

# SD&C

PO Box 2071 Kirkland, WA 98083  
e-mail ts4sdc@hotmail.com

Phone (206) 459-5775

June 17, 2014

Ms. Carol Lybeer  
Claims Examiner  
Colony Specialty  
8720 Stony Point Parkway, Suite 300  
Richmond, VA 23235

Subject: Work Plan  
Gasoline Spill Lake Goodwin Grocery  
4726 Lakewood Road  
Stanwood, WA  
Colony Claim No. 231361

Dear Ms. Lybeer:

Slotta Design and Construction (SD&C) is pleased to present this work plan for expanded remedial activities to clean up the gasoline spill (spill) at the Lake Goodwin Grocery (Site) referenced above (Figure 1). The spill occurred on December 11, 2013 during fuel delivery by Harris Transportation Company, LLC (Harris). This work plan includes a background of site conditions, a phased scope of work for expanded remedial cleanup activities, sampling, analysis and reporting program, and a cost estimate for the associated remedial action. The focus of the work plan is to achieve cleanup levels established by WAC173-340 Washington Department of Ecology (Ecology) Model Toxics Control Act (MTCA), and to secure a "No Further Action" (NFA) determination from Ecology. The substantive elements of this work plan were developed during a meeting conducted via teleconference with representatives from SD&C, Colony, Rykar Investments Inc. (Rykar), and legal counsel on May 6, 2014.

## Background

SD&C was contracted by Rykar on December 19, 2013 to review Site conditions after the gasoline spill occurred. Soil samples collected from the spill area had a strong gasoline odor and a groundwater control well (PW-1) located adjacent to the underground storage tanks (USTs) contained 18-inches of free-phase petroleum hydrocarbon compounds (PHC) product on the water surface. Ecology was contacted on December 19, 2013 to notify the agency that a release to groundwater occurred, and an Emergency Response Tracking System (ERTS) #645857 was established. Further communications with Ecology indicated that the Site must return to the process of the VCP program to regain the NFA determination.

The soil samples were submitted to ALS analytical laboratory (ALS) of Everett, WA. and analyzed for the following PHC constituents required by Ecology:

- Gasoline using Ecology Method NWTPH-GX (TPH-G);

- Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) using EPA Method 8021;

Results of soil samples collected down gradient of the spill area contained TPH-G and BTEX at concentrations which exceeded MTCA Method A cleanup levels as identified in Table 1.

Three monitoring wells had previously been installed at the site which achieved a NFA determination in March 2013. The monitoring wells (MW-4, 5, and 6) and the groundwater control well (PW-1) are located in the vicinity of the gasoline spill as illustrated in Figure 2. Groundwater samples collected from MW-4, 5, and 6 were submitted to ALS for analysis of PHCs. The results of the analyses contained TPH-G and BTEX at concentrations which exceeded MTCA method A cleanup levels. The results of the groundwater samples collected from the wells are included in Table 2 and the elevation data measured from each monitoring well is included in Table 3.

Marine Vacuum Service (Marvac) of Seattle was subcontracted and removed 300 gallons of PHC impacted water from PW-1 for disposal at their licensed treatment and disposal facility. PW-1 is an 12-inch diameter PVC sewer pipe which was installed during site upgrades in 1987. PW-1 creates a localized depression of the shallow water table in the area and lowers the water level in the vicinity of the UST compound and the fuel pumps. The water from PW-1 has historically been discharged to the ground surface in a grassy bio-swale south of the fuel distribution area and has not been regulated. After Marvac pumped the well dry several times, a 1/8-inch layer of PHC returned to the water surface. The 8-inch diameter sump pump on the bottom of the well was replaced and a carbon treatment vessel was installed at the water discharge. A sample was collected from the water discharge after installation of the carbon vessel which did not contain detectable concentrations of PHC (Table 2 – Dis-1). A schematic of the well pumping system is illustrated in Figure 3.

