

State of Colorado
Oil and Gas Conservation Commission



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

FOR OGCC USE ONLY	
Document	2315023
Received	7/2/2015
REM	9164
OGCC Employee:	
<input checked="" type="checkbox"/> Spill	Complaint
Inspection	NOAV
Tracking No: 400858459	

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): _____

OGCC Operator Number: <u>100185</u>	Contact Name and Telephone:
Name of Operator: <u>ENCANA OIL & GAS (USA) INC</u>	<u>Blake Ford</u>
Address: <u>370 17th St. #1700</u>	No: <u>303-876-3985</u>
City: <u>Denver</u> State: <u>CO</u> Zip: <u>80202-5632</u>	Fax: _____

API Number: _____	County: <u>Weld</u>
Facility Name: _____	Facility Number: <u>326753</u>
Well Name: _____	Well Number: _____
Location: (QtrQtr, Sec, Twp, Rng, Meridian): <u>NESE, 22, 1N, 68W, 6PM</u> Latitude: <u>40.033308</u> Longitude: <u>-104.983045</u>	

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): produced water tank

Site Conditions: Is location within a sensitive area (according to Rule 901e)? Y N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Agriculture (non-crop land)

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Ulm clay loam, 0 to 3 percent slopes

Potential receptors (water wells within 1/4 mi, surface waters, etc.): See Attachment for sensitive area information and other potential receptors.

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	<u>TBD</u>	<u>Pending soil analytical results and soil borings</u>
<input type="checkbox"/> Vegetation	_____	_____
<input checked="" type="checkbox"/> Groundwater	<u>TBD, impacted groundwater was collected from trenches during repairs</u>	<u>Monitoring well installation activities</u>
<input checked="" type="checkbox"/> Surface Water	<u>TBD</u>	<u>Monitoring well installation activities</u>

REMEDIAL WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):

See attached.

Describe how source is to be removed:

See attached.

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.:

See attached.

FORM
27
Rev 6/99
Page 2

State of Colorado
Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801, Denver, Colorado 80203
(303)894-2100 Fax:(303)894-2109



Tracking Number: _____
Name of Operator: _____
OGCC Operator No: _____
Received Date: _____
Well Name & No: _____
Facility Name & No: Cosslett B Unit-61N68W / 22NESE 326753

REMEDIATION WORKPLAN (Cont.)

Page 2

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

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.
See attached.

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:
See attached.

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

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 6/26/2015 Date Site Investigation Completed: _____ Date Remediation Plan Submitted: 07/02/2015
Remediation Start Date: _____ Anticipated Completion Date: _____ Actual Completion Date: _____

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.
Print Name: Blake Ford Signed: *Blake Ford*
Title: Environmental Specialist Date: 07/02/2015

OGCC Approved: _____ Title: _____ Date: _____

NARRATIVE ATTACHMENT FORM 27 (SITE INVESTIGATION AND REMEDIATION WORKPLAN)

Cosslett B Unit #2 (Facility ID # 326753)

Document Date – July 2, 2015



TECHNICAL CONDITIONS

Is location within a sensitive area (according to Rule 901e)?

The location is adjacent to a ditch (south) and creek (north-northwest).

Potential receptors (water wells within ¼ mi, surface waters, etc.):

According to the Colorado Division of Water Resources mapping service, there are eleven potential receptors with 1/4 mile of Cosslett B Unit #2:

- Stanley Ditch, located approximately 60 feet south.
- Little Dry Creek, located approximately 100 feet north-northwest.
- Surface water, located approximately 220 feet southeast.
- Surface water, located approximately 570 feet southwest.
- Palmer H D, domestic well, Permit #: 703-WCD, located approximately 600 feet south-southeast.
- Vannoy Andy, domestic well, Permit #: 32364, located approximately 645 feet south-southeast.
- Bell J B, domestic well, Permit #: 29719, located approximately 690 feet south-southeast.
- Surface water, located approximately 760 feet northeast.
- Asphalt Specialties CO Inc., commercial well, Permit #: 295964, located approximately 920 feet north-northeast.
- Rickers Henry J & Marjorie L, irrigation well, Permit #: 24983-F, located approximately 1,060 feet north-northeast.
- Rickers Henry J & Marjorie L, irrigation well, Permit #: 24982-F, located approximately 1,060 feet north-northeast.
- Surface water, located approximately 1,125 feet southwest.

REMEDIATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):

The produced water tank was removed. Groundwater observed within the produced water tank footprint was pumped via vacuum truck and soils were scraped for offsite disposal. In addition, 1,100 pounds of high nitrogen fertilizer was applied to the footprint. A groundwater sample (COSSLETT B2) was collected from the footprint. Analytical results from the groundwater sample (COSSLETT B2) contained concentrations of benzene (3,700 milligrams per liter (mg/L), toluene (5,100 mg/L), and total xylenes (2,400 mg/L) exceeding their respective COGCC Table 910-1 regulatory limits. A soil sample was also collected from the footprint (analytical results pending). The groundwater laboratory analytical report is included as Attachment A.

Describe how source is to be removed:

The source area beneath the site will be addressed via excavation, in-situ, and/or mechanical remedial technology.

Encana Services Company Ltd.

Republic Plaza 370 – 17th Street Suite 1700 Denver CO 80202 303.623.2300 encana.com

Encana Services Company Ltd. provides operational, corporate, administrative and advisory services to Encana Corporation and its subsidiaries.



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.:

Based on groundwater analytical results collected during the initial assessment activities, groundwater impacts will be addressed via in-situ or mechanical remediation. In addition, based on soil analytical results (from grab sample and soil boring assessment activities), soil impacts will be addressed via excavation, in-situ, or mechanical remediation, if required.

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

Based on the results of the site assessment activities, five groundwater monitoring wells (MW-01 through MW-05) will be installed to define dissolved phase petroleum impacts beneath the site. Additional groundwater monitoring wells may be installed on site to define dissolved phase petroleum hydrocarbon impacts if necessary. Groundwater samples will be collected from the monitoring wells on a quarterly schedule. Groundwater will be analyzed for BTEX following EPA Method 8260B. The monitoring plan may be amended based on groundwater analytical results indicating COGCC Table 910-1 compliance in surrounding monitoring wells.

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.

Reseeding does not appear necessary at this time. The environmental footprint will be assessed post remediation to determine if reseeding is necessary.

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? If yes, describe:

Five groundwater monitoring wells (MW-01 through MW-05) are proposed for installation at the site. Groundwater will be sampled on a quarterly schedule. The monitoring plan may be amended based on groundwater analytical results indicating COGCC Table 910-1 compliance in surrounding monitoring wells.

Soil assessment activities will be completed during the installation of the monitoring wells to define the extent of adsorbed phase petroleum hydrocarbon impacts beneath the site. Soil samples will be analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX) following EPA Method 8021, total petroleum hydrocarbons – gasoline range organics (TPH-GRO) following EPA Method 8015, and TPH – diesel range organics (DRO) following modified EPA Method 3546.

One soil sample will also be analyzed for 13 polycyclic aromatic hydrocarbons (PAHs) following EPA Method 8270C-SIM, metals following EPA Methods 6010B and 3060A/7196A, pH following EPA Method 9045D, specific conductance following EPA Method 9050A Mod., sodium adsorption ratio (SAR), and arsenic following EPA Method 6010B.

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

Soil generated during monitoring well installation activities will be segregated, contained in 55-gallon drums, and delivered to Encana's Wattenburg Yard for disposal pending laboratory analysis. Drums with soil containing BTEX and/or TPH concentrations exceeding COGCC Table 910-1 regulatory limits will be disposed of at an approved facility. Groundwater purged during quarterly groundwater sampling activities will be placed in the produced water tank onsite. All remaining soil and groundwater impacts will be treated in-situ, therefore no E&P waste will be disposed of

Encana Services Company Ltd.

