

# GROUNDWATER REVIEW

## With Excel Charts

---

### **Former Round The Clock Deli** **722 South Lincoln Street, Port Angeles, WA**

WA DOE Facility ID: 63427274  
VCP Project No. SW0962

*Prepared for:*  
Peter Trabusiner  
BMEC  
Richland, WA

---

*Prepared By:*  
GeoPro LLC  
Battle Ground, WA 98604

September 9, 2014



## 1.1 Location

The Site is located at 722 South Lincoln Street, Port Angeles, Washington. It was previously known as Around The Clock Deli property included underground petroleum storage tanks (USTs) which have been removed. The Site is listed by the Washington Department of Ecology as Facility 63427274 as a Hazardous Waste Generator and a LUST facility. The property is under a Voluntary Cleanup Program (ID SW0962) to perform independent remedial activities related to known contamination.

## 1.2 Purpose and Objectives

The area of interest includes the property located at 722 South Lincoln Street, the area surrounding the intersection of 8th Street and 7th Street, and northerly along S. Lincoln Street.

GeoPro LLC has prepared this brief memorandum at the request of Peter Trabusiner, Blue Mountain Environmental Consultants, Richland, Washington. The purpose is to review sampling results of groundwater collected from existing monitoring wells KMW-1, KMW-2, KMW-4, KMW-8, KMW-14, KMW-19, and KMW-20. The selected analyses include gasoline, benzene, toluene, ethylbenzene, and total xylenes. The sampling events include August 2007, January-February 2008, January 2011, July 012, and October 2013. Not all monitoring wells were sampled during each event.

The analytical results and Microsoft Excel plots of analyses from each sampling period are shown on attached charts. The monitoring well locations are shown on the attached map.

The following are MTCA Method A Cleanup Levels for Unrestricted Land Use (MTCA Levels):

Gasoline: 1,000 µg/l when benzene is not detected;

800 µg/l when benzene is detected

Benzene: 5 µg/l

Toluene: 1,000 µg/l

Ethylbenzene: 700 µg/l

Total Xylenes: 1,000 µg/l

## 1.3 Previous GeoPro Conclusions

- A co-mingled plume of gasoline contaminated groundwater extends from approximately the northern boundary of the ARCO property on East 8th Street, northeasterly at least 400 feet to East 7th Street and is approximately 300 feet wide (northwest to southeast).
- Gasoline contaminated groundwater is migrating north-northeasterly, in a distribution pattern enhanced by a now filled-in stream channel ("gulch") and other higher permeable features, such as, backfilled utility trenches.
- Significant differences exist between the gasoline analyzed in KMW-2 (Site) and KMW-5 (side-gradient). KMW-5 is apparently located within, or very near, a stream channel ("gulch") which has been backfilled during development. The sources of the gasoline in KMW-2 and KMW-5 are apparently different. The location of KMW-5 is shown on a Draft GeoEngineers map furnished to GeoPro.

## **2 EXCEL CHARTS**

### **2.1 Monitoring Well KMW-1**

Monitoring well KMW-1 is located within the northwestern part of the property. Sampling in August 2007, January-February 2008, January 2011, and October 2013 did not result in any constituents exceeding MTCA Levels. The trend is non-detection of gasoline and BTEX.

### **2.2 Monitoring Well KMW-2**

Monitoring well KMW-2 is located within the northeastern part of the property and downgradient. All constituents exceeded MTCA levels during each of the five sampling events. The trend is gasoline significantly decreasing and BTEX levels generally increasing.

### **2.3 Monitoring Well KMW-4**

Monitoring well KMW-4 is located within S. Lincoln Street, southeast of the property, and side-gradient. Constituents analyzed in January-February 2008, January 2011, and October 2013 did not result in any exceeding MTCA Levels.

### **2.4 Monitoring Well KMW-8**

Monitoring well KMW-8 is located within S. Lincoln Street, northeast of the property, and downgradient. Sampling in January-February 2008, January 2011, and October 2013 resulted in all constituents exceeding MTCA Levels, except toluene during January 2011 and October 2013. The trend of all constituents is increasing, but lower levels than the initial sampling in January-February 2008.

### **2.5 Monitoring Well KMW-14**

Monitoring well KMW-14 is located within S. Lincoln Street, southeast of the property, side-gradient to slightly upgradient. Sampling in August 2007, January-February 2008, and October 2013 did not result in any constituents exceeding MTCA Levels. Sampling in January 2011 resulted in benzene exceeding MTCA Levels. The trend is non-detection of gasoline and BTEX.

### **2.6 Monitoring Well KMW-19**

Monitoring well KMW-19 is located within S. Lincoln Street, southeast of the property, and side-gradient. All constituents exceeded MTCA levels during the two sampling events in January 2011 and October 2013. The trend is decreasing gasoline and increasing BTEX levels.

