Highlander Environmental Corp.

Midland, Texas

October 3, 2006

Mr. Larry Johnson
Environmental Engineer Specialist
Oil Conservation Division- District I
1625 N. French Drive
Hobbs, New Mexico 88240

RE: 1 RP – 1033
Assessment and Work Plan for the COG Operating Company LLC, Jalmat Yates Unit Well #7, Unit Letter O, Section 12, Township 25 South, Range 36 East, (Flow-line Spill is Located in Unit Letter A, Section 13, Township 25 South, Range 36 East), Lea County, New Mexico.

Dear Mr. Johnson:

Highlander Environmental Corp. (Highlander) was contacted by COG Operating Company LLC (COG) to assess and to remediate the soil impact from a flow-line spill that occurred at the Jalmat Yates, Well #7, located in Unit Letter O, Section 12, Township 25 South, Range 36 East, Lea County, New Mexico. The flow-line spill is located in Section 13, Township 25 South, Range 36 East. The spill site coordinates are N 32.13752°, W 103.21412°. The State of New Mexico C-141 (Initial) is included in Appendix C. The Site is shown on Figure 1.

Background

On September 5, 2006, the spill was discovered from a leaking flow-line, located approximately 1,400' northwest of the COG main tank battery. Approximately 6 barrels of oil and 75 barrels of water were spilled and an estimated 1 barrel of oil and 5 barrels of water were recovered. The surface impacted area measured approximately 1' to 2' wide and extended approximately ¾ mile from the release. The impacted area is further discussed in the Soil Sampling Section of the report. The spill location is shown on Figure 2.

Groundwater and Regulatory

The spill area is located in Section 13, Township 25 South, Range 36 East. The State of New Mexico Well Reports did not show any water wells in Section 13. However, there were water wells shown in Sections 19 and 20, Township 25 South,

1910 N. Big Spring • Midland, Texas 79705 • (432) 682-4559 • Fax (432) 682-3946

application - pPAC0625646039
API# 3002509747 0000

Range 37 East with an average groundwater depth of approximately 34' to 44' below surface.

Published data, from the Geology and Groundwater Conditions in Southern New Mexico, showed wells in Section 15 and 23, Township 25 South, Range 36 East with a reported depth of 120' and 53.7', respectively. In Sections 17, 19 and 20, Township 25 South, Range 37 East, water wells showed average groundwater depths of approximately 62' to 65' below surface. In addition, the USGS data base reported a depth to water at 51'in the southeast quarter of Section 18, Township 25 South, Range 37 East. A monitor well, located in the western edge of Section 18, reportedly had a water level of approximately 63.0' in 2004. Based on the relative elevation of the Site and surrounding wells, the groundwater appears to be greater than 50.0' below surface. The State of New Mexico Well Reports, USGS report and published reports are included in Appendix A.

A risk-based evaluation was performed for the Site in accordance with the NMOCD Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene and xylene). Based on the regional groundwater data, the proposed RRAL for TPH is 1,000 mg/kg.

Assessment/Soil Sampling

On September 9, 2006, Highlander personnel inspected and sampled the spill area. At the release point, the majority of the surface staining was observed along the flow line measuring approximately 12' x 60'. The spill ran west impacting an area of approximately 350' x 1'. During a heavy rain, the rainwater (runoff) had carried some of the oil across the lease road down an area measuring approximately 800' x 1.0', then proceeded down to another lease road. Apparently, some oil was then washed down south 680' along the lease road causing some minor staining. Some staining was also observed west of the lease road in an area measuring 200' x 1'. From this point, small stained areas (spots) and stained vegetation were noted to the west for approximately 1,000'. The spill area is shown on Figure 2.

Highlander personnel inspected and sampled the spill area. At the release point, measuring 12' x 60' and two - 125 x 1.0' areas, samples were not collected due to the dense caliche formation encountered in the shallow soils. To assess the soils, a total of sixteen (16) auger holes were installed in areas where surface staining was observed west of the release. The location of the auger holes are shown on Figure 2.

