



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

*Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341*

February 23, 2016

Ms. Karen Ryan
Rykar Investments, Inc.
4726 Lakewood Road
Stanwood, WA 98292

**Re: Opinion Pursuant to WAC 173-340-515(5) on Remedial Action for the Following
Hazardous Waste Site:**

- **Site Name:** Lake Goodwin Store 2013
- **Address:** 4726 Lakewood Road, Stanwood, WA 98292
- **Facility/Site No.:** 12889948
- **Cleanup Site ID No.:** 12352
- **VCP No.:** NW2974

Dear Ms. Ryan:

Thank you for submitting documents regarding your proposed remedial action for the Lake Goodwin Store 2013 (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 release(s) at the Site:

- Gasoline-range petroleum hydrocarbons (TPH-g) and associated benzene, toluene, ethylbenzene, xylenes (BTEX) to soil and 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

Ms. Karen Ryan
February 23, 2016
Page 2

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 remedial actions:

1. Slotta Design & Consulting (SD&C), *Quarterly Groundwater and Treatment System Monitoring Report Quarter #4 – 2015*, January 12, 2016.
2. SD&C, *Soil Excavation and Remediation Report*, October 13, 2015.
3. SD&C, *Quarterly Groundwater and Treatment System Monitoring Report Quarter #3 – 2015*, October 12, 2015.
4. SD&C, *Quarterly Groundwater and Treatment System Monitoring Report Quarter #1 – 2015*, April 9, 2015.
5. SD&C, *Quarterly Groundwater and Treatment System Monitoring Report Quarter #4 – 2014*, January 7, 2015.
6. SD&C, *Quarterly Groundwater and Treatment System Monitoring Report Quarter #3 – 2014*, September 3, 2014.
7. SD&C, *Work Plan – Gasoline Spill Lake Goodwin Grocery*, June 17, 2014.

The reports listed above will be kept in the Central Files of the Northwest Regional Office of Ecology (NWRO) for review by appointment only. Appointments can be made by calling the NWRO resource contact at (425) 649-7235 or sending an e-mail to nwro_public_request@ecy.wa.gov.

The Site is more particularly described in Enclosure A to this letter, which includes a detailed Site diagram. 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 release at the Site, Ecology has determined:**

The release occurred at the Property on the evening of December 11, 2013. Approximately 63 gallons of gasoline were released onto the asphalt during refueling (based on a pump rate of 25

gallons per minute and estimated 2.5 minutes based on surveillance camera footage). The spill as seen in the surveillance video (viewed by Ecology during the August 2015 Site visit) migrated across the asphalt until reaching the grassy area to the south of the USTs. At that point, a significant amount of gasoline is thought to have entered the subsurface. The fuel delivery driver used kitty litter purchased from the station store to absorb some of the spill and swept the kitty litter/gasoline into the grassy area.

A thickness of eighteen inches of light non-aqueous phase liquid (LNAPL) was measured in pumping well PW-1 (using a bailer, not an oil-water interface probe) on December 19, 2013, when the first LNAPL measurement after the release was collected. The same day the LNAPL was measured, approximately 150 gallons of LNAPL and water were pumped out of the monitoring wells and transported off-Site for disposal.

Ground water samples were collected the same day from pumping well PW-1 and monitoring wells MW-4, MW-5 and MW-6. In PW-1, TPH-g was present in ground water at a concentration of 550,000,000 micrograms per liter ($\mu\text{g/l}$) indicating that LNAPL was still present. Ground water samples collected from monitoring wells MW-4 through MW-6 had TPH-g concentrations that ranged from 1,600 to 17,000 $\mu\text{g/l}$, exceeding the MTCA Method A cleanup level of 800 $\mu\text{g/l}$.

Petroleum-contaminated soil was excavated from the grassy swale area to a depth of one foot below the ground surface (bgs) on March 4, 2014. TPH-g and BTEX have been below MTCA Method A cleanup levels in monitoring wells MW-4 through MW-6 in quarterly sampling events since March 5, 2014. An air sparge system was reactivated in March 2014 to remediate the ground water and has been operational since then.

