



01761166

State of Colorado

Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303) 894-2100 Fax 894-2109

REMEDIAION
#5473FORM
27
Rev 6/99

RECEIVED

JAN 18 2011

COGCC

OGCC Employee:

☒ Spill ☐ Complaint
☐ Inspection ☐ NOAV

Tracking No: 1632793

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☒ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☐ Site/Facility Closure ☐ Other (describe):

GENERAL INFORMATION

OGCC Operator Number: 69175		Contact Name and Telephone	
Name of Operator: Petroleum Development Corporation		Name: Randall Ferguson	
Address: 1775 Sherman Street, Suite 3000		No: (303) 860-5800	
City: Denver State: CO Zip: 80203		Fax: (303) 860-5838	
API/Facility No: 05-123-19549		County: Weld	
Facility Name: Heldt		Facility Number: 12-18	
Well Name: Heldt		Well Number: 12-18	
Location (Qtr/Sec. Twp, Rng, Meridian): SWNW Sec 18 T6N R64W 6th Principal Meridian Latitude: Longitude:			

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.):		Produced Water	
Site Conditions: Is location within a sensitive area (according to Rule 901e)? <input checked="" type="checkbox"/> Y <input type="checkbox"/> N If yes, attach evaluation. Groundwater < 20 feet bgs.			
Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.):		Irrigated cropland	
Soil type, if not previously identified on Form 2A or Federal Surface Use Plan:		Colombo Clay Loam, 0 to 1 percent slopes	
Potential receptors (water wells within 1/4 mi, surface waters, etc.):		Surface water is located 45' southwest of the site; a building is located 650' southwest of the site; a water well is located 770' southwest of the site; and depth to groundwater is 7' below ground surface (bgs).	
Description of Impact (if previously provided, refer to that form or document):			
Impacted Media (check):	Extent of Impact:	How Determined:	
<input checked="" type="checkbox"/> Soils	50' E-W x 50' N-S x 7' bgs	Laboratory analysis and field screening of soil samples	
<input type="checkbox"/> Vegetation			
<input checked="" type="checkbox"/> Groundwater	See attached data	Laboratory analysis of groundwater samples	
<input type="checkbox"/> Surface water			

REMEDIAION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):
Form 19 was submitted on 2/12/2010 (COGCC Spill #1632793, NRC Spill # 930522, CDPHE Spill # 2010-0058)
Describe how source is to be removed:
On February 4, 2010, a farmer observed sheen on the surface water immediately adjacent to the Heldt 12-18 tank battery. The source was a subsurface leak from the produced water vault that had intercepted a farmer's field drain tile. The field drain tile outfalls to a tributary of Lone Creek (Figure 2). Absorbent booms were deployed and other corrective actions were taken immediately. PDC began sampling the unnamed tributary surface water until BTEX concentrations below laboratory detection limits. Once the water vault was removed, impacted soil was excavated. Soil samples were collected from the sidewalls of the excavations and were submitted for analysis of BTEX and GRO by EPA Method 8260B and DRO by EPA Modified Method 8015. Laboratory results indicated BTEX, GRO, and DRO concentrations along the excavation perimeter are in compliance with COGCC Table 910-1 Concentration Levels. A groundwater sample was collected from the base of each excavation and was analyzed for BTEX by EPA Method 8260B (Figure 2). Laboratory results indicated the benzene concentration in the larger excavation exceeded the CDPHE Water Quality Control Commission Regulation 41 (WQCC Reg. 41) standard. Before backfilling the excavation, activated carbon was applied to the groundwater and exposed smear zone soils. A topographic site location map, site map, and surface water sample location map are provided as Figures 1, 2, and 3. Soil, groundwater, and surface water analytical results are summarized in Tables 1, 2, and 3.
Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:
Approx. 440 cubic yards of soil exceeding COGCC Table 910-1 Concentration Levels was transported to the Waste Management landfill in Ault, CO for disposal. Additionally, 560 barrels of impacted groundwater was recovered and disposed of at a licensed facility. PDC also installed two carbon filtration vessels in the unnamed tributary to capture any residual hydrocarbons (Figure 3).

Submit Page 2 with Page 1.

State of Colorado
Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801, Denver, Colorado
(303) 894-2100 Fax 894-2109

REMEDIATION WORKPLAN (CONT.)