Soil samples were analyzed for Total Petroleum Hydrocarbon (TPH) by method modified 8015 DRO/GRO and chloride by EPA method 300.0. Selected samples were analyzed for benzene, toluene, ethylbenzene, and xylene (BTEX) by EPA method 8021B. All samples were collected and preserved in laboratory prepared sample containers, shipped under proper chain-of-custody control, and analyzed within the standard holding times. The

sample results are presented in Table 1. The laboratory reports are included in Appendix B.

Soil Sampling Results

Referring to Table 1, the impacted area (225' x 1.0'), immediately west of the flow lines, did show TPH and BTEX concentrations above the RRAL in AH-1, AH-2 and AH-3 at 1.0' to 2.0' below surface. The chloride concentrations detected in AH-1 and AH-2 did not show a significant impact to the soils. However, AH-3 did some increasing chloride concentrations with depth to 1,380 mg/kg at 2.0' below surface.

Auger holes (AH-4 through AH-13) were installed west of the lease road in the area measuring approximately 800' x 1.0'. Only four (4) auger holes (AH-4, AH-5, AH-7 and AH-12) exceeded the RRAL at 0-0.5' for TPH and the deeper samples at 0.5-1.0' were all below the RRAL. The remaining auger holes were all below the RRAL for TPH from 0-0.5' below surface. The chloride concentrations were not significant in these areas ranging from <20 mg/kg to 53.2 mg/kg. In the area measuring 200' x 1.0', auger holes (AH-14, AH-15 and AH-16) were placed and did not show any TPH exceeding the RRAL in the 0-0.5' samples. The chloride concentrations were below the reporting limit of <20 mg/kg.

Work Plan

Based on the results, the impacted areas west of the release showed a shallow impact to the subsurface soil. The area of AH-3 did show a slightly elevated chloride, which will be further evaluated and remediated. The areas of auger holes (AH-4 through AH-16) will be tilled to aid the degradation of the surface impact. In addition, any other impacted areas found west of the auger holes will be cleanup or remediated.

At the flow lines and the areas of auger holes (AH-1, AH-2 and AH-3), the impacted soils will be excavated and hauled to Sundance Services for disposal. Once excavated to the appropriate depth, soil confirmation samples will be collected from these areas. Soil samples will be placed into laboratory supplied containers and delivered to a laboratory under chain-of-custody control for TPH, BTEX and chloride analysis.

Once completed, the results of the assessment, along with recommendations for further investigation or remediation, if any, will be submitted to the NMOCD. If you require any additional information or have any questions or comments, please call.

Highlander Environmental Corp.

