west virginia department of environmental protection

Office of Environmental Remediation
601 57th Street SE
Charleston, WV 25304
Phone: 304-926-0455

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
dep.wv.gov

June 1, 2015

Certified Mail #91 7199 9991 7033 6612 2963

Mr. Mark Welch, CRO
Freedom Industries
1015 Barlow Drive
Charleston, WV 25311

RE: *Site Investigation Report* Comments, VRP# 15017
Freedom Industries, Charleston, Kanawha County

Dear Mr. Welch:

A review of the above referenced document dated April 30, 2015, and received by the Office of Environmental Remediation on 4/30/2015, has been completed. Our comments are provided as follow:

Section 1.4 - Hydrogeology

1. It should be noted that as the deeper, regional aquifer is heavily influenced by the Elk River, groundwater flow direction can change based on fluctuations of the river. This may be the reason for detections of MCHM and PPH in upgradient monitoring wells MW-2, MW-7 and MW-11

Section 2.1 – Historic Land Use

2. As previously noted, WVDEP does not "enact" environmental covenants. Land use covenants or environmental covenants are recorded and attached to the property deed by the local county clerk.

Section 3.1 – Soil Borings

3. Additional information is needed with respect to the soil borings installed. How many borings were installed? How were the borings installed? How many samples were obtained via the soil borings? Additional detail with respect to sample containers and analyses performed is also requested in the text of the report.

Section 3.2 – Groundwater

4. Additional detail with respect to new monitoring well installation and construction is requested in the text of the report.

5. This section should reference that existing monitoring wells MW's 1-7 were also gauged and sampled.

6. The low-flow groundwater sampling procedure described in Section 8.5.1.2 of the "Remediation Delineation and Investigation Work Plan" states that the pump will be installed to mid-screen interval, and that the pump should be at least 2 feet above the well bottom to prevent sediment mobilization. The description in section 3.2 states that the pump was placed approximately 1 foot from the bottom of the well. Please explain.

7. The test indicates that ground water samples were collected via low flow purge technique with the pump placement "*to a depth approximately one foot from the bottom of the well*". The nature of the release suggests that if ground water has been affected, the upper portion of the aquifer should more likely exhibit higher concentration levels than the lower portion. Therefore, wells down gradient of the release area, MW's 3, 3A, 13 and the side gradient well pair MW's 11 and 11S, should be included in a future sampling event, or events, with the pump intake located in the upper foot of the saturated interval. Purging should continue until parameters stabilize with specific attention paid to the stabilization of dissolved oxygen.

8. The reference to "natural attenuation parameters" (temperature, dissolved oxygen, pH, conductivity and oxygen reduction potential) seems to actually be water quality parameters that are monitored to determine when groundwater conditions in the well have stabilized and the well may be sampled.

9. Additional detail with respect to sampling procedures, sample containers and analyses performed is also requested in the text of the report.

10. A reference should be made to the monitoring well construction diagrams located in Appendix A of the report. Also, there are monitoring well construction diagrams dated

January 2014 for wells MW's 1-4, however, these are existing wells installed under the former VRP project. Please explain.

11. Since data from the existing wells was collected, monitoring well construction diagrams for these wells should also be included in the report.

Section 3.3 – Surface Water and Sediment

12. Approximately how far from the bank were the existing surface water and sediment samples obtained? As previously transmitted, WVDEP will require additional surface water, sediment, river bank and stormwater sampling for the site, and plans to discuss these issues in the near future with Arcadis.

Section 3.5 – Excavations

13. In certain areas, significant levels of MCHM and PPH remain post confirmation sampling (see CS-3 (2/2/15). These areas need to be addressed in the planned additional excavations.

Section 4.1.1 – Analytical Results – Soil Borings

14. The screening of soil concentrations against the De Minimis Standards in the Voluntary Remediation Program (VRP) should also include a screening with respect to the Migration to Groundwater Standards. Concentrations of ethylene glycol, propylene glycol and acetaldehyde all exceed migration to groundwater standards.

15. The industrial soil De Minimis Standard for acetaldehyde is 370 ppm, not 3700 ppm.

Section 4.1.1.1 – Sub Tank Soils

16. The text states that the maximum sub tank MCHM concentration was 2,000, 000 ug/kg (2000 ppm) and the maximum PPH concentration was 6500 ug/kg (6.5 ppm); however, sample TK395A (0-0.5') contained concentrations of 8600 ppm for MCHM and < 4300 ppm for PPH.

Section 4.2.1 – Dissolved Phase Concentrations - Groundwater

17. The text states that groundwater samples were collected from all accessible wells during each sampling event. However, there are no results in Table 4A for monitoring wells MW-11S or MW-12S. Please explain.

18. The text states that concentrations of MCHM in groundwater ranged from < .21 ug/L, BDL, to 14 ug/L. However, MCHM had "non-detects" at higher reporting limits (see MW-4/08-21-2014), indicating higher levels may have been present. See additional comments concerning reporting/detection limits below.

19. The initial sampling event for MW's 1-7 contained detection (or reporting?) limits in the sub-part per billion range; subsequent sampling events for these wells as well as the new wells all have detection/reporting limits 1-2 orders of magnitude higher. Please explain.

20. None of the COC's from the previous VRP project (petroleum constituents) were analyzed in groundwater. These need to be analyzed to determine if the recent spill has caused additional leaching of these constituents into groundwater.

21. Note that acetaldehyde has a De Minimis risk based concentration (RBC) of 2.2 ug/L. Current detection/reporting limits in Table 4A have been 50 ug/L at the lowest. Additional sampling/analysis will be required to meet the noted RBC.