OGCC Employee:

Axelson

Tracking Number: 01761166
Name of Operator: Petroleum Development Corporation
OGCC Operator No: 69175
Received Date: 1/13/11
Well Name & No: Heldt 12-18
Facility Name & No: Heldt 12-18

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

PDC conducted initial surface water monitoring to determine hydrocarbons impacts downgradient in the unnamed tributary (Figure 3). Surface water sampling results are summarized in Table 3. Monitoring wells MW01 through MW05 were installed at the site on July 14, 2010 (Figure 2). Following installation, each well was developed and purged. Groundwater samples were collected from the wells and submitted for laboratory analysis of BTEX by EPA Method 8260B on July 14, 2010, October 18, 2010, and January 6, 2011. Laboratory analytical results indicate nondetectable BTEX concentrations in groundwater and in compliance with Reg. 41 standards. PDC will continue to monitor groundwater concentrations at the site until four quarters of groundwater analytical results in compliance with Reg. 41 standards are achieved.

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

The site was restored to pre-release grade. PDC's production facility remains at the site.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? ☐ Y ☒ N If yes, describe:

Laboratory analytical results from three quarters of monitoring indicate nondetectable BTEX concentrations in groundwater and in compliance with Reg. 41 standards. PDC will continue to monitor groundwater concentrations at the site until four quarters of groundwater analytical results in compliance with Reg. 41 standards are achieved.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

Approx. 440 cubic yards of soil exceeding COGCC Table 910-1 Concentration Levels was transported to the Waste Management landfill in Ault, CO for disposal. Additionally, 560 barrels of impacted groundwater exceeding CDPHE WQCC Reg. 41 standards was recovered and disposed of at a licensed facility.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 2/4/2010	Date Site Investigation Completed: 7/16/2010	Remediation Plan Submitted: 1/13/2011
Remediation Start Date: 2/5/2010	Anticipated Completion Date: 7/14/2010	Actual Completion Date: TBD

