

# WESTERN ENVIRONMENT AND ECOLOGY, INC

March 13<sup>th</sup>, 2018

Chris Canfield  
Environmental Protection Specialist  
Colorado Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite 801  
Denver, Colorado 80203

Subject: Fourth Quarterly Groundwater Monitoring Summary, Smith/Ginther 1 & 2 Tank Battery (Facility # 118915) Holly Hills Subdivision, 144<sup>th</sup> Avenue and Holly Street Thornton, Colorado. Western Environment and Ecology, Inc. Project Number 82-052-01.

Dear Mr. Canfield:

Western Environment and Ecology, Inc. (Western Environment) performed the fourth and final quarterly groundwater monitoring on the above referenced property (Figure 1). These activities are described in the Colorado Oil and Gas Conservation Commission (COGCC) Form 27, Site Investigation and Remediation Work Plan (Project # 10065) approved on February 23<sup>rd</sup>, 2017.

Since the previous monitoring event (November 12<sup>th</sup>, 2017) contractors excavated and recompacted approximately twenty feet of soil beneath and adjacent to the Smith/Ginther 1 & 2 Tank Battery (see attached photos). While efforts were made to protect the remaining wells, only TH-15R and TH-16R were undamaged, see Figure 2.

On February 27<sup>th</sup>, 2018, Western Environment developed and performed water quality analysis of the two remaining wells. The following day, two 40.0 ml vials were acquired from TH-15R and TH-16R. These samples were taken., using appropriate quality assurance and quality control methods, and transported, under chain of custody controls, to Technology Laboratories in Fort Collins, Colorado. The samples were analyzed for benzene, toluene, ethyl-benzene and xylene (BTEX) and Total Volatile Petroleum Hydrocarbons (TVPH) utilizing EPA Method 8260B. The results are attached to this report and are presented on the following Table 1.

The results confirm the low concentrations for benzene, marginally above COGCC Table 910.1 values, in TH-16R and the non-detect levels in TH-15R. Therefor, based upon the four quarters of monitoring, excavation and disposal of 330 cubic yards of petroleum contaminated soil and the over excavation of adjacent soil, it is the opinion of Western Environment that these activities constitute the **FINAL RECLAMATION** for Facility #118915.

As always, do not hesitate to contact us with any questions.

Sincerely,  
WESTERN ENVIRONMENT AND ECOLOGY, INC.

Greg D. Sherman, P.G.  
President

att.

