Central Foundry Division
General Motors Corporation
Saginaw Nodular Iron Plant
2100 Veterans Memorial Parkway
Saginaw, Michigan 48605-5073

July 21, 1988

Ms. Andrea Schoenrock
MDNR, Waste Management Division
Ottawa Street Building, South Tower
P.O. Box 30028
Lansing, MI 48909

Re: GMC - Saginaw Nodular Iron MID 0141 793 340
Closure Plans for the Old and Existing Calcium Carbide Desulfurization Slag Treatment Units

Dear Ms. Schoenrock:

General Motors - Saginaw Nodular Iron (SNI) has received the letter of June 10, 1988 from the MDNR which indicates that its revised closure plans for four hazardous waste management units dated May 26, 1988 have been approved.

Two of the approved plans pertain to the closure of the Old and Existing Calcium Carbide Desulfurization Slag Treatment units. The Closure Performance Standard for these plans (Section 5 of each plan) states that the regulatory closure requirements will be satisfied by documenting the following:

- treatment and removal of all waste and waste residues;
- decontamination of concrete surfaces in the treatment areas;
- determination of whether any release of hazardous constituents from the desulfurization slag has adversely affected surrounding soils.

SNI intends to carry out all closure activities that are necessary for generating this documentation. However, a recent review of the two closure plans revealed that there are a number of items in these plans which SNI believes are beyond the scope of such activities. Specifically:

1. The analysis of the hazardous constituents in Table 6-1 of each plan is sufficient for determining whether any release of hazardous constituents from the desulfurization slag has adversely affected surrounding soil; the analysis of the nonhazardous constituents in these tables is beyond the scope of RCRA closure requirements.

   If an evaluation of whether hazardous constituents from the treatment units have adversely impacted groundwater is necessary,

001226

the analysis of the hazardous constituents in Table 7-1 of each plan is sufficient for making this determination; the analysis of the nonhazardous constituents in these tables is beyond the scope of RCRA closure requirements.

2. The statistical analysis of the soil compositional data as described in the Sampling and Analysis Plan (Section 6.5 of each plan) is sufficient for determining whether any release of hazardous constituents from the desulfurization slag has adversely affected surrounding soil. The statistical analysis of soil leachate data as described in Section 6.5 of each 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.

3. Soil sampling from within the actual boundaries of the treatment units, in conjunction with the sampling of surrounding soils conducted for the preliminary site investigation (described in Section 4 of each plan), is sufficient for determining whether treatment operations at the units have adversely impacted the surrounding soils.

   Inasmuch as the closure plans are intended to address the treatment units rather than extended portions of the facility, the sampling grid shown in Figure 2 of each plan is unnecessarily broad and, in the case of the grid for the old treatment unit, inadequate. The grid for the old treatment unit currently specifies 25 boring locations on a square grid of 100 feet by 100 feet. However, there is only one boring location within the 20 feet by 20 feet boundary of the actual treatment unit. SNI believes that three borings (in a triangular configuration) within the boundaries of the old treatment unit is sufficient to satisfy RCRA closure requirements for this unit when considered in conjunction with the soil borings already taken during the preliminary site investigation. The proposed soil boring locations are detailed in the attached closure plan amendments.

   Similarly, SNI believes that the four borings that are within the actual boundaries of the Existing Treatment Bunker as specified in Figure 2 of the approved plan is also sufficient when considered in conjunction with the soil borings already taken during the preliminary site investigation of this unit.

4. Continuous soil samples (cores) will be collected from each borehole (located as described in the proposed amendments) to a depth below the foundry-sand/native soil interface. However, only the near-ground-surface section and the water-table sections of the samples will be analyzed; the remaining sections will be retained for any further analyses that may later be deemed necessary.

5. Groundwater monitoring for the purposes of this closure will be performed if it is determined that statistically significant soil contamination in the saturated zone has resulted from the treatment units (as determined by analyses of the water table soil samples).

6. If groundwater monitoring is necessary, then groundwater samples will be collected and analyzed for the hazardous constituents in Table 7-1 of each plan from the monitoring wells described in Figures 2 of the proposed amendments once a month for four consecutive months. The data will be statistically compared against concentrations of the constituents in background groundwater. The locations where background groundwater quality will be assessed is also indicated on Figure 2 of the proposed amendments.