### **2.7 Monitoring Well KMW-20**

Monitoring well KMW-20 is located within S. Lincoln Street, northeast of the property, and downgradient. Sampling in January 2011 and October 2013 resulted in all constituents exceeding MTCA Levels, except ethylbenzene during January 2011. The trend is increasing gasoline and BTEX levels.

### 3 CONCLUSIONS

Two monitoring wells, KMW-1 and KMW-2, are located within the property outlined on a GeoEngineers map furnished to GeoPro. Gasoline and BTEX analyzed in groundwater samples from monitoring well KMW-1, if representative of at least the western-northwestern two-thirds of the property, are below, and trending below, MTCA Cleanup levels for unrestricted land use.

Groundwater samples from monitoring well KMW-2, located near the northeastern boundary of the property, contained BTEX above cleanup levels. This well may be located near the northwestern edge of a contaminant plume, essentially containing high levels of BTEX, migrating north to northeastward, generally within S. Lincoln Street.

Side and downgradient wells KMW-8, KMW-19 and KMW-20 are within the contaminant plume generally within S. Lincoln Street and BTEX levels are increasing.

Upgradient and slightly side-gradient monitoring wells KMW-4 and KMW-14 appear to be outside the plume of highest contamination.

Groundwater underlying the southeastern border of the property, along S. Lincoln Street, likely contains levels of BTEX which exceed MTCA cleanup levels for unrestricted land use. In addition, soil samples collected in 2013 near 12 to 15 feet depth, and near locations of previous USTs, within the approximate southeastern one-third of the property, also indicate increased levels of gasoline and BTEX (as reported on a GeoEngineers Draft map furnished for review to GeoPro).

### 4 LIMITATIONS

This memorandum has been prepared for use by the landowner and is not intended for use by others except the landowner(s) or landowner's agents. Each project and project site is unique and the information contained in this report is not applicable to other sites. Only the landowner should rely upon this report and all others should contact GeoPro LLC before applying or interpreting any information in this report.

GeoPro LLC does not accept liability or responsibility for detachment, partial use, separation, or reproduction without color, if used, which may depict significant information, by third parties and such use shall be at user's sole risk.

Records, documentation, and personal communication have been relied upon in good faith; however, no responsibility is accepted for errors or omissions of work by others. Services were performed in accordance with generally accepted professional practices, in the same or similar localities, related to the nature of the work accomplished, at the time services are rendered. GeoPro LLC is not responsible for references to regulatory terms, practices, numeric data, practices or conditions that may lead to other conclusions if such references are not in final form.

Conclusions and findings apply only to present conditions, and opinions expressed are subject to revision when additional or new information is presented and reviewed. This warranty is in lieu of all other warranties, either expressed or implied. This report should not be construed as presenting a value to neither the Site nor the condition as to construction capabilities. In the event of changes in future development plans as understood at the time of this report, the conclusions and recommendations made

herein shall be invalid until given the opportunity to review and modify this report in writing. Portions of an Agreement to perform professional services may or may not be disclosed in this report.