cc. Kent Carlson, Carlson and Associates

**2217 WEST POWERS AVENUE \* LITTLETON, COLORADO 80120**  
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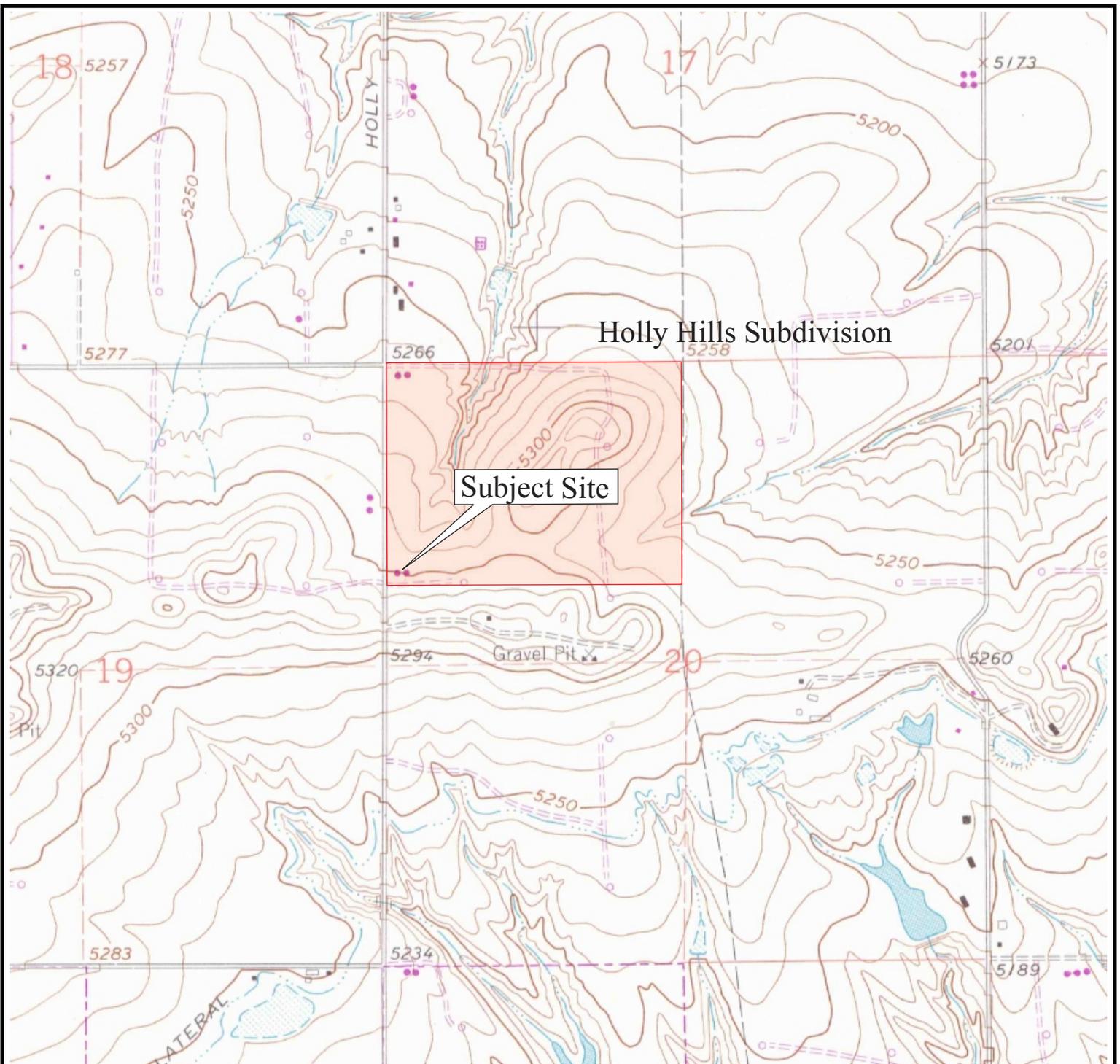
**TABLE 1**  
Groundwater Sample Results

Sample Location	Sample Date	Sampled By	benzene (ug/L)	toluene (ug/L)	ethyl-benzene (ug/L)	xylene (ug/L)	TPH GRO (ug/L)
TH-14	8/18/2017	Western Environment	ND	ND	ND	ND	ND
TH-14R	11/12/2017	Western Environment	ND	ND	ND	ND	ND
TH-15	12/20/2016	CTL Thompson	ND	ND	ND	ND	-
	8/18/2017	Western Environment	ND	ND	ND	ND	ND
TH-15R	11/12/2017	Western Environment	ND	ND	ND	ND	ND
	2/28/2018	Western Environment	ND	ND	ND	ND	ND
TH-16	12/20/2016	CTL Thompson	<b>55.4</b>	4.56	62.4	295	-
	1/25/2017	Western Environment	2.0	ND	15.0	86.0	710
TH-16R	11/12/2017	Western Environment	<b>11.0</b>	ND	3.0	3.0	ND
	2/28/2018	Western Environment	<b>15.0</b>	ND	4.0	ND	ND
TH-19	1/25/2017	Western Environment	DRY	DRY	DRY	DRY	DRY
	8/18/2017	Western Environment	DRY	DRY	DRY	DRY	DRY
TH-20	1/25/2017	Western Environment	DRY	DRY	DRY	DRY	DRY
	8/18/2017	Western Environment	DRY	DRY	DRY	DRY	DRY
TH-21	1/25/2017	Western Environment	ND	1.0	ND	2.0	ND
	8/18/2017	Western Environment	<b>11.0</b>	ND	3.0	3.0	ND
TH-21R	11/12/2017	Western Environment	<b>8.0</b>	ND	1.0	1.0	ND

