Griffith Environmental Consulting Inc.
5089 Hedges Drive
Helena, MT 59602
406-458-5720
406-459-4830 (cell)
e-mail: egriffithgec@gmail.com

7 April 2020

Mr. Phil Sebastian
804 Birch Street
Helena, MT 59601

RE: Work Plan to Sample All Wells at the Former Valentine Oil Co. Bulk Plant 1514 North Montana Ave. Helena, MT; Facility # 25-04623, Release # 4080, Work Plan .

Dear Mr. Sebastian

I have prepared this work plan with an estimate of the costs to complete the work as requested by Mr. Bergum in his letter of 6 April 2020. Data from 12 March 2015 through December 2016 indicated a ground-water gradient reversal that could only be explained by leakage from the brewery sewer line. A huge increase in the water-table elevation in June 2018 could only be explained by an increase of discharge from the brewery, not by a seasonal ground-water fluctuation, especially since the gradient reversal was clearly shown by the data (Table 1).

Continuous seepage from this sewer line, which is now conveying significantly more water than was the case when Columbia Paint was operating out of the building, has, in hydraulic terms, created an injection barrier to normal ground-water flow. This barrier has caused the contaminated ground water near MW-3 to become trapped between the sewer seepage and the normal up-gradient flow. Future data trends for MW-3 will be very interesting to see in light of the tremendous influx of ground water from the brewery sewer. Given this dilemma, I feel that extensive purging of well MW-3 is critical to getting the water quality moving in the right direction. Thus, for this work plan, I am recommending that both Mr. John Carter and I conduct the sampling and purging as a team to bring greater efficiency to the effort as we have done on almost every other tank site.

Sampling

Two sampling events are planned; one as soon as possible while the tasting room is closed and there is a minimum of sewage being discharged from the brewery and the water table is at its lowest seasonal level with the second event planned for the fall when, hopefully, business is more normal and the water table is at the late summer high. Leakage from the Lewis and Clark Brewery sewer is the ground-water driver and a wild card for this site, so any hope to capture high and low ground-water conditions may be moot.

Prior to sampling all the wells, the depth to the water table will be measured in MW-3 immediately using a decontaminated Keck interface probe so that well purging can be started. Well (MW-4) is to be measured for the depth to the water table only with wells MW-1 and 2 to follow. The water-table elevation data will be reviewed on-site to determine what the flow

direction and gradient are so if a strong reverse gradient is shown, sampling of MW-4 should be considered. For this work plan and cost estimate, only wells MW-1, 2, and 3 are scheduled to be sampled.

Because the water table will likely be less than 20 feet below the ground surface due to the leaking sewer, a peristaltic pump will be used to sample these wells. Samples will be collected from each well only after the field parameters of conductivity, ORP, and pH stabilize to within 5% of the previous reading. Field parameters of temperature and DO will be measured using a down-hole YSI probe after the samples have been collected. The water samples will be placed in a cooler with ice and hand delivered to the laboratory for analysis. Each sample will be analyzed for VPH, EPH screen, and intrinsic biological indicators.

Report

Upon receipt of the laboratory data from the first event, I will e-mail the data to the Mr. Bergum for discussion. Following our discussion of the sampling and field data, I will prepare a report If changes are deemed necessary after the data review, a Form 8 will be submitted to the PTRCB outlining those anticipated costs for any additional work. A report containing the data from both well sampling events will be prepared using the standard format required by the DEQ after the second event. All the data will be presented on tables with select parameters also displayed on site figures as iso-concentration lines. Based on the water table data, a figure showing the ground water gradient and flow direction will be prepared. Included as part of this report will be the completion of an amended RCP.

Depending on the sampling results, I will recommend possible actions to address existing ground-water contamination, or, should the results show that contamination has declined to levels below the State standards, follow-up sampling to seek release closure.

Respectfully,

Earl F Griffith PG

Earl F. Griffith P.G.
Wyoming #1033

Cost Estimate
Former Valentine Oil Bulk Plant, Helena, Montana
Facility ID # 25-04623, Release #4080
7 April 2020

Task 1: Work Plan/Cost Estimate (CAP-AC-03)

gec	Units	Rate	Cost
DEQ (CAP MR-01)	1	---	$630.00
	Estimated Costs Task 1		**$630.00**

Task 2: Sampling (gec: Includes Travel, Direct Costs, and Analytical Costs)

gec	Units	Rate	Cost
Proj. Geologist (well purging, etc.)	3	$137.00	$411.00
Mileage	14 miles	$16.23/mile	$227.34
well sampling	3 wells	$186.00	$558.00
	Sampling, including equipment costs		$1,196.34

Analytical Costs	Units	Rate	Cost
EPH screen (water)	3	$80.00 ea.	$240.00
VPH	3	$120.00 ea.	$360.00
IBIs	3	$ 55.00	$165.00
Sample Fee	3	$ 10.00 ea.	$ 30.00
	Estimated Analytical Costs Task 2		$795.00
	Estimated Costs Task 2		**$1,991.34**

Task 3: Contract Management-Sr. Scientist/Manager; Includes time to amend the RCP and DVF and discuss the results from the initial sampling event.

gec Labor	Units	Rate	Costs
Senior Scientist	6.0 hrs.	$155.00/hr.	$930.00
	Estimated Costs Task 3		**$930.00**

Task 4: Report (MR-01) **$1,960.00**

Total Estimated Project Costs: **$5,511.34**

For two events, add the total for Task 2, 3, and 4 **$4,881.34**

Total Estimated Project Costs for two events: **$10,392.68**