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: Randall Ferguson

Signed: Randall Ferguson

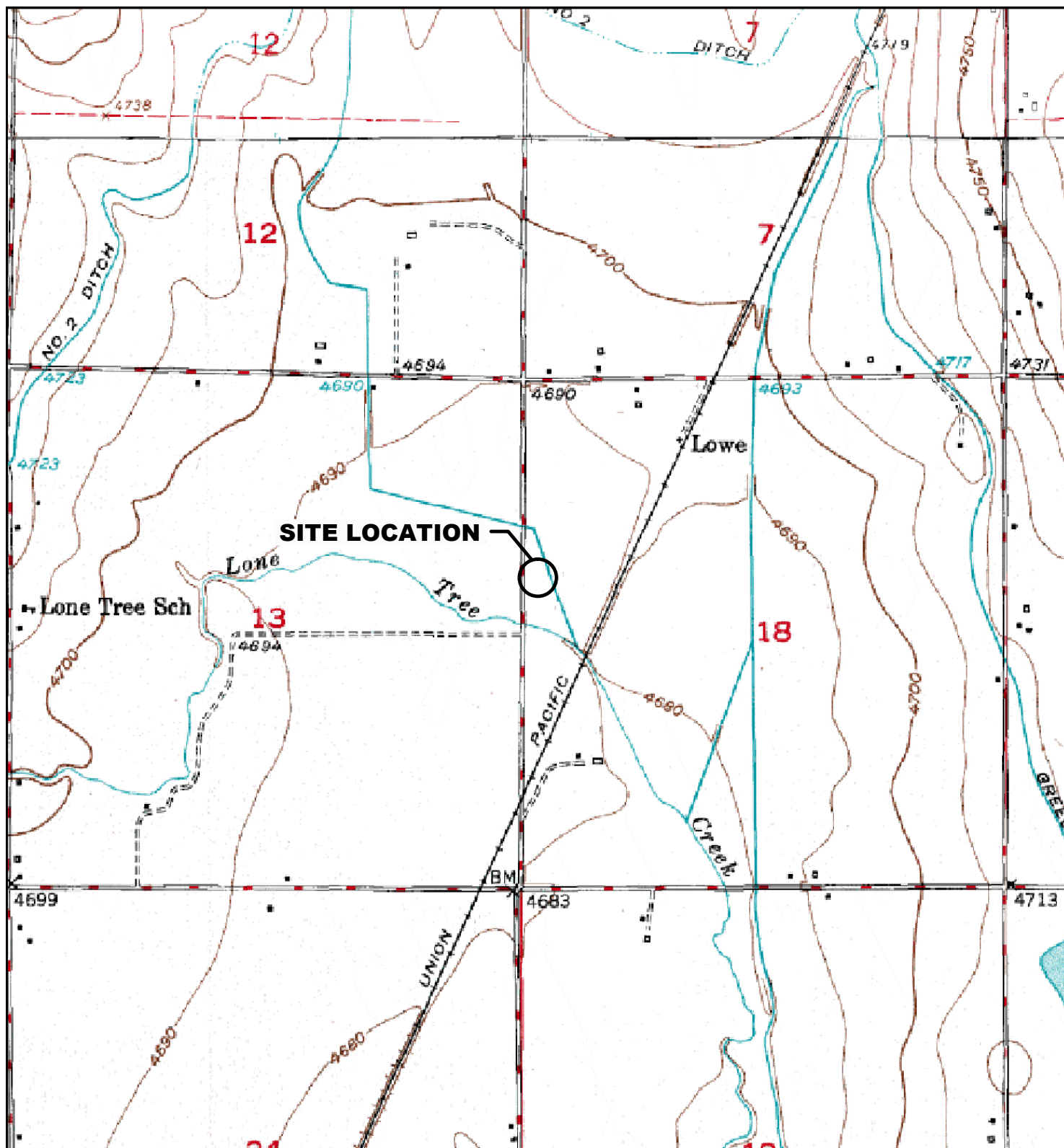
Title: Environmental Supervisor

Date: 1/13/2011

OGCC Approved: John Carlson

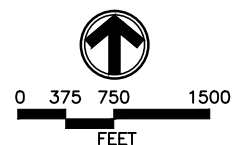
Title: EPS

Date: 1/13/11



LEGEND

○ SITE LOCATION

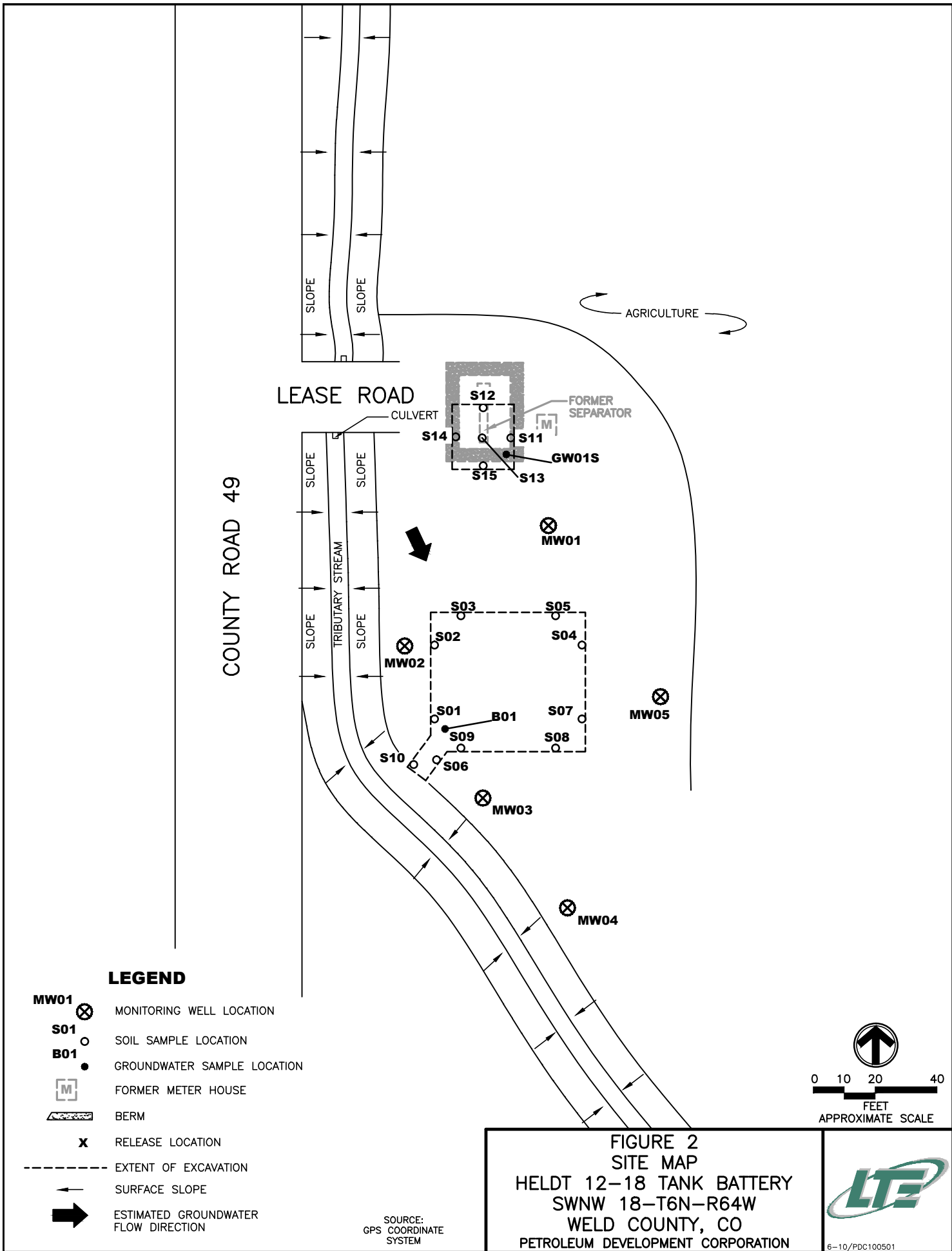


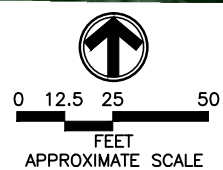
SOURCE: TOPOZONE.COM
USGS 7.5' QUADRANGLE
(NAD27)

FIGURE 1
SITE LOCATION MAP
HELDT 12-18 TANK BATTERY
SWNW 18-T6N-R64W
WELD COUNTY, CO
PETROLEUM DEVELOPMENT CORPORATION



PDC100501_SL 2-10





LEGEND

- SW01** ● SURFACE WATER LOCATION
- BURIED FIELD TILE

FIGURE 3
 SURFACE WATER SAMPLE LOCATION MAP
 HELDT 12-18 TANK BATTERY
 S12N 18-T6N-R64W
 WELD COUNTY, CO
 PETROLEUM DEVELOPMENT CORPORATION



TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
HELDT 12-18 (API No. 05-123-19549)
WELD COUNTY
PETROLEUM DEVELOPMENT CORPORATION

Sample ID	Depth (ft bgs)	Date Sampled	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl- benzene (mg/kg)	Xylenes (mg/kg)	TPH (mg/kg)
S01	6	02/12/2010	<0.0050	<0.0050	<0.0050	<0.0050	<50.5
S02	6	02/12/2010	<0.0050	<0.0050	<0.0050	<0.0050	<50.5
S03	6	02/12/2010	0.019	0.16	0.015	0.14	1.2