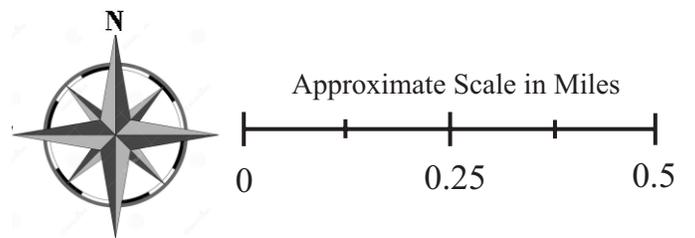
ND - Non-detect

DRY - Well dry at time of sample

**Bold - Exceeds Colorado Oil and Gas Conservation Commission Table 910-1 Concentration Levels**



USGS Eastlake Qaudrangle, 7.5 Minutes Series, 1980



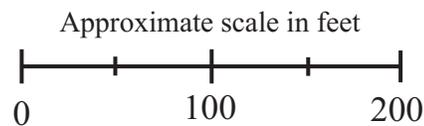
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2217 West Powers Avenue  
Littleton, Colorado 80120

Figure 1 - Site Location Map  
Holly Hills Subdivision  
144<sup>th</sup> Avenue and Holly Street  
Thornton, Colorado



**TH-21R**

**104.66 Benzene Concentration (mg/L)**  
**26.17 Groundwater Depth**



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Figure 2 - Replacement Well Map  
 Holly Hills Subdivision  
 144<sup>th</sup> Avenue and Holly Street  
 Thornton, Colorado



Location of Smith/Ginther 1&2 Tank Battery



Area Enlarged Showing Depth of Excavation and Wells TH-15R and TH 16R



# TECHNOLOGY LABORATORY, INC.

## CENTRE PROFESSIONAL PARK

1012 Centre Avenue  
Fort Collins, Colorado 80526  
(970) 490-1414

### CERTIFICATE OF ANALYSIS

Western Environment & Ecology  
2217 W. Powers Ave  
Littleton, CO 80120

Sample ID: TH-15R  
Laboratory ID B6852-01

Sampled: 02/28/18  
Received: 03/01/18

Project No.: 082-052-01  
Matrix: Water

<u>CAS Number</u>	<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>MDL</u>	<u>Method</u>	<u>Date Analyzed</u>
71-43-2	Benzene	< 0.001	mg/L	0.001	EPA-8260B	03/02/18
108-88-3	Toluene	< 0.001	mg/L	0.001	EPA-8260B	03/02/18
100-41-4	Ethylbenzene	< 0.001	mg/L	0.001	EPA-8260B	03/02/18
1330-20-7	Total Xylenes	< 0.001	mg/L	0.001	EPA-8260B	03/02/18
N/A	GRO (TVPH)	< 0.5	mg/L	0.5	EPA-8260B	03/02/18

### QA/QC SURROGATE RECOVERIES

<u>Compound</u>	<u>% Recovery</u>	<u>% Rec. Limits</u>
Dibromofluoromethane	105	68-120
Toluene-d8	100	81-128
Bromofluorobenzene	101	70-113

  
TECHNOLOGY LABORATORY, INC.

The results contained in this report relate only to those items tested.



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### CERTIFICATE OF ANALYSIS

Western Environment & Ecology  
2217 W. Powers Ave  
Littleton, CO 80120

Sample ID: TH-16R  
Laboratory ID B6852-02

Sampled: 02/28/18  
Received: 03/01/18

Project No.: 082-052-01  
Matrix: Water

<u>CAS Number</u>	<u>Parameter</u>	<u>Result</u>	<u>Units</u>	<u>MDL</u>	<u>Method</u>	<u>Date Analyzed</u>
71-43-2	Benzene	0.015	mg/L	0.001	EPA-8260B	03/02/18
108-88-3	Toluene	< 0.001	mg/L	0.001	EPA-8260B	03/02/18
100-41-4	Ethylbenzene	0.004	mg/L	0.001	EPA-8260B	03/02/18
1330-20-7	Total Xylenes	< 0.001	mg/L	0.001	EPA-8260B	03/02/18
N/A	GRO (TVPH)	< 0.5	mg/L	0.5	EPA-8260B	03/02/18

### QA/QC SURROGATE RECOVERIES

<u>Compound</u>	<u>% Recovery</u>	<u>% Rec. Limits</u>
Dibromofluoromethane	103	68-120
Toluene-d8	101	81-128
Bromofluorobenzene	97	70-113

  
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