   If the four months of data do not indicate contamination of the groundwater, then monitoring will terminate. If the four months of data indicate that the treatment units have contaminated groundwater, SNI will amend the closure plan to address the investigation of the extent of contamination and possible impact on closure activities.

SNI trusts that you will concur with our findings and requests to amend the two plans, per 40 CFR 265.112(c), with respect to the six items above. Attached for your approval are the amended sections of the closure plans.

While we await your approval, we are proceeding with closure activities that are not dependent on the amendments. However, we anticipate that the approval process may impact the original closure schedule and therefore, request, per 40 CFR 265.113(b), that the 180-day time limit allowed for the completion of closure activities be extended for the number of days from the date of this submittal to the date of resolution of this request.

Along with the proposed amended closure plans for the Old and Existing Calcium Carbide Desulfurization Slag Treatment units is a copy of a Health and Safety Plan for the closure activities that are currently underway.

If you have any questions or would like to meet with SNI and our consultants to discuss this matter, please contact me at (517) 757-0223.

Sincerely,

William Hudson
Environmental Coordinator

Attachment

001228

cc: Ms. M. Sabadaszka, USEPA
Mr. R. Traub, USEPA
Mr. A. Howard, MDNR
Ms. L. Browne, MDNR
Mr. K. Burda/C&E File
Mr. J. Sygo, MDNR

