



VIA EMAIL

October 15, 2018

Jaines, LLC
c/o Daniel Dunn, P.E., P.G.
1515 Des Peres Road, Suite 300
St. Louis, MO 63131

SUBJECT: Review of Work Plan for Supplemental Site Investigation
Former General Motors Facility
1000 General Motors Drive
DNR BRRTS Activity No. 02-54-560205

Dear Mr. Dunn:

The Wisconsin Department of Natural Resources (Department) received a "Work Plan for Supplemental Site Investigation" from EnviroAnalytics Group (EnviroAnalytics) for the above-referenced site on July 31, 2018 and a technical review fee in the amount of \$700 on July 31, 2018. The Work Plan was written in response to the DNR's February 28, 2017 letter which required additional sampling before the Site Investigation could be considered complete. Based upon additional correspondence between us, the DNR subsequently received an updated "Site Investigation Work Plan" on September 11, 2018, and an additional (untitled) document on September 28. The updated documents included several edits and more directly addressed the comments from the Department's February 28, 2017 letter.

The Department approves of the EnviroAnalytics' Site Investigation Work Plan, but has comments and qualifications on specific aspects of the proposed Work Plan as described in this letter. As indicated in the last paragraph, we also need appropriate certifications and signatures per ch. NR 712, Wis. Adm. Code.

The Department's February 28, 2017 letter largely focused on 13 areas that needed additional investigation. Therefore, this letter will comment directly on how thoroughly EnviroAnalytics' Work Plan addressed each of these areas.

At each of locations described below, EnviroAnalytics plans to advance additional borings to a depth of 10 feet below grade or the water table, whichever is shallower. At least two samples will be submitted from each boring for laboratory analysis of the contaminants of concern for that area. The shallowest sample will be submitted from immediately below the surface gravel, typically 1 to 2 feet below grade. The deepest sample will be submitted from the bottom of the boring. A third sample will be submitted if there is any obviously impacted soil (based upon photoionization detector (PID) readings or visual or olfactory indicators) between the shallow and deep sample. Step-out borings will be advanced approximately 30' north, south, east, and west of a previous boring with the soil samples submitted using a similar methodology to the single borings.

SPECIFIC COMMENTS BY AREA

The following presents comments on the proposed additional investigative work for each of the 13 areas identified by the Department in our February 28, 2017 letter. Also included are the Department's

additional requirements for each area.

1. SB 46-16/MW-21S requires further investigation of the VOCs & Metals in the soil

Boring SB46-16 and monitoring well MW-21S are located in the northeast portion of the site. Lead was detected at a concentration of 956 milligrams per kilogram (mg/kg) in the shallow sample collected from boring SB-46-16, and methylene chloride, hexavalent chromium, cadmium, and manganese have exceeded NR 720 Wisconsin Administrative Code residual contaminant limits (RCLs). Total chromium has been detected at concentrations as high as 180 micrograms per liter (ug/L) in groundwater at monitoring well MW-21S but has recently been lower. Total polychlorinated biphenyls (PCBs) were detected at a concentration of 0.37 mg/kg in the 5-7 ft sample at boring SB 41-16.

PROPOSED WORK: We understand that step-out borings will be advanced around the approximate locations of borings SB-41-16 and SB-46-16. Samples will be submitted to the laboratory for analysis of metals, polycyclic aromatic hydrocarbons (PAH), and PCBs.

DEPARTMENT COMMENT: The Department approves this plan.

2. MW42S requires further definition of mercury in soil

Monitoring well MW-42S is located in the Eastern Parking Lot. EnviroAnalytics has not proposed further evaluation of mercury impacts in this area because mercury did not exceed residual contaminant levels (RCL). Mercury was detected at a concentration of 0.035 mg/kg in the shallow soil sample from boring MW-42S. Mercury concentrations in groundwater at monitoring well MW-42S ranged from non-detect to 0.48 ug/L, below the ch. NR 140, Wis. Adm. Code, Enforcement Standard (ES).

PROPOSED WORK: EnviroAnalytics has proposed 16 borings (including 4 step-out borings from boring SB-88-16 where lead and benzo(a)pyrene exceeded non-industrial direct contact RCLs) in the Eastern Parking Lot. Samples will be analyzed for metals (including mercury) and PAHs.

DEPARTMENT COMMENT: The Department approves this plan.

3. MW52S – during the next sampling event, need to have lab establish a detection for PCBs below the ES of 0.03 ug/L, also need additional PCB sampling data from soil surrounding the soil boring

Monitoring well MW-52S is adjacent to the power house. PCBs were detected at a concentration of 0.049 mg/kg in soil and estimated at a concentration of 0.04 ug/L in groundwater at this location. Volatile organic compounds (VOC) have also been detected in samples from borings MW-52S and MW-66S. VOCs have also been detected in groundwater from both wells, including trichloroethylene (TCE) at a concentration of 35 ug/L at monitoring well MW-66S.