S04	6	02/12/2010	<0.0050	<0.0050	<0.0050	0.046	3.7
S05	6	02/12/2010	0.0078	0.032	<0.0050	0.038	3.1
S06	6	02/12/2010	<0.0050	<0.0050	<0.0050	<0.0050	<50.5
S07	6	02/16/2010	<0.0050	<0.0050	<0.0050	<0.0050	<50.5
S08	6	02/16/2010	<0.0050	<0.0050	<0.0050	<0.0050	<50.5
S09	6	02/16/2010	<0.0050	0.036	0.0056	0.060	1.1
S10	6	02/16/2010	<0.0050	<0.0050	<0.0050	<0.0050	<50.5
S11	6	04/05/2010	0.0050	0.0089	0.016	0.15	11
S12	6	04/05/2010	<0.0050	<0.0050	<0.0050	<0.0050	0.86
S13	6	04/05/2010	<0.0050	<0.0050	<0.0050	<0.0050	<50.5
S14	6	04/05/2010	<0.0050	<0.0050	<0.0050	<0.0050	<50.5
S15	6	04/08/2010	<0.0050	<0.0050	<0.0050	<0.0050	<50.5
Basic Standards for Soil			0.17	85	100	175	500

Notes: < - less than stated laboratory reporting limit
TPH - Total Petroleum Hydrocarbons (C6-C28)
API - American Petroleum Institute

Bold numbers indicate result equalled or exceeded standard.

Basic Standards for Soil are taken from 2 CCR 404-1, Table 910-1, effective April 1, 2009.

NA - Not Analyzed
mg/kg - milligrams per kilogram
ft bgs - feet below ground surface



TABLE 2
GROUNDWATER ANALYTICAL RESULTS AND FIELD PARAMETERS
HELDT 12-18 (API No. 05-123-19549)
WELD COUNTY, COLORADO
PETROLEUM DEVELOPMENT CORPORATION