Ike Tavarez, P.G.
Project Manager/Senior Geologist

cc: COG – Erick Nelson

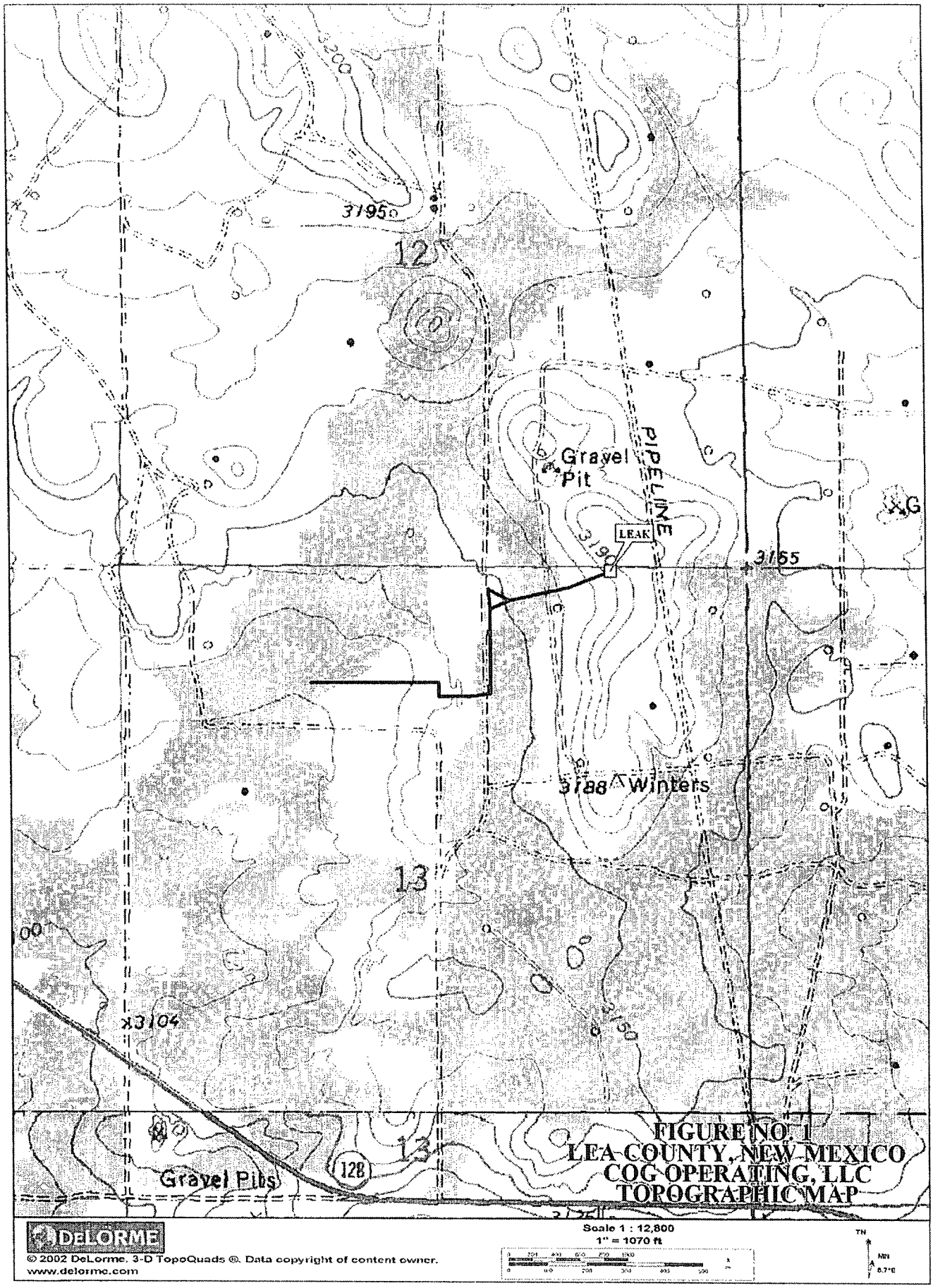
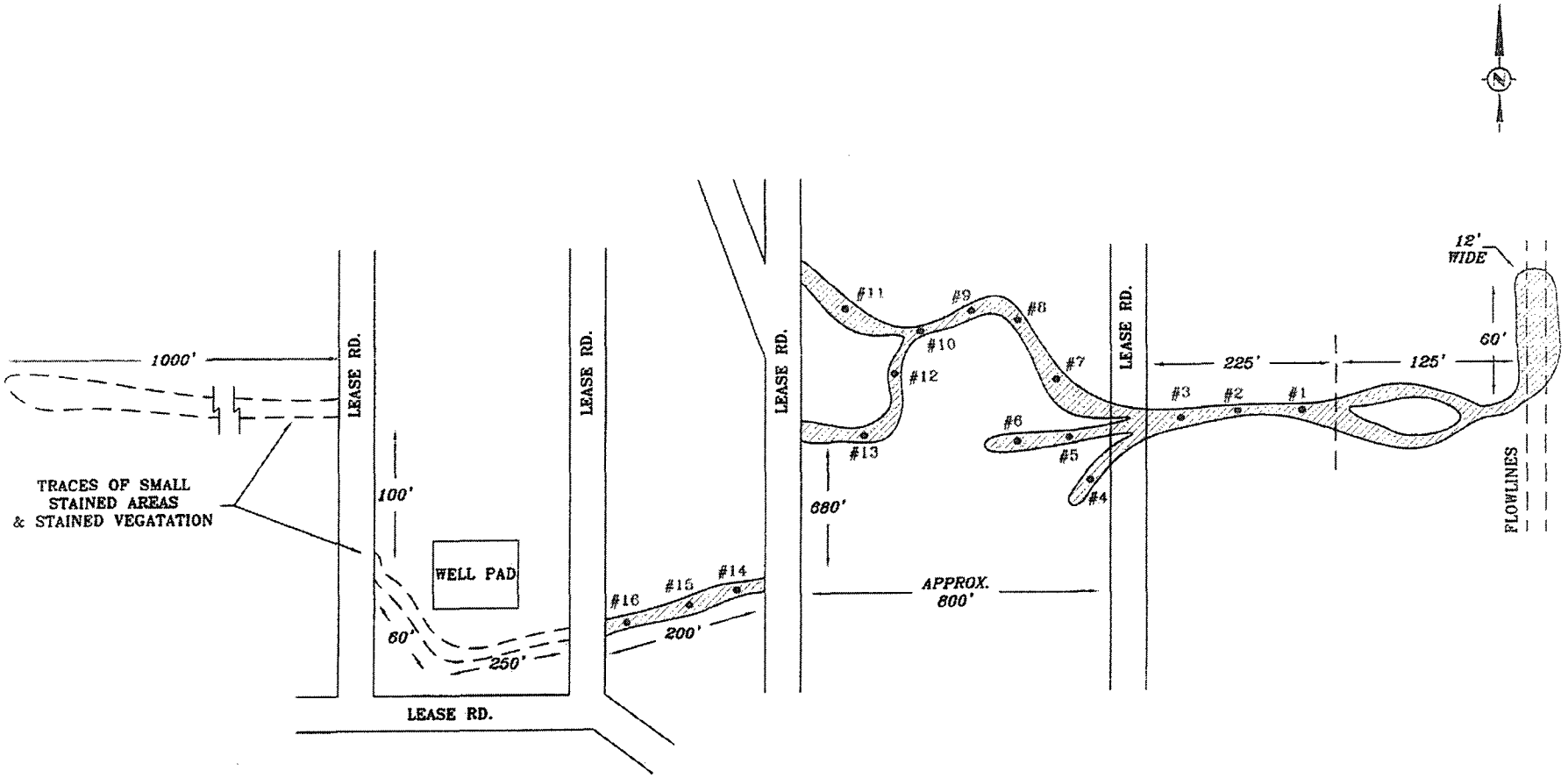