The following data gaps need to be addressed to confirm the release area and confirm that cleanup levels have been achieved for soil and ground water:

- A Site conceptual model needs to be developed that shows how and where the TPH-g and BTEX release likely migrated after entering the subsurface. It is unlikely that TPH-g impacts to soil were limited to the upper one foot based on the ground water impacts identified in up gradient monitoring well MW-5 and cross gradient well MW-4. Based on the location of the release, estimated ground water flow direction and the location of PW-1, it is unclear how MW-5 was impacted by this release.
- The 2015 *Soil Excavation and Remediation* report stated that pumping well PW-1 discharged approximately 5,000 gallons of ground water a day for nine days (45,000 gallons total) into the grassy area to the south of the underground storage tanks (USTs). However, the pumping rate provided would result in approximately 14,440 gallons per day. Clarification is needed regarding the operation of PW-1, specifically, whether the

pump runs continuously, if it was running at the time of the release and how the pumping well influences ground water flow.

- The 2015 *Soil Excavation and Remediation* report states that before ground water sampling on December 19, 2013, approximately 150 gallons of LNAPL and water were pumped out of the monitoring wells prior to sampling. Which wells were pumped needs to be specified.
- Pumping well PW-1 discharged approximately 45,000 gallons of petroleum contaminated ground water into the grassy area to the south of the underground storage tanks (USTs) over the nine day period between when the release occurred and when LNAPL was pumped out of PW-1 (assuming a discharge rate of 5,000 gallons per day). The TPH-g and BTEX concentrations in the initial soil samples collected from locations FS1 and FS2 at depths of six inches and one foot bgs respectively exceeded the MTCA Method A cleanup level. The vertical and lateral extent of contamination was not delineated. The excavation confirmation samples FS3, FS4 and FS5, which were all collected at a depth of one foot bgs, were not placed appropriately to confirm that all contaminated soil has been removed. Samples should have been collected from the base of the excavation, below the depth of any confirmed exceedances and from the sidewalls of the excavation. The vertical and lateral (eastern) extent of contamination identified at boring location FS-1 needs to be determined. The vertical and lateral (western and southern) extent of contamination identified at boring location FS-2 needs to be determined. As noted above, the Site conceptual model needs to explain contaminant migration. The Site conceptual model should illustrate the likely path the 45,000 gallons of water would take that was discharged to the grassy area.
- The potential impacts to surface water in Lake Goodwin need to be evaluated. Ground water cleanup levels protective of surface water may be applicable at this Site. An additional well(s) is therefore necessary down gradient of the release to evaluate this potential pathway.
- The laboratory noted that the chromatogram for soil sample FS1 and ground water samples collected from monitoring wells MW-4 through MW-6 indicate that the TPH-g detected contains lightly weathered gasoline. The PW-1 ground water samples collected from PW-1 on August 15, 2014, March 31, 2015, and December 31, 2015, also noted that the "Chromatogram indicates that it is likely that the sample contains highly weathered gasoline". The ground water sample collected from the discharge pipe at DIS-1 also indicates the sample contains highly weathered gasoline. The Site conceptual model should include discussion of the weathered gasoline in soil and ground water for a fresh release.