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Xylenes (ug/L)	Depth to Water (ft btoc)
B01	02/12/2010	230	870	84	820	NM
GW01S	04/08/2010	1.2	65	<1.0	7.5	NM
MW01	07/16/2010	<1.0	<1.0	<1.0	<1.0	2.06
	10/18/2010	<1.0	<1.0	<1.0	<1.0	2.35
	01/06/2011	<1.0	<1.0	<1.0	<1.0	2.76
MW02	07/16/2010	<1.0	<1.0	<1.0	<1.0	1.93
	10/18/2010	<1.0	<1.0	<1.0	<1.0	4.42
	01/06/2011	<1.0	<1.0	<1.0	<1.0	4.78
MW03	07/16/2010	<1.0	<1.0	<1.0	<1.0	5.96
	10/18/2010	<1.0	<1.0	<1.0	<1.0	4.95
	01/06/2011	<1.0	<1.0	<1.0	<1.0	5.44
MW04	07/16/2010	<1.0	<1.0	<1.0	<1.0	3.98
	10/18/2010	<1.0	<1.0	<1.0	<1.0	7.10
	01/06/2011	<1.0	<1.0	<1.0	<1.0	7.65
MW05	07/16/2010	<1.0	<1.0	<1.0	<1.0	3.60
	10/18/2010	Not Found - Not Sampled				
	01/06/2011	<1.0	<1.0	<1.0	<1.0	3.59
Basic Standards for Groundwater:		5	560	700	1400	

Notes: < - less than ug/L - micrograms per Liter NA - Not Analyzed/Not Available
ft btoc - feet below top of casing NM - Not measured API - American Petroleum Institute
Basic Standards for Groundwater are taken from the Colorado Department of Health and Environment -
Water Quality Control Commission Regulation 41, effective 4/1/2009.
Bold numbers indicate result equaled or exceeded standard.



TABLE 3
SURFACE WATER ANALYTICAL RESULTS
HELDT 12-18 (API No. 123-19549)
WELD COUNTY
PETROLEUM DEVELOPMENT CORPORATION

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Xylenes (ug/L)
Conf01	02/12/2010	<1.0	<1.0	<1.0	<1.0
	02/16/2010	<1.0	<1.0	<1.0	<1.0
	02/18/2010	<1.0	<1.0	<1.0	<1.0
	02/22/2010	<1.0	<1.0	<1.0	<1.0
	03/01/2010	<1.0	<1.0	<1.0	<1.0
	03/08/2010	<1.0	<1.0	<1.0	<1.0
Source1	02/05/2010	15	770	240	2800
	02/08/2010	16	47	4.7	<1.0
	02/11/2010	430	1800	140	2100
	02/12/2010	16	77	12	140
	02/16/2010	1.6	13	2.6	28
	02/18/2010	<1.0	<1.0	<1.0	<1.0
	02/22/2010	<1.0	<1.0	<1.0	<1.0
	03/01/2010	<1.0	<1.0	<1.0	<1.0
	03/08/2010	<1.0	<1.0	<1.0	<1.0
	03/15/2010	<1.0	<1.0	<1.0	<1.0
SW01	02/05/2010	2.6	11	<1.0	6.9
	02/08/2010	<1.0	<1.0	<1.0	<1.0
	02/11/2010	<1.0	<1.0	<1.0	<1.0
	02/12/2010	<1.0	<1.0	<1.0	<1.0
	02/16/2010	<1.0	<1.0	<1.0	<1.0
	02/18/2010	<1.0	<1.0	<1.0	<1.0
	02/22/2010	<1.0	<1.0	<1.0	<1.0
	03/01/2010	<1.0	<1.0	<1.0	<1.0
	03/08/2010	<1.0	<1.0	<1.0	<1.0
	03/15/2010	<1.0	<1.0	<1.0	<1.0
SW02	02/05/2010	2.2	9.2	<1.0	5.8
	02/08/2010	<1.0	<1.0	<1.0	<1.0
	02/11/2010	<1.0	<1.0	<1.0	<1.0
	02/12/2010	<1.0	<1.0	<1.0	<1.0
	02/16/2010	<1.0	<1.0	<1.0	<1.0
	03/01/2010	<1.0	<1.0	<1.0	<1.0
	03/08/2010	<1.0	<1.0	<1.0	<1.0
SW02R	02/18/2010	<1.0	<1.0	<1.0	<1.0



TABLE 3 (Continued)
SURFACE WATER ANALYTICAL RESULTS
HELDT 12-18 (API No. 123-19549)
WELD COUNTY
PETROLEUM DEVELOPMENT CORPORATION