SD&C was contracted by Colony to remove contaminated soil in the spill area and the surface water discharge swale down gradient of the site. During February 2014, a total of 39.1 tons of PHC impacted soil were transported off-site using thermal incineration at the CEMEX USA facility located in Everett, WA. Confirmation soil samples were collected from the excavation and submitted to ALS which indicated that the impacted soil had been removed and did not contain detectable concentrations of PHC (Table 1). Upon completion, the excavation in the down gradient swale was backfilled using imported 4-6" cobbles, the material beneath the site was replaced with 2-4" quarry spall overlain by road base and surfaced with asphalt pavement.

An air sparging system which was previously installed and operated at the site was reactivated during March 2014, and connected to PW-1. The system is composed of a rotron-blower which is connected with subsurface 2" PVC piping to discharge beneath the groundwater surface in PW-1. The blower was placed in a rain resistant shelter on level imported fill soil along the fence line paralleling the southern portion of the gas station facility as illustrated in Figure 3. Operation of the system does not release volatile vapors outside of the well casing. Based upon Puget Sound Clean Air Agency (PSCAA) regulation I.6.03.C the sparging system discharge is below the TPH/BTEX threshold of 15/lbs/yr. and is exempt from regulations. The sparge system



is anticipated to be operated for one year (June 2015) until PHC concentrations decrease below MTCA method A cleanup levels in the monitoring wells and PW-1.

An additional carbon vessel was added to the groundwater treatment system to work in series with the existing filter during May 2014. After installing the treatment vessel, water samples were collected from MW-1, 2 & 3, PW-1, the discharge from vessel #1 (Dis-1), Vessel #2 (Dis-2) and the water in the grass swale (SW-1). The results indicated that PHC concentrations have decreased significantly but continue to exceed the MTCA method A cleanup levels as indicated in Table 2.

### **Scope of Work**

The following scope of work was prepared to continue groundwater treatment at the site until the concentrations decrease below MTCA method A cleanup levels. The scope of work includes sampling the groundwater on a quarterly basis, documentation of the sampling events, continuing activated carbon filtration and air sparging systems, closure of the site with Ecology, and decommissioning the wells and equipment in use at the site.

### **Groundwater Monitoring, Reporting, and Regulatory Closure**

SD&C will collect water samples from the pumping well, the water treatment system prior to (Dis-1) and after (Dis-2) discharge, and from the three existing monitoring wells during eight quarterly sampling events. The water samples will be delivered under chain-of-custody to ALS for analysis. The samples will be collected using EPA approved protocol. The PW-1 will be sampled after completion of a pumping cycle to insure that the samples are reflective of the aquifer parameters. The groundwater samples will be collected using a low flow peristaltic pump to minimize the potential volatilization of gasoline constituents. The treatment system water will be sampled directly from the discharge pipe.

The groundwater samples collected will be analyzed for the following PHCs:

- Gasoline using Ecology Method WTPH-GX; and
- BTEX using EPA Method 8021;

Quarterly reports will be prepared to summarize the laboratory data, document site activities, and provide conclusions and recommendations. The reports will identify data trends, system upgrades, and alterations as necessary. A summary report will be prepared at the completion of four consecutive quarterly results below MTCA method A cleanup levels for all the wells at the site. The closure report will summarize the field tasks, which will contain figures indicating the locations and media of the samples collected, their relative distances from significant Site features, and residual contaminant concentrations, if any. An application will be prepared to again enroll the Site into Ecology's VCP. Estimated costs are included for entering the facility into the VCP and providing the necessary documents and resources to obtain an NFA determination based upon the remedial action and assumptions described in this work plan. SD&C will also update the necessary information into Ecology's EIM database.

System maintenance activities include inspection of the air injection system plumbing for leaks or cracks, and repair of minor electrical issues such as tripped circuit breakers. The maintenance does not include major mechanical breakdown of the system which are beyond the control of the operator. Samples will be collected from the treatment system after the first carbon vessel (Dis-1) to evaluate if breakthrough may be occurring, and after the backup vessel (Dis-2) to demonstrate that there are no releases to the grassy swale to the south. The carbon vessel treatment usage is estimated to be 2.9 lbs per 5,000 gallons treatment at 15 mg/L, or an estimated replacement time every 60 days. It is anticipated that concentrations in groundwater will decrease linearly during one year of operation and will require 6 vessels replacements during the lifecycle of the project. The carbon vessels will remain attached to the system discharge after completion of the achievement of the MTCA method A cleanup levels, and throughout the four quarters of quarterly monitoring until Ecology authorizes a NFA. The carbon vessels will be retained until the project completion, and disposed of off-site under subcontract with Marvac.