- All Site plans and diagrams need to include an accurate scale. The Site maps provided in all submitted reports do not meet this minimum requirement.
- It is not stated if whether or not the pump and air sparge system in PW-1 was turned off prior to ground water sampling events. Because the pump and air sparge system influence ground water flow and quality, details regarding the timing of system shut down relative to sample time needs to be provided. Also, a summary of the time period the air sparge was in operation and any lapses in operation should be provided.
- Some PW-1 laboratory analytical results are missing from Table 1 of the Quarterly Groundwater and Treatment System Monitoring Report (QMR) Quarter #4 – 2015 report. TPH-g and benzene concentrations were 220 and 8.1 µg/l respectively for the sample collected on December 28, 2015, and 3,100 and 36 µg/l respectively for the sample collected on February 4, 2015. In addition, the laboratory analytical data is missing from the hard copy of the QMR submitted for Quarter #4 – 2014. A TPH-g concentration of 930 µg/l, which exceeds the MTCA Method A cleanup level, was detected in the ground water sample collected from PW-1 on March 31, 2015; however, this concentration was not bolded on Table 1 of the QMR Quarter #4 2015. Tables should be resubmitted with errors and omissions corrected. Tables should include footnotes to explain use of various fonts and abbreviations and the selected cleanup levels for the Site.
- The QMR Quarter#4 2015 states that the PW-1 and DIS-1 samples were both collected directly from the discharge piping. Clarification is needed regarding where the discharge piping is located for the PW-1 sample.
- A ground water elevation contour map needs to be provided for each quarterly monitoring event.
- The number of municipal and domestic water supply wells in the vicinity of the Property, current use, distance from the Site, depth to water, production rate, screened interval depth and any available water quality data should be submitted. A map (with scale) illustrating the location of nearby wells relative to the Site should also be provided.
- This Site likely does not qualify for a Terrestrial Ecological Evaluation (TEE) exclusion because it is bordered to east by Lake Goodwin Park. It must be determined if the Site qualifies for a simplified TEE or if a Site specific TEE is required. The TEE decision-making process must be documented as per WAC 173-340-7490. A TEE process interactive user's guide can be found at:
<http://www.ecy.wa.gov/programs/tcp/policies/terrestrial/TEEHome.htm>

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

Ms. Karen Ryan
February 23, 2016
Page 6

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.**

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. :Lg

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.

If you have any questions regarding this opinion, please contact me at (425) 649-7097 or e-mail at diane.escobedo@ecy.wa.gov.

Sincerely,



Diane Escobedo
Site Manager
Toxics Cleanup Program

Enclosure: A – Description and Diagrams of the Site

cc: Sonia Fernandez, Ecology

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 by the release of gasoline-range petroleum hydrocarbons (TPH-g), benzene, toluene, ethylbenzene and xylenes (BTEX) to soil and ground water associated with a spill that occurred during refueling of two underground storage tanks (USTs) at a gasoline service station. The Site is located at 4726 Lakewood Road in Stanwood, WA (Property).

Area and Property Description: The Property corresponds to Snohomish County parcel number 00489600009100 which is 6.79 acres in size. In addition to the gasoline station, the Property is occupied by a convenience store, a recreational vehicle (RV) park, and rental cabins. The Property is bounded by Lakewood Road to the north, undeveloped land to the west and Lake Goodwin Park to the east and the Lake Goodwin shoreline to the south. Land use surrounding the Site includes undeveloped land, commercial businesses and residences.

Property History and Current Use: The Property was first developed with a grocery store and gas station in 1926. Two previous release areas were identified at the Property prior to the 2013 release. The first release was identified in 2007 and was related to a historic dispenser island located at the northwest corner of the existing grocery store building. The second release occurred in April 2008 along the perimeter of the existing tank footprint. Impacts to the Property from these releases were remediated and a No Further Action opinion letter was issued by Ecology in March 2013. The two gasoline USTs (one 12,000- and one 8,000-gallon) currently in use were installed in 1998 and are located on the west side of the grocery store. The Property currently has thirteen RV rental spaces, the gas station, a convenience store and rental cabins.

Contaminant Source and History: A third release of gasoline to the paved surface under the pump island occurred on December 11, 2013, at the northernmost fill port associated with refueling of the present USTs. The release, estimated to be 250 gallons of gasoline, is the source of contamination on the Site.

Physiographic Setting: The Property is located in the Puget Sound Lowland physiographic province at an elevation of approximately 330 feet above mean sea level. The Property is relatively flat and slopes gradually to the south toward Lake Goodwin. However, the grassy area/drainage leach field just south of the USTs is mounded several feet above the ground surface.

Surface/Storm Water System: Lake Goodwin is located approximately 630 feet south of the Site at the edge of the Property. In the vicinity of the Site, storm water likely flows over the asphalt surface toward the grassy area then flowing to the south towards Lake Goodwin.

Ecological Setting: The Property includes asphalt, gravel, grass lawns, trees and shrubs. The Property is bordered to the east by Lake Goodwin Park – a 14.26 acre park with a mix of trees, shrubs, grass and lake shoreline.

