

Ms. Denise Gruben, Project Manager  
Office of Equal Opportunity and Legal Services  
Michigan Department of Natural Resources  
P.O. Box 30028  
Lansing, MI 48909

SUBJECT: SUMMARY OF AUGUST 24, 1999, MEETING REGARDING MICHIGAN  
DEPARTMENT OF NATURAL RESOURCES SITE CHARACTERIZATION PLAN OF  
THE TOBICO MARSH SITE

Dear Ms. Gruben:

On August 24, 1999, we met with you and your consultants, Steve Masciulli and Cole Jacobson, to discuss the site characterization plan for the Michigan Department of Natural Resources (MDNR) Tobico Marsh site, formerly known as the state-owned portion of the Hartley and Hartley Landfill. The meeting took place at the U.S. Nuclear Regulatory Commission (NRC) in Rockville, Maryland.

Enclosure 1 includes a summary of the discussions during the August 24, 1999, meeting. Enclosure 2 is the attendance list for the meeting. If you have any questions, please contact me at (301) 415-6619.

Sincerely,

Sherry W. Lewis, General Engineer  
Decommissioning Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 40-9015  
License No. SUC-1581

cc: MDNR Distribution List

Enclosures: As stated

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SUMMARY OF DISCUSSIONS DURING THE AUGUST 24, 1999, MEETING  
REGARDING SITE CHARACTERIZATION OF THE MDNR TOBICO MARSH SITE

The purpose and objectives of the meeting are for you to: (1) describe the conceptual model for the Tobico Marsh site and its basis; (2) describe the characterization and final status survey plans and their basis; (3) describe the preliminary dose assessment and its basis; and (4) obtain technical review and comments from us regarding this work and its compliance with NRC requirements.

You provided a historical overview of the Tobico Marsh site that included site description, operational history, and source of radioactive contamination. You also provided a summary of historical surveying and sampling activities that included pre-cap surveys conducted by the State of Michigan and by the Oak Ridge Associated Universities for the NRC. You continued with a summary of recent surveying and sampling activities. The discussion then focused on the Characterization Workplan and the Final Status Survey, and they included preliminary classifications and Draft Regulatory Guide 4006 (DG-4006). Finally, you discussed the preliminary dose assessment that included the site-specific conditions, the projected future land use, the critical exposure group, and the site-specific dose assessments.

We provided feedback to you during the meeting, and our major comments are summarized below.

#### CHARACTERIZATION WORKPLAN AND FINAL STATUS SURVEY

1. You mentioned that Classes 2 and 3 Survey Units act as buffer zones around Class 1 Survey Units, and all three classes are within the slurry walls. Because of uncertainties in the disposal procedures at the Tobico Marsh site, we suggested that you consider extending the buffer beyond the slurry walls. If you have performed samplings or surveys that indicate that the areas outside the slurry walls are appropriately classified as nonimpacted areas, we recommended that you submit those findings.
2. You stated that you prefer not to remove the clay cap above the waste for site characterization activities. We expressed our concerns with whether you will be able to accurately assess the concentration profile of the radioactive materials and whether you will be able to find elevated areas. However, we did understand the hazardous nature of the waste below the clay cap and your reasons for preferring to not remove the cap for site characterization activities. Still, we emphasized that your survey measurements must demonstrate that the site has no areas of elevated concentrations that could cause a dose exceeding 25 mrem/yr to the average member of the critical group.
3. We asked how you plan to perform the sampling. You responded that you intend to use direct push drilling. We expressed our concerns with worker safety during the drilling because of the hazardous nature of the materials below the clay cap. The drilling may rupture the drums and may expose occupational workers to hazardous conditions. You mentioned that your workers will be RCRA trained and you will institute all reasonable precautions during site characterization activities.
4. You said that you cannot do scanning because it will not detect the radioactive materials below the clay cap. We recommended gathering as much knowledge as possible about the materials on the site to aid in the site characterization process. Also, we recommended that you review Section 2.7.1 in DG-4006 in determining the number of samples you may need for site characterization. We noted that you may increase the

number of boreholes you need to perform if you do not remove the clay cap.

Enclosure 1

5. You said that you will use DG-4006 recommendations to determine the number of samples you will take. We mentioned that we are not sure now whether the statistics used in DG-4006 is applicable for buried waste because the statistics were designed for two dimensions, not three dimensions.
6. You stated that you planned to use *in situ* sodium iodide gamma spectroscopy to quantify Thorium-232 and Radium-226. We informed you that all previous submittals to us from other licensees, who tried to quantify the concentrations of radionuclides with *in situ* gamma spectroscopy, did not convince us that they were able to quantify the radionuclide concentration using this method. In reports from other licensees, we found that this method was not sensitive enough for a nonhomogeneous medium. However, we have seen this measurement method successfully used as a screening tool.
7. You asked about the next step in the case that you cannot find the source term after you performed the characterization survey. You inquired whether you have to remove the clay cap from the site in order to locate the source term. We responded that the next course of action will depend on how individuals will be exposed in the future. You cannot design measurement and sampling methods before you perform a dose assessment.
8. We asked whether groundwater measurements were taken. You responded that they have been measured during the development of the Leachate Collection and Treatment System and that you will send us a copy of the report after you received your NRC license.

#### PRELIMINARY DOSE ASSESSMENT

9. You removed the fish pathway because there is no pond on the Tobico Marsh site. However, the default scenario for the Decontamination and Decommissioning (DandD) computer modeling code assumes that a pond will be built on the site in the future. We recommended that you assume that a pond will be constructed onsite in the future in your dose assessment or provide reasons to why a pond will not be constructed onsite.
10. You stated that the Tobico Marsh site will not host permanent residents because of the absence of any onsite water bodies capable of sustaining aquatic life and the poor soil quality preventing agricultural development. We suggested that you need additional information regarding the site to preclude a permanent resident on the site because the marsh could be drained. If you turn off the groundwater and agricultural pathways, you still have to consider the onsite resident pathway unless you can demonstrate that a person cannot live on the site because of physical constraints.
11. You asked if you can take credit for the dilution factor from the clay cap since the radioactive waste is buried underneath. We responded that we would support this approach.

LIST OF ATTENDEES OF AUGUST 24, 1999, MEETING  
BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION  
AND MICHIGAN DEPARTMENT OF NATURAL RESOURCES

| <u>NAME</u>               | <u>AFFILIATION</u>                           |
|---------------------------|----------------------------------------------|
| Denise Gruben             | Michigan Department of Natural Resources     |
| Steve Masciulli           | Cabrera Services, Inc.                       |
| Cole Jacobson             | Harding Lawson Associates                    |
| Sherry Lewis              | NRC/NMSS/DWM/DCB                             |
| Timothy Johnson           | NRC/NMSS/DWM/DCB                             |
| Patricia Santiago         | NRC/NMSS/DWM/DCB                             |
| Richard Clement           | NRC/NMSS/DWM/DCB                             |
| Nick Orlando              | NRC/NMSS/DWM/DCB                             |
| Tim Harris                | NRC/NMSS/DWM/DCB                             |
| Eric Pogue                | NRC/NMSS/DWM/DCB                             |
| Mark Thaggard             | NRC/NMSS/DWM/HLWB                            |
| Christopher McKenney      | NRC/NMSS/DWM/HLWB                            |
| Steve McGuire             | NRC/RES                                      |
| Ed Kulzer                 | NRC/RIII                                     |
| Peter Lee                 | NRC/RIII                                     |
| Russ Rotta - via phone    | Michigan Department of Environmental Quality |
| Bob Skowronek - via phone | Michigan Department of Environmental Quality |