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Xylenes (ug/L)
SW02R	02/22/2010	<1.0	<1.0	<1.0	<1.0
SW03	02/05/2010	<1.0	<1.0	<1.0	<1.0
	02/08/2010	<1.0	<1.0	<1.0	<1.0
	02/11/2010	<1.0	<1.0	<1.0	<1.0
	02/12/2010	<1.0	<1.0	<1.0	<1.0
	02/16/2010	<1.0	<1.0	<1.0	<1.0
	02/18/2010	<1.0	<1.0	<1.0	<1.0
	02/22/2010	<1.0	<1.0	<1.0	<1.0
	03/01/2010	<1.0	<1.0	<1.0	<1.0
	03/08/2010	<1.0	<1.0	<1.0	<1.0
SW04	03/01/2010	<1.0	<1.0	<1.0	<1.0
	03/08/2010	<1.0	<1.0	<1.0	<1.0
	03/15/2010	<1.0	<1.0	<1.0	<1.0

Notes: < - less than

API - American Petroleum Institute

ug/L - micrograms per Liter

NA - Not Analyzed/Not Available



Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.374.5933 - fax

February 09, 2010

Brian Dodek
LT Environmental, Inc.
4600 West 60th Avenue
Arvada, CO 80003
RE: PDC - Heldt 12-18

Enclosed are the results of analyses for samples received by Summit Scientific on 02/04/10 17:51. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'BS' with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury
President / Laboratory Director



LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: PDC - Heldt 12-18

Project Number: PDC 10005
Project Manager: Brian Dodek

Reported:
02/09/10 09:57

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Source 1	R002017-01	Water	02/04/10 00:00	02/04/10 17:51
SW01	R002017-02	Water	02/04/10 00:00	02/04/10 17:51
SW02	R002017-03	Water	02/04/10 00:00	02/04/10 17:51
SW03	R002017-04	Water	02/04/10 00:00	02/04/10 17:51

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: PDC - Heldt 12-18

Project Number: PDC 10005
Project Manager: Brian Dodek

Reported:
02/09/10 09:57

Summit Scientific 202017

741 Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-277-9531 Fax

Client: WBE L7E Project Manager: Brian Dedeke
Address: _____ E-Mail: bdeke@L7E.NC.ORG
City/State/Zip: On file Project Name: Heldt 12-18
Phone: _____ Fax: _____
Sampler Name: John Kagan Project Number: 10006

Page / of /

[illegible]

www.s2scientific.com

Summit Scientific

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: PDC - Heldt 12-18

Project Number: PDC 10005
Project Manager: Brian Dodek

Reported:
02/09/10 09:57

Source 1
R002017-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/04/10 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	48	20	ug/l	20	0020406	02/04/10	02/05/10	EPA 8260B	
Toluene	170	20	"	"	"	"	"	"	
Ethylbenzene	55	20	"	"	"	"	"	"	
Xylenes (total)	860	20	"	"	"	"	"	"	

Date Sampled: **02/04/10 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		109 %	71.2-129		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		94.7 %	87.7-110		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		108 %	83.5-115		"	"	"	"	

Summit Scientific

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: PDC - Heldt 12-18

Project Number: PDC 10005
Project Manager: Brian Dodek

Reported:
02/09/10 09:57

SW01
R002017-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/04/10 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	1.8	1.0		ug/l	1	0020406	02/04/10	02/05/10	EPA 8260B	
Toluene	7.3	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	10	1.0		"	"	"	"	"	"	

Date Sampled: **02/04/10 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		110 %		71.2-129		"	"	"	"	
Surrogate: Toluene-d8		96.4 %		87.7-110		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		109 %		83.5-115		"	"	"	"	

Summit Scientific

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: PDC - Heldt 12-18
Project Number: PDC 10005
Project Manager: Brian Dodek

Reported:
02/09/10 09:57

SW02
R002017-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/04/10 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	1.7	1.0	ug/l	1	0020406	02/04/10	02/05/10	EPA 8260B	
Toluene	6.8	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	6.4	1.0	"	"	"	"	"	"	

Date Sampled: **02/04/10 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	71.2-129		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	87.7-110		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	83.5-115		"	"	"	"	

Summit Scientific

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: PDC - Heldt 12-18
Project Number: PDC 10005
Project Manager: Brian Dodek

Reported:
02/09/10 09:57

SW03
R002017-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/04/10 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	20		ug/l	20	0020406	02/04/10	02/05/10	EPA 8260B	
Toluene	ND	20		"	"	"	"	"	"	
Ethylbenzene	ND	20		"	"	"	"	"	"	
Xylenes (total)	ND	20		"	"	"	"	"	"	

Date Sampled: **02/04/10 00:00**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		107 %		71.2-129		"	"	"	"	
Surrogate: Toluene-d8		99.0 %		87.7-110		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %		83.5-115		"	"	"	"	

