have to be received from the Surface Water Division of DEQ: A floodplain construction permit, a wetlands permit, and a dredging permit. Application processes began in October.

With the NRC, a permit to remove the material is required. That permit application process also began in October.

TRANSPORTATION

Q: How will the material be transported to Utah?

A: The material will be shipped by rail for economic and safety reasons. It will minimize the number of shipments necessary. There will be approximately 50 loads going out by rail. The route will be from Bay City to Chicago to St. Louis through the mountains and into Salt Lake City. Union Pacific out of St. Louis will be the carrier. There may be a couple of truck shipments in the beginning just to get the process established.

Q: How will the material be packed for shipping?

A: We will probably be using coal railcars which have been adapted for this type of low-level radioactive waste. The material will be bulk-packed into the coal cars and sealed and covered. Another option is to pack 20 yards of material into a box called a roll-off box and seal and cover it. Two roll-off boxes fit on one flat-bed railcar. These options and their costs are still being examined.

Q: Will the train be placarded under Department of Transportation (DOT) as radioactive waste?

A: No, because the material is of such a low level that it's unregulated by DOT.

Q: What are the emergency response plans if there were an accident on the road while transporting the material?

A: Risk assessment will be performed for the transportation route by an external contractor. There will be spill mitigation equipment with each shipment. Contingency plans will be created for the unlikely event of a spill from a railcar. Even if this material were to be spilled, it could easily be picked up with no radiation left behind because it's such a low level of radioactivity.

Q: When will the first railcar of thorium waste roll out of Bay City and/or Midland headed to Utah?

A: Probably in January 1996. Proper permits need to be obtained first to work in the areas where the material is stored.

CURRENT SITES**Q: Why is there any material in Midland and where is it?**

A: While manufacturing was done in Bay City, some of the waste material was brought to Midland for storage inside the Michigan Division. It's inside the Michigan Division fence line on the southeast side of the plant, to the east of Environmental Operations. It's inside a wooden fenced area with proper labeling. When the decommissioning work begins, employees of Environmental Operations and Maintenance will see workers and heavy equipment such as a crane and earth moving equipment onsite. The road going out to 23 Gate will be shut down for approximately 4 months.

Q: When all the material is gone, what will be done with the former storage sites?

A: There are various options which are still being explored.

Q: How long will it take to transport all of the waste?

A: About a year. We will use around 200 railcars, but only 40 per train. Envirocare will blend the material with other waste coming in, so if other Department Of Energy projects slow down, they might slow us down. We have wet waste. We want to dry the material before shipping. We will use drainage by gravity. Dealing with the water and the potential for radioactive water has to be addressed. That may slow us down.

RATIONALE

Q: Why aren't you sending it to Salzburg Landfill as in original plan?

A: Envirocare wasn't available as an option until the early 1990's. We fully anticipate that with changing environmental requirements, material of this nature will have to be placed in facilities that are specifically designed for permanent disposal of low level radioactive waste. By shipping it to Envirocare, we can extend the long-term viability of Salzburg Landfill for process waste associated with manufacturing in the Michigan Division.

Q: Why can't Dow just continue to store the waste in Bay City and Midland?

A: Our storage license expired in 1977, and we submitted an application under timely renewal and the NRC has never acted on it to renew the storage license. So at this point, we don't have an active permit to store. Additionally, we fully anticipate that with changing environmental requirements, material of this nature will have to be placed in facilities that are specifically designed for permanent disposal of low level radioactive waste. The most environmentally and economically sound solution is to use Envirocare for disposal of this material.

Q: What else is motivating Dow to presently move this material?

A: Both sites are on the SDMP (Site Decommissioning Management Plan) of the NRC. That list includes more than 50 sites across the U.S. which the NRC wants to clean up within a 3-year timeframe. NRC is under pressure from Congress to initiate decommissioning and resolve storage issues. The activity has been very slow. Plus, for Dow, this is the right thing to do. We want to return the Bay City site to its natural state.

Q: How much will Dow pay for this project?

A: \$17.5 million

PROCESS

Q: Where will work begin first?

A: Probably in Midland, because fewer permitting requirements are necessary. All of the NRC permitting requirements are needed there, but there are no MDEQ permitting requirements.

Q: What will the actual decommissioning process entail to get the material ready for being moved?

A: First, we need a health and safety plan approved by U.S. NRC before working on the site. Then we need the decommissioning plan approved by U.S. NRC. The Michigan Department of Public Health will review the plans, too. Then the DEQ permitting needs to be finalized. Then we start moving the material into a stockpile for analysis prior to loading. Depending on the type of railcar used, a rail siding may need to be installed.

The material in Midland will be moved first to Bay City where centralized packing and shipping will be handled for rail shipments to Utah. Trucks will carry this material to Bay City over the next four to six weeks. If winter weather conditions make roads treacherous, truck shipments will stop until roads are clear, said Schoen.

