U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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| Docket No: | 040-06264 (Terminated) |
| License No. | SMB-833 (Terminated) |
| Report No. | 040-06264/97002(DNMS) |
| Licensee: | Michigan Chemical (now Velsicol Chemical Corporation) |
| Facilities: | 1. Breckenridge Disposal Site (Closed)<br>2. Former Michigan Chemical Company Main Plant Site (now EPA Superfund Burial Site)<br>3. Creamery Warehouse Site (bounded on North by Washington Street, directly across from the MCC Main Plant Site) |
| Location: | 1. St. Louis, Michigan<br>2. St. Louis, Michigan<br>3. Rural Breckenridge, Michigan |
| Dates: | July 21-23,1997 (onsite), August 12, 1997 (telephone followup) |
| Inspectors: | G. M. McCann, Senior Radiation Specialist<br>R. B. Landsman, Project Engineer<br>S. J. Mulay, Radiation Specialist |
| Approved By: | B. L. Jorgensen, Chief<br>Decommissioning Branch |

## EXECUTIVE SUMMARY

### Michigan Chemical Corporation
### St. Louis, MI
### NRC Inspection Report No. 040-06264/97002(DNMS)

During a previous inspection (NRC Inspection Report No. 040-06264/96001(DNMS), NRC inspectors were informed that Michigan Chemical Company may have placed general building debris and chemical wastes in a former landfill at what is now the Edgewood Hills Golf Course. During the previous inspection and during subsequent discussions with the MCC Project Engineer it was also determined that an area adjacent to the former main MCC Plant site (known as the Creamery Warehouse Site) had been found to be contaminated with radiological materials and subsequently remediated during the mid-1980s. However, no records of a final release survey could be located, such that NRC could be confident that the site was suitable for unrestricted use. Additionally, the NRC had been contacted by the Michigan Department of Environmental Quality who indicated that disposal of groundwater collected from the main plant site was causing concern among a number of local residents and State officials.

On July 21-23, NRC inspectors, assisted by State of Michigan radiological health personnel, performed a radiological scoping survey at the Creamery Warehouse Site, collected water from the former MCC Plant Site's ground water collection tank, and observed characterization activities by MCC's health physics consultant at the Breckenridge Disposal Site. The inspectors also surveyed the landfill, now owned by a local golf course. The landfill survey is described in NRC Inspection Report No. 040-06264/97002(DNMS).

Our summary findings and conclusions for the separate sites which were involved in this inspection were as follows:

Michigan Chemical Main Plant Site

Concerns were expressed by local and State representatives regarding the collection and disposal of ground water at the former main plant site. Therefore, ground water was collected for radiological analysis. The analysis of the ground water did not reveal any radiological materials greater than those which exist normally in nature. Therefore, we have no further questions regarding this issue.

Creamery Warehouse Site

Review of records revealed that radiological contamination had been identified and remediated at this location during the mid-1980s; however, documents concerning a final release survey of the site could not be located.

The inspectors surveyed the site and found a single small area (a circle approximately 4-6 feet in diameter) of elevated radiological material greater than that which normally exists in the local environment. After assessment of the radiological measurements and analysis of soil samples collected from this location, we have concluded the area meets the NRC criteria for unrestricted use, and does not pose a threat to the public or the environment. Therefore, we have no further questions regarding this issue.

Breckenridge Disposal Site

Based on our inspection findings we determined that MCC had established positive control of the site with the installation of a chain link fence and posting of signs. Additionally, MCC's health physics contractor was well into their characterization of the site, with an expectation that the Characterization Report and a proposed course of action regarding the Disposal Site will be submitted to the NRC by mid-September 1997.

## DETAILS

### 1.0 Background

Michigan Chemical Company (MCC) operated a rare earth processing plant at St. Louis, Michigan. The feed-stock materials used by MCC contained licensable quantities of source mater The use of licensable materials was authorized until April 1971 when License No. SMB-0833 was terminated. During its period of chemical manufacturing MCC used a number of off-site locations to store and dispose of waste chemical material, some of which also contained radiological contamination. As a result of this, the NRC has been working with Memphis Environmental Center (agent for MCC) to survey various properties, in order to determine their acceptability for unrestricted release.

### 2.0 Inspection Scope (IP 87104)

The inspection consisted of general radiological surveys of the subject sites (except for the main plant which was limited to collection of water), observation of characterization activities by MCC's consultant, and discussions with the MCC Project Manager and MCC characterization consultant personnel.