FIGURE NO. 1
LEA COUNTY, NEW MEXICO
COG OPERATING, LLC
TOPOGRAPHIC MAP



SPILL AREA

• SAMPLE LOCATIONS

NOT TO SCALE

FIGURE NO. 2

LEA COUNTY, NEW MEXICO

COG OPERATING, LLC
JALMAT #7

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS

DATE: 10/9/06
DWN. BY: JJ
FILE: C:\COG\2737 JALMAT #7

Table 1
COG Operating
JalMat Well #7 - Flowline Leak
Lea County, New Mexico

Sample ID	Date Sampled	Sample Depth (ft)	TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
			C6-C12	C12-C35	Total					
AH-1	9/18/2006	0-1.0'	7640	23680	**31300**	**0.413**	**11.4**	**23.9**	**72.3**	383
AH-1	9/18/2006	1.0'-1.5'	3640	11423	**15100**	**0.0723**	**3.67**	**11.5**	**35.2**	351
AH-1	9/18/2006	2.0'-2.5'	<10.0	179.0	179	<0.025	<0.025	<0.025	<0.025	128
AH-2	9/18/2006	0-1.0'	4570	13260	**17800**	0.0469	1.59	3.86	12.09	106
AH-2	9/18/2006	1.0'-1.5'	10.9	107.3	118	-	-	-	-	<20
AH-2	9/18/2006	2.0'-2.5'	13.3	134.5	148	-	-	-	-	<20
AH-3	9/18/2006	0-1.0'	3970	13828	**17800**	0.0215	1.52	5.42	14.1	**638**
AH-3	9/18/2006	1.0'-1.5'	<10.0	20.6	20.6	-	-	-	-	**830**
AH-3	9/18/2006	2.0'-2.5'	<10.0	<10.0	<10.0	-	-	-	-	**1,380**
AH-4	9/18/2006	0-0.5'	32.8	1115	**1150**	<0.025	<0.025	<0.025	<0.025	<20
AH-4	9/18/2006	0.5'-1.0'	<10.0	18.2	18.2	-	-	-	-	<20
AH-5	9/18/2006	0-0.5'	160	1476	**1640**	<0.025	<0.025	0.0262	0.123	21.3
AH-5	9/18/2006	0.5'-1.0'	<10.0	<10.0	<10.0	-	-	-	-	53.2
AH-6	9/18/2006	0-0.5'	58.6	776.5	835	<0.025	<0.025	<0.025	<0.025	21.3
AH-6	9/18/2006	0.5'-1.0'	-	-	-	-	-	-	-	21.3
AH-7	9/18/2006	0-0.5'	472	3118	**3590**	-	-	-	-	21.3
AH-7	9/18/2006	0.5'-1.0'	<10.0	<10.0	<10.0	-	-	-	-	21.3
AH-8	9/18/2006	0-0.5'	<10.0	34.2	34.2	-	-	-	-	<20
AH-8	9/18/2006	0.5'-1.0'	-	-	-	-	-	-	-	<20

(-) Not Analyzed

Table 1
COG Operating
JalMat #7 Well Flowline Leak
Lea County, NM

Sample ID	Date Sampled	Sample Depth (ft)	TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
			C6-C12	C12-C35	Total					
AH-9	9/18/2006	0-0.5'	<10.0	<10.0	<10.0	-	-	-	-	<20
AH-9	9/18/2006	0.5'-1.0'	-	-	-	-	-	-	-	<20
AH-10	9/18/2006	0-0.5'	<10.0	48.3	48.3	-	-	-	-	<20
AH-10	9/18/2006	0.5'-1.0'	-	-	-	-	-	-	-	<20
AH-11	9/18/2006	0-0.5'	<10.0	272	272					<20
AH-11	9/18/2006	0.5'-1.0'	-	-	-	-	-	-	-	<20
AH-12	9/18/2006	0-0.5'	<10.0	1214	**1210**	-	-	-	-	<20
AH-12	9/18/2006	0.5'-1.0'	<10.0	<10.0	<10.0	-	-	-	-	<20
AH-13	9/18/2006	0-0.5'	<10.0	58.6	58.6	-	-	-	-	<20
AH-13	9/18/2006	0.5'-1.0'	-	-	-	-	-	-	-	<20
AH-14	9/18/2006	0-0.5'	<10.0	124	124	-	-	-	-	<20
AH-14	9/18/2006	0.5'-1.0'	-	-	-	-	-	-	-	<20
AH-15	9/18/2006	0-0.5'	27.5	501.5	529	-	-	-	-	<20
AH-15	9/18/2006	0.5'-1.0'	-	-	-	-	-	-	-	<20
AH-16	9/18/2006	0-0.5'	27.4	797	824	-	-	-	-	<20
AH-16	9/18/2006	0.5'-1.0'	-	-	-	-	-	-	-	<20

