

September 11, 2001

Reference No. 017075

Ms. Cheryl Howe
Senior Environmental Engineer
Hazardous Waste Program Section
Waste Management Division
P.O. Box 30241
Lansing, Michigan 48909-7741
Dear Ms. Howe:

Re: Responses to Michigan Department of Environmental Quality's Technical Review Comments on the Existing Calcium Carbide Desulfurization Slag Treatment Unit Report Saginaw Metal Casting Operations
Saginaw Michigan
MID 041 793 340

General Motors (GM) and Conestoga-Rovers & Associates (CRA) have reviewed the Michigan Department of Environmental Quality's (MDEQ) Technical Review Comments dated May 24, 1999, on the Existing Calcium Carbide Desulfurization Slag Treatment Unit Report. The following presents the MDEQ's comments followed by our responses.

Existing Calcium Carbide Desulfurization Slag Treatment Bunker Report

The October 1991 Closure Report, that was received on November 1, 1991, was compared to the approved May 1988 Closure Plan. The following comments/concerns are related to the Existing Calcium Carbide Desulfurization Slag Treatment Bunker Report:

1. Page 3-2, Section 3.2.1: The Report states in this section that the background soils data was statistically evaluated using an upper 99% prediction limit. However, in the approved closure plan amendment received May 27, 1988 and approved on June 10, 1988, in Section 6.5 on page 36, it states that the statistical analysis of the background data would be by the Cochran's approximation to the Student t-test to establish an upper confidence limit at the 99% confidence level. A justification for changing the statistical evaluation must be submitted in the Report.

Response: As chronologically documented (below), GM believes that the MDNR approved the background data set and the method of determining the 99% upper confidence limit prior to submittal of the Closure Documentation Report. In all cases, soil was removed to levels that did not exceed the approved background concentrations established at that time. No additional sampling or analysis is proposed to address soil at this location.

- *On February 27, 1989, GM's consultant, RMT, submitted a document containing recent findings, and proposed approaches for closing the Existing Calcium Carbide Desulfurization Slag Treatment Unit (Unit) to MDNR*

(Attachment 7). This document was submitted to MDNR for review prior to a meeting between GM, RMT and MDNR on March 10, 1989. On page 1 in Section A of this document, the background soils data was statistically evaluated using the 99% upper prediction limit. In addition, on page 2 in Section D of the document RMT proposed that the post-excavation samples be compared with the 99% upper prediction limits.

- *In MDNR's April 3, 1989, correspondence to GM (Attachment 8), MDNR indicated that closure soil excavation and resampling activities may proceed as outlined in the February 27, 1989, document and based on the background soil concentrations contained on page 1 of Section A of the document (using the 99% upper prediction limits).*
 - *On August 8, 1989, GM and RMT met with MDNR to discuss the closure of the Unit. RMT presented the analytical results of the post-excavation soil samples, which indicated that no samples were above the 99% upper prediction limits. MDNR agreed to backfilling the excavation with purchased silica sand as documented in RMT's meeting notes (Attachment 10).*
 - *Additionally, in a December 6, 1991, MDNR Interoffice Communication (Attachment 13), Item #2 indicates that soil contamination was identified, excavated and resampling confirmed that the soil removal met the closure plan standards.*
2. The Report does not contain the calculations done to establish the upper prediction limits. The calculations done to establish the upper prediction limit for each parameter should be submitted as part of the Report (if approved, see point 1 above) and should also address the following:
- a. The background data set includes samples anywhere from the surface (zero to one foot depth) to as deep as 18 feet. The Report must explain which values were used in the calculation of the prediction limit and why.
 - b. The Report states that the excavation around this unit was only to the groundwater, which was about four feet deep, however, the background data set has samples as deep as 18 feet. The Report must explain what samples were used in the calculation of the prediction limit and why.
 - c. The Report must be revised to explain whether the data set was determined to be normally distributed before the prediction limit was calculated and whether a sample population test (i.e., Lambda test) showed that enough samples were collected to determine the prediction limit. The Report should also include calculations, as appropriate.