Geology: The Property is mapped as glacial recessional outwash deposits which include moderately to poorly sorted gravel and sand with some silt and clay. Silty fine to coarse sand were encountered in the upper three to four feet during previous investigations. The silty sand is underlain six to seven feet of fine to coarse silt with gravel. Glacial till was encountered at approximately 10 feet below ground surface (bgs).

Ground Water: The depth to ground water on the Site ranges from 0.87 to 3.84 feet below ground surface (bgs). Ground water flow is estimated to flow to the south-southwest toward Lake Goodwin under static conditions.

Water Supply: The nearest drinking water well is located on the north adjacent Property (4727 Lakewood Road) and is screened from 172 feet bgs to 177 feet bgs. A municipal well operated by Seven Lakes Water Association (serves 5,162 people) is located approximately 800 feet west of the Site.

Release and Extent of Soil and Ground Water Contamination: On December 10, 2013, a Notice of Non Compliance was issued by Ecology for the gasoline station's failure to provide spill and/or overfill prevention equipment on a new UST system. On December 11, 2013, a release of gasoline occurred during a fuel delivery. The release was not reported by the fueling company. Verification (retrofit/repair checklist) that the overfill alarm was audible and set at 90% was received by Ecology on December 12, 2013. On December 12, the Property owner identified a strong gasoline odor in the fueling area. The fueling company driver had placed cat litter procured from the convenience store on the spill which was then swept into the adjacent grassy area south of the USTs. Upon contacting the fueling company, the owner was informed that approximately 25 gallons of gasoline was spilled when one of the tanks overfilled during refueling. However, according to the surveillance camera footage, the estimated time over which the release was occurring was 2.5 minutes. The fueling company stated the fuel truck pumps transfer 25 gallons per minute of gasoline. Therefore, approximately 62.5 gallons of gasoline were released. The surveillance camera footage shows the spill migrating toward the southern edge of the fence line, beyond which, is the grassy area (used as the septic field for the resort). The fueling company's emergency response contractor reportedly (based on a conversation with the owner on August 4, 2015) removed approximately one drum of impacted soil presumably in the grassy swale. However, no disposal documentation for this excavation was submitted. An initial assessment of conditions, removal of light non-aqueous phase liquid (LNAPL) and ground water sampling was conducted on December 19, 2013, when approximately 18 inches of light non-aqueous phase liquid (LNAPL) was measured in a pumping well (PW-1) located northwest of fill port 1. PW-1 is a 10- or 12-inch diameter extraction well (reports do not agree) installed in 1987 in order to lower the water table in the vicinity of the fuel islands. Well construction details are unknown. The pumping well extracts approximately 10 gallons of ground water per minute discharging approximately 14,400 gallons per day to the septic drain field south of the USTs. Approximately 250 gallons of LNAPL and water were pumped out of PW-1 and transported off-Property for disposal. The dissolved phase gasoline plume was confirmed present in all monitoring wells (MW-4 through MW-6) when they were sampled on December 19, 2013. Approximately 45,000 gallons of TPH-g- and BTEX-contaminated ground water were discharged to the grassy swale/drain field. The PW-1 discharge was then retrofitted to discharge through parallel 55-gallon carbon filters

(December 2013). TPH-g was confirmed at concentrations above MTCA Method A cleanup levels in soil at locations FS1 and FS2, which were located adjacent to the fence between the asphalt and grassy swale.

On March 4, 2014, approximately 39.1 tons of contaminated soil were removed from an approximately 800 square foot area (partially in the grassy area just south of the fence and partially beneath the asphalt north of the fence). However, the contamination in this area was not delineated prior to excavation. Confirmation soil samples F-3, F-S4 and FS-5 were collected from within the excavation area but do not appear to be appropriately placed to demonstrate all contaminated soil was removed. Backfill material consisted of 18.46 tons of $\frac{3}{4}$ inch washed rock.

In March 2014, an air sparge system consisting of a Rotron-blower connected with subsurface two inch PVC piping was reconnected to discharge air beneath water table. TPH-g and BTEX have been below MTCA Method A cleanup levels in monitoring wells MW-4 through MW-6 in quarterly sampling events since March 5, 2014.