If you have any questions regarding the contents of this workplan please contact SD&C at (206)459-5775.

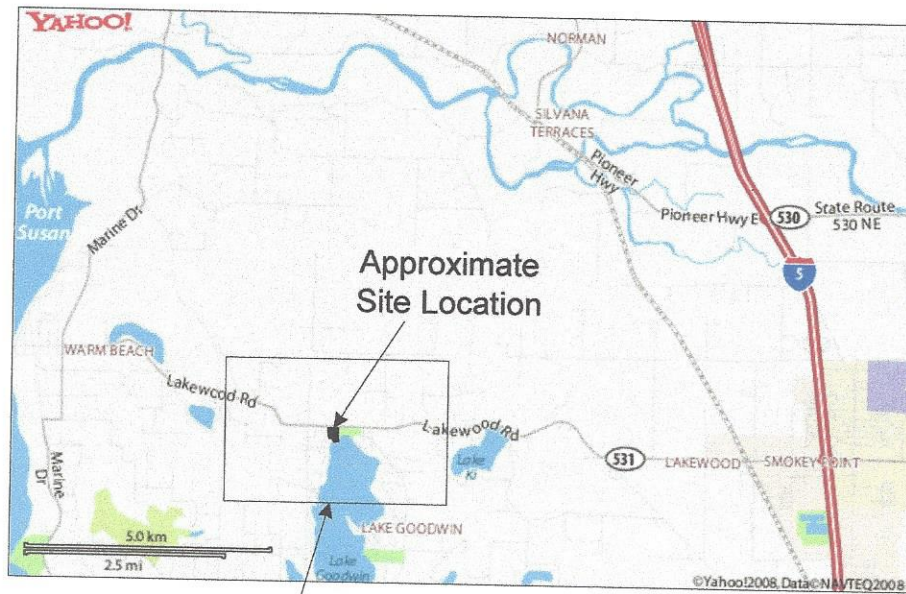
Sincerely,

---

Timothy S. Slotta L.G. L.H.G. L.E.G  
Hydrogeologist #2175

cc: Barry Ziker, Joyce Ziker Parkinson PLLC  
Karen Ryan – Rykar Investments Inc.