Response: Though the actual calculations were not included, the formula for deriving the background values was provided as a footnote to Table 1 (Attachment 7).

GM excavated, collected closure soil samples, and backfilled the excavation in accordance with the approved Closure Plan and the background limits as established and agreed upon in 1989.

See Response to Comment 1 for the chronology of documentation through approval.

3. Page 3-2, Section 3.2.1, Section 3.2.2 and Table 3-1: The lead concentrations in borings BB-1B (0-2 feet) and BB-1 (1-3 feet), in the background data set, were 140 and 120 mg/kg, respectively. The concentrations are unusually high in comparison to typical background values for this part of the state. In fact, these concentrations would normally be considered a potential hazardous waste (see 40 CFR 261.24) and would require testing by the TCLP method. It must be shown that these soils were not impacted by site operations (i.e., that the lead concentrations are natural) or these two samples need to be removed from the background data set and the prediction limit recalculated.

Response: See Response to Comment 1.

4. Page 4-1, Section 4.1: The Report states that the post-excavation sample locations were collected on a 38-foot grid interval as approved in the closure plan. On page 32, Section 6.2 of the approved closure plan, it states that a grid interval was calculated for determining boring locations for the initial site investigation. The closure plan does not mention a grid interval calculated for use in an excavation, as confirmation samples. The Report must explain why a grid interval of 38 feet is appropriate for the walls of the excavation (the excavation went to the water table, so there were no floor samples collected).

Response: On February 27, 1989, GM's consultant, RMT, submitted a document containing recent findings and proposed approaches for closing the Existing Calcium Carbide Desulfurization Slag Treatment Unit to MDNR (Attachment 7). This document was submitted to MDNR for review prior to a meeting between GM, RMT and MDNR on March 10, 1989. In Section E, Item #3 of this document, GM proposed collecting post-excavation soil samples using the 38-foot grid spacing in the approved closure plan. In MDNR's April 3, 1989, follow-up correspondence to GM (Attachment 8), MDNR indicated that the closure excavation and resampling may proceed as outlined in the February 27, 1989, document.

5. The approved closure plan states on page 32, Section 6.1, that water leach tests as well as compositional (total) analysis will be performed on the soil samples. In addition, on page 36, Section 6.5, the closure plan states that the upper confidence limit statistical evaluation would be performed for the data generated from the soil compositional analyses and the American Society for Testing and Materials water leachate analyses. The Report does not contain any leach test results for the soil. The Report must be revised to explain and justify why the leach tests were not done.

Response: In a letter dated July 21, 1988, from GM to MDNR (Attachment 5), Item #2 states:

The statistical analysis of soil leachate data as described in Section 6.5 of the Closure Plan is beyond the scope of RCRA closure requirements and is unnecessary if the compositional analysis indicates that no adverse impact has occurred. Consequently, soil samples do not need to be subjected to the ASTM water leachate test (ASTM Method D3987) unless it is determined, based on the results of the statistical analysis on soil compositional data, that a statistical analysis of soil leachate data is desirable.

In a letter to GM dated September 26, 1988 (Attachment 6), MDNR responded that total metals analysis is sufficient to determine the extent of contamination for closure purposes and that the water leachate test only needed to be performed if GM was seeking an inert designation for disposal purposes.

6. Page 5-3, Section 5.2: The Report explains that the statistical analyses for arsenic (in groundwater) indicates statistically significant impacts to the groundwater have occurred at the Existing Calcium Carbide Desulfurization Slag Treatment Bunker. The Report ends at this point and does not explain what will be done concerning the groundwater. The approved closure plan, on page 38, states that if the soil and groundwater results indicate contamination of both the soils and the shallow groundwater, the GM Saginaw Nodular Iron will install four cluster wells. These wells would be installed to evaluate the aquifer (s) beneath the unit. The Report could be amended to explain why the groundwater does not need further evaluation (i.e., groundwater controls, groundwater not in an aquifer, meet present day criteria, etc.) or an additional groundwater evaluation could be conducted. Sampling results in the Report were greater than the Part 201 Generic Residential and Industrial Drinking Water Criteria.