### 2.1 Observations and Findings (IP 87104)

#### 2.1.1 MCC Breckenridge Disposal Site

The burial site access was adequately controlled by a chain link fence, a gate and required postings. The characterization contractor had located a construction trailer immediately inside the fence by the entry gate. The trailer contained the contractor's office and radiological analytical laboratory. The contractor had also established a roped step-off area through which personnel access was controlled. The contractor had instituted the use of a Radiation Work Permit which prescribed procedures, equipment and surveys necessary, in order to obtain access to the Disposal Site.

During the inspection, the inspectors observed boreholes being dug, and discussed survey documentation, and the types of analytical and survey equipment being used, with the contractor. Additionally, the inspectors independently surveyed a number of grids previously surveyed by the contractor. There were no significant differences between the contractor's survey results and the results obtained by NRC inspectors. Other direct measurements performed by the NRC inspectors found radiological conditions to be consistent with previous NRC inspection findings (Inspection Report No. 040-06264/96001(DNMS).

During the period of the onsite inspection, the contractor's gamma spectroanalysis system was not in service due to instrumentation breakdown. Thus, the inspectors were unable to observe analysis of samples, and other operational aspects of the system. A single Geiger Mueller (GM) detector with a pancake probe was cross

compared with an NRC survey meter and found to be close in comparison. The calibration of this meter was current. On August 12, 1997, the MCC Project Manager advised the inspector that the gamma spectroanalysis system had been repaired shortly after the inspection and that additional meters for survey purposes had been obtained.

To assess contamination control, the inspectors performed direct radiological surveys for fixed contamination, and collected seven smears to check for removable contamination in the contractor's laboratory and office areas. Direct measurements did not reveal any contamination levels greater than those which existed naturally, that is not greater than environmental radiological levels as determined for the site. Radioanalysis of the smears did not identify any removable contamination.

2.1.2 Creamery Warehouse Site

This site, except for a trailer office within a chain link fence, was vacant. The construction trailer was located on the lot during its clean-up and the capping of the MCC main plant site. The site is a grass covered, well maintained, lot with residential dwellings on the East and West boundaries. It is bounded on the North by Washington Avenue and on the South by Pine River. Figure 1 is a survey drawing of the site.

The inspectors conducted a general gamma walkover survey of the site. Prior to the walkover survey a number of radiological measurements at the site and other areas of St. Louis, Michigan were performed and an average background value of seven microroengtens per hour was determined. The NRC guideline value is 10 $\mu$R/h, above background, at 1 meter above the ground surface, as cited in NRC *Policy and Guidance Directive FC 83-23: Termination of Byproduct, Source and Special Nuclear Material Licenses*, dated November 4, 1993.

Except for one spot, approximately four-to-six feet in diameter, no values greater than background were identified during the walkover survey. The spot with elevated readings was within the guideline value for 1 meter above the ground surface, although it measured approximately 20 $\mu$R/h, background subtracted, at the ground surface.

The inspectors collected two soil samples from the area with the highest direct gamma measurement (biased samples). The NRC has established soil radioactive material concentration guidelines for the disposal or storage of thorium and uranium wastes. These guidelines are cited in the NRC Branch Technical Position, *Disposal or Onsite Storage of Thorium or Uranium From Past Operations*, 46FR205, October 23, 1981. The maximum concentrations for surface soil in areas accessible to the public are 10 pCi/g of natural thorium (Th-232 + Th-228 with daughters in equilibrium), and 10 pCi/g of natural uranium (U-238 + U-234 with daughters in equilibrium). The two biased soil samples were below the 10 pCi/g limit, i.e., 4 and 8 pCi/g. No uranium daughters were identified in the samples above the minimum detectable activity for the analysis performed.

2.1.3 MCC Main Plant Site

The inspectors collected a water sample from the ground water collection system at the former MCC plant site. Radio analysis of this sample did not identify any licensable radioactive materials.

2.2 Conclusion

2.2.1 MCC Breckenridge Disposal Site

Site access, security and posting of the site were determined to be adequate. The Characterization Report and the future actions regarding the site are expected to be submitted to the NRC by mid-September.

2.1.2 Creamery Warehouse Site

Based on the survey findings, no radiological levels were identified which exceeded NRC criteria for unrestricted use. Therefore, the NRC has no further regulatory interest in this site.

2.1.3 MCC Main Plant Site

The analysis of water from the Plant Site did not identify any licensable radiological materials. Therefore, the NRC has no further questions regarding the disposal of this water.

3. Exit Meeting (IP 87104)

During an August 12, 1997, telephone conversation, the preliminary results of the inspection were discussed with the individual identified below.