(-) Not Analyzed

Water Well Data
Average Depth to Groundwater (ft)
COG Operating - Jalmat Yates Unit # 7

24 South 35 East

6	5	4	3	2	1
7	8	9	10 300	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South 36 East

6	5	4 165	3	2	1
7	8	9	10	11	12
18	17	16	15 312	14	13
19	20	21	22	23 160	24
30	29	28	27	26	25
31	32	33 54 53	34	35	36

24 South 37 East

6	5 111 106	4	3	2	1
7 119	8 90	9	10 120	11 64	12
18 124	17	16 67	15	14	13
19	20	21 69	22	23 94	24 100
30	29	28 70	27 41	26	25 89 90
31	32	33	34 55	35	36

25 South 35 East

6	5 165	4	3 108	2	1
7	8	9	10	11	12
18 230	17	16	15	14	13
19	20	21 218	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

25 South 36 East

6 295	5	4	3	2	1
7	8	9	10 180	11	12
18	17	16	15 120	14	13 SITE
19	20	21	22	23 53.7	24
30	29	28	27	26	25
31	32	33	34	35	36

25 South 37 East

6	5	4	3	2	1 60
7	8	9	10 50	11	12
18 51	17 62	16	15 59.2	14	13 73 81
19 44 62	20 65 34	21	22 26	23	24 255
30	29 219	28	27	26 75	25 55
31	32	33	34	35 185	36

26 South 35 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

26 South 36 East

6	5	4	3	2	1
7	8	9 173	10	11	12
18	17	16	15	14	13
19	20	21	22	23 151	24
30	29	28	27	26	25
31	32	33	34	35	36

26 South 37 East

6	5	4	3	2	1
7 196	8	9 85	10	11	12 97
18	17	16	15	14 95	13
19 185	20	21	22	23	24
30	29 86	28	27 140	26	25
31	32	33	34	35	36

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)
Geology and Groundwater Resources of Eddy County, NM (Report 3)

1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☒ AMENDED Initial Report ☐ Final Repor

Name of Company COG Operating LLC	Contact Phyllis Edwards
Address 550 W. Texas Ave, Ste 1300 Midland, TX 79701	Telephone No. 432-683-4340
Facility Name Jalmat Yates Unit #7	Facility Type Gas Well

Surface Owner	Mineral Owner	Lease No. 301048

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	12	25S	36E	990	South	1650	East	Lea

Latitude_____ Longitude_____

NATURE OF RELEASE

Type of Release produced oil & water leak	Volume of Release 6 BO & 75 BW	Volume Recovered 1 BO & 5 BW
Source of Release hole in flowline	Date and Hour of Occurrence 9/5/06 time unknown	Date and Hour of Discovery 9/5/06 apprx 3:00 PM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Left message w/ Hobbs NMOCD	
By Whom? COG employee Boyd Chesser	Date and Hour 3:00 PM 9/5/06	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Hole in flowline. Replace flow line.

Describe Area Affected and Cleanup Action Taken.*
Leak ¾ mile SE of well toward battery. Leak ran along flowline (200' x 1') to edge of lease road (4' x 30'), then crossed road (850' x 1'). Repaired flowline leak. Picked up all standing fluids that could be recovered. Raked up oily dirt & piled up to be picked up & hauled off. Highlander Environmental will assess the leak area and will begin clean-up work the week of 9-18 to 9-22. Call Boyd Chesser w/ COG @ 432-557-5379 or Ike @ Highlander Environmental @ 432-425-3878.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION
Printed Name: Phyllis A. Edwards	Approved by District Supervisor:
Title: Regulatory Analyst	Approval Date: / Expiration Date:
E-mail Address: pedwards@conchoresources.com	Conditions of Approval: / Attached ☐
Date: 9/13/06 Phone: 432-685-4340	

* Attach Additional Sheets If Necessary

1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
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Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

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☒ AMENDED Initial Report ☐ Final Repor

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Address 550 W. Texas Ave, Ste 1300 Midland, TX 79701	Telephone No. 432-683-4340
Facility Name Jalmat Yates Unit #7	Facility Type Gas Well

Surface Owner	Mineral Owner	Lease No. 301048

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O	12	25S	36E	990	South	1650	East	Lea

Latitude_____ Longitude_____

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By Whom? COG employee Boyd Chesser	Date and Hour 3:00 PM 9/5/06	
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If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
Hole in flowline. Replace flow line.