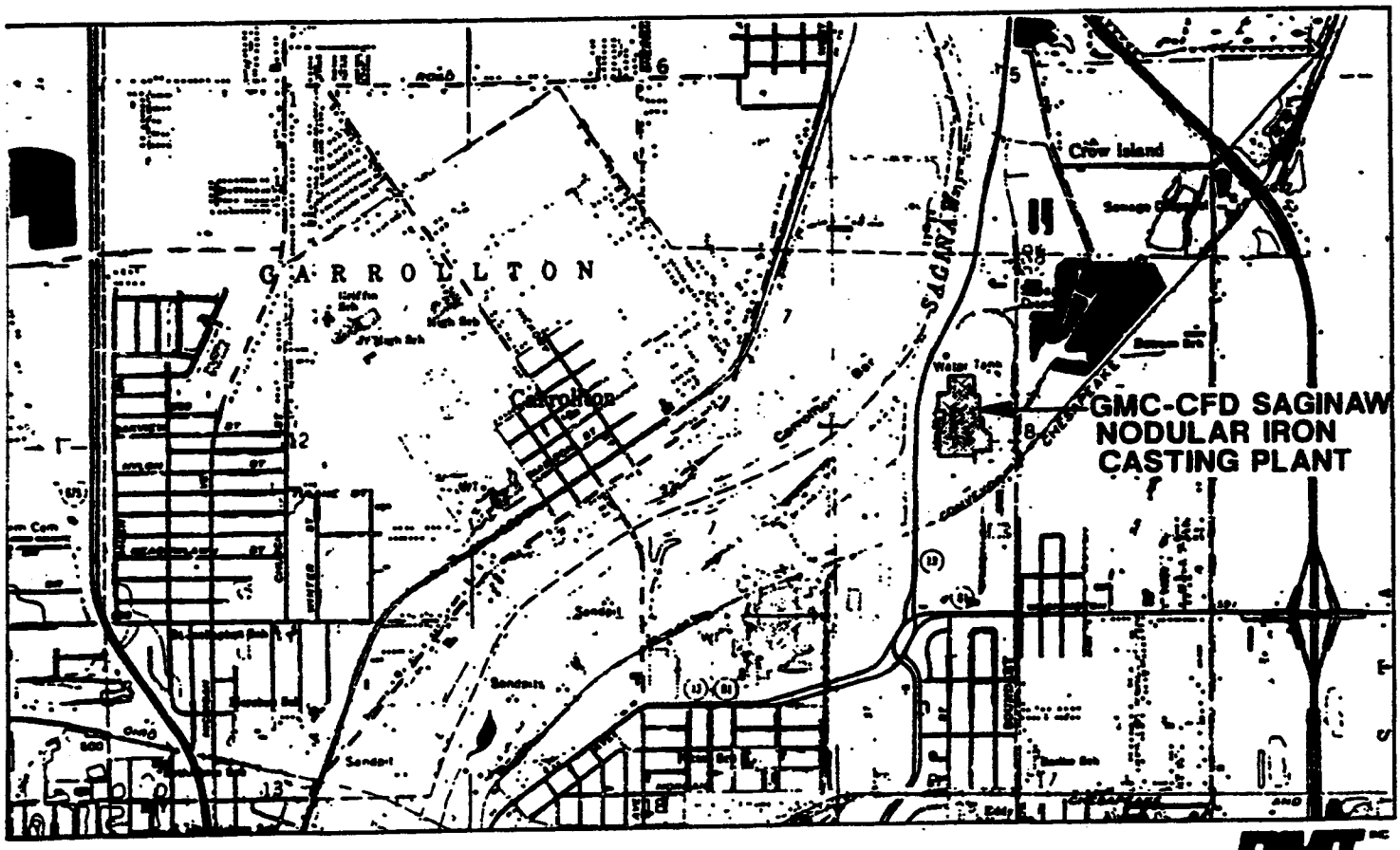
WFH72188.DOC

central foundry

GM

SAGINAW NODULAR IRON CASTING PLANT
SAGINAW, MICHIGAN

CLOSURE PLAN AMENDMENTS
FOR
CALCIUM CARBIDE DESULFURIZATION SLAG
EXISTING BUNKER AND OLD PAD



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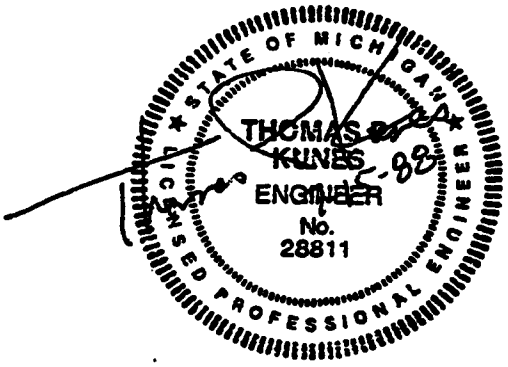
AMENDMENTS TO THE CLOSURE PLAN FOR THE EXISTING CALCIUM CARBIDE DESULFURIZATION SLAG TREATMENT BUNKER

FOR

SAGINAW NODULAR IRON CASTING PLANT
GENERAL MOTORS CORPORATION
CENTRAL FOUNDRY DIVISION
SAGINAW, MICHIGAN

JULY 1988



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Amendments to the "Interim Status Closure Plan for Existing Calcium Carbide Desulfurization Slag Treatment Bunker, Saginaw Nodular Iron Casting Plant, December 21, 1987."

Revision Location	Revised Version
Page 10, Section 3.3. Revise the first sentence and add a sentence to the third paragraph, as follows:	Laboratory testing was conducted to determine the volume of total gas generated by the reaction of calcium carbide desulfurization slag with water. Testing had shown that acteylene accounts for approximately 99% of the total gas generated.
Page 10, Section 3.3. Revise the third sentence in the third paragraph as follows:	The experimental procedure developed by RMT for measuring total gas generation capacity of desulfurization slag is based on the principle that gas displaces its own volume in water.
Page 10, Section 3.3. Revise the first sentence in the fourth paragraph as follows:	The results of these simulation tests showed that water can be used to render calcium carbide desulfurization slag nonreactive (with respect to total gas generation capacity) with no stirring required at a solid-to-liquid ration as high as 1:2.
Page 16, Section 4.1. Revise the boring identifications to the following:	. Ten feet west of the west wall of the treatment bunker (Boring 4) . Five feet north of the north wall (Boring 3) . Thirty-five feet north of the northeast corner (Boring 1)

- Thirty-five feet north and thirty-five feet west of the northwest corner (Boring 2)
- Thirty-five feet west of the southwest corner (Boring 5)
- One hundred ten feet south of the southeast corner (Boring 6)

Page 17, Figure 2.

See the attached, revised version of Figure 2.

Page 29, Item #5. Revise as follows:

If the results of the sampling and analysis plan (Section 6) show that the soils beneath the treatment bunker have not been adversely impacted (see further discussion in Section 6.5), then closure will be considered complete, and documentation as described below in Step 8 will be provided.