Response: The installation of monitoring wells MW-17 and MW-18 were approved by the MDNR in a letter to GM, dated August 8, 1990 (Attachment 11).. The wells surrounding the Unit were sampled for four consecutive months from November 1990 through February 1991. Detected concentrations of arsenic ranged from 13 microgram per liter ($\mu\text{g/L}$) in monitoring well MW-3 to 261 $\mu\text{g/L}$ in MW-17. In June 1998 and again in August 2000, MW-17 was resampled and dissolved arsenic was detected in the groundwater at a concentration of 22 $\mu\text{g/L}$ and 28 $\mu\text{g/L}$,

respectively. Monitoring wells MW-3, MW-8, and MW-18 were also sampled in August 2000, and dissolved arsenic was detected at concentrations of 2.5, 28.1, 38.6 µg/L, respectively. Additional samples were collected from two nearby RFI monitoring wells (MW-04836 and MW-05036) in August 2000, located upgradient and cross-gradient to the current groundwater flow direction, respectively. The concentration of dissolved arsenic at monitoring well MW-04836 was 2.2 µg/L and the concentration of dissolved arsenic at monitoring well MW-05036 was 8.9 µg/L. Any historical groundwater contamination resulting from the former Unit would have been contained through the continued operation of the nearest basement dewatering sump until March 1999 (see response to Comment 7). A summary of the arsenic groundwater results are tabulated and included as Attachment 14.

Based on the results of the recent sampling, the concentrations of dissolved arsenic are below the Residential & Commercial I Drinking Water Criterion and therefore, do not represent a completed exposure pathway.

The concentrations of dissolved arsenic in groundwater are below the current Part 201 Generic Cleanup and Screening Criteria for inhalation (indoor air and ambient air, including infinite and finite source thicknesses and particulate inhalation). Therefore, this potential exposure pathway is not complete.

The concentrations of dissolved arsenic in groundwater are below the current Part 201 Generic Cleanup and Screening Criteria for direct contact. Therefore, this potential exposure pathway is not complete.

7. Appendix E, Ground Water Analytical Results: The range of pH in MW-3 was reported to be from 9.61 to 10.14, the range in MW-4 was 9.85 to 10.37, the range in MW-7 was 7.16 to 7.52, the range in MW-8 was 10.71 to 11.45, the range in MW-17 was 10.23 to 10.87 and the range in MW-18 was 10.72 to 11.24. The upgradient monitor wells were reported to be MW-3, MW-7 and MW-8. The downgradient wells were reported to be MW-4, MW-17 and MW-18. The Report needs to explain the pH ranges in the groundwater and the apparent effect the unit has on the values or if the higher pH values are typical of the upgradient groundwater in the area. Additional upgradient monitoring wells (or more sampling of MW-7) may be needed to statistically determine the actual background values (MW-3 and MW-8 are upgradient, but closer to the unit than MW-7, and may be affected by the unit).

Response: Prior to completing the Nodular Iron Plant decommissioning (March 1999), EMCON measured static water levels in the wells surrounding the Unit and determined the groundwater flow direction to be toward the west-southwest. The results of these measurements confirm that monitoring wells MW-3, MW-7, and MW-8 were upgradient well while monitoring wells MW-4, MW-17, and MW-18 were downgradient wells. Since completion of the decommissioning and demolition

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activities at the Nodular Iron Plant, the groundwater flow direction is currently toward the north-northeast (Attachment 15).

General chemistry results from the Phase 1A and Phase 1B RCRA Facility Investigations (RFI) indicate regional elevated pH results, including areas upgradient of the Unit, in wells screened within the same stratigraphic unit. The source of the regional elevated pH is not currently known.

Based on the Report and on the above responses, GM respectfully requests that closure be granted for the Existing Calcium Carbide Desulfurization Treatment Unit (aka, Former (Replacement) Desulfurization Slag RCRA Treatment Unit). If you have any questions or comments, or would like any additional information, please contact Ms. Cheryl Hiatt at (313) 556-9032.

Yours truly,



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General Motors Project Coordinator

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Attachments

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