



JOHN ENGLER, Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY

"Better Service for a Better Environment"

HOLLISTER BUILDING, PO BOX 30473, LANSING MI 48909-7973

INTERNET: www.deq.state.mi.us

RUSSELL J. HARDING, Director

REPLY TO:

WASTE MANAGEMENT DIVISION
PO BOX 30241
LANSING MI 48909-7741

May 24, 1999

Mr. William K. Steinmann
Senior Project Manager
Mr. James J. McGuigan
Site Restoration Department Manager
EMCON
603 East Diehl Road, Suite 123
Naperville, Illinois 60563-1477

Dear Messrs. Steinmann and McGuigan:

**SUBJECT: Review of Closure Certification Reports
General Motors Corporation Saginaw Metal Casting Operation
Grey Iron Plant, Former Parts Plant, and Former Nodular Iron Plant
MID 041 793 340**

The Department of Environmental Quality (DEQ), Waste Management Division (WMD) has completed its review of several closure reports submitted by the General Motors Corporation (GM) for the Saginaw Metal Casting Operation Plants referenced in your letter dated March 24, 1999, to Mr. Stephen G. Buda, Chief of the Hazardous Waste Permits Unit. Mr. Buda referred your letter to me and Mr. Ron Stone, of the Geotechnical Support Unit, Hazardous Waste Program Section (HWPS), WMD, for response. The WMD concurs that closure was certified and GM was released from the financial assurance requirement for closure of the following two hazardous waste storage units.

- Former Parts Plant Resource Conservation and Recovery Act (RCRA) Hazardous Waste Drum Storage Area
- Grey Iron Oil House RCRA Hazardous Waste Container Storage Pad

The following general comments apply to all four of the hazardous waste storage and treatment unit closure certification reports which are listed below. In order for the WMD to complete its review of the reports, GM will need to decide whether the review should be completed using the criteria under the former Environmental Response Act, 1982 PA 307, as amended (Act 307), appropriate for the time they were submitted (1989 to 1991), or using the current standards under Part 201, Environmental Remediation, of

the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Part 201). There are pros and cons to both choices. If the review of the reports is completed using the Act 307 criteria in effect at the time of document submittal, some additional groundwater concerns would be required to be addressed by GM, but additional review of alternate pathways would not be necessary. If, on the other hand, the current Part 201 standards are applied, some of the groundwater concerns could be eliminated (e.g., arsenic concentrations in the area of the Old Calcium Carbide Desulfurization Slag Treatment Unit is below the present Part 201 criteria), but GM would need to address the additional pathways (i.e., indoor air, soil saturation, direct contact, etc.). Your response to this letter should indicate GM's preference and either provide the required information or include a schedule for providing the necessary information. If additional information is needed in order to make this decision, training materials for the Part 201 Cleanup Criteria are available on the internet at <http://www.deq.state.mi.us/erd/>.

Many of the comments in the enclosed attachment arise from concerns that the reports deviated from the approved closure plans. For each report where deviations are noted, the response to these technical review comments must contain an explanation and justification as to why the report deviated from the approved closure plan. The response can either be in the form of an amended report submitted to this office or through replacement pages submitted to this office, that can be inserted into the existing reports. If the explanation and justification are acceptable to the WMD, the concern about deviating from the closure plan can be eliminated. In addition to the deviations from the approved closure plans, there are additional concerns that will need to be addressed in some of the reports. Specific technical review comments for the following four hazardous waste storage and treatment unit closure certification reports are contained in the enclosed attachment. The attachment refers to three of the closed hazardous waste management units by the names on the cover sheets of the closure documentation reports. These names differ somewhat from the names contained in your letter so they are shown in brackets [] to ensure that no confusion results from the differences in the names of the units:

- Former RCRA Hazardous Waste Control Tank
- Former Nodular Iron Plant Waste Paint Shed RCRA Hazardous Waste Drum Storage Area [Paint Storage Building Drum Storage Area]
- Former (Original) Calcium Carbide Desulfurization Slag RCRA Treatment Unit [Old Calcium Carbide Desulfurization Slag Treatment Unit]
- Former (Replacement) Calcium Carbide Desulfurization Slag RCRA Treatment Unit [Existing Calcium Carbide Desulfurization Slag Treatment Bunker].