Summit Scientific

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: PDC - Heldt 12-18

Project Number: PDC 10005
Project Manager: Brian Dodek

Reported:
02/09/10 09:57

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Reporting				Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 0020406 - EPA 5030 Water MS

Blank (0020406-BLK1)

Prepared: 02/04/10 Analyzed: 02/05/10

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	14.2		"	13.3	107	71.2-129				
Surrogate: Toluene-d8	12.8		"	13.3	96.3	87.7-110				
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3	103	83.5-115				

LCS (0020406-BS1)

Prepared: 02/04/10 Analyzed: 02/05/10

Benzene	27.0	1.0	ug/l	33.3	81.1	70-114			8.14	
Toluene	27.6	1.0	"	33.3	82.8	72.7-116			7.88	
Surrogate: 1,2-Dichloroethane-d4	14.8		"	13.3	111	71.2-129				
Surrogate: Toluene-d8	13.0		"	13.3	97.9	87.7-110				
Surrogate: 4-Bromofluorobenzene	14.1		"	13.3	106	83.5-115				

LCS Dup (0020406-BSD1)

Prepared: 02/04/10 Analyzed: 02/05/10

Benzene	26.2	1.0	ug/l	33.3	78.7	70-114	2.93		8.14	
Toluene	27.2	1.0	"	33.3	81.5	72.7-116	1.64		7.88	
Surrogate: 1,2-Dichloroethane-d4	14.4		"	13.3	108	71.2-129				
Surrogate: Toluene-d8	13.0		"	13.3	97.8	87.7-110				
Surrogate: 4-Bromofluorobenzene	13.9		"	13.3	105	83.5-115				

Summit Scientific

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: PDC - Heldt 12-18

Project Number: PDC 10005
Project Manager: Brian Dodek

Reported:
02/09/10 09:57

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

A handwritten signature in black ink, appearing to be 'J.M.' followed by a long horizontal stroke.

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.374.5933 - fax

February 08, 2010

Brian Dodek
LT Environmental, Inc.
4600 West 60th Avenue
Arvada, CO 80003
RE: PDC - Heldt 12-18

Enclosed are the results of analyses for samples received by Summit Scientific on 02/05/10 16:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'BS' with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury
President / Laboratory Director



LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: PDC - Heldt 12-18

Project Number: PDC 10005
Project Manager: Brian Dodek

Reported:
02/08/10 09:28

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Source1	R002029-01	Water	02/05/10 09:30	02/05/10 16:45
SW01	R002029-02	Water	02/05/10 09:40	02/05/10 16:45
SW02	R002029-03	Water	02/05/10 09:50	02/05/10 16:45
SW03	R002029-04	Water	02/05/10 10:00	02/05/10 16:45

Summit Scientific

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: PDC - Heldt 12-18

Project Number: PDC 10005
Project Manager: Brian Dodek

Reported:
02/08/10 09:28

Summit Scientific 20072019

741 Corporate Circle Suite I ♦ Golden, Colorado 80401
303-277-9310 ♦ 303-277-9531 Fax

Page 1 of 1

Client: LT Environmental, Inc.

Address: 4600 West 60th Avenue

City/State/Zip: Arvada, CO 80003

Phone: (303) 433-9788

Fax: (303) 433-1432

Sampler Name: 57

Project Manager: John Peterson

E-Mail: ipeterson@ltenv.comProject Name: He/dt 12-18

Project Number: PISC 11235

[illegible]

www.s2scientific.com

Summit Scientific

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: PDC - Heldt 12-18

Project Number: PDC 10005
Project Manager: Brian Dodek

Reported:
02/08/10 09:28

Source1
R002029-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/05/10 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	15	1.0	ug/l	1	0020605	02/06/10	02/07/10	EPA 8260B	
Toluene	770	10	"	10	"	"	"	"	
Ethylbenzene	240	1.0	"	1	"	"	"	"	
Xylenes (total)	2800	10	"	10	"	"	"	"	

Date Sampled: **02/05/10 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		112 %	71.2-129		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		97.9 %	87.7-110		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		105 %	83.5-115		"	"	"	"	

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: PDC - Heldt 12-18

Project Number: PDC 10005
Project Manager: Brian Dodek

Reported:
02/08/10 09:28

SW01
R002029-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/05/10 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	2.6	1.0	ug/l	1	0020605	02/06/10	02/07/10	EPA 8260B	
Toluene	11	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	6.9	1.0	"	"	"	"	"	"	

Date Sampled: **02/05/10 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	71.2-129		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	87.7-110		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	83.5-115		"	"	"	"	

