Michigan Department of Environment, Great Lakes, and Energy

Wolverine CAG – Revised Draft Tannery Interceptor System Response Activity Plan

June 28, 2023

The Wolverine Community Advisory Group (WCAG) is comprised of concerned citizens that have been impacted by PFAS contamination from the Wolverine Worldwide (WW) Tannery in Rockford and their waste disposal sites in northern Kent County. The contaminated area covers approximately 25 square miles, and PFAS compounds have been detected in 800+ residential wells and the Plainfield Township municipal water supply, which serves over 40,000 people. The WCAG is responding to the Revised Draft Tannery Interceptor System Response Activity Plan by WW, submitted to EGLE on May 9, 2023.

Our concerns are based on two sections in the Consent Decree:

1. The Response Activity Plan shall contain a schedule for any interceptor system modifications or expansion(s) and an appropriate **groundwater monitoring plan to demonstrate the effectiveness of the interceptor system**.
2. **Defendant shall demonstrate that the interceptor system is effective at addressing PFAS Compounds contamination and preventing PFAS Compounds from entering the surface water above water quality standards issued under Part 31**.

The WCAG outlined our concerns about meeting these requirements in our 1/22/22 and 1/27/23 comment letters. The proposed revisions have addressed our concerns about the number of monitoring locations and the design specifics of the groundwater treatment system. We still have fundamental concerns about the monitoring program and the performance criteria proposed by WW/GZA.

The proposed plan relies on monitoring water elevation data as a surrogate for demonstrating that the high levels of PFAS at the site are not entering surface water at levels

above the GSI criteria. The proposed criteria for compliance are provided in Table 15.1 on Page 61. Successful performance is defined as having water elevations in the trench sumps being less than or equal to the water elevations in the paired river and deep piezometers. GZA further

Monitoring Sections	River Piezometers (GSI)	Deeper Piezometers	Paired Trench Piezometers	Performance Criteria
MS-1A	RPZ-1A	DPZ-1A	TPZ-1A	Groundwater elevations at TPZ-1A and DPZ-1A less than or equal to RPZ-1A
MS-1B	RPZ-1B	DPZ-1B	TPZ-1B	Groundwater elevations at TPZ-1B and DPZ-1B less than or equal to RPZ-1B
MS-1C and MS-4	TA-RP-5	Not used	TPA-1C, TPZ-4	Groundwater elevation at TPZ-4 and TPZ-1C less than or equal to TA-RP-5
MS-3 and MS-2	TA-SG-RC	DPZ-3	TPZ-2, TPZ-3	Groundwater elevations at TPZ-2 and TPZ-3 less than or equal to TA-SG-RC. Groundwater elevations at DPZ-3 less than the average of TA-SG-RC and TA-RP-5.
MS-5	RPZ-5	DPZ-5	TPZ-5	Groundwater elevation at TPZ-5 and DPZ-5 less than or equal to RPZ-5
MS-6A	RPZ-6A	DPZ-6A	TPZ-6A	Groundwater elevation at TPZ-6A and DPZ-6A less than or equal to RPZ-6A
MS-6B	RPZ-6B	DPZ-6B	TPZ-6B	Groundwater elevation at TPZ-6B and DPZ-6B less than or equal to RPZ-6B
MS-7A	RPZ-7A	DPZ-7A	TPZ-7A	Groundwater elevation at TPZ-7A and DPZ-7A less than or equal to RPZ-7A
MS-7B	RPZ-7B	DPZ-7B	TPZ-7B	Groundwater elevation at TPZ-7B and DPZ-7B less than or equal to RPZ-7B
MS-9A	RPZ-9A	TA-MW-309C	TPZ-9A	Groundwater elevation at TPZ-9A and TA-MW-309C less than or equal to RPZ-9A
MW-9B	RPZ-9B	DPZ-9B	TPZ-9B	Groundwater elevation at TPZ-9B and DPZ-9B less than or equal to RPZ-9B

Table 15-1: Rogue River Monitoring Sections and Performance Monitoring Criteria

explains these conditions on Page 60:

Groundwater elevations measured in piezometers installed in the trenches (TPZs) will be compared to those of their corresponding river piezometers (RPZs). If groundwater elevations in the TPZs are lower than the RPZs, inward hydraulic gradients are achieved. Groundwater elevations measured in deep piezometers (DPZs) will be compared to those of their corresponding RPZs to evaluate potential underflow passing beneath the trenches. If groundwater elevations in the DPZs are lower than the RPZs, inward hydraulic gradients exist. If groundwater elevations in the TPZs or DPZs are equal to those of their corresponding RPZs, it indicates groundwater between the trenches and the surface waters is stagnant, and groundwater is not venting to the

surface waters.

We provided a detailed description of why PFAS would migrate from the highly contaminated soils near the river to surface water by diffusion in our 1/27/23 response letter. PFAS transport will still occur by diffusion from high to low concentration gradients (site to the surface water) and from low permeability soils to the permeable gravels and sands in the stream (Fetter et al. 2017). Flowing water (especially during high flow events) and burrowing organisms will also enhance contaminant diffusion. Due to site heterogeneity impacting the representativeness of the piezometers and issues with the conclusions about pore water and the inherent uncertainty associated with water elevation measurements (Figure 1), the only way to

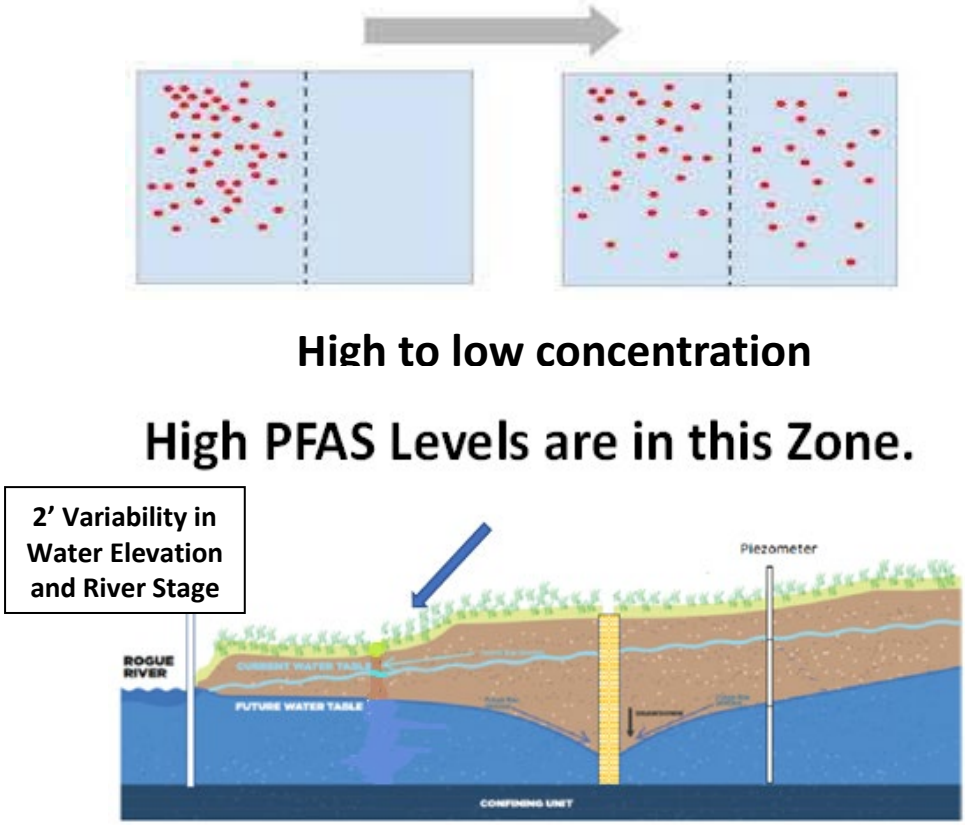

Figure 1. The Influence of Diffusion, River Stage, and Water Elevation on Piezometer Values.

reduce PFAS transport by diffusion is to maintain a negative gradient where the groundwater is not stagnant and is moving away from the river to the trench. We strongly feel that conditions where no gradient is present are unacceptable. We request that EGLE require WW to maintain a negative gradient that will prevent PFAS diffusion from high concentrations in the riverbank soils to the Rogue River and Rum Creek. We also found no reference in the revised plan to the extent of the water table drawdown that the trench system will achieve. The system should be designed to achieve a targeted drawdown level to meet the requirements of the Consent Decree.