PROPOSED WORK: EnviroAnalytics will advance four step-out borings around the locations of monitoring wells MW-52S and MW-66S. Samples will be submitted for analysis of metals, PAHs, and PCBs. We also understand that the detection limit for PCBs in groundwater will be below the ES of 0.03 ug/L.

DEPARTMENT COMMENT: The Department approves this plan provided that the soil samples are also analyzed for VOCs.

4. MW57S – investigate the area of the paint room, sludge room, thinner pump house, etc. Samples should be analyzed for VOCs and PCBs

This area is in the southern portion of the site. PCBs and multiple VOCs exceeded ESs in groundwater at monitoring well MW-57S, while soil impacts were more limited.

PROPOSED WORK: Four step-out borings will be advanced around monitoring well MW-57S with samples submitted for analysis of metals and VOCs. Several (18) additional borings (including 8 step-out borings) will be advanced south and east of this area and analyzed for metals and PAHs. Lead was detected at concentrations as high as 8,560 mg/kg in this area (SB-137-16). The September 10, 2018 correspondence indicated that these boring will be advanced to a depth of 2 feet below grade.

DEPARTMENT COMMENT: The Department approves this plan provided that at least a couple of these borings from the Southern Portion are advanced to 10 feet below grade or groundwater (with deep samples submitted), samples from these areas are also submitted for VOCs, and shallow samples from the step-out borings are analyzed for PCBs.

5. MW-24S – further investigation of soil and groundwater due to presence of TCE

Monitoring well MW-24S is in the southwest portion of the site, adjacent to the central maintenance building. TCE was detected at a concentration of 2.7 ug/L with limited VOC detections in soil in this area.

PROPOSED WORK: EnviroAnalytics has proposed four step-out borings around this location and also boring B25. Samples will be submitted for analysis of metals, PAHs, PCBs, and VOCs. Monitoring well MW-24S and other nearby monitoring wells will continue to be monitored for VOCs.

DEPARTMENT COMMENT: The Department approves this plan.

6. MW66S – further investigation of soil and groundwater due to presence of TCE, vinyl chloride

Monitoring well MW-66S is near the power house and also monitoring well MW-52S. The 10 borings proposed under item #3 above and additional groundwater monitoring (with soil and groundwater samples to be analyzed for VOCs) fulfills this requirement.

7. MW22S – need to know the extent and source of Chromium exceedances in groundwater

Monitoring well MW-22S is in the west portion of the site and adjacent east of the railroad tracks. Chromium was detected at concentrations of 433 and 297 ug/L (ES = 100 ug/L).

PROPOSED WORK: EnviroAnalytics has proposed four step-out borings around this location. Samples will be analyzed for metals (including chromium), PAHs, PCBs, and VOCs. Monitoring well MW-22S and other nearby groundwater monitoring wells will continue to be sampled for metals.

DEPARTMENT COMMENT: The Department approves this plan.

8. MW70S – define extent, identify source of PCE

Monitoring well MW-70S is in the central portion of the site. Perchloroethylene (PCE) was detected at concentrations of 6.2 and 8.2 ug/L with limited detections (maximum of 0.01 mg/kg) in soil at nearby boring 175-16.

PROPOSED WORK: EnviroAnalytics will advance four step out borings around this location, with samples to be analyzed for metals, PAHs, PCBs, and VOCs. Groundwater samples from monitoring well MW-70S and other nearby wells will continue to be monitored for VOCs.

DEPARTMENT COMMENT: The Department approves this plan.

9. MW5S/5D – define extent, identify source of chromium in groundwater

Monitoring wells MW-5S and MW-5D are located on the west edge of the site, on the wastewater treatment plant (WWTP) property. Chromium was detected at concentrations as high as 353 ug/L in groundwater at monitoring well MW-5D.

PROPOSED WORK: EnviroAnalytics has proposed 11 borings in this area, with samples to be analyzed for metals, PAHs, and PCBs. Soil samples from four step-out borings from monitoring well MW-5S/5D will also be analyzed for chromium. Groundwater samples from monitoring well MW-5D and other nearby monitoring wells will continue to be monitored for chromium.

DEPARTMENT COMMENT: The Department approves of this plan.

10. MW-7S-need further investigation of soil and groundwater for VOCs and metals

Monitoring well MW-7S is in the “Southern Portion.” Chromium and nickel have exceeded their ESs in groundwater at monitoring well MW-7S. Lead was detected at a concentration of 8,560 mg/kg in soil at boring SB-137-16. Several VOCs and PCBs exceeded ESs in groundwater at downgradient monitoring well MW-57S.

PROPOSED WORK: EnviroAnalytics has proposed 17 borings (including 8 step-out borings) from this area. Samples will be analyzed for metals, PAHs, and VOCs. Groundwater from monitoring well MW-7S and other nearby monitoring wells will continue to be monitored.

DEPARTMENT COMMENT: The Department approves this plan provided that some shallow samples from the borings south of monitoring well MW-57S are analyzed for PCBs.

