



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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December 29, 2017

MR. NICHOLAS BAHN
MANOR MARKET
3609 164TH AVENUE SOUTHWEST
LYNNWOOD, WA 98087

Re: Opinion pursuant to WAC 173-340-515(5) on Proposed Remedial Action for the following Hazardous Waste Site:

- **Site Name:** Manor Market Deli
- **Site Address:** 3609 164th Avenue, Lynnwood, WA 98087
- **Facility/Site No.:** 77492944
- **Cleanup Site ID No.:** 11939
- **VCP Project No.:** NW2621

Dear Mr. Bahn:

Thank you for submitting documents regarding your proposed remedial action for the **Manor Market Deli** facility (Site) for review by the Washington State Department of Ecology (Ecology) under the Voluntary Cleanup Program (VCP). Ecology appreciates your initiative in pursuing this administrative option for cleaning up hazardous waste sites under the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

This letter constitutes an advisory opinion regarding a review of submitted documents/reports pursuant to requirements of MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the following releases at the Site:

- Total petroleum hydrocarbons in the gasoline range (TPH-G), benzene, toluene, ethylbenzene, xylenes (BTEX) and methyl tert-butyl ether (MTBE) into the Soil;
- TPH-G, BTEX, MTBE and lead into the Ground Water.

Ecology is providing this advisory opinion under the specific authority of RCW 70.105D.030(1)(i) and WAC 173-340-515(5).

This opinion does not resolve a person's liability to the state under MTCA or protect a person from contribution claims by third parties for matters addressed by the opinion. The state does



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not have the authority to settle with any person potentially liable under MTCA except in accordance with RCW 70.105D.040(4). The opinion is advisory only and not binding on Ecology.

Ecology's Toxics Cleanup Program has reviewed the following information regarding your proposed remedial actions:

1. Associated Environmental Group, LLC, 2017. *Work Plan and Request for Opinion, Manor Market, 3609 164th St. SW, Lynnwood, WA 98087.* October 27.
2. Associated Environmental Group, LLC, 2016. *Remedial Investigation/Model Remedy Review Request, Manor Market, 3609 164th St. SW, Lynnwood, WA 98087.* December 29.
3. Associated Environmental Group, LLC, 2013. *Supplemental Remedial Investigation – 3rd Phase Workplan, Manor Market, 3609 164th St. SW, Lynnwood, WA 98087.* June 10.
4. Associated Environmental Group, LLC, 2012. *Supplemental Remedial Investigation – 2nd Phase, Manor Market, 3609 164th St. SW, Lynnwood, WA 98087.* April 5.
5. Associated Environmental Group, LLC, 2011. *Supplemental Site Characterization, Manor Market, 3609 164th St. SW, Lynnwood, WA 98087.* September 14.
6. Envitech, Llc, 2011. *Phase II Environmental Site Assessment, Manor Market, 3609 164th St. SW, Lynnwood, WA 98087.* April 26.
7. Envitech, Llc, 2010. *Phase I Environmental Site Assessment, Manor Market, 3609 164th St. SW, Lynnwood, WA 98087.* November 8.
8. Environmental Associates, Inc., 1998. *Limited Subsurface Sampling & Testing, The Manor Market, 3609 164th Street Southwest, Lynnwood, Washington.* November.
9. Robert M. Rodman, 1998. *Site Characterization, Crystal Cleaners, Unit D, 3609 164th St. S.W., Lynnwood, Washington.* November.
10. Quest, 1998. *Results of Underground Storage Tank Removal and Site Remediation Program at Manor Market, 3609 164th St. SW, Lynnwood, WA.* February 6.

The reports listed above will be kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. You can make an appointment by calling the

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NWRO resource contact at (425) 649-7235 or sending an email to:
nwro_public_request@ecy.wa.gov.

The Site is defined by the extent of contamination caused by the following releases:

- TPH-G, BTEX and MTBE into the Soil;
- TPH-G, BTEX, MTBE and lead into the Ground Water.