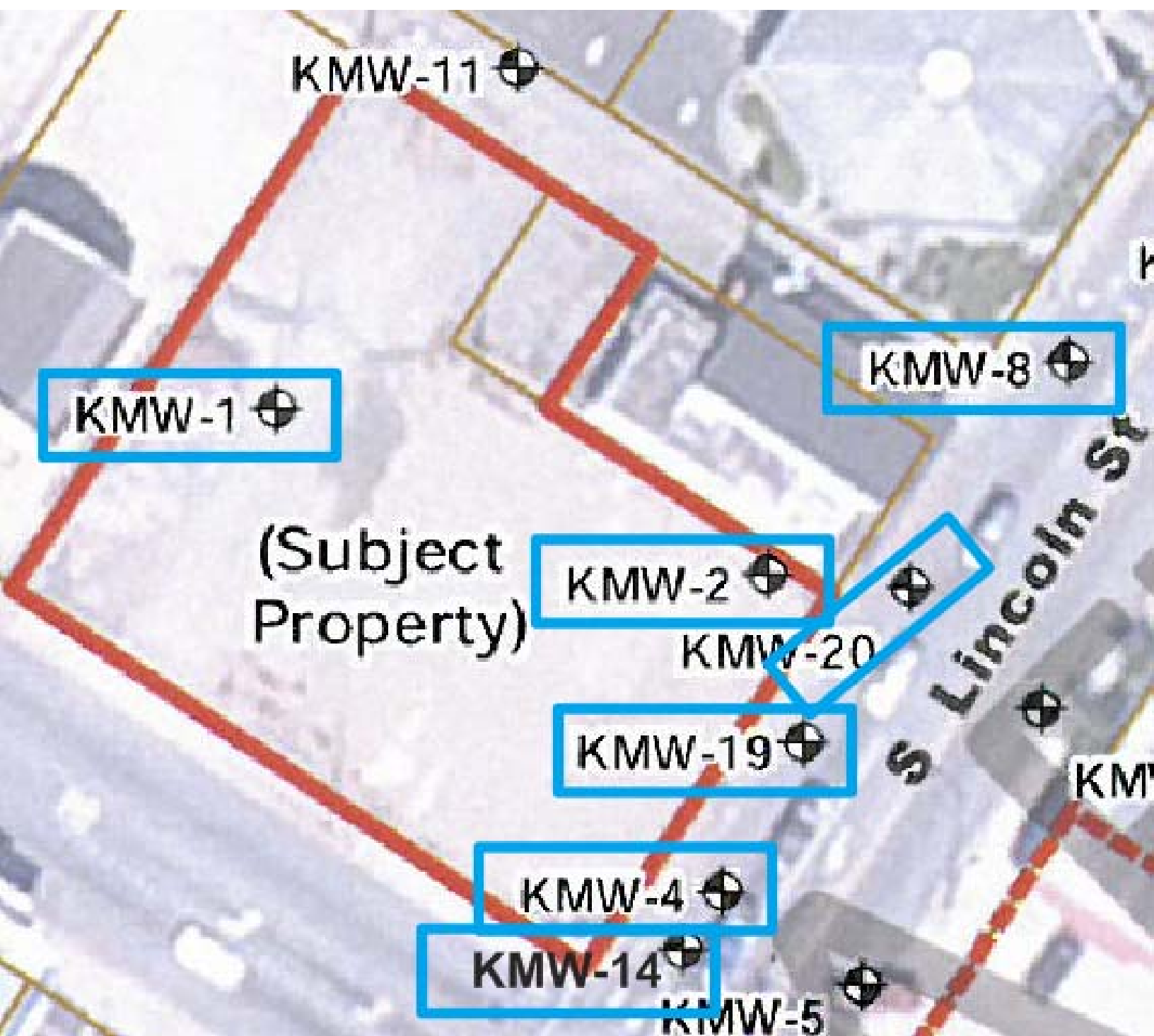
Respectfully submitted,

A handwritten signature in black ink, appearing to read "Richard C. Kent".

Richard C. Kent, L.G. State of Washington

GeoPro LLC  
PO Box 26  
Battle Ground, WA 98604  
(360) 666-1465

*Att: data table furnished by BMEC; Microsoft Excel charts trends for gasoline and BTEX*



**Former Round The Clock Deli**

722 South Lincoln Street, Port Angeles, WA

WA DOE Facility ID 63427274

VCP Project No. SW0962

Plots by GeoPro LLC, Battle Ground, WA

9/9/2014

**PLOTS OF SELECTED GROUNDWATER ANALYSES: Gasoline, Benzene, Toluene, Ethylbenzene and Total Xylenes****Micrograms per liter**

KMW-1					
	Aug 2007	Jan-Feb 2008	Jan 2011	Jul 2012	Oct 2013
Gasoline	0	319	0		<100
Benzene	0	2.7	0		<1
Toluene	0	0	0		<1
Ethylbenzene	0	0	0		<1
Total Xylenes	0	1.9	0		<1

KMW-2					
	Aug 2007	Jan-Feb 2008	Jan 2011	Jul 2012	Oct 2013
Gasoline	33000	32000	210000	95000	140
Benzene	15000	19000	17000	330	7300
Toluene	7300	550	18000	2400	33000
Ethylbenzene	1800	2000	2800	3600	4400
Total Xylenes	4800	3900	13000	21800	22000

KMW-4					
	Aug 2007	Jan-Feb 2008	Jan 2011	Jul 2012	Oct 2013
Gasoline		100	0		<100
Benzene		4.5	0		2
Toluene		0	0		<1
Ethylbenzene		0	0		<1
Total Xylenes		0	0		<1

KMW-8					
	Aug 2007	Jan-Feb 2008	Jan 2011	Jul 2012	Oct 2013
Gasoline		56000	240		27000
Benzene		700	49		720
Toluene		1800	25		88
Ethylbenzene		3500	1.4		1900
Total Xylenes		13000	6.4		5400

KMW-14					
	Aug 2007	Jan-Feb 2008	Jan 2011	Jul 2012	Oct 2013
Gasoline	0	0	300		<100
Benzene	0	0	68		<1
Toluene	0	0	25		<1
Ethylbenzene	0	0	1		<1
Total Xylenes	0	0	4.7		<1

KMW-19					
	Aug 2007	Jan-Feb 2008	Jan 2011	Jul 2012	Oct 2013
Gasoline			85000		61000
Benzene			6000		13000
Toluene			5500		14000
Ethylbenzene			1300		1600
Total Xylenes			5300		8500

KMW-20					
	Aug 2007	Jan-Feb 2008	Jan 2011	Jul 2012	Oct 2013
Gasoline			30000		47000
Benzene			2400		12000
Toluene			2100		11000
Ethylbenzene			450		1200
Total Xylenes			2000		5400