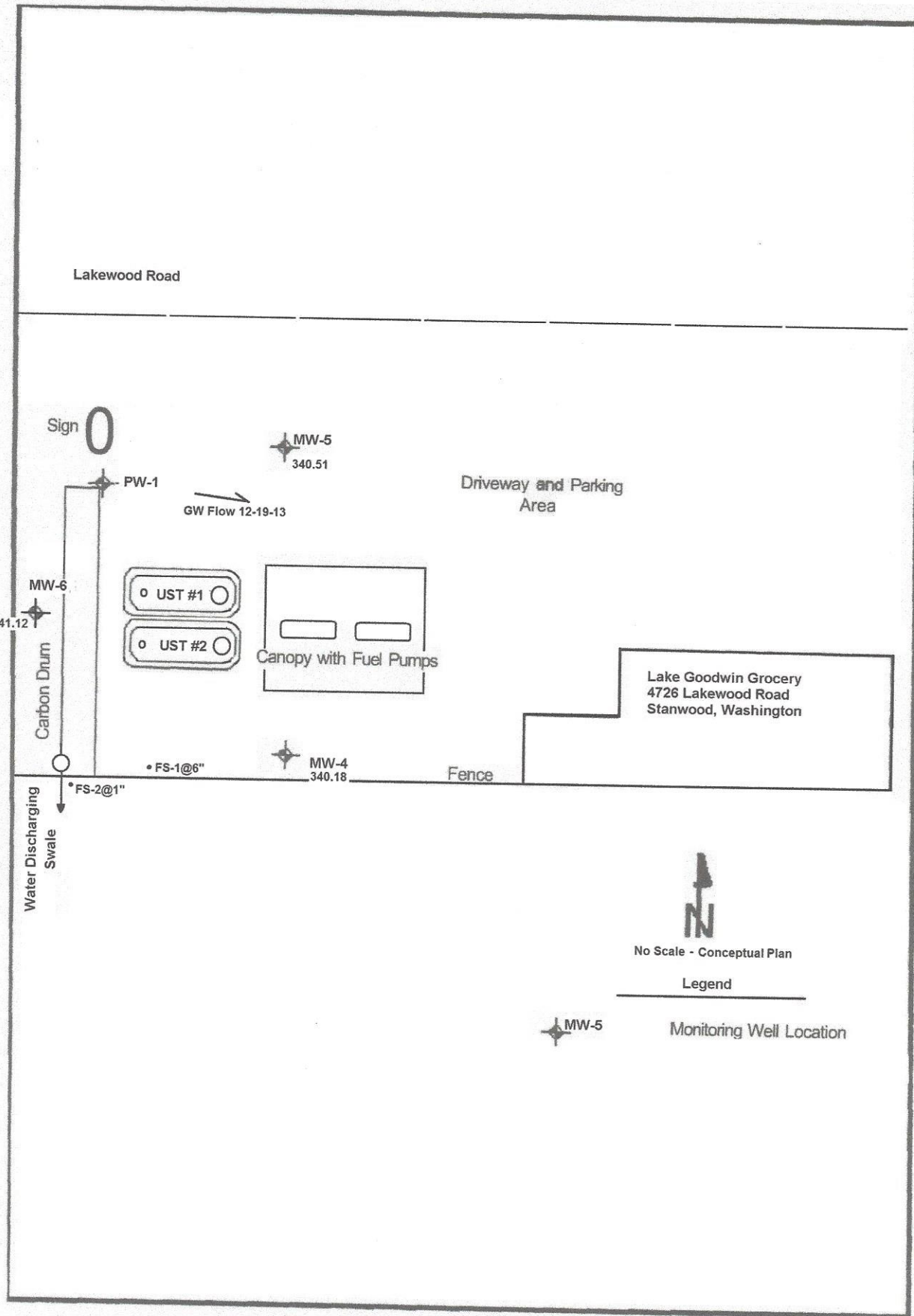
Area enlarged below



Lake Goodwin Gas Station  
and RV Resort  
4726 Lakewood Road  
Stanwood, WA 98292