The Site is more particularly described in Enclosure A to this letter, which includes detailed Site diagrams. The description of the Site is based solely on the information contained in the documents listed above.

Based on a review of supporting documentation listed above, pursuant to **requirements contained in MTCA and its implementing regulations, Chapter 70.105D RCW and Chapter 173-340 WAC, for characterizing and addressing the releases at the Site, Ecology has determined:**

Ecology has reviewed the *Work Plan and Request for Opinion* dated October 27, 2017 and understands that the proposed scope of work consists of: 1) a Tier II vapor intrusion assessment; 2) a ground water sampling event; 3) a Remedial Investigation/Feasibility Study (RI/FS) report; and 4) a No Further Action determination request. Ecology agrees that activities proposed in the work plan will help define remaining data gaps. Ecology has the following comments:

Off-Property Impacts

- The work plan does not include characterization for potential off-Property impacts which is needed for applying a Model Remedy for this Site.

Tier II Vapor Intrusion Assessment

- Two sub-slab vapor borings will be roto-hammered through the slab-on-grade foundation. Please specify the proposed depths of the two sub-slab vapor borings.
- Figure 1 shows the proposed locations of the sub-slab vapor borings. Ecology recommends that the sub-slab vapor boring in the former Crystal Cleaners tenant space be located where soil boring HA-1 was advanced in 1998 (180 milligrams per kilogram of PCE at 2.7 feet below the ground surface (bgs)).
- Please indicate that the TO-15 analysis will be full scan or provide a list of compounds that will be included in the analysis.

Groundwater Sampling Event

- The work plan states that ground water samples will be collected using 'EPA low-flow techniques' with a sampling rate less than 500 milliliters per minute. The most current version of U.S. EPA's guidance on low-flow ground water sampling (<https://www.epa.gov/sites/production/files/2017-10/documents/eqasop-gw4.pdf>) emphasizes the stabilization of water quality parameters and the minimization of drawdown with a low pumping rate rather than a prescribed minimal pumping rate. The guidance provides contingencies in the event excessive drawdown is unavoidable or if stabilization of parameters does not occur. The guidance also indicates that the frequency of collection of water quality parameter measurements should be based on the flow rate and the capacity of the flow-through cell.
- Ecology requests that the ground water sample from monitoring well MW-11 also be analyzed for chlorinated volatile organic compounds in the same round with MW-10.

Draft RI/FS Report

- Ecology's recommended Remedial Investigation (RI) report format consolidates all pertinent Site historical information, collected soil and ground water data, and completed <https://www.epa.gov/sites/production/files/2017-10/documents/eqasop-gw4.pdf>
- The completed Site characterization (RI) should be the basis for preparation of a Feasibility Study (FS) that meets the MTCA requirements for selection of a cleanup action. See the following Ecology web page for FS report format and content requirements: <http://www.ecy.wa.gov/programs/tcp/policies/checklists>

We look forward to working with you as you complete the work plan scope and gather the above requested data to move the project toward closure.

This opinion does not represent a determination by Ecology that a proposed remedial action will be sufficient to characterize and address the specified contamination at the Site or that no further remedial action will be required at the Site upon completion of the proposed remedial action. To obtain either of these opinions, you must submit appropriate documentation to Ecology and request such an opinion under the VCP. **This letter also does not provide an opinion regarding the sufficiency of any other remedial action proposed for or conducted at the Site.**

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Please note that this opinion is based solely on the information contained in the documents listed above. Therefore, if any of the information contained in those documents is materially false or misleading, then this opinion will automatically be rendered null and void.

The state, Ecology, and its officers and employees make no guarantees or assurances by providing this opinion, and no cause of action against the state, Ecology, its officers or employees may arise from any act or omission in providing this opinion.