Page 29, Item #6. Revise as follows:

Contaminated soil beneath the unit will be removed and disposed at a suitable off-site landfill. Additional soil samples will then be collected until underlying soil indicates no direct adverse environmental impact attributed to the desulfurization slag treatment bunker.

Page 29, Item #7

Ground water monitoring will be conducted, as outlined in Section 7 of this Closure Plan, only if statistically significant contamination of the soil in the saturated zone is found.

Page 31, Section 6.1. Revise the first sentence as follows:

Soil samples beneath the treatment bunker will be collected and analyzed as described in Sections 6.3 and 6.4, and as located on Figure 2.

Page 31, Section 6.1 Revise the last sentence of the first paragraph as follows:

The comparison will determine if operation of the desulfurization slag treatment bunker has affected the underlying soil.

Page 31, Section 6.1. Revise the second paragraph as follows:

The Sampling and Analysis Plan includes four borings through the concrete base of the bunker. In addition, six borings have already been completed as part of the Preliminary Evaluation. The four borings through the base of the bunker will penetrate the overlying fill materials and extend to the underlying native soil. Samples will be collected at the ground surface, immediately beneath the water table, and two feet into the native soil.

Page 32, Section 6.1. Revise the first sentence of the last paragraph of Section 6.1 and add a sentence, as follows:

Compositional analysis (Section 6.4) will be performed on the surface and water table samples at each of the four borings. Calcium carbide will be analyzed in the four surface samples.

Page 32, Section 6.2 Eliminate the first paragraph which is as follows:

(A soil sampling grid system has been established according to guidelines specified by the MDNR in their memorandum of May 5, 1987, entitled "How Clean is Clean II," and USEPA Document SW-846. The MDNR specified that a grid system be established that would cover the area of the bunker as well as 30 feet from the bunker in all directions, except south, where the area of coverage extends 100 feet from the edge of the treatment bunker.)

Page 32, Section 6.2. Revise the second paragraph as follows:

Six soil borings were completed and two ground water monitoring wells have already been installed in the vicinity of the Existing Treatment Bunker. Four additional borings will be completed through the concrete base of the bunker, so that soil samples can be collected from beneath the bunker. The locations of these borings and monitoring wells are presented in Figure 2. Locations of these borings may be adjusted in the field to avoid underground utilities or obstructions.

Page 33, Section 6.3. Revise the fourth sentence in the first paragraph as follows:

Soil samples will be collected near the ground surface and below the water table.

Page 34, Section 6.3. Revise the first two sentences of the fifth paragraph as follows:

For each soil sample, approximately 1,500 grams of soil will be collected for conducting the compositional (total chemical) analyses. A 2-inch inside diameter split-spoon will be used to collect the sample.

Page 35, Section 6.4. Eliminate the following sentence from the first paragraph:

(Leachate will be generated using ASTM Method D3987, and analyzed according to EPA 600/4-84-017.)

Page 35, Section 6.4. Revise the second paragraph as follows:

There are no EPA-approved methods for analyzing total phenols or calcium carbide reactivity in soil. Therefore, these parameters will be analyzed in the following way:

- Total phenols - A 1- to 10-gram sample of soil will be mixed with distilled water.

The mixture will then be subjected to the distillation step from USEPA 600/4-79-020 Method 420.1. Total phenols will be measured in the distillate.

- Calcium Carbide Reactivity - The calcium carbide reactivity potential will be measured using the Method presented in Appendix D.

Page 36, Section 6.5. Revise the first sentence as follows:

In order to determine if there has been an increase in the concentrations of specified parameters in the soil beneath the existing desulfurization slag treatment bunker, a statistical analysis of the data will be used.

Page 36, Section 6.5. Eliminate the following sentence:

(This analysis will be performed for the data generated from the soil compositional analyses and ASTM water leachate analyses.)

Page 36, Section 6.5. Revise the second to last sentence in the section as follows:

To determine if the treatment bunker has impacted the underlying soils, the analytical results for the individual soil samples collected from beneath the desulfurization slag treatment bunker will be compared to the upper confidence limit for the background soil sample results.

Page 37, Table 6-1

See the attached, revised version of Table 6-1.

Page 38, Section 7
Replace the entire section with the following:

One round of ground water samples is being analyzed for chemical parameters identified on Table 4-2 as part of the Preliminary Site Evaluation. However, the results will not be used to determine

whether additional ground water monitoring should be conducted.

