

**From:** [Todd Vanek](#)  
**To:** [RICHARDSON Chris](#)  
**Cc:** ["Melton, Wade E"](#)  
**Subject:** RE: DEQ Review of Monitoring Report - ARCO #4407 - Salem, OR  
**Date:** Monday, February 10, 2020 4:43:18 PM

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Chris:

See responses to your questions/comments below in red text. We are in the process of scheduling a second vapor sampling event to address the potential for seasonal variation as requested by DEQ and we will wait for any comments regarding the questions addressed below before scheduling. DEQ has completed a review of the Site Assessment Report dated October 21, 2019 for ARCO facility #4407. My questions and comments are below in bulleted format for clarity.

- Section 2.8 discusses the soil vapor sampling. I'm glad to see there was no helium breakthrough in the samples. Purging 10 pore sample volumes is borderline excessive. DEQ guidance suggests a minimum of two volumes and I think three or four is ideal. **10 pore volumes per sampling location was selected as the initial purge volume following installation of the vapor probes. For future sampling events 4 pore volumes will be purged.**
- Section 3.3 discusses the Quantitative soil analysis. Please describe what quality control parameters failed resulting in a reanalysis out of hold time? **We inquired with the lab as to why the TPH-G re-analysis was performed out of hold time but did not receive a response other than what was stated in the lab report "Reanalysis of the following samples(s) was performed outside of the analytical holding time due to failure of quality control parameters in the initial analysis" reported in section 3.6 of the Site Assessment Report.** It's not clear to me from looking at the lab report and the laboratory has not returned calls to answer my question. It appears that the soil samples were collected on July 9<sup>th</sup> but not shipped until the 11<sup>th</sup>. This would mean that by the time the samples were shipped they were already out of hold time to be frozen within 48 hours of collection as required by method 5035 and noted on page 4 of the lab report. This was not mentioned in the report. **The laboratory provided two sets of 5035 approved containers, unpreserved 40 ml vials and methanol preserved 40 ml vials, the NWTPH-Gx and 8260C can be run from the methanol preserved vials. The unpreserved vials were provided for low level 8260 analysis. The lab did not provide instruction that these vials needed to be frozen within 48 hours so they were not used for the 8260C analysis. The methanol preserved 5035 kits have a 14 day hold time and do not require immediate freezing. These methanol preserved samples were used for the analysis and were properly collected and transported to the laboratory with enough time for analysis within the hold time.**
- The geoprobe rinsate sample contained detections of several compounds. The detected compounds were not detected in any of the soil or groundwater samples. What does this mean? At first glance detections in an equipment/rinsate blank would indicate that decontamination procedures between samples was inadequate. However in this case, since no other sample contained those contaminants this would seem to indicate some issue with sampling or sample handling as well. Is it possible that the water used for the rinsate sample was contaminated or perhaps it picked up contamination in the air from the station? **Deionized water (DI) provided by Apex Laboratories was used for the rinsate samples. It was poured over the drilling equipment after the driller had completed the decontamination procedures.** Perhaps a transfer blank should be collected during a future groundwater

monitoring event to verify or rule this out? **DI water is obtained from a lab prior to performing GWM events and Antea Group will collect a transfer blank from the DI water and submit for laboratory analysis during the next sampling event.** How long were soil cores open prior to sampling that could allow for volatilization of contaminants? **Soil samples were collected within 2 minutes of the macro-core sleeves being cut open using single use disposable Terra Core 5 gram samplers.** Did exceeding the hold time and reanalysis noted above contribute to this? **The only analysis run out of hold was NWTPH-Gx.** Given these points does Antea Group still feel that this data is valid assuming it is intended to be used for final compliance? **Yes. Based on historical data collected at the site and the QAPP procedures performed, the data collected is valid. The rinsate results are within the criteria in DEQ's QAPP.**

- Section 3.5 states that the soil vapor point closer to the station showed petroleum concentrations below occupational RBCs during the summer quarter. It further states that there is currently no risk to the station building. Is that statement meant to apply to the current building year round? What about future buildings at the site? **Antea is preparing to perform an additional soil vapor sampling event in the winter months to assess seasonal variation.**
- Section 3.6 states that the SV-1 sample and the duplicate sample were left open for 100minutes each to allow adequate time to collect the appropriate sample volume. The variation in the parent and duplicate sample was attributed in the report to the still soil and low sample rate. Were the parent and duplicate samples collected at the same time or were they collected sequentially? **NEED TO ANSWER THIS ONE.** If collected sequentially the second sample was likely drawing from a much larger area that may not be representative of the area around SV-1. **Antea Group agrees with your statement that sequentially collecting soil vapor samples and soil vapor duplicates has the potential to have wide variation in sample area and contaminant concentration.**
- The summary states that the apparent groundwater gradient is generally to the north or northwest based on increasing concentrations of MTBE in MW-1. **This is a typo, should have said MW-3. Surprised we did not catch that.** I believe this should read MW-3 since MW-1 is south of the dispenser islands and has never had a detection of MTBE. Further concentrations of MTBE in MW-3 have actually decreased over the last year and appear generally steady for the last two years. It might be helpful to include trend graphs to show if there is an upward trend.
- The summary closes by stating that residual contamination remains above currently applicable RBCs. What about reasonably likely future RBCs? **It is unlikely the property will be developed into anything other than a gas station while the residual contamination remains in place.**

The report makes no recommendations. What is the plan for the site especially considering the significant exceedance of the soil gas RBC? I asked a similar question a couple of years ago and don't recall a direct answer. If monitoring until compliance is obtained for an unconditional NFA is what your after that's fine but I think we can reach closure sooner than that if your client is willing to accept an EES on the property. **An additional vapor sampling event during winter months has been requested by DEQ and this data will confirm whether or not we have any seasonal concentrations above occupational RBCs. If the vapor results remain below applicable RBCs, we propose to continue with MNA unless business operations/land use changes at the site and an EE&S is a feasible option.** Let me know if you have any questions or additional comments.

Todd Vanek

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**From:** RICHARDSON Chris

**Sent:** Monday, February 10, 2020 2:11 PM

**To:** Todd Vanek (todd.vanek@anteagroup.com)

**Cc:** 'Melton, Wade E'

**Subject:** DEQ Review of Monitoring Report - ARCO #4407 - Salem, OR

Hi Todd,

I reviewed the fourth Quarter 2019 groundwater monitoring report for the ARCO station located at 501 Lancaster Drive NE in Salem. I have no comments or questions on the report.

I have not received responses to DEQ's comments on the October Site Assessment Report. When should I expect responses to those comments?

Very Respectfully,

Chris Richardson, E.I.T.

Cleanup Project Manager

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