Summit Scientific

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: PDC - Heldt 12-18

Project Number: PDC 10005
Project Manager: Brian Dodek

Reported:
02/08/10 09:28

SW02
R002029-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/05/10 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	2.2	1.0	ug/l	1	0020605	02/06/10	02/07/10	EPA 8260B	
Toluene	9.2	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	5.8	1.0	"	"	"	"	"	"	

Date Sampled: **02/05/10 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	71.2-129		"	"	"	"	
Surrogate: Toluene-d8		98.3 %	87.7-110		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	83.5-115		"	"	"	"	

Summit Scientific

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: PDC - Heldt 12-18

Project Number: PDC 10005
Project Manager: Brian Dodek

Reported:
02/08/10 09:28

SW03
R002029-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **02/05/10 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Benzene	ND	1.0	ug/l	1	0020605	02/06/10	02/07/10	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **02/05/10 10:00**

Analyte	Result	Reporting	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit							
Surrogate: 1,2-Dichloroethane-d4		111 %	71.2-129		"	"	"	"	
Surrogate: Toluene-d8		95.8 %	87.7-110		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	83.5-115		"	"	"	"	

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LT Environmental, Inc.
4600 West 60th Avenue
Arvada CO, 80003

Project: PDC - Heldt 12-18

Project Number: PDC 10005
Project Manager: Brian Dodek

Reported:
02/08/10 09:28

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Reporting				Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 0020605 - EPA 5030 Water MS

Blank (0020605-BLK1)

Prepared: 02/06/10 Analyzed: 02/07/10

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	15.3		"	13.3	115	71.2-129				
Surrogate: Toluene-d8	12.8		"	13.3	96.3	87.7-110				
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3	104	83.5-115				

LCS (0020605-BS1)

Prepared: 02/06/10 Analyzed: 02/07/10

Benzene	24.9	1.0	ug/l	33.3	74.7	70-114			8.14	
Toluene	25.0	1.0	"	33.3	75.2	72.7-116			7.88	
Surrogate: 1,2-Dichloroethane-d4	15.4		"	13.3	115	71.2-129				
Surrogate: Toluene-d8	13.0		"	13.3	97.3	87.7-110				
Surrogate: 4-Bromofluorobenzene	13.9		"	13.3	105	83.5-115				

LCS Dup (0020605-BSD1)

Prepared: 02/06/10 Analyzed: 02/07/10

Benzene	27.2	1.0	ug/l	33.3	81.7	70-114	8.94		8.14	
Toluene	27.8	1.0	"	33.3	83.5	72.7-116	10.6		7.88	
Surrogate: 1,2-Dichloroethane-d4	15.6		"	13.3	117	71.2-129				
Surrogate: Toluene-d8	13.0		"	13.3	97.7	87.7-110				
Surrogate: 4-Bromofluorobenzene	14.0		"	13.3	105	83.5-115				

Matrix Spike (0020605-MS1)

Source: R001108-02

Prepared: 02/06/10 Analyzed: 02/07/10

Benzene	29.0	1.0	ug/l	33.3	ND	87.0	66.8-121		17.8	
Toluene	29.5	1.0	"	33.3	ND	88.6	71.5-121		14.4	
Surrogate: 1,2-Dichloroethane-d4	15.5		"	13.3	116	71.2-129				
Surrogate: Toluene-d8	13.0		"	13.3	97.4	87.7-110				
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3	103	83.5-115				

Summit Scientific

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Arvada CO, 80003

Project: PDC - Heldt 12-18

Project Number: PDC 10005
Project Manager: Brian Dodek

Reported:
02/08/10 09:28

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 0020605 - EPA 5030 Water MS

Matrix Spike Dup (0020605-MSD1)		Source: R001108-02			Prepared: 02/06/10		Analyzed: 02/07/10			
Benzene	28.1	1.0	ug/l	33.3	ND	84.4	66.8-121	3.01	17.8	
Toluene	28.9	1.0	"	33.3	ND	86.8	71.5-121	2.09	14.4	
Surrogate: 1,2-Dichloroethane-d4	15.5		"	13.3		116	71.2-129			
Surrogate: Toluene-d8	13.1		"	13.3		98.3	87.7-110			
Surrogate: 4-Bromofluorobenzene	13.7		"	13.3		103	83.5-115			

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Project: PDC - Heldt 12-18

Project Number: PDC 10005
Project Manager: Brian Dodek

Reported:
02/08/10 09:28

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference

A handwritten signature in black ink, appearing to be 'J.M.' followed by a long horizontal stroke.