Again, Ecology appreciates your initiative in conducting independent remedial action and requesting technical consultation under the VCP. As the cleanup of the Site progresses, you may request additional consultative services under the VCP, including assistance in identifying applicable regulatory requirements and opinions regarding whether remedial actions proposed for or conducted at the Site meet those requirements.

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion, please contact me by phone at (425) 649-7064 or e-mail at heather.vick@ecy.wa.gov.

Sincerely,

A handwritten signature in black ink that reads "Heather Vick". The signature is written in a cursive, flowing style.

Heather Vick, LHg
NWRO Toxics Cleanup Program

Enclosure (1): A – Description and Diagrams of the Site

cc: Scott Rose, Associated Environmental Group, LLC
Sonia Fernandez, VCP Coordinator, Ecology

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Enclosure A

Description and Diagrams of the Site

Site Description

This section provides Ecology's understanding and interpretation of site conditions, and is the basis for the opinions expressed in the body of the letter.

Site: The Site is defined as total petroleum hydrocarbons in the gasoline range (TPH-G), benzene, toluene, ethylbenzene and xylenes (BTEX) in soil and ground water at 3609 164th Street SW in Lynnwood, Washington (Property). In addition, the Site is defined as methyl-tert-butyl-ether (MTBE) in ground water. The rectangular-shaped Property, which corresponds to Snohomish County parcel number 00372900300502, is 0.75 acre in size. Manor Market is located at the eastern end of a strip retail building on the Property that also includes Access to Money and Tokyo Teriyaki 2. A portable expresso stand, Java Hut, also operates in the southwest corner of the Property.

Area and Property Description: The Property is located in north Lynnwood in an area consisting of primarily residential land uses with some commercial uses in the immediate vicinity of the Property. The Property is located approximately 0.25 mile west of Interstate 405 at the northwest corner of the intersection of 164th Street SW and 36th Avenue West. Manor Market is a convenience store that includes retail gasoline sales using three gasoline pump islands with twin dispensers under one canopy located in the southeast portion of the Property.

Property History and Current Use: The Property was used as farmland until the current improvements were constructed in 1982. The Property is occupied by a 7,000 square-foot, one-story, multi-tenant retail building. The Property was formerly the location of Crystal Cleaners, a dry cleaning operation in tenant Unit D on the west end of the building. The Property is currently the location of a strip retail business center.

Sources of Contamination: Potential contaminant sources on the Site consist of three former 12,000-gallon, single-walled, underground storage tanks (USTs) that were installed in 1982. The former USTs, two dispensers and associated piping and equipment were removed in 1998 when the existing UST system was installed. Soil contaminated with petroleum hydrocarbons was found beneath the Property during the upgrade. The former USTs were replaced with two 10,000-gallon double-walled steel tanks and new dispensers, piping and other ancillary equipment with leak detection capabilities. One of the USTs is a dual compartment (4,000- and 6,000-gallon tanks) which holds mid-grade and premium-grade gasoline. The other 10,000-gallon UST holds regular-grade gasoline.

In 1998, prior to the sale of the Property, due diligence and site characterization activities were conducted that determined the presence of soil impacted with tetrachloroethylene (PCE), a dry cleaning solvent, both beneath and outside of the tenant space. A concentration of 180 mg/kg was measured in a soil sample collected at a depth of 2.7 feet below the ground surface. This concentration exceeded the Method A cleanup level at the time of 0.5 mg/kg as well as the current PCE cleanup level of 0.05 mg/kg. No ground water was investigated at the time; it was thought that the first water bearing zone on the Property occurred more than 100 feet below the ground surface (bgs).

In October 1998, two soil borings were advanced, one inside (HA-1) using a hand auger and one outside the tenant space (B-1) using a drill rig. Soil samples collected at depths of 0.5 feet and 2.5 to 3.5 feet bgs contained non-detectable levels of PCE but the practical quantitation limit was 0.11 mg/kg which is above the Method A cleanup level. A soil sample collected in HA-1 at a depth of 2.7 feet bgs contained 180 mg/kg of PCE.

