Confidentiality Requested:
☐ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1103944

Form ACO-1
August 2013
Form must be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 34269
Name: Apache Corporation
Address 1: 2000 POST OAK BLVD, STE 100
Address 2:
City: HOUSTON State: TX Zip: 77056 + __ __ __ __
Contact Person: Jaime Ramirez
Phone: (713) 296-6000
CONTRACTOR: License # 99975
Name: COMPANY SERVICING TOOLS
Wellsite Geologist: Beth Leadbetter
Purchaser:

Designate Type of Completion:

☑ New Well ☐ Re-Entry ☐ Workover

☑ Oil ☐ WSW ☐ SWD ☐ SIOW
☐ Gas ☐ D&A ☐ ENHR ☐ SIGW
☐ OG ☐ GSW ☐ Temp. Abd.
☐ CM *(Coal Bed Methane)*
☐ Cathodic ☐ Other *(Core, Expl., etc.)*:

If Workover/Re-entry: Old Well Info as follows:

Operator:
Well Name:
Original Comp. Date: Original Total Depth:

☐ Deepening ☐ Re-perf. ☐ Conv. to ENHR ☐ Conv. to SWD
☐ Plug Back ☐ Conv. to GSW ☐ Conv. to Producer

☐ Commingled Permit #:
☐ Dual Completion Permit #:
☐ SWD Permit #:
☐ ENHR Permit #:
☐ GSW Permit #:

8/15/2012 Spud Date or Recompletion Date
10/6/2012 Date Reached TD
11/26/2012 Completion Date or Recompletion Date

API No. 15 - 15-179-21307-01-00
Spot Description:
NE - NE - NE - NW Sec. 31 Twp. 10 S. R. 28 ☐ East ☑ West
160 Feet from ☑ North / ☐ South Line of Section
2655 Feet from ☑ East / ☐ West Line of Section
Footages Calculated from Nearest Outside Section Corner:
☑ NE ☐ NW ☐ SE ☐ SW
GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Sheridan
Lease Name: Zerr Well #: 31-41-1H
Field Name: Dove
Producing Formation: Kansas City/Lansing
Elevation: Ground: 2745 Kelly Bushing: 26
Total Vertical Depth: 8367 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 1538 Feet
Multiple Stage Cementing Collar Used? ☐ Yes ☑ No
If yes, show depth set: Feet
If Alternate II completion, cement circulated from: 1538
feet depth to: 0 w/ 640 sx cmt.

Drilling Fluid Management Plan
(Data must be collected from the Reserve Pit)

Chloride content: 1600 ppm Fluid volume: 0 bbls
Dewatering method used: Evaporated

Location of fluid disposal if hauled offsite:

Operator Name:
Lease Name: License #:
Quarter Sec. Twp. S. R. ☐ East ☐ West
County: Permit #:

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

☑ **Confidentiality Requested**
Date: 12/10/2012
☑ **Confidential Release Date:** 12/10/2014
☑ **Wireline Log Received**
☐ **Geologist Report Received**
☐ **UIC Distribution**
ALT ☑ **I** ☐ **II** ☐ **III** **Approved by:** NAOMI JAMES **Date:** 12/19/2012

1103944

Operator Name: Apache Corporation Lease Name: Zerr Well #: 31-41-1H

Sec. 31 Twp. 10 S. R. 28 ☐ East ☑ West County: Sheridan

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken ☐ Yes ☑ No
(Attach Additional Sheets)

Samples Sent to Geological Survey ☑ Yes ☐ No

Cores Taken ☐ Yes ☑ No

Electric Log Run ☑ Yes ☐ No

List All E. Logs Run:

Attached

☑ Log Formation (Top), Depth and Datum ☑ Sample

Name: Attached Top: Attached Datum: Attached

CASING RECORD ☑ New ☐ Used

Report all strings set-conductor, surface, intermediate, production, etc.

Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
Attached	Attached	Attached	Attached	Attached	Attached	Attached	Attached

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
___ Perforate ___ Protect Casing ___ Plug Back TD ___ Plug Off Zone	-			
	-			

Did you perform a hydraulic fracturing treatment on this well? ☐ Yes ☐ No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? ☐ Yes ☐ No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? ☐ Yes ☐ No *(If No, fill out Page Three of the ACO-1)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record *(Amount and Kind of Material Used)*	Depth
6	12 ft	Shaped Charges	3,990 ft
6	12 ft	Shaped Charges	4,054 ft
6	11 ft	Shaped Charges	4,079 ft
6	14 ft	Shaped Charges	4,103 ft

TUBING RECORD:	Size:	Set At:	Packer At:	Liner Run:
	2.875 in	3,372ft	3,367 ft	☑ Yes ☐ No

Date of First, Resumed Production, SWD or ENHR. 11/26/2012

Producing Method: ☐ Flowing ☐ Pumping ☐ Gas Lift ☑ Other *(Explain)* Jet Pump

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity
	0	0	400	0	0

DISPOSITION OF GAS:
☐ Vented ☐ Sold ☐ Used on Lease
(If vented, Submit ACO-18.)

METHOD OF COMPLETION:
☐ Open Hole ☑ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*
☐ Other *(Specify)* _____

PRODUCTION INTERVAL:
3990ft
4117 ft

Mail to: KCC - Conservation Division, 130 S. Market - Room 2078, Wichita, Kansas 67202

Form	ACO1 - Well Completion
Operator	Apache Corporation
Well Name	Zerr 31-41-1H
Doc ID	1103944

All Electric Logs Run

Caliper
Spectral GR
Resistivity
Neutron/Density

Form	ACO1 - Well Completion
Operator	Apache Corporation
Well Name	Zerr 31-41-1H
Doc ID	1103944

Tops

Name	Top	Datum
Graneros Shale	1064.8	MD - RKB
Dakota	1131.7	MD - RKB
Cheyenne	1435.2	MD - RKB
Morrison	1716.6	MD - RKB
Cimmaron	1891.2	MD - RKB
Cedar Hills	1969.4	MD - RKB
Stone Corral	2335.6	MD - RKB
Chase	2718.7	MD - RKB
Top Penn	3250.9	MD - RKB
Heebner	3844.1	MD - RKB
Kansas City	4137.6	MD - RKB
Cherokee	4377.4	MD - RKB
Mississippian	4450.0	MD - RKB
Osage	4480.0	MD - RKB
Kinderhook	4539.8	MD - RKB
Arbuckle	4630.7	MD - RKB

Form	ACO1 - Well Completion
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Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Conductor	20	16	52.2	40	Ready-Mix	216	
Surface	12.25	9.625	40	1538	Class H	604	
Intermediate	8.75	7	26	4954	Class H	515	
Production Liner	6.125	4.5	11.6	7719	Class A 50/50 Poz	500	

Conservation Division
Finney State Office Building
130 S. Market, Rm. 2078
Wichita, KS 67202-3802

Kansas
Corporation Commission

Phone: 316-337-6200
Fax: 316-337-6211
http://kcc.ks.gov/

December 10, 2012

Jaime Ramirez
Apache Corporation
2000 POST OAK BLVD, STE 100
HOUSTON, TX 77056

Re: ACO1
API 15-179-21307-01-00
Zerr 31-41-1H
NW/4 Sec.31-10S-28W
Sheridan County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,
Jaime Ramirez

NEW VENTURES

KANSAS
ZERR 10
ZERR 31-41-1H
ZERR 31-41-1H _ ST1

Deviation Summary Report

1 General

1.1 Customer Information

Company	NEW VENTURES
Representative	
Address	

1.2 Well/Wellbore Information

Well	ZERR 31-41-1H		01
Wellbore Legal Name	ZERR 31-41-1H ST1	**Common Wellbore Name**	ZERR 31-41-1H _ ST1
Project	KANSAS	**Site**	ZERR 10
Vertical Section Azimuth	180.93 (°)	**North Reference**	Grid
Origin N/S	0.0 (ft)	**Origin E/W**	0.0 (ft)
Spud Date	8/15/2012	**UWI**	
Active datum	ORIGINAL KB @2,774.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: SIDETRACK SURVEY