The WCAG also has concerns about the design of the monitoring system. GZA describes the interceptor trench and piezometer monitoring system in Section 10.1.7 on Page 52:

Signal cables from each pressure transducer installed in the trench sumps and EWs and will be hard-wired to the control panel and will be configured to measure the water elevation. Pressure transducers will also be installed in each of the RPZs and DPZs. The groundwater elevations in the RPZs will be considered groundwater elevations at the GSI and each RPZ will be paired with trench sumps and extraction wells so that hydraulic control can be directly monitored and controlled. Water elevation data collected by the transducers will be output to the PLC which will monitor groundwater elevation and control pump operation.

The pressure transducers (PTs) in the trench sumps are hard-wired to the control panel. They will provide continuous measurements for water elevations, while the PTs in the piezometers are not and must be manually downloaded. The initial frequency is weekly for downloading the water elevation data with the option of moving to less frequent intervals. We request that the PTs in the piezometers be hardwired to the control panel so that pumping levels in the sump can be adjusted to achieve a negative gradient.

We provided information in our 1/22/23 letter that historical groundwater levels and river stages can vary over 2 ft (Figure 2). The proposed weekly monitoring schedule does not reflect the

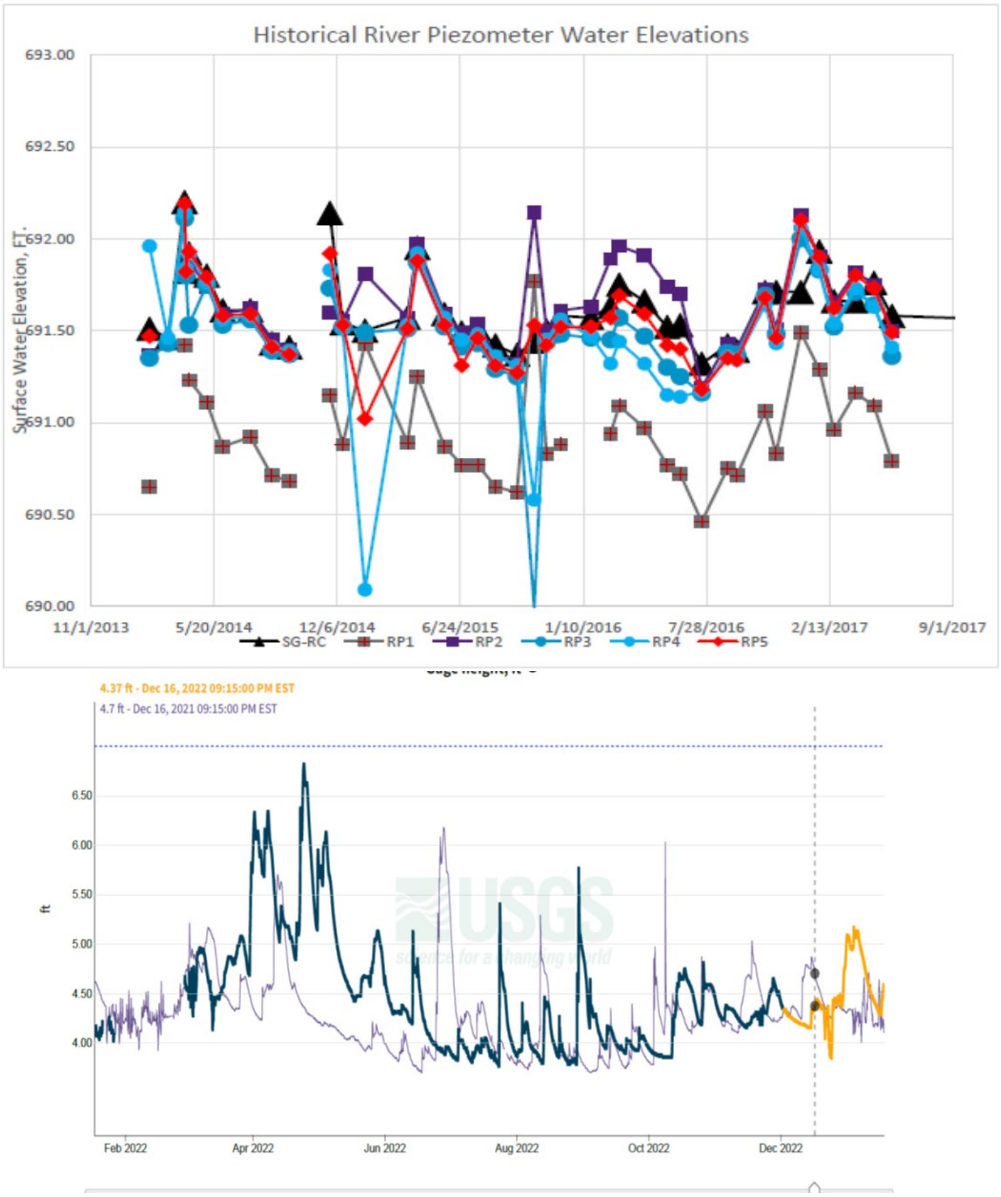

Figure 2. Variability of Piezometer Water Elevations (GZA) and Rogue River Stage (USGS 2021 and 2022).

the hydrologic complexity of the system by the time the piezometer is downloaded and processed, more than a week of noncompliance with maintaining a negative gradient may occur.

Other than cost cutting, there is no reason to monitor the compliance part of the groundwater interceptor system at a lesser frequency than the levels in the sumps. We made this request in our 1/27/23 response letter, and we again are requesting that the monitoring of piezometer arrays used for water elevation measurements be automated by pressure transducers that can continuously record and transmit water level data.

