

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 Old 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 Old Calcium Carbide Desulfurization Slag Treatment Unit Report (Report).

The following presents the MDEQ's comments followed by our responses. For the purpose of maintaining a complete record, copies of relevant correspondence related to the closure of this unit have been attached to this letter.

Old Calcium Carbide Desulfurization Slag Treatment Unit 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 Old Calcium Carbide Desulfurization Slag Treatment Unit Report:

1. Page 3-1 to 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, the approved closure plan, received on May 27, 1988, and approved on June 10, 1988, states in Section 6.5 of page 36 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. The Report must be revised to justify the change of the approved statistical evaluation method of the background data, including an explanation of why the upper 99% prediction limit is better than the method approved.

Response: As chronologically documented (below), GM believes that the MDNR approved the background data set and the method of determining the 99% upper prediction 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.

- On February 27, 1989, GM's consultant, RMT, submitted a document containing the findings and conclusions of recent investigations, and proposed approaches for closing the Old 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 soil data were statistically evaluated using the upper 99% prediction limit. In addition, under item #5 on page 2 in Section D of the document, RMT proposed that the post-excavation samples be compared to the upper 99% prediction limits.
- In MDNR's April 3, 1989, correspondence to GM (Attachment 8), MDNR indicated that closure soil excavation and resampling activities might 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 upper 99% 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 two samples were above the upper 99% prediction limits. GM proposed to excavate an area around the two sample locations and that no additional post-excavation soil sampling be performed. MDNR agreed to the additional excavation with no post-excavation sampling and backfilling the excavation with purchased silica sand as documented in RMT's meeting notes (Attachment 10).
- Additionally, in a December 10, 1991, MDNR Interoffice Communication (Attachment 14), 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 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 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 3-1 and 3-2, Section 3.2.1 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 milligrams per kilogram (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 Code of Federal Regulations (CFR) 261.24) and would require testing by the toxicity characteristic leaching procedure (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 20 foot grid interval as approved in the closure plan. On page 31, 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) using the Michigan Department of Natural Resources (MDNR) May 5, 1987 "How Clean is Clean II" guidance document. 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 20 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 finding, and proposed approaches for closing the Old 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. In Section D, Item #3 of this document, GM proposed collecting post-excavation soil samples using the 20-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 could proceed as outlined in the February 27, 1989, document.

5. The approved closure plan states on page 31 that water leach tests as well as compositional (total) analysis will be performed on the soil samples. The Report does not contain any leach test results for the soil. The Report must be revised to explain and justify why the leach testing of the soil was not performed.

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 was 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 analysis for arsenic (in groundwater) indicates statistically significant impacts to the groundwater have occurred. The Report ends at this point and does not explain what will be done next. The approved closure plan, on page 37, states that if the soil and ground water results indicate contamination of both the soil and the shallow groundwater, then 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 demonstration, concentrations meet today's criteria, etc.) or the

additional groundwater evaluation could be performed. The groundwater arsenic data in the Report are below the Part 201 Generic Residential Drinking Water Criteria, but two phenol data results were greater than the Part 201 groundwater surface water interface (GSI) Criteria.

Response: Monitoring wells MW-1, MW-2, MW-2A (sometimes referred to as MW-7A), and MW-13 through MW-16 were monitored for four months from November 1990 through February 1991. Detected concentrations of arsenic ranged from 10 microgram per liter ($\mu\text{g/L}$) to 49 $\mu\text{g/L}$ which are below the Part 201 Generic Cleanup Criteria and Screening Levels for Residential and Commercial I Drinking Water. MW-2 was resampled in June 1998 by EMCON and arsenic was not detected in the groundwater above the method reporting limit of 5 $\mu\text{g/L}$. Attachment 15 presents a summary of the historical dissolved arsenic results and the analytical reports for MW-2 (June 1998). Based on this information, the groundwater ingestion potential exposure pathway is not complete for arsenic and all other parameters sampled during June 1998.

The nearest body of surface water is the Saginaw River located approximately 1,000 feet to the west-northwest. Based on the distance from the unit and sample locations to the Saginaw River and on the detected concentrations of phenol, GM does not believe that the groundwater-surface water interface is an applicable criterion for phenol at this location. Recent data collected from a monitoring well installed during the RFI at the facility, located between the Saginaw River and the Old CaC₂ Unit have been "non-detect" during both Phases of sampling (i.e., Phase 1A and 1B). The phenol concentration at monitoring well MW-2 during the Phase 1A sampling was below the method reporting limit of 10 $\mu\text{g/L}$ (Attachment 15). Based on this information, the groundwater-surface water interface (and the protection of the GSI) potential exposure pathways are not complete.

Concentrations of all parameters in groundwater collected from monitoring well MW-2 on June 5, 1998, are below the 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.

Concentrations of all parameters in groundwater collected from monitoring well MW-2 on June 5, 1998, are below the 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 Report states that Monitoring Well 2 (MW-2) and MW-15 are the upgradient monitoring wells and that MW-1, MW-7A, MW-13, MW-14 and MW-16 are the downgradient monitoring wells. The pH in the upgradient wells ranged from 9.48 to 11.71. The pH in the downgradient wells ranged

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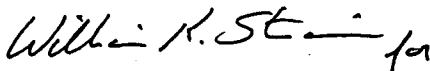
from 8.46 to 12.15. The Report must explain the pH differences at the site. Also, MW-2 is located at the upgradient corner of an area of excavated, contaminated soils and MW-15 is located downgradient of the same excavation. The Report must justify the use of these two wells as upgradient wells at this location. Additional wells may be needed further upgradient and new background concentration may need to be calculated.

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. Based on this, monitoring well MW-16 is an upgradient well while monitoring wells MW-2, MW-13 and MW-15 should be considered to be downgradient wells (since completion of the decommissioning activities, the groundwater flow direction is toward the north-northeast - Attachment 16).

General chemistry results from the Phase 1A RCRA Facility Investigation (RFI) indicate regional elevated pH results, including areas upgradient of the Unit, in wells screened within the same hydrostratigraphic unit. Therefore, it does not appear that the apparent elevated levels of pH are related to the former Unit.

Based on the Report and on the above responses and pathways evaluation, GM respectfully requests that closure be granted for the Old Calcium Carbide Desulfurization Slag Treatment Unit (aka, Former (Original) 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,



Cheryl R. Hiatt
GM Project Coordinator

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Attachments

c.c.: Mirtha Capiro, USEPA Region 5
James Sygo, MDEQ-WMD
Ed Haapala, MDEQ-WMD
Lisa Williams, USDOJ
Jean Caufield, GM Remediation Team
Raymond Ilkka, SMCO Environmental Activities
Jim McGuigan, CRA