Describe Area Affected and Cleanup Action Taken.*
Leak ¾ mile SE of well toward battery. Leak ran along flowline (200' x 1') to edge of lease road (4' x 30'), then crossed road (850' x 1'). Repaired flowline leak. Picked up all standing fluids that could be recovered. Raked up oily dirt & piled up to be picked up & hauled off. Highlander Environmental will assess the leak area and will begin clean-up work the week of 9-18 to 9-22. Call Boyd Chesser w/ COG @ 432-557-5379 or Ike @ Highlander Environmental @ 432-425-3878.

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Signature:	OIL CONSERVATION DIVISION	
Printed Name: Phyllis A. Edwards	Approved by District Supervisor:	
Title: Regulatory Analyst	Approval Date:	Expiration Date:
E-mail Address: pedwards@conchoresources.com	Conditions of Approval:	Attached ☐
Date: 9/13/06 Phone: 432-685-4340		

* Attach Additional Sheets If Necessary

SITE INFORMATION

Type of Report: ASSESSMENT AND WORK PLAN

1 RP-1033

General Site Information:	
Site:	**Jalmat Yates Unit, Well #7**
Company:	**COG Operating Company**
Well Location:	**Section 12, T25S, R36E, Unit Letter O**
Spill Location:	**Section 13, T25S, R36E, Unit Letter A**
Lease Number:	**301048**
County:	**Lea**
Spill Area GPS:	**32.13752, 103.21412°**
Surface Owner:	Clay Osborne
Mineral Owner:	-
Directions:	From Jal, New Mexico, intersection of Hwy.18 and Hwy. 128, go 1.1 miles (west) on 128,
	turn right (north) into lease road, go north 0.8 miles and turn left (west) and go 0.4 mile
	pass the Jalmat Yates Tank Battery and turn right (north), go 0.2 miles
	and spill area is located east and west of lease road.(flowline east of road).

Release Data:	
Date Released:	9/5/2006
Type Release:	produced water and crude oil
Source of Contamination:	Hole in flow line
Fluid Released:	6 bbls oil and 75 bbls of water .
Fluids Recovered:	1 barrel oil and 5 barrels of water

Official Communication:			
Name:	Diane Kuykendall		Ike Tavarez
Company:	COG Operating, LLC		Highlander Environmental Corp.
Address:	550 W. Texas Ave. Ste. 1300		1910 N. Big Spring
P.O. Box			
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 683-7443		(432) 682- 4559
Fax:	(432) 683-7441		(432) 682- 3946
Email:	dkuykendall@conchoresources.com		itavarez@hec-enviro.com

Ranking Criteria		
Depth to Groundwater:	***Ranking Score***	***Site Data***
<50 ft	20	
50-99 ft	**10**	*Greater 50'*
>100 ft.	0	
WellHead Protection:	***Ranking Score***	***Site Data***
Water Source <1,000 ft., Private <200 ft.	*20*	*None*
Water Source >1,000 ft., Private >200 ft.	***0***	*None*
Surface Body of Water:	***Ranking Score***	***Site Data***
<200 ft.	*20*	*None*
200 ft - 1,000 ft.	10	*None*
>1,000 ft.	**0**	*None*
Total Ranking Score:	**10**	

Acceptable Soil RRAL (mg/kg)		
Benzene	*Total BTEX*	*TPH*
10	50	1,000