**SD&C**

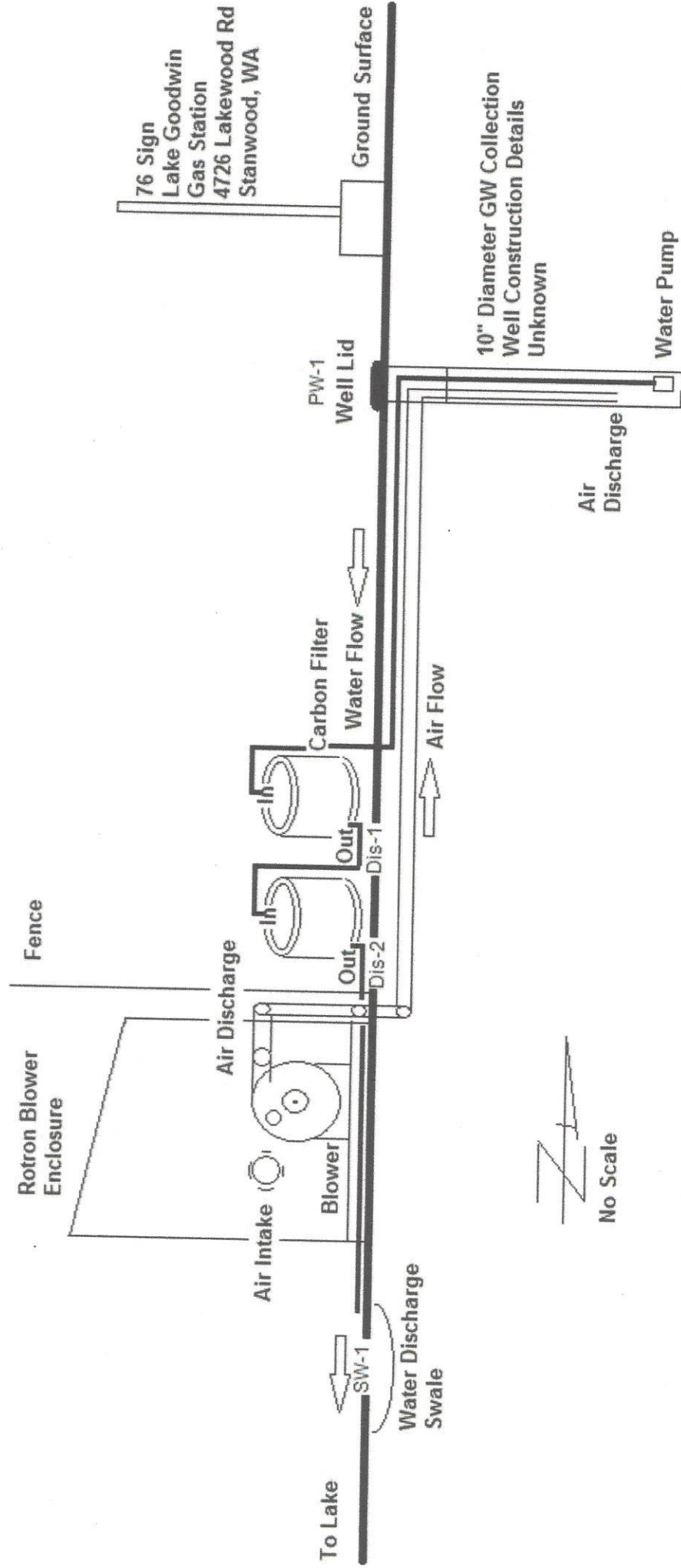
**Figure 1. Site Location Maps**



**SD&C**

Sample Location Map

Figure 2





**Table 1 – Laboratory Chemical Analyses Results**  
**Soil Samples Lake Goodwin Grocery - Stanwood, WA**

| Sample ID                   | Sample Date | WTPH-G (mg/kg, ppm) | Benzene (mg/kg, ppm) | Toluene (mg/kg, ppm) | Ethyl Benzene (mg/kg, ppm) | Xylenes (mg/kg, ppm) |
|-----------------------------|-------------|---------------------|----------------------|----------------------|----------------------------|----------------------|
| FS1@6"                      | 12-19-13    | <b>8,600</b>        | <b>47</b>            | <b>410</b>           | <b>150</b>                 | <b>990</b>           |
| FS2@1"                      | 12-19-13    | <b>1,900</b>        | <b>16</b>            | <b>90</b>            | <b>19</b>                  | <b>160</b>           |
| FS-3@1'                     | 3-6-14      | 3                   | 0.03                 | 0.05                 | 0.05                       | 0.20                 |
| FS-4@1'                     | 3-6-14      | 3                   | 0.03                 | 0.05                 | 0.05                       | 0.20                 |
| FS-5@1'                     | 3-6-14      | 3                   | 0.03                 | 0.05                 | 0.05                       | 0.20                 |
| MTCA Method A cleanup level |             | <b>100</b>          | <b>0.03</b>          | <b>7</b>             | <b>6</b>                   | <b>9</b>             |
| Method Reporting Limit      |             | 3                   | 0.03                 | 0.05                 | 0.05                       | 0.2                  |

**Notes:**

Milligrams per kilogram (mg/kg) parts per million (ppm).

