STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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July 19, 2018

Erin Rothman
Managing Principal
Rothman & Associates
505 Broadway East, Suite 115
Seattle, WA

Subject: Requirements on Future Groundwater and Indoor Air Monitoring at North Lot Development Site, Cleanup ID: 1966

Dear Ms. Rothman:

Thank you for submitting documents to Washington State Department of Ecology (Ecology) on the groundwater and indoor air monitoring results for the North Lot Development Site. This letter constitutes Ecology's requirements on future groundwater and indoor air monitoring. These requirements are based on Ecology's review of the following documents:

- Groundwater Monitoring Report, Second Quarter 2018, North Lot Property, prepared by Rothman & Associates, dated June 2, 2018
- Groundwater Monitoring Report, First Quarter 2018, North Lot Property, prepared by Rothman & Associates, dated February 28, 2018
- Groundwater Monitoring Report, Fourth Quarter 2017, North Lot Property, prepared by Rothman & Associates, dated December 11, 2017
- Groundwater Monitoring Report, Third Quarter 2017, North Lot Property, prepared by Rothman & Associates, dated August 30, 2017
- Draft Indoor Air Assessment Report, First Quarter 2018, North Lot Property, prepared by Rothman & Associates, dated June 2, 2018

Requirements on Groundwater Monitoring

- MW-22: This well is located on the East Parcel of the Property. Four quarters of groundwater monitoring have been conducted, diesel range petroleum hydrocarbons (DRPH) were detected exceeding cleanup level during the first and second quarter of 2018. The boring log for this well showed presence of wood debris. It is possible that

biodegradation products from wood debris could interfere the analysis of petroleum hydrocarbons and create results that are biased. The lab report indicated that the chromatographic pattern for the analysis of the samples did not resemble the fuel standard used for quantitation. Also Ecology noted that concentrations of DRPH at this well were consistently less than 1,000 µg/L from all the monitoring events, and concentrations of gasoline range petroleum hydrocarbons (GRPH) have never been detected above 100 µg/L. Therefore, Ecology recommends splitting the sample from this well during the next sampling event. One sample should follow the standard NWTPH-DX method to analyze DRPH and oil range petroleum hydrocarbons (ORPH). The other sample should be first "cleaned up" using silica gel to remove the biogenic organic materials that may be present from biodegradation of wood debris. The chromatographs should be reviewed and evaluated by a chemist to determine whether the exceedance is due to the presence of petroleum hydrocarbons or from biodegradation of wood debris. Ecology will evaluate the results to determine if monitoring frequency at this well can be reduced.

- MW-19: This well is located on the West Parcel of the Property. Carcinogenic polycyclic aromatic hydrocarbons (cPAHs) were detected exceeding the applicable cleanup level in the fourth quarter of 2017 as well as the first and second quarter of 2018. Quarterly groundwater monitoring must continue at this well. Ecology will re-evaluate monitoring frequency when groundwater monitoring results from four consecutive quarters show compliance.

- MW-16D, MW-18D, MW-20 and MW-21: MW-20 is located at the West Parcel of the Property, MW-21 is located at the East Parcel of the Property, and MW-16D and MW-18D are located to the north of the East Parcel of the Property. Results from four consecutive quarterly groundwater monitoring events have shown compliance at these four wells. Therefore, monitoring frequency can be reduced to once a year.

Requirements on Indoor Air Assessment

Results from the First Quarter of 2018 indoor air sampling showed exceedence of benzene above MTCA Method B air cleanup levels. Since no ambient air sample was collected during this sampling event, it is not possible to determine if the source of benzene was from the subsurface or from ambient air. As a result, in addition to collecting two samples at the locations required under the Compliance Monitoring Plan, Ecology requires the collection of one ambient air sample during the next quarterly sampling event. As stated in Ecology's Guidance for Evaluating Soil Vapor Intrusion in Washington State, upwind ambient air sampling is typically conducted as an adjunct to indoor air sampling in order to estimate the background contribution of certain volatile organic chemicals to measured indoor concentrations. The ambient air sample should be collected in the vicinity of where outdoor air is first pulled in to the garage ventilation system. Also it should be noted that the samples should be collected when there is less traffic in the garage to minimize impact from car emission.

If you have any questions regarding this opinion, feel free to contact me at (425) 649-4310.

Sincerely,

Jing Liu
Site Manager
NWRO Toxics Cleanup Program

ecc: Alan Cornell, North Lot Development, LLC
Stacey Lange, American Life, LLC
Tamara Cardona-Marek, Ecology