Survey Name	SIDETRACK SURVEY	**Survey Company**	Apache Corporation
Start Date/Time	9/8/2012	**End Date/Time**	
Tool Name	200906_EMS	**Survey Engineer**	apacheadmin

2.1.1 Tie On Point

MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)
3,681.0	0.22	292.92	3,681.0	-2.77	-2.85

2.1.2 Survey Stations

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec. (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	Tface (°)
9/8/2012	Tie On	3,681.0	0.22	292.92	3,681.0	-2.77	-2.85	2.82	0.00	0.00	0.00	0.00
	NORMAL	3,788.0	6.68	179.79	3,787.8	-8.33	-2.76	8.37	6.66	6.66	-2.53	-2.53
	NORMAL	3,819.0	8.77	185.80	3,818.5	-12.48	-2.99	12.53	7.22	6.74	19.39	24.13
9/8/2012	NORMAL	3,692.0	0.50	209.10	3,692.0	-2.80	-2.89	2.85	4.76	2.55	-762.00	-108.48
	NORMAL	3,724.0	1.84	167.67	3,724.0	-3.43	-2.85	3.47	4.69	4.19	-129.47	-54.15
	NORMAL	3,756.0	4.55	180.60	3,755.9	-5.20	-2.75	5.24	8.71	8.47	40.41	21.41
	NORMAL	3,851.0	10.56	187.48	3,850.0	-17.82	-3.62	17.88	5.66	5.59	5.25	9.78
	NORMAL	3,883.0	12.47	187.31	3,881.4	-24.15	-4.44	24.22	5.97	5.97	-0.53	-1.10
	NORMAL	3,915.0	13.72	185.52	3,912.6	-31.36	-5.25	31.44	4.11	3.91	-5.59	-18.85
	NORMAL	3,946.0	15.69	185.84	3,942.6	-39.19	-6.03	39.28	6.36	6.35	1.03	2.52
9/9/2012	NORMAL	4,010.0	18.91	183.06	4,003.6	-58.19	-7.69	58.31	5.38	4.75	-8.09	-29.19
9/9/2012	NORMAL	4,042.0	21.51	181.61	4,033.7	-69.23	-8.13	69.36	8.27	8.13	-4.53	-11.59
	NORMAL	4,073.0	23.88	182.49	4,062.3	-81.19	-8.56	81.31	7.72	7.65	2.84	8.56
	NORMAL	4,105.0	26.02	182.50	4,091.3	-94.67	-9.15	94.81	6.69	6.69	0.03	0.12
	NORMAL	4,137.0	27.59	181.49	4,119.8	-109.09	-9.65	109.23	5.11	4.91	-3.16	-16.63
	NORMAL	4,169.0	29.80	182.25	4,147.9	-124.45	-10.15	124.59	7.00	6.91	2.38	9.71
	NORMAL	4,200.0	31.58	183.13	4,174.6	-140.25	-10.90	140.41	5.92	5.74	2.84	14.54
	NORMAL	4,232.0	34.16	181.84	4,201.4	-157.60	-11.64	157.77	8.35	8.06	-4.03	-15.73
	NORMAL	4,264.0	36.21	182.09	4,227.6	-176.03	-12.28	176.20	6.42	6.41	0.78	4.12
	NORMAL	4,296.0	38.50	181.73	4,253.0	-195.43	-12.92	195.61	7.19	7.16	-1.13	-5.59
9/9/2012	NORMAL	3,978.0	17.39	185.65	3,973.2	-48.25	-6.94	48.36	5.32	5.31	-0.59	-1.91
9/11/2012	NORMAL	4,327.0	41.20	179.80	4,276.8	-215.29	-13.18	215.47	9.58	8.71	-6.23	-25.35