A number of permits must still be received before packing can begin in the areas where the material is stored. Permit application processes are underway with various agencies. Field work will be conducted by contractors, and they will wear personal protective equipment and radiation monitoring devices. Residents of Bay City or Midland should not see any activity, because the work will all be done on Dow property. Air monitoring stations will be installed around the worksites to ensure safety of workers and nearby Dow employees and residents, said Schoen.

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"The disposal plan for this thorium material is one of the early steps in implementation of 'EVS 2000'--a comprehensive environmental management plan of the Michigan Division which will help to insure the environmental and economic viability of our manufacturing site here in Midland," said Schoen. "Environmental Services and Operations is working to sustain our almost 100 years of history of operating in an environmentally sound manner while producing products for a variety of businesses."

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The Dow Chemical Company
Midland, Michigan 48667

MICHIGAN DIVISION
December 6, 1995

Mr. Jack Parrott, Project Manager
U.S. Nuclear Regulatory Commission
11545 Rockville Pike
Rockville, MD 20852

**REMEDIATION OF THE MAGNESIUM-THORIUM SLAG PILES AT THE DOW
CHEMICAL COMPANY'S MIDLAND AND BAY CITY, MICHIGAN SITES AND
DISPOSAL OF THE MATERIAL**

The Dow Chemical Company (Dow) has accepted a proposal from Envirocare of Utah to dispose of the magnesium-thorium material in the Midland and Bay City slag piles. Dow thus does not intend to bury any of this material at the Salzburg Landfill. This letter, and the enclosed Supplement to the October, 1993 Decommissioning Work Plan provide current information about the planned remediations and disposal approach.

Several factors account for Dow's decision to change the disposal approach from on-site burial at Salzburg Landfill to transfer to Envirocare's disposal facility. In the intervening years since we initially requested approval in 1989 to dispose of the material at Salzburg Landfill, utilization of this facility for disposal of Dow hazardous waste has significantly reduced the available volume for future disposals, and has resulted in a high valuation being placed on the space at the landfill. The inclusion of this valuation in the potential cost estimate to dispose of the slag at Salzburg Landfill significantly increases the total cost of this option. At the same time a very favorable cost proposal has been received from Envirocare changing the economic balance between the two options. Additionally, Dow recently completed a highly successful and trouble free program to dispose of similar material from the Madison, Illinois site at the Envirocare site, and Dow is quite familiar with their material management program, QA/QC requirements, and site characteristics. Since Dow has also been able to obtain the services of the same Dow site management and key subcontractor personnel that performed the Madison project, it is anticipated that the removal, transport and disposal of the Midland and Bay City material will be performed expeditiously, safely, and with close adherence to cost and schedule projections.

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The Envirocare proposal is based upon initiation of the disposal operations in December, 1995. To achieve this Dow will:

- Relocate the Midland material and consolidate the outlying "hot spots" of material at the Bay City site to the main Bay City pile.
- Construct loading facilities and a scale at the existing rail space at the Bay City site and prepare rail cars.
- Obtain all required local permits and approvals.
- Activate the on-site health and safety program and install the air monitoring stations.
- Initiate material excavation, on-site movement, and loading of rail cars.

These activities, and the subsequent remediation, verification and disposal tasks are described in the task breakdown and schedule in Section 2.0 of the enclosed Decommissioning Work Plan Supplement.

Dow's assessment of the terms of our source material license No. STB-527, as confirmed in the meeting with Larry Bell, Bob Fanner, and yourself of October 24, 1995, is that the on-site movement of the slag material and off-site transfer to Envirocare (an authorized recipient) fall under the current license provisions. Dow is requesting that (based on your review and any required amplification of the Decommissioning Work Plan of October, 1993 and the enclosed Supplement) the license be amended to permit closure of the Midland and Bay City sites in accordance with existing residual contamination criteria, thus leading to termination of the license. The planned Final Status Survey to demonstrate that all radiological parameters satisfy guideline values is described in Section 3.2.4 of the 1993 Work Plan and amplified in Section 3.3 of the enclosed supplement.

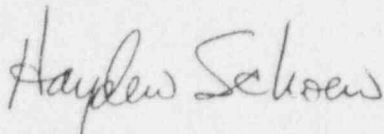
Continuing analysis of the slag material has shown that Th-230 is present in concentrations averaging about three times that of Th-232, which is similar to the Madison material. Dow is proposing that a residual contamination (release) criteria of 15 pCi/g total thorium (above background) based on 9 pCi/g Th-230, and 3 pCi/g Th-232 in equilibrium with 3 pCi/g Th-228 (above background) be established for the sites based on the relative contribution of these constituents and their daughters to

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the total effective dose equivalent (TEDE) at 1,000 years after closure. The analyses supporting this proposal is provided in Section 3.1 of the enclosure.

Expedited NRC review of the Decommissioning Work Plan and amendment of the license is therefore requested to enable Dow to meet contract commitments to Envirocare without financial penalty, while being assured that the slag removal and site restoration are being conducted in a manner that achieves residual contamination and exposure guidelines and results in license termination.

If you have any questions, please call me at 517-636-3874.

A handwritten signature in cursive script that reads "Hayden Schoen".

Hayden Schoen
Environmental Services & Operations
1261 Building