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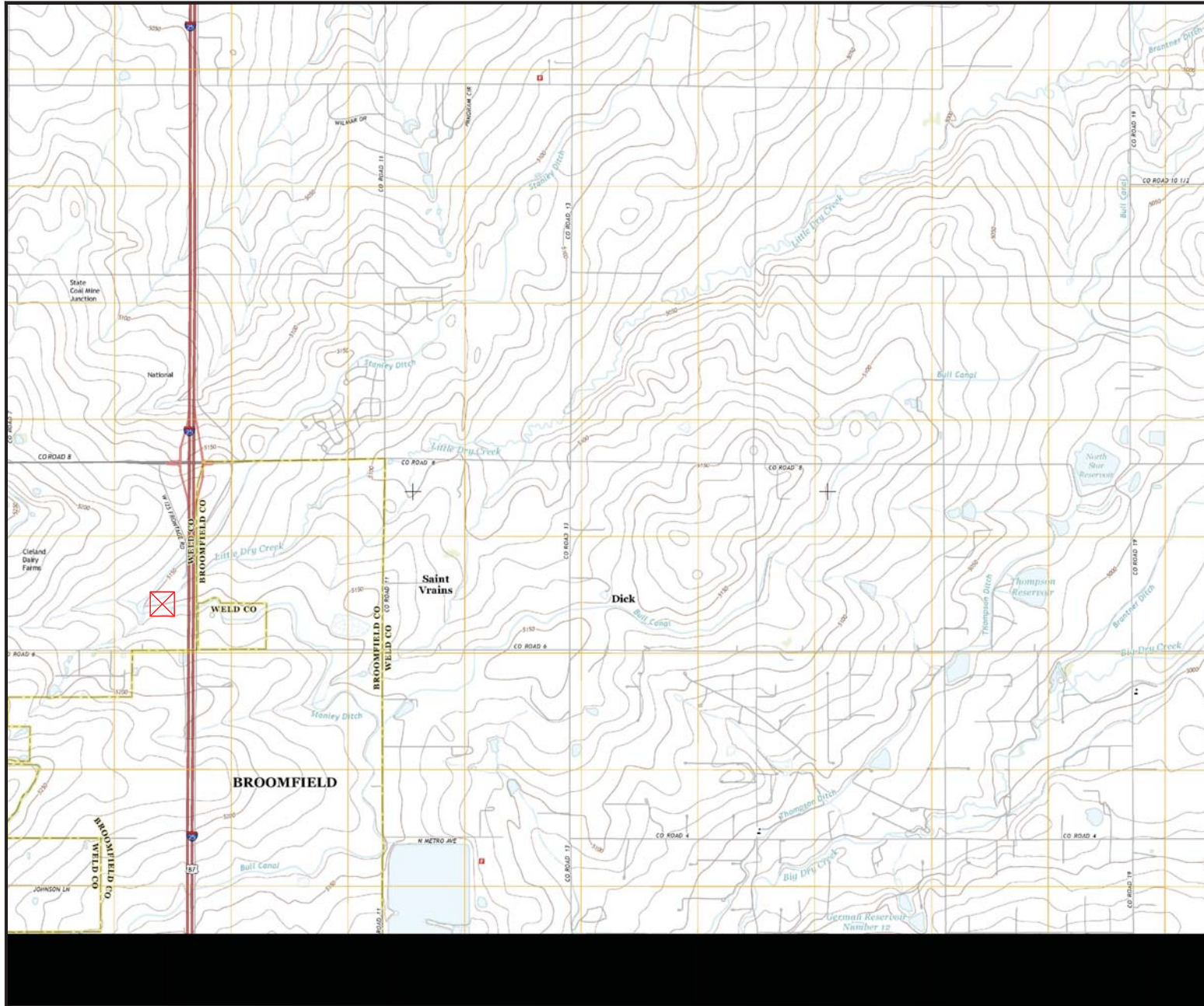
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ATTACHMENT A

Topographic Map, Site Aerial Map, & Proposed Monitoring Well Location Map

ATTACHMENT B

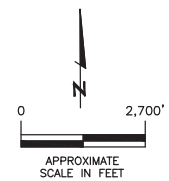
Laboratory Analytical Report



LEGEND

 APPROXIMATE SITE LOCATION

NOTE: TOPOGRAPHIC MAP OBTAINED FROM U.S. DEPARTMENT OF INTERIOR - U.S. GEOLOGICAL SURVEY, FREDERICK QUADRANGLE, COLORADO-WELD CO., 7.5 MINUTE SERIES.