The WMD has not yet received the closure certification report for the Former Nodular Iron Plant Oil House RCRA Hazardous Waste Drum Storage Area, which your March 24, 1999 letter indicated is under preparation. It is likely that the general cleanup criteria comments contained in this letter are applicable to that closure as well. If you

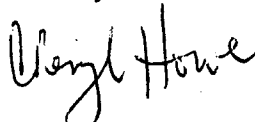
Mr. William K. Steinmann
Mr. James J. McGuigan

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have any questions regarding this letter, please contact me via e-mail at howec@state.mi.us or at the telephone number below, or you may contact Mr. Ron Stone, HWPS, WMD, via e-mail at stonera@state.mi.us or at 517-373-7141.

Sincerely,



Cheryl Howe
Senior Environmental Engineer
Hazardous Waste Program Section
Waste Management Division
517-373-9881

Enclosure

cc/enc: Ms. Mirtha Capiro, United States Environmental Protection Agency
Mr. Ken Burda, DEQ/HWP-C&E File
Mr. Ed Haapala/Mr. Gene Suuppi, DEQ - Saginaw Bay
Mr. Steve Buda, DEQ
Ms. De Montgomery/Mr. Ron Stone, DEQ

ATTACHMENT

Technical Review Comments on Documentation Reports for Resource, Conservation and Recovery Act (RCRA) Closures

General Motors (GM) Saginaw Nodular Iron Plant
Saginaw, Michigan
MID 041 793 340

May 24, 1999

A. Hazardous Waste Control Tank Report

The October 1989 Closure Report, that was received on November 17, 1989, was reviewed and compared to the approved May 1988 Closure Plan. The following comments/concerns are related to the Hazardous Waste Control Tank Report:

1. The Report states that during Phase I, one sample was collected and tested for 1,1,1-Trichloroethane and five breakdown parameters. The sample result was 4.9 micrograms per kilogram (ug/kg) of 1,1,1-Trichloroethane. A Phase II sampling was conducted and three of seven samples indicated concentrations of 1,1,1-trichloroethane were detected, but all below 1 ug/kg. It was also noticed that the field blank (using the same potable water source as during Phase I) also had low levels of 1,1,1-Trichloroethane. A Phase III sampling (using water from another source) was conducted and the results for two soil samples and two field blanks were all non-detect.

The concentration of 1,1,1-Trichloroethane in the field blank (0.53 ug/kg) would not be sufficient to explain the concentration in the first sample tested (4.9 ug/kg). Re-sampling of the first site will be required, if the criteria under Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Part 201), are not used. Because the concentrations of 1,1,1-Trichloroethane in all of the soil samples and the field blanks are below the Part 201 Generic Residential Drinking Water Protection Criteria, the Waste Management Division (WMD) would have no further concerns with these sampling results, if the Part 201 criteria are used.

B. Paint Storage Building Drum Storage Area Report

The September 1989 Closure Report, that was received on November 17, 1989, was reviewed and compared to the approved May 1988 Closure Plan. The following comments/concerns are related to the Paint Storage Building Drum Storage Area Report:

1. Page 7, Section 3.3.1: The Report states that the analytical results from the background samples were used to establish the upper 99 percent (%) prediction limit for arsenic, barium, chromium, cadmium, copper, lead, mercury, selenium, silver, and zinc. However, in the May 1988 approved addendum to the closure plan, page 5, response 5, bullet 3, it states that soil samples collected near the drum storage area will be analyzed for metals and statistically compared to background. It also states that the comparison will use the mean background values with an upper limit for delineating significant concentrations of a "mean plus three standard deviations." The background values must either be recalculated using the approved "mean plus three standard deviations" or the Report must be revised to justify the change of the statistical method to the upper 99% prediction limit, including an explanation as to why it would be more appropriate and include the calculations, normality check and population sufficiency test.
2. Figure 3-2 and Section 3.3.2 on page 10: The Report indicates that one sample was collected beneath the cement pad (PSB-1C), one sample was collected beneath a sloped entrance (PSB-2E) and three samples were collected on the east side of the pad, in an unpaved area (PSB-3SE, PSB-4E and PSB-5NE). On page 2 of the approved May 1988 addendum to the closure plan, response 1, it states that three samples of the perimeter soils would be collected. In the same response, it continues that the samples would be collected near the mid-point of the northern edge, the mid-point of the eastern edge and the mid-point of the southern edge of the concrete pad. The Report must be revised to justify the change of sample locations, including an explanation of why these locations would be better than the original, approved locations. The above can be done(or) the additional samples (mid-point of the northern edge and mid-point of the southern edge) could be collected and tested for the same, approved parameters.

C. 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.

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.
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.
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).
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.

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 groundwater results indicate contamination of both the soils 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.

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 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 a new background concentration may need to be calculated.

D. 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.
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.
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.
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).
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.

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, 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, 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.
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).