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec. (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	Tface (°)
9/11/2012	NORMAL	4,359.0	44.41	180.67	4,300.3	-237.03	-13.27	237.21	10.20	10.03	2.72	10.76
	NORMAL	4,391.0	46.79	179.45	4,322.7	-259.89	-13.29	260.07	7.92	7.44	-3.81	-20.54
	NORMAL	4,423.0	49.07	179.69	4,344.1	-283.64	-13.11	283.82	7.15	7.13	0.75	4.55
	NORMAL	4,454.0	51.56	180.36	4,363.9	-307.50	-13.13	307.67	8.20	8.03	2.16	11.91
	NORMAL	4,486.0	54.75	179.97	4,383.1	-333.10	-13.20	333.27	10.02	9.97	-1.22	-5.71
	NORMAL	4,518.0	57.29	180.27	4,401.0	-359.63	-13.26	359.80	7.98	7.94	0.94	5.68
	NORMAL	4,550.0	59.88	180.12	4,417.7	-386.94	-13.35	387.11	8.10	8.09	-0.47	-2.87
	NORMAL	4,581.0	62.44	179.35	4,432.6	-414.09	-13.22	414.25	8.54	8.26	-2.48	-14.95
	NORMAL	4,613.0	65.89	178.89	4,446.6	-442.89	-12.78	443.04	10.86	10.78	-1.44	-6.94
	NORMAL	4,645.0	69.25	178.99	4,458.8	-472.46	-12.23	472.59	10.50	10.50	0.31	1.60
	NORMAL	4,677.0	71.86	178.74	4,469.4	-502.62	-11.63	502.75	8.19	8.16	-0.78	-5.20
	NORMAL	4,708.0	74.77	178.91	4,478.3	-532.31	-11.02	532.42	9.40	9.39	0.55	3.23
	NORMAL	4,740.0	77.43	178.43	4,486.0	-563.36	-10.30	563.45	8.44	8.31	-1.50	-9.99
	NORMAL	4,772.0	78.62	178.16	4,492.6	-594.65	-9.37	594.72	3.81	3.72	-0.84	-12.54
	NORMAL	4,804.0	81.26	177.86	4,498.2	-626.14	-8.28	626.19	8.30	8.25	-0.94	-6.41
9/12/2012	NORMAL	4,835.0	83.44	177.71	4,502.4	-656.84	-7.09	656.86	7.05	7.03	-0.48	-3.91
	NORMAL	4,867.0	85.61	178.10	4,505.4	-688.67	-5.92	688.67	6.89	6.78	1.22	10.16
	NORMAL	4,899.0	85.91	179.31	4,507.8	-720.57	-5.20	720.56	3.89	0.94	3.78	76.08
9/20/2012	NORMAL	4,954.0	89.47	180.60	4,510.0	-775.51	-5.16	775.50	6.88	6.47	2.35	19.93
	NORMAL	5,032.0	88.33	175.14	4,511.5	-853.42	-2.26	853.34	7.15	-1.46	-7.00	-101.84
	NORMAL	5,063.0	88.02	172.97	4,512.5	-884.23	0.95	884.10	7.07	-1.00	-7.00	-98.17
	NORMAL	5,097.0	89.32	172.64	4,513.3	-917.95	5.20	917.75	3.94	3.82	-0.97	-14.24
	NORMAL	5,128.0	90.62	173.98	4,513.3	-948.74	8.81	948.47	6.02	4.19	4.32	45.87
	NORMAL	5,160.0	90.93	174.90	4,512.9	-980.59	11.91	980.27	3.03	0.97	2.88	71.37
	NORMAL	5,192.0	90.19	175.39	4,512.5	-1,012.47	14.62	1,012.10	2.77	-2.31	1.53	146.49
	NORMAL	5,223.0	90.80	177.61	4,512.3	-1,043.41	16.51	1,043.01	7.43	1.97	7.16	74.63
	NORMAL	5,255.0	91.36	180.38	4,511.7	-1,075.40	17.08	1,074.98	8.83	1.75	8.66	78.54
	NORMAL	5,287.0	91.73	182.02	4,510.8	-1,107.38	16.41	1,106.97	5.25	1.16	5.13	77.26
