

**Summary of Public Comments  
and  
Department of Environment, Great Lakes, and Energy (EGLE) Responses  
to  
Wolverine World Wide's Proposed Plan  
for  
GSI Investigation Summary and Work Plan  
Public Comment Period: June 7, 2021 – July 6, 2021**

<b>Commenter</b>	<b>Comment</b>	<b>EGLE Response</b>
<p>David P. Lusch, Ph.D Professor Emeritus Dept. of Geography, Environment, and Spatial Sciences Michigan State University</p>	<p>On your slide discussing Figure 6B in the GSI Investigation Summary and Work Plan, submitted by R&amp;W/GZA on April 26, 2021, to EGLE, you showed an overlay of Figure 6B on the Maximum Detected PFOA and PFOS Concentrations as of 11/10/2020 map (AECOM 11/11/2020) that showed "Potential groundwater flow directions" as wide blue lines with arrowheads at their end (Figure A).</p> <p>The original Maximum Detected PFOA and PFOS Concentrations as of 11/10/2020 map (AECOM 11/11/2020) showing "Potential groundwater flow directions" is shown in Figure B.</p> <p>The original Figure 1 from the GSI Investigation Summary and Work Plan (R&amp;W/GZA, April 26, 2021) shows the shallow groundwater piezometric surface with brown contours (Figure C).</p> <p>On Figure D, I have drawn a few groundwater flow lines on the shallow piezometric surface presented on the original Figure 1 from the GSI Investigation Summary and Work Plan. Clearly, groundwater flows toward US-131 from the 865 ft groundwater mound depicted just west of MW-14. As such, the</p>	<p>EGLE appreciates you taking the time to watch the virtual meeting and provide your comments.</p> <p>The shallow groundwater piezometric surface map by GZA was created using a limited amount of data points and in many areas uses interpolation, especially in the areas you have noted concerns about. EGLE does not agree with the depicted contour map in many of those interpolated areas as they are not based on actual geology or field measurements. The geology in this area is highly heterogeneous with multiple aquifers present. The potential groundwater flow directions depicted on AECOM's figure are not associated with a particular depth or just one aquifer, which is why the potential flow lines may not match up with the</p>

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	<p>“Potential groundwater flow directions” shown on the overlay in Figure A, above, from your presentation are erroneous since they indicate flow from near US-131 climbing up the 865 ft groundwater mound depicted just west of MW-14. Of course, the original “Maximum Detected PFOA and PFOS Concentrations as of 11/10/2020” map showing these “Potential groundwater flow directions” was produced on Nov. 11, 2020, while the shallow piezometric surface shown in the GSI Investigation Summary and Work Plan was compiled on April 26, 2021. In an effort to graphically help the public understand the details of the GSI Investigation Summary and Work Plan, you inadvertently presented an erroneous depiction of the local groundwater flow directions.</p> <p>More seriously, however, the “source area” for the contaminated wells shown in upper right of Figure B cannot be the hotspot located near US-131 since this area is on the other side of the 865 ft groundwater mound depicted just west of MW-14. There must be some other source for this contamination and the GSI Investigation Summary and Work Plan does not address this issue at present.</p> <p>A similar graphical issue (showing erroneous groundwater flow paths) occurred with your slide discussing Figure 6C where you showed an overlay of Figure 6C on the Maximum Detected PFOA and PFOS Concentrations as of 11/10/2020 map (Figure E).</p> <p>Again, for clarity, the original Maximum Detected PFOA and PFOS Concentrations as of 11/10/2020 map (AECOM 11/11/2020) showing “Potential groundwater flow directions” is shown in Figure F and the original Figure 1 from the GSI Investigation Summary and Work Plan is shown in Figure G. My interpretation of some of the shallow groundwater flow directions are shown in Figure H. Clearly, the groundwater “ridge” east of the Rogue River shows groundwater discharging into the Rogue River or flowing quasiparallel to the river through its floodplain. Both circumstances argue against the dashed potential groundwater flow line shown crossing the river near HS-MW-261 on Figure F. The “source area” for the contamination hotspot East of the Rogue River, just north of W River Drive NE, is not likely coming from across the river to the NW given the shape of the piezometric surface. The GSI Investigation Summary and Work Plan does not address this issue at present, either.</p>	<p>shallow contour groundwater map created by GZA.</p> <p>Multiple lines of evidence have been reviewed by EGLE to assess where the source area is located north of 10 Mile Road, and we would be more than happy to further discuss those in detail with you.</p>