We also request again that Rum Creek be sampled quarterly as part of the site monitoring program. Rum Creek can be easily sampled without special equipment and contained 50 ppt PFOS on 10/23/18. PFAS is moving into Rum Creek from the venting of contaminated groundwater at the Tannery. Monitoring the creek will provide direct evidence of stopping groundwater flow and confirm the surrogate measurement of water elevations.

The recreational use of the Rogue River continues to be impacted by PFAS foam and PFAS fish consumption advisories for the Tannery area and the impoundment in Rockford. The verified control of the PFAS plume from the WW Tannery is a critical part of restoring these damages to the natural resources provided by the Rogue River, especially since the change to the trench system will result in an additional eight months of additional impairment to our natural resources due to the uncontrolled venting of PFAS contaminated groundwater.

We also recommend that Rum Creek be returned to its natural state and that the cement culvert enclosing the creek be removed while the equipment is available and the trench system is being installed. Restoring the creek to a natural state will remove an eyesore and constant reminder of the contamination and improve fish passage, stormwater management, and habitat. Once the interceptor system is installed, there will be no opportunity to return Rum Creek to a natural state for decades. We finally request that the Timeline on Page 59 be modified to include monthly progress reporting to EGLE. The modular and final system should be enclosed in a

building that goes through Planning Commission approval and is constructed with the appropriate architecture and materials for a setting with high visibility.

Conclusions

The Wolverine Community Advisory Group appreciates the opportunity to comment on the Revised Draft Tannery Interceptor System Response Activity Plan. The PFAS contamination at the WW Tannery must be managed to significantly reduces the documented flow of PFAS contaminated groundwater into the surface waters of the Rogue River and Rum Creek. Maintaining a negative gradient from the river to the trench sumps and automation of collecting piezometer water will enhance the ability of the interceptor system to demonstrate that the treatment system will meet the goals outlined in the CD.

Sincerely,

Richard R. Rediske, Ph.D.
Leadership Team
Wolverine Community Advisory Group

References

Fetter et. al. 2017. Contaminant Hydrogeology. (3rd ed), Waveland Press (2017)