If the results of the soil sampling and analysis plan (Section 6) indicate that statistically significant contamination of saturated-zone soils (due to the treatment of desulfurization slag) has not occurred, GMC-CFD will initiate preparation of the Closure Documentation Report. If significant contamination of the soil in the saturated zone has been shown to result from the treatment operations at the unit, then a total of four shallow wells in the vicinity of the treatment bunker will be installed for the purpose of conducting ground water monitoring in the vicinity of the existing treatment bunker. The approximate locations of four monitoring wells are shown on Figure 2.

Samples from these four monitoring wells at the existing treatment bunkers will be collected once a month for four consecutive months and analyzed for the parameters shown on Table 7-1.

If the results of the four-month ground water monitoring program for the wells shown on Figure 2 indicate that the ground water has not been contaminated, then the above program shall constitute completion of ground water monitoring.

If the soil and ground water results indicate contamination of both the soils and shallow ground water, then GMC-CFD Saginaw Nodular Iron will amend the Closure Plan to address the investigation of the extent of

contamination and possible impact on closure activities.

Table 6-1

Parameters for Soil Compositional (Total) Analysis

Parameter	Soil Compositional Method[1]
Arsenic	7060
Cadmium	7130
Chromium	7190
Lead	7420
Selenium	7740
Zinc	7950
Total Phenols (4AAP)	—
Calcium Carbide	—

[1]Approved method according to the 3rd Edition of USEPA document SW 846 "Test Methods for Evaluating Solid Wastes, November 1986."

NOTE: Calcium carbide will be analyzed in the surface samples, but not in samples collected from beneath the water table.

Amendments to the "Addendum to Interim Status Closure Plan for Existing Calcium Carbide Desulfurization Slag Treatment Bunker, Saginaw Nodular Iron Casting Plant, May 26, 1988."

Revision Location	Revised Version
Page 2, Response 2. Revise the first two sentences of the first paragraph as follows:	As indicated in the Closure Plan (Section 5, Closure Performance Standard), "clean closure" will be attained by documenting that there are no statistically significant differences between soil at the treatment unit and background soil. If a statistically significant difference is determined for soil at the unit, that material will be removed and disposed at a suitable landfill.
Page 3, Response 2. Revise the first sentence of the third paragraph as follows:	As discussed in the Closure Plan (Section 7, Ground Water Monitoring), if the results of the soil sampling and analysis activities indicate statistically significant contamination in the saturated zone, ground water monitoring will be conducted.
Page 6, Response 6.	Soil samples will be digested using USEPA SW-846 Method 3050. The methods for analysis of the extract and the analytical detection limits expressed in SW-846 are as follows:

Parameter	Method	Instrument Detection (ug/l)
Arsenic	7060	4
Cadmium	6010	4
Chromium	6010	7
Lead	6010	42

Selenium	7740	3
Zinc	6010	2
Total Phenols	(None)	5
Calcium Carbide Reactivity	(None)	10 milliliters of gas per 100 grams of sample

The detection limits are sample dependent, and may vary due to sample matrix interferences.

Page 7, Response 7. Revise the last paragraph of the Response as follows:

As recently discussed with the MDNR, total iron (dry weight basis) will not be analyzed in the soil.

Page 8, Response 9. Revise the first paragraph as follows:

The Sampling and Analysis Plan described in the Closure Plan includes six boring locations surrounding the existing treatment bunker and four boring locations through the concrete base. Continuous samples are being collected at each boring location. Sampling depths were described in Sections 6.1 and 6.2 of the Closure Plan. The surface and intermediate samples are being analyzed at each location. In addition, if statistically significant soil contamination in the saturated zone is identified, two ground water monitoring wells will be installed (in addition to the two already installed), and the ground water will be sampled from the four wells and analyzed for the parameters shown on Table 7-1.

Table 7-1

Ground Water Monitoring Parameters

Parameters	Ground Water Method[1]
Arsenic	206.2
Cadmium	213.2, 200.7
Chromium	218.2, 200.7
Lead	239.2
Selenium	270.3
Zinc	289.1
pH	150.1
Total Phenols	420.2

[1]Approved method according to the "Methods for Chemical Analysis of Water and Wastes," EPA 600/4-79-020, EPA 600/4-82-055, and EPA 600/4-84-017.