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<p>Richard R. Rediske, Ph.D. Professor, Water Resources Annis Water Resources Institute</p> <p>Wolverine Community Advisory Group</p>	<p>We are concerned about the high levels of PFOS entering the Rogue River from the House Street plume (1,100 ppt) and the Wolven Jewel plume (260 ppt). We also are concerned about high levels of PFOS entering the Rogue River below 12 Mile Road (2 miles of river frontage impacted up to 230 ppt), below the Rockford Dam (1 mile of river frontage impacted up to 230 79 ppt) and below the Rogue River Bridge (26 ppt). We continue to disagree with the PFOS plume map included in the most recent submittal for the perimeter well work plan (Figure 1; Dec 21,2020). This map is similar to the one we discussed in our June 12, 2020 GSI comment memo and raised concerns that that the plumes were disconnected from the source areas and depicted to be isolated small areas entering the river. Based on the pore water data, PFOS laden groundwater is entering the Rogue River in areas above the GIS limit of 12 ppt at multiple locations (circled in red) that are not shown on the WWW PFOS plume map. PFOS has the lowest GSI concentration and we request that the court required GSI plan document contain accurate representations of contaminant concentrations. The CD states the outcome of the GSI investigation is that “the Defendant may submit a work plan to MDEQ that proposes to install interceptor systems or undertake other Response Activities to stop the venting of contaminated groundwater containing PFAS Compounds above applicable criteria into surface water.” Any Response Activity based on the above map will not restore the natural resource damages from PFOS fish consumption advisories and recreational contact advisories from PFAS foam. PFOS sampling results from 2018 clearly demonstrate that the Rogue River contains 1.4 ppt at Island Pine Island and gains in both volume and concentration to 18 ppt at West River Drive (Figure 1). The pore water PFOS concentrations measured in this study reflect the unacceptable groundwater loading of PFOS above the GSI standard of 12 ppt. The pore water PFOS concentrations also are inconsistent with the PFOS map. Based on the PFOS concentrations in the pore water, the Wolverine CAG is recommending additional GIS wells be installed at the locations shown in Figure 2. We feel 11 additional wells are needed to characterize the plume of groundwater elevation contours and PFOS concentrations. The additional wells are requested to account for spatial variability and the length of river frontage impacted. For example, the 2 mile area of river frontage starting near 12 Mile Road only has 5 GSI wells proposed, with 2 of these wells located outside of the contaminated area to define the extent and one well located near MW9 which has no detectable PFOS (WWW Figure 6B). No rational is</p>	<p>Thank you for taking the time to provide comments on this plan. EGLE shares similar concerns regarding plume/isoconcentration maps, which will be reflected in our review and response to this GSI Response Activity Plan.</p> <p>EGLE will review the locations of the additional wells you have proposed as we review the plan. As stated in the plan, the results of VAP sampling and groundwater sampling results will be evaluated to further determine if additional GSI monitoring wells are necessary. EGLE anticipates further refinement of the permanent wells network in order for Wolverine to meet the objectives of the consent decree.</p>

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	<p>provided to demonstrate that two GSI wells will be sufficient to characterize 2 miles of river frontage with concentrations ranging from 17-230 ppt PFOS. We also recommend two additional GSI wells be installed along the Grand River to monitor PPFOS levels entering the river and potential migration in the direction of the Plainfield Township Well field. The location proposed by WWW is not near the The Wolverine Community Advisory Group appreciates the opportunity to comment on the GSI report. The goal of the GIS Investigation and Work Plan should be to accurately characterize groundwater concentrations of PFOS entering the Rogue River and to determine which areas exceed GSI standards and require remediation. For the reasons outlined above, we feel the GIS Investigation and Work Plan is inadequate with respect to its scope and are concerned about the number of wells used to define PFOS concentrations within plume boundaries. We recommend the installation of 11 additional GSI wells (total 29) which is still below the CD limit of 40. The proposed modifications can address these shortcomings without significant delays or unreasonable expenditure of resources. It is critical that the PFAS contamination from the House Street Disposal Area and Woven Jewel be managed in a manner that greatly reduces the ability of PFOS contaminated groundwater to damage the recreational and fisheries use of the Rogue River. This requires the accurate characterization of the groundwater by a representative number of GSI wells.</p>	