In November 1998, twelve soil borings were advanced inside and outside the tenant space. One of the borings, AH1a, was drilled in the same location as HA-1 described above with a sample collected deeper, at 4.5 feet bgs, that contained non-detectable PCE.

Of the remaining 11 soil borings sampled, PCE was detected in two samples at concentrations of 0.012 and 0.015 mg/kg, both below the current Method A cleanup level of 0.05 mg/kg.

Crystal Cleaners was previously enrolled in the VCP as project number NW0179. A No Further Action (NFA) determination was issued by Ecology on January 13, 1999. The NFA included an attached Restrictive Covenant that prohibited activities that would result in the release of contamination contained as part of the cleanup without Ecology's approval.

Physiographic Setting: The Site is located in south Snohomish County within the Puget Sound Lowland, an elongated (north-south) basin situated between the Cascade Mountains on the east and the Olympic Mountains on the west. The elevation of the Site is approximately 610 feet above mean sea level.

Surface/Storm Water System: The nearest surface water body to the Site is Lake Serene which is located 0.75 mile to the north. Storm water runoff on and in the vicinity of the Property disperses via sheet flow to catch basins connected to the City of Lynnwood's storm water system.

Ecological Setting: The Property is primarily surrounded by residential and commercial land uses however there are two undeveloped greenbelts approximately 100 to 200 feet wide that are within 500 feet of the Property and may provide habitat for terrestrial species.

Geology: The Site area is mapped as Vashon glacial till. Shallow soil beneath the Site consists of very dense silt mixed with very fine sand and clay. At depths of approximately 25 to 30 feet below ground surface (bgs), fine to coarse sand and gravel were encountered below the till which are most likely Advance outwash deposits.

Ground Water: In January 1998, no ground water was encountered to a depth of 12 feet bgs however, water was observed in the UST excavation basin immediately following UST removal. After approximately 2,800 gallons of water were pumped out, no additional water entered into the excavation even after several days. Based on this, it was concluded that the water entering the excavation was atmospheric and stored in the permeable UST backfill materials rather than ground water.

In 2012, Site investigation activities encountered a perched ground water layer in all three monitoring wells that ranged in depth from approximately 24.5 to 28.5 feet bgs. The direction of flow was determined in March 2012 to be to the northeast which is consistent with topographic elevation contours in the Site vicinity.

Water Supply: The Site area is supplied with water from the Alderwood Water and Wastewater District which receives treated and filtered water from the City of Everett. Everett's raw water supply originates from the Spada Reservoir created by Culmback Dam on the Sultan River approximately 25 miles east of Everett. According to Ecology's well log database, no water supply wells are located within 0.25 mile of the Property.

Release and Extent of Soil and Ground Water Contamination:

Soil: Prior to the UST removal in 1998, a subsurface investigation was conducted in March 1997 to assess potential contamination in soil adjacent to the former tank pad. The investigation consisted of 7 soil borings advanced at locations immediately adjacent to the USTs and dispensers to a maximum depth of 12 feet below the ground surface with soil samples collected and analyzed for TPH-G. No TPH-G or constituents were reportedly detected in any of the samples but the report documenting this work is not available.

When the three former USTs and related fuel dispensing equipment were decommissioned in 1998, petroleum-contaminated soil (PCS) was encountered during the removal. Approximately 1,000 tons of PCS were excavated and 2,800 gallons of water were removed from the excavation pit. Confirmation soil samples were collected from within the former UST and dispenser areas. Five soil samples were collected from the former UST excavation area, one sample from the along the fuel lines and two samples from under the dispenser area. Two soil samples from within the former UST excavation area (one bottom and one sidewall) contained benzene at 0.1 mg/kg, above the MTCA Method A cleanup level of 0.03 mg/kg. None of the samples from the dispenser area/piping contained detectable petroleum hydrocarbons.