SITE LOCATION MAP
 COSSLETT B UNIT #2
 NE 1/4 SE 1/4 SEC.22 T1N R68W 6PM
 LAT./LONG.: 40.033308/-104.983045
 WELD COUNTY, COLORADO

DATE:	07/01/15
FIG. NO.	1
DRAWN BY:	DC

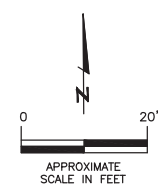


EAGLE ENVIRONMENTAL CONSULTING, INC.
 401 INCA STREET DENVER, CO 80211
 PH: 303-434-679 • F: 303-425-6449



LEGEND

⊕ APPROXIMATE LOCATION OF PROPOSED MONITORING WELL LOCATION



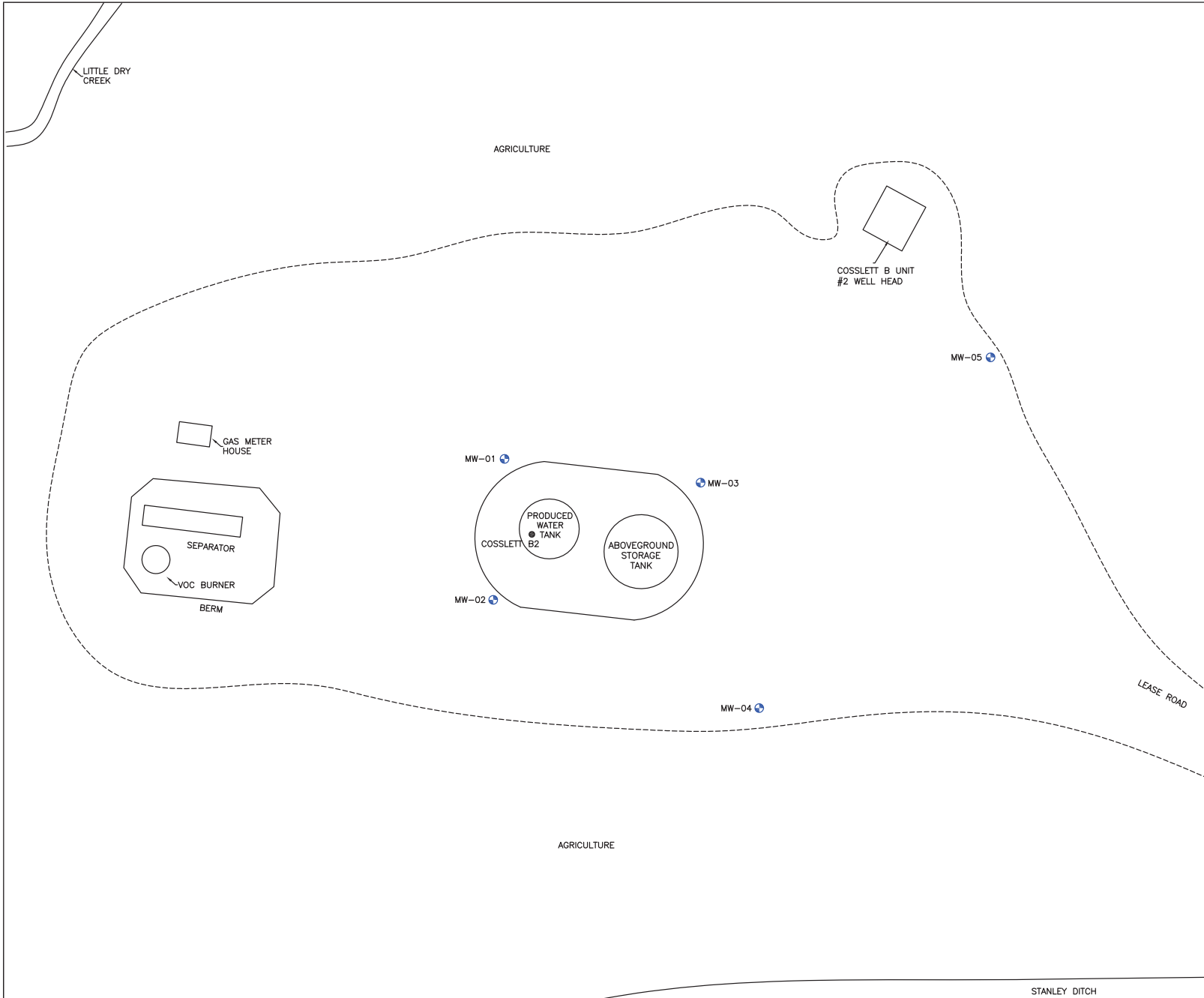
SITE AERIAL MAP
 COSSLETT B UNIT #2
 NE 1/4 SE 1/4 SEC.22 T1N R68W 6PM
 LAT./LONG.: 40.033308/-104.983045
 WELD COUNTY, COLORADO