11. MW-79S – VOCs need further investigation in the area in soil and groundwater

Monitoring well MW-79S is located in the footprint of the assembly plant, near the bodyshop. Several VOCs were detected in groundwater from this well; albeit at limited concentrations. Three VOCs were detected above soil-to-groundwater RCLs in the deep soil sample collected from monitoring well MW-79S.

PROPOSED WORK: EnviroAnalytics has proposed four step-out borings around this location. Samples will be analyzed for VOCs. Groundwater monitoring will continue at monitoring well MW-79S and other nearby wells.

DEPARTMENT COMMENT: The Department approves this plan.

12. SB-215-16 – additional investigation due to high lead

Boring SB-215-16 is near the center of the assembly plant building. Lead was detected at a concentration of 964 mg/kg in the deep sample collected from this location.

PROPOSED WORK: EnviroAnalytics has proposed four step-out borings around this location. Samples will be analyzed for metals and PAHs.

DEPARTMENT COMMENT: The Department approves this plan.

13. MW-68 – the extent of free phase product needs to be defined and the type of product should be identified. Are there any underground utilities in the area?

Monitoring well MW-68 is near the west edge of General Motors Drive. EnviroAnalytics has also stated that the product was a mixture of coal tar and a very heavy fraction that could be heavy fuel oil or degraded crude oil residue.

PROPOSED WORK: EnviroAnalytics has proposed an additional boring at this location and also nearby boring SB-158, with an additional four step-out borings at each location. Samples will be analyzed for metals, PAHs, PCBs, and VOCs, and free product will be evaluated. We assume that these borings will be advanced beyond the depth of groundwater so that the thickness of free product can be measured.

DEPARTMENT COMMENT: The Department approves this plan.

EnviroAnalytics has proposed several other sampling locations besides the locations described above. The final locations are shown in Figure 4 of the September 28, 2018 letter. While many of these were not explicitly required in the Department's February 2017 letter, we agree that the additional information will be beneficial, particularly for future development purposes.

OTHER COMMENTS

EnviroAnalytics will also collect an additional round of groundwater samples from 56 monitoring wells that have historically exceeded ch. NR 140, Wis. Adm. Code, Preventive Action Limits (PAL) or ESs. Groundwater samples will be analyzed for metals, PCBs, semi-volatile organic compounds (SVOC), and VOCs. The Department approves this plan; however, additional monitoring in the future will likely be required and that monitoring could necessitate additional monitoring points. These include, but are not necessarily limited to, the extent of chromium impacts in multiple areas near the edge of the site (as shown in Figure 7.6). The need for additional groundwater monitoring and monitoring locations will continue to evolve based upon additional soil and groundwater analytical data.

We understand that the main assembly plant building is currently being demolished and we would like you to be aware of a few potential issues associated with the demolition. First, it will be important that you are able to retain accurate information on the locations of historical soil borings. Without GPS coordinates or marking of these locations during the demolition, they will be difficult to re-locate after the building is demolished. In the event that some monitoring wells are inadvertently destroyed during the demolition, be aware that the coordinates of monitoring wells (per s. NR 141.065(2), Wis. Adm. Code) must be identified on a horizontal grid system (latitude/longitude and state plane) to an accuracy of 1 foot. Secondly, it is important to keep in mind that the demolition of the building is likely to exacerbate leaching and it could take some time to determine how much this impacts the groundwater. Lastly, there is a reasonable possibility that additional indications of releases could be discovered during the demolition (including near the free product at monitoring well MW-68). Remember that you are required to notify the Department if this occurs.

We understand that the potential for vapor intrusion will be evaluated after the property is developed. However, several homes already exist near the site. Since chlorinated VOCs exceed PALs near residential dwellings, we would like EnviroAnalytics to evaluate whether the nearby homes could potentially be impacted. Please refer to Document [RR-800](#), "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin."

As you may know, the Department has become increasingly concerned about Per- and Polyfluoroalkyl Substances (PFAS) contamination associated with certain industries. With the historical auto manufacturing conducted at the site, we believe that there is a reasonable potential for PFAS contamination. In the near future, we would like you to submit a work plan that includes collecting groundwater samples from a few monitoring wells at the site for PFAS analysis. The wells chosen should include locations where chromium has exceeded the ES and also monitoring well MW-57S, located near the sludge and paint/mix rooms.

GM Plant, BRRTS No. 02-54-560205
October 15, 2018

The DNR appreciates your efforts to investigate and remediate this site. If you have any questions regarding these decisions or anything outlined in this letter, please contact me at (608) 267-7570 or jason.lowery@wisconsin.gov.

Sincerely,

A handwritten signature in black ink that reads "Jason B. Lowery". The signature is written in a cursive, flowing style.

Jason B. Lowery
Hydrogeologist

Copy: Mark Aquino, JD Smith, Steve Martin, DNR
SCR Case File