

## Northwest Pipe Company

### Response to DEQ and EPA Comments on the Draft Monitored Natural Attenuation (MNA) Evaluation Work Plan (January 2022)

DEQ Comments on the Draft MNA Evaluation Work Plan		
Comment Identifier	Comment	NWP Response
General Comment	DEQ agrees with the analytes, geochemical parameters, sampling methods, and sampling frequency proposed in the Monitored Natural Attenuation (MNA) WP. However, DEQ requests a response to specific comments discussed below and a resubmittal of the workplan that addresses comments from DEQ and EPA.	Noted
1.	Provide an Oregon Licensed Geologist or Engineer stamp for the final WP submittal.	The final work plan will be stamped by an Oregon Licensed Geologist or Engineer
2. Section 3.1	DEQ disagrees that the source area was remediated due to the relatively high Volatile Organic Compounds (VOCs) detections in recent groundwater monitoring conducted on the site. The tank release analytical results indicated successful cleanup of VOCs in soil. Still, the detection of VOCs in monitoring well groundwater samples shows that the source control element of the MNA has not been achieved. It's more accurate to say that remediation has been performed in the past, whereas the language suggests remediation is complete.	Text has been revised to note that remediation has been performed in the past.
3. Section 3.2	The work plan indicates MNA is the remedy for the site. MNA is intended to be a source control measure that requires groundwater monitoring to demonstrate that the measure is effective. The evaluation of MNA performance has not yet been completed; therefore, the statement that MNA is protective of human health and ecologic risk is premature. Vapor intrusion risk will be evaluated in the Remedial Investigation, no further action determination, not the MNA process.	The section title was revised to "Human Health and Ecological Risk".
4. Section 3.4	DEQ disagrees with NWP characterization of contaminant trends. An increasing trend at MW-1 and significant increases were observed after ten-year sampling hiatus at MW-3, MW-5, and MW-6.	Shorter term plots have been added to the work plan, and the text has been edited to indicate that the current trends for contaminants are relatively stable.
5. Section 4.1	DEQ disagrees that MW-2 is an upgradient well. MW-2 is cross gradient of the source area relative to the old waste oil tank and groundwater flow direction. DEQ recommends the addition of monitoring well T4S1MW-23 to the MNA monitoring network to define the lateral extent of VOCs.	Monitoring well T4S1MW-23 will be added to the network.

6. Section 4.4	The annual data evaluation trend data should be plotted and the estimated time to compliance extrapolated from the data for each monitoring well.	Trends will be plotted and time to compliance will be discussed in the annual monitoring reports.
7. Section 6.2	DEQ agrees with EPA's first comment in the To Be Considered category. The comment requests that NWP discuss the potential limitations of using a peristaltic pump for the collection of groundwater samples for meeting the study's objectives. In addition, the plan should provide a rationale for the potential loss of VOCs, dissolved gases, and alteration of groundwater geochemistry results using the peristaltic pump sampling method.	The requested information was added to the Sampling and Analysis Plan. Sampling will be conducted using low-flow methods.

<b>EPA Comments on the Draft MNA Evaluation Work Plan</b>		
<b>Comment Identifier</b>	<b>To Be Considered Comments</b>	<b>NWP Response</b>
1. Section 6.2	Section 6.2, first paragraph of the Sampling and Analysis Plan (SAP), included as Appendix B, states that purging and sampling will be conducted using a peristaltic pump. According to EPA Guidance on low stress purging and sampling procedures, adjustable rate, peristaltic pumps (suction) are to be used with caution when collecting samples for VOCs and dissolved gas (e.g., methane, carbon dioxide, etc.) analyses (EPA 2017). Additional information on the use of peristaltic pumps can be found in Appendix A of the referenced guidance document. Peristaltic pumps can cause degassing resulting in alteration of pH, alkalinity, and some volatiles loss and sampling techniques should carefully consider potential impacts on the results. EPA considers the use of a peristaltic pump for the collection of groundwater samples acceptable for meeting the objectives of this study, but the SAP should discuss potential limitations of using a peristaltic pump to purge and sample the monitoring wells with respect to potential loss of VOCs, dissolved gasses, and alteration of groundwater geochemistry results.	The requested information was added to the Sampling and Analysis Plan.
2. Section 6.2	Section 6.2, third paragraph states that the pumping rate used for sample collection will be approximately 0.1 liter per minute or less; however, in the second paragraph the text states purging flow rates will be in the range of 0.1 to 0.3 liter per minute. The text should clarify that the sampling flow rate should be equal to the flow rate used for purging whenever possible. Stabilization of the measurements of drawdown, pH, specific conductance, dissolved oxygen, turbidity, and temperature are an indicator of an equilibrium condition. Therefore, sample collection should be conducted at the same flow rate used during purging, when possible, to preserve the equilibrium condition represented by stabilized parameters measured during purging. If the pump's flow rate is too high to collect the VOC/dissolved gases samples, collect the other samples first,	Text was modified to clarify.

<b>EPA Comments on the Draft MNA Evaluation Work Plan</b>		
<b>Comment Identifier</b>	<b>To Be Considered Comments</b>	<b>NWP Response</b>
	then lower the pump's flow rate to a reasonable rate and collect the VOC/dissolved gases samples and record the new flow rate.	
3. Section 7.1	Section 7.1, Field Instrument Decontamination, should be revised to say that instruments coming into contact with groundwater should be decontaminated with an Alconox wash and distilled water rinse between monitoring sites in order to minimize the potential of cross contamination between monitoring wells.	Text was modified as requested.
4. Section 7	Consider revision of Section 7, Sample Handling and Quality Assurance to include discussion of the water level indicator, which is a non-disposable field instrument that comes into contact with groundwater in-between sampling locations. Decontamination of the water level indicator using an Alconox wash and distilled water rinse in between sampling locations is considered adequate to prevent cross contamination and collection of an equipment blank is not required.	Text was modified as requested.
5.	Consider adding an Appendix to the SAP containing copy of the field form that will be used to collect measurements during purging and sampling.	Field forms will be included as requested.
<b>Comment Identifier</b>	<b>Matter of Style Comments</b>	<b>NWP Response</b>
1. Section 6.2	Section 6.2, second paragraph, fourth sentence states "The initial measurements of pH, specific conductance, dissolved oxygen, turbidity, and temperature of the purge water will be observed and recorded in the field logbook or sampling log for the well." This sentence should be revised to include the measurement of oxidation reduction potential (ORP).	Text was revised to include ORP measurement.