MTCA Method A cleanup levels for soil are from Washington Administrative Code (WAC) chapter 173-340 revised 2-12-01. Samples in **Bold** exceed the MTCA cleanup levels

Soil samples were analyzed for:

- Gasoline by Ecology method NWTPH-Gx, and BTEX by EPA method 8020



**Table 2 - Laboratory Chemical Analytical Results**  
**Groundwater Samples Lake Goodwin Grocery - Stanwood, WA**

| Sample ID                          | Sample Date | WTPH-G (mg/L, ppb) | Benzene (ug/L, ppb) | Toluene (ug/L, ppb) | Ethyl Benzene (ug/L, ppb) | Xylenes (ug/L, ppb) |
|------------------------------------|-------------|--------------------|---------------------|---------------------|---------------------------|---------------------|
| <b>Pumping Well</b>                |             |                    |                     |                     |                           |                     |
| Pumping Well PW-1                  | 12-19-13    | 550,000            | N/A                 | N/A                 | N/A                       | N/A                 |
| Pumping Well PW-1                  | 3-5-14      | 330                | 2,400               | 14,000              | 3,800                     | 30,000              |
| Pumping Well PW-1                  | 5-20-14     | 15                 | 100                 | 1,500               | 240                       | 2,300               |
| <b>Monitoring Wells</b>            |             |                    |                     |                     |                           |                     |
| MW-4                               | 12-19-13    | 17                 | 57                  | 960                 | 350                       | 2,100               |
| MW-4                               | 3-5-14      | <0.05              | <1                  | <1                  | <1                        | <3                  |
| MW-4                               | 5-20-14     | <0.05              | <1                  | <1                  | <1                        | <3                  |
| MW-5                               | 12-19-13    | 1.9                | 15                  | 180                 | 47                        | 280                 |
| MW-5                               | 3-5-14      | <0.05              | <1                  | <1                  | <1                        | <3                  |
| MW-5                               | 5-20-14     | <0.05              | <1                  | <1                  | <1                        | <3                  |
| MW-6                               | 12-19-13    | 1.6                | 11                  | 130                 | 34                        | 220                 |
| MW-6                               | 3-5-14      | <0.05              | 7.1                 | <1                  | <1                        | <3                  |
| MW-6                               | 5-20-14     | <0.05              | 3.7                 | <1                  | <1                        | <3                  |
| <b>Discharge Water</b>             |             |                    |                     |                     |                           |                     |
| Discharge Water Dis-1              | 1-3-14      | <0.05              | <1                  | <1                  | <1                        | <3                  |
| Discharge Water Dis-1              | 5-13-14     | <0.05              | <1                  | <1                  | <1                        | <3                  |
| Discharge Water Dis-2              | 5-13-14     | <0.05              | <1                  | <1                  | <1                        | <3                  |
| <b>Storm Water</b>                 |             |                    |                     |                     |                           |                     |
| SW-1                               | 5-13-14     | <0.05              | <1                  | <1                  | <1                        | <3                  |
| <b>MTCA Method A cleanup level</b> |             | <b>0.80</b>        | <b>5</b>            | <b>1,000</b>        | <b>700</b>                | <b>1,000</b>        |
| <b>Method Reporting Limit</b>      |             | <b>1000</b>        | <b>20</b>           | <b>20</b>           | <b>20</b>                 | <b>60</b>           |

Notes:

- Milligrams per liter (mg/L), parts per million (ppm), Micrograms per liter (ug/L), parts per billion (ppb).  
 <1.0 = not detected at or above the method reporting limit. N/A = not analyzed  
 MTCA Method A cleanup levels for groundwater are from Washington Administrative Code (WAC) chapter 173-340 revised 2-12-01.  
 Groundwater sample analysis included:
- Gasoline by Ecology method NWTPH-Gx, and BTEX by EPA method 8020
- PW-1 Sample was from 18" of free phase gasoline product  
 Dis-1 Sample has not been submitted for analysis at this time

Table 3  
Monitoring Well Elevation Data  
Lake Goodwin Grocery – Stanwood, WA

| Monitoring Well | Date    | Casing<br>Elevation | Depth to<br>Groundwater | Groundwater<br>Elevation |
|-----------------|---------|---------------------|-------------------------|--------------------------|
| MW-4            | 5/13/14 | 342.06              | 1.16                    | 340.90                   |
|                 |         |                     |                         |                          |
| MW-5            | 5/13/14 | 342.87              | 2.33                    | 340.54                   |
|                 |         |                     |                         |                          |
| MW-6            | 5/13/14 | 342.58              | 1.66                    | 330.92                   |
|                 |         |                     |                         |                          |