The 2010 Phase I ESA identified concerns that centered on past operations and included gasoline spills, UST noncompliance, UST releases and dry cleaning solvent releases related to the former Crystal Cleaners that operated on the Property.

A Phase II ESA conducted in April 2011 focused on the former UST system, specifically the UST pad and fuel dispenser islands. Five soil borings (S-1 through S-5) were advanced using a direct-push drill rig to a maximum depth of 16 feet bgs although refusal was encountered in three of the borings at 9 to 10 feet bgs. Soil samples south of the UST pad in boring S-2 and north of the northeast pump island in boring S-4 contained benzene at concentrations of 0.21 and 0.23 mg/kg respectively exceeding the Method A cleanup level of 0.03 mg/kg.

In August 2011, four soil borings were advanced to further assess the subsurface. Borings B-1 and B-4 were advanced adjacent to the present day and former tank pad and borings B-2 and B-3 were advanced adjacent to the fuel dispensers. Soil analytical results indicated the presence of PCS at two locations including B-1 south of the previous/current fuel tanks and B-3, adjacent to the northeast pump island.

Soil samples were collected from soil borings drilled for monitoring wells in February 2012. Soil samples for the boring drilled for MW-1 contained contamination exceeding Method A cleanup levels to a depth of 36.5 feet bgs, the maximum depth explored. At boring MW-3 (northeast of former LUSTs on the eastern side of the Site), benzene was detected at concentrations exceeding the Method A cleanup level at depths of 7 and 24.5 feet bgs.

In May 2015, six soil borings (MW-4 through MW-9) were advanced and completed as monitoring wells. Soil samples collected in MW-4 through MW-6 were analyzed for TPH-G, BTEX and MTBE. Exceedences occurred in soil samples from MW-4 and MW-6. In MW-6, a soil sample collected at a depth of 6.5 feet bgs contained 3,230 mg/kg of TPH-G and 1.87 mg/kg of benzene. Soil samples collected from MW-7, MW-8 and MW-9 were only analyzed for VOCs with no detections.

In March 2016, two additional soil borings (MW-10 and MW-11) were advanced and completed as monitoring wells at the east end of the Property.

Ground Water: In the 2011 investigation using four soil borings, ground water was only encountered in the deepest boring, B-1, at 23 to 24 feet bgs. A grab ground water sample collected from this boring contained TPH-G at 2,100 µg/L and benzene at 170 µg/L which both exceeded Method A cleanup levels. This ground water sample was also analyzed for VOCs with none detected.

Three monitoring wells (MW-1 through MW-3) were installed in February 2012 to assess whether contamination was present in ground water on the Site. The wells were installed to straddle the water table with screened intervals of 20 to 25 feet. Subsequent ground water sampling conducted in 2012 and 2013 indicated that MW-1 contained benzene and MTBE exceeding Method A cleanup levels. MW-2 and MW-3 contained only MTBE at concentrations below Method A.

Monitoring wells MW-1 and MW-2 were sampled again in June 2015 when newly-installed monitoring wells MW-4 through MW-9 were sampled initially. Monitoring well MW-3 was not sampled; MW-7 through MW-9 were only analyzed for ethylene dichloride and volatile organic compounds (VOCs) with none detected. Samples collected from MW-4 contained benzene and MTBE at concentrations above Method A cleanup levels. MW-6 contained TPH-G and benzene at concentrations above Method A cleanup levels.

Ground water samples collected in 2015 and 2016 indicate two distinct patterns. MW-1 and MW-4 contain only benzene and MTBE at concentrations exceeding Method A cleanup levels. MW-6 contains TPH-G and benzene at concentrations exceeding Method A cleanup levels. These results suggest a similar source in MW-1 and MW-4 and potentially a separate source in MW-6.

Analysis for VOCs in ground water has been conducted once at the following monitoring wells in either 2015 or 2016: MW-3, MW-4, MW-7, MW-8, MW-9 and MW-11. There have been no detections.

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Site Diagrams