Section 4.2.2 – Surface Water

22. Surface water sample results for MCHM and PPH have been <9.7 ug/L, BDL, in all sample results. WVDEP believes lower detection limits can and should be achieved.

Section 4.2.5 – Storm Water Outfall

23. The discharge point for stormwater outfall 002 is unclear on the figures, however, sample results have had significant detections of MCHM and PPH. In the most recent sampling event for outfall 002 and 003, MCHM and PPH were not analyzed. Please explain.

Section 5 – Conclusions

24. WVDEP believes additional investigation is warranted and it is premature to move to the risk assessment stage in the VRP process.

25. As noted in item #19 above, groundwater has not been analyzed for the COC's associated with the former VRP project, therefore a final COC list cannot be determined at this time.

Tables

26. For monitoring wells MW-11S and MW-3 there are apparent slight discrepancies between the boring logs and entries provided in Table 1. For MW-3, Depth to Bottom is reported to be 22.5 feet in Table 1, whereas the boring log indicates a Total Depth of 20 feet. For MW-11S, Table 1 reports a depth to bottom of 19.49 feet and reported Depths to Water range from 19.38 to 19.49 feet bgs. The boring log for MW-11S indicates total depth to be 17.5 feet, one foot higher than observed water levels.

27. Data qualifier definitions should be listed in the notes on applicable tables.

Figures

28. Object #392 appears on most figures, however, WVDEP has been unable to determine if this is a tank or some other structure. Please explain.

29. Sub tank analytical results do not appear on any figure. Please either add these results to a current figure or preferably, include a separate figure with these results.

30. According to Table 2 in the "Remediation Delineation and Investigation Work Plan", sample ARC-SS-05 was to be taken from beneath Tank 397. However, based on Figures 6A and 6B in the Site Investigation Report, no sample was taken from the footprint of Tank 397. Please explain.

31. Sample SB-27 subsurface results are not included on Figure 6B.

Detection Limit Issues

32. WVDEP has concerns with the reporting/detection limits for both soil and groundwater analyses in the Site Investigation Report. For soil, the lowest reporting limit (noted as detection limit in Section 4.1.1of the report, BDL) was 340 ppb for both MCHM and PPH. For surface soil, not including duplicates, 65 out of 81 MCHM analyses were reported as less than the reporting limit; for PPH it was 74 out of 81. 20 out of 81 analyses for MCHM and 28 out of 81 for PPH contained reporting limits of < 1 ppm or greater. For subsurface soil, not including duplicates, 62 out of 68 MCHM analyses were reported as less than the reporting limit; for PPH it was 66 out of 68. 9 out of 68 analyses for MCHM and 13 out of 68 for PPH contained reporting limits of < 1 ppm or greater. WVDEP believes lower detection/reporting limits can and should be achieved for these analyses. For groundwater, as noted above in item #19, the initial sampling event for monitoring wells MW's 1-7 contained detection/reporting limits in the sub-part per billion range; subsequent events were much higher. Sub-part per billion detection limits were achievable for drinking water analyses and should be for groundwater, surface water and stormwater also.

Analytical Methods

33. MCHM appears to have a significant volatile fraction. Current sampling in soil and water has been conducted for analysis by a semi-volatile method (EPA 8270 C), which does not consider volatile loss in headspace and does not require preservation. This could lead to significant reductions in analyzed concentrations. Please explain why semi-volatile methods were chosen for sampling/analyses.

Additional Investigation

34. WVDEP noted several areas not associated with the MCHM/PPH spill in the review of the VRP application and Phase I report that will require additional investigation to meet the requirements of the VRP. These include former transformer locations, discharge areas

for the storm drains in the office and garage/maintenance building, barge dock, and oil pit in the large truck garage, Soil sampling is also needed associated with the oil/water separator.

35. There was a release of MCHM contaminated stormwater to outlets 003 and 002 at various times early in the incident. The soil, and groundwater if warranted, around these outlets needs to be investigated for MCHM/PPH impacts. The flow to 002 was piped from the oil/water separator, but the discharge pipe is disintegrated in the bank before the actual discharge point. This is on the lower terrace in the area downgradient of the emergency supplies shed. The flow to 003 was very contaminated and flowed from the parking lot between the office and garage, sheet flow over the grassy hill to the approximate 003 outlet point. This area of the lower terrace also needs to be investigated for MCHMPPH impacts in the soil, and if warranted, groundwater.

36. There is a grassy area between the oil/water separator and the northern access road. Immediately subsequent to the spill, this area became a staging location for roll-off boxes that received tons of contaminated gravel, booms, absorbent and other materials. The boxes were not water tight and WVDEP documented contaminated discharges from them on a regular basis. Soil and possibly groundwater needs to be investigated in this area for MCHM/PPH impacts.

Data Validation

37. No third party data validation has been conducted for the data included in the Site Investigation Report. This may be completed once additional investigation and reporting has been completed.

A Response to Comments document should be prepared as well as revisions to the Site Investigation Report, as necessary, to address these comments. A modification to the Voluntary Remediation Agreement is needed to update the schedule for submittal of the "VRP Supplemental Site Investigation Work Plan", which will address the additional areas of investigation noted herein. WVDEP is willing to meet and discuss the issues herein. I can be contacted by phone at 304-926-0499, ext. 1265 or email at David.W.Long@wv.gov.

Sincerely,

Dave Long
Project Manager

cc: Ira Buchanan, LRS
Charleston File # 15017
ec: Patty Perrine, Interim Program Manager, WVDEP/OER