## PERSONS CONTACTED

*J. Phillips, R.G., Project Manager, Breckenridge Disposal Site, Memphis Environmental Center, Inc., (MEC)
#D. Thomas, NES, Inc., Radiological Engineer, MEC Site Supervisor & Mobile Laboratory Engineer
#P. Horton, NEC, Inc., Radiological Engineer, Site Supervisor
S. Rose, NES, Inc., Radiation Control Technician
J. Towbridge, NES, Inc., Radiation Control Technician
C. Sappington, Environmental Soil Recovery, Mt. Pleasant, MI
C. Droptiy, Environmental Soil Recovery, Mt. Pleasant, MI

*Indicates those present during the August 12, telephone call during which the preliminary inspection findings were discussed.

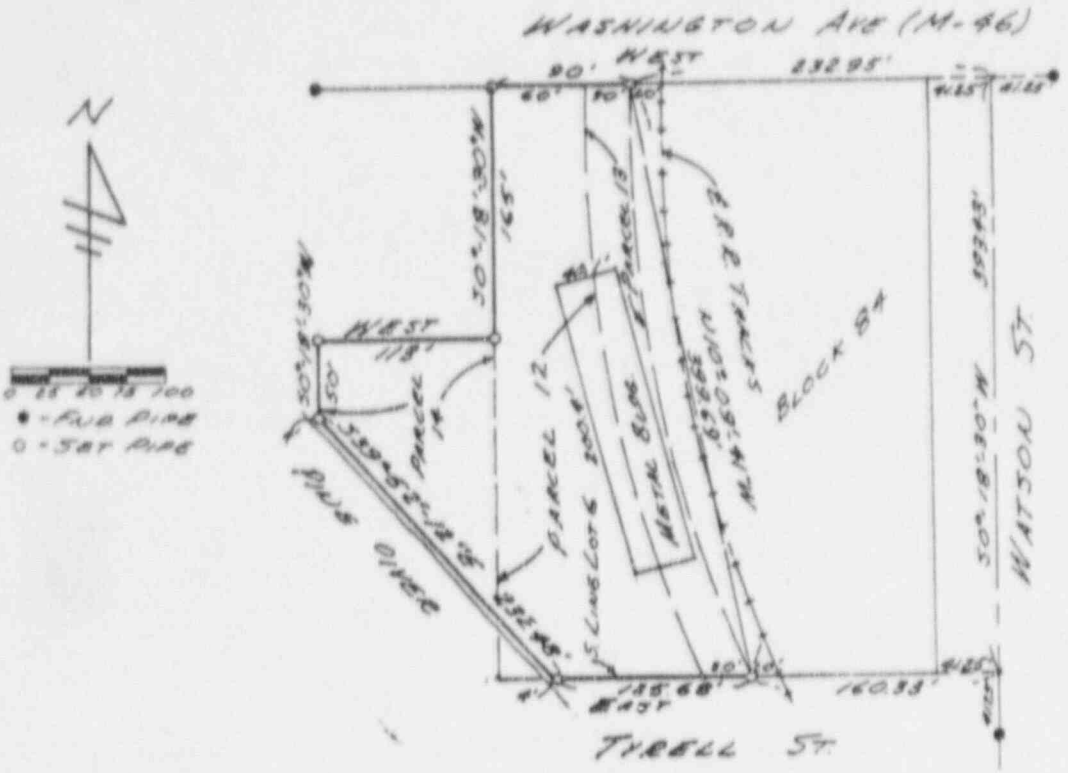
#Participated in discussions regarding characterization work at the conclusion of the inspection on July 23, 1997.

## INSPECTION PROCEDURES USED

87104 Decommissioning Inspection Procedure for Materials Licensees

## ATTACHMENTS

Figure 1 Drawing of former MCC Creamery Warehouse Site




Survey descriptions of Parcel 11, 13, 14, located in H. L. Holcomb's Addition to the City of St. Louis, Michigan, found on sheet 2 attached.

I hereby certify that I have surveyed and mapped the land above platted and described on March 3, 1981, and that the ratio of closure on the unadjusted field observations of such survey was 1/10,000, and that all of the requirements of P.A. 132 of 1970 have been complied with.

The description was either given to us by the person certified to, or was prepared by us from information or documents given to us by the person certified to, and should be compared with the Abstract of Title or Title Policy for accuracy, easements, or exceptions.

STATE OF MICHIGAN
JERRY L. JONES
LAND SURVEYOR
No. 19838

Jerry L. Jones, RLS #19838

SURVEY FOR

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| Scale: 1" = 100' | Dr'n. By: J.L.J. | Job No. 13555 |
| Date: 3-3-81 | Ck'd. By: J.L.J. | Sheet 1 Of 2 |