DATE: 07/01/15

FIG. NO. 2
 DRAWN BY: DC

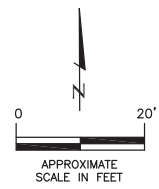
EAGLE
 ENVIRONMENTAL
 CONSULTING, INC.
 401 UNCAST STREET, DENVER, CO 80211
 PH: 303.435.4470 • F: 303.435.5449

STANLEY DITCH



LEGEND

- APPROXIMATE LOCATION OF PROPOSED MONITORING WELL LOCATION
- - - APPROXIMATE WELL PAD BOUNDARY
- APPROXIMATE GROUNDWATER SAMPLE LOCATION



PROPOSED MONITORING WELL LOCATION MAP
 COSLETT B UNIT #2
 NE 1/4 SE 1/4 SEC.22 T11N R68W 6PM
 LAT./LONG.: 40.033308/-104.983045
 WELD COUNTY, COLORADO

DATE:	07/01/15
FIG. NO.:	3
DRAWN BY:	DC





12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Tarah Garza
EnCana Oil & Gas - Longmont, CO
10188 East I-25 Frontage Rd
Firestone, CO 80504

Report Summary

Tuesday June 30, 2015

Report Number: L773794


Samples Received: 06/27/15

Client Project:

Description: Cosslett B2

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:


Jared Willis, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364, EPA - TN002

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

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 Mt. Juliet, TN 37122
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Est. 1970

REPORT OF ANALYSIS

June 30, 2015

Tarah Garza
 EnCana Oil & Gas - Longmont, CO
 10188 East I-25 Frontage Rd
 Firestone, CO 80504

Date Received : June 27, 2015
 Description : Cosslett B2
 Sample ID : COSSLETT B2
 Collected By : Tarah
 Collection Date : 06/26/15 09:15

ESC Sample # : L773794-01

Site ID :

Project # :

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	3700	100	ug/l	8260B	06/30/15	100
Toluene	5100	500	ug/l	8260B	06/30/15	100
Ethylbenzene	130	100	ug/l	8260B	06/30/15	100
Total Xylenes	2400	300	ug/l	8260B	06/30/15	100
Surrogate Recovery						
Toluene-d8	101.		% Rec.	8260B	06/30/15	1
Dibromofluoromethane	94.0		% Rec.	8260B	06/30/15	1
a,a,a-Trifluorotoluene	107.		% Rec.	8260B	06/30/15	1
4-Bromofluorobenzene	98.1		% Rec.	8260B	06/30/15	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 06/30/15 13:42 Printed: 06/30/15 13:42