	NORMAL	5,319.0	92.47	182.69	4,509.6	-1,139.33	15.09	1,138.93	3.12	2.31	2.09	42.13
	NORMAL	5,350.0	93.15	183.06	4,508.1	-1,170.25	13.54	1,169.88	2.50	2.19	1.19	28.51
9/21/2012	NORMAL	5,387.0	92.90	182.47	4,506.2	-1,207.16	11.76	1,206.81	1.73	-0.68	-1.59	-112.98
	NORMAL	5,418.0	92.35	182.51	4,504.7	-1,238.09	10.41	1,237.76	1.78	-1.77	0.13	175.84
	NORMAL	5,450.0	92.53	182.59	4,503.4	-1,270.03	8.99	1,269.72	0.62	0.56	0.25	23.94
	NORMAL	5,482.0	92.84	183.24	4,501.9	-1,301.96	7.36	1,301.67	2.25	0.97	2.03	64.46
	NORMAL	5,514.0	92.84	183.60	4,500.3	-1,333.86	5.46	1,333.60	1.12	0.00	1.13	89.99
	NORMAL	5,545.0	92.97	183.53	4,498.7	-1,364.76	3.53	1,364.52	0.48	0.42	-0.23	-28.27
	NORMAL	5,577.0	93.09	183.53	4,497.0	-1,396.66	1.56	1,396.45	0.38	0.38	0.00	0.00
	NORMAL	5,609.0	94.14	183.67	4,495.0	-1,428.53	-0.44	1,428.35	3.31	3.28	0.44	7.58
	NORMAL	5,641.0	91.92	183.36	4,493.3	-1,460.42	-2.40	1,460.27	7.00	-6.94	-0.97	-172.05
	NORMAL	5,672.0	91.79	183.19	4,492.3	-1,491.35	-4.17	1,491.23	0.69	-0.42	-0.55	-127.42
	NORMAL	5,736.0	94.88	184.46	4,488.6	-1,555.09	-8.43	1,555.03	5.22	4.83	1.98	22.28
	NORMAL	5,768.0	94.45	184.56	4,486.0	-1,586.89	-10.94	1,586.86	1.38	-1.34	0.31	166.95
	NORMAL	5,799.0	94.21	184.94	4,483.7	-1,617.70	-13.50	1,617.70	1.45	-0.77	1.23	122.34
	NORMAL	5,831.0	92.29	183.83	4,481.8	-1,649.55	-15.94	1,649.59	6.93	-6.00	-3.47	-149.97
	NORMAL	5,863.0	92.22	183.21	4,480.6	-1,681.46	-17.90	1,681.53	1.95	-0.22	-1.94	-96.43
9/22/2012	NORMAL	5,863.0	92.22	183.21	4,480.6	-1,681.46	-17.90	1,681.53	0.00	0.00	0.00	0.00
9/25/2012	NORMAL	5,906.0	93.40	182.86	4,478.5	-1,724.35	-20.18	1,724.45	2.86	2.74	-0.81	-16.49
	NORMAL	5,938.0	93.40	182.45	4,476.6	-1,756.26	-21.66	1,756.38	1.28	0.00	-1.28	-89.99
	NORMAL	5,970.0	93.52	181.76	4,474.6	-1,788.18	-22.83	1,788.31	2.18	0.38	-2.16	-80.10
	NORMAL	6,034.0	92.41	179.97	4,471.2	-1,852.08	-23.73	1,852.22	3.47	-2.50	-2.41	-136.11
	NORMAL	6,065.0	90.87	180.03	4,470.3	-1,883.06	-23.73	1,883.20	4.97	-4.97	0.19	177.77
	NORMAL	6,097.0	90.80	180.18	4,469.8	-1,915.06	-23.78	1,915.19	0.52	-0.22	0.47	115.02
	NORMAL	6,129.0	90.99	180.58	4,469.3	-1,947.05	-24.00	1,947.19	1.38	0.59	1.25	64.59
	NORMAL	6,161.0	90.62	180.71	4,468.9	-1,979.05	-24.36	1,979.18	1.23	-1.16	0.41	160.64
9/25/2012	NORMAL	6,197.0	90.62	180.61	4,468.5	-2,015.05	-24.77	2,015.18	0.28	0.00	-0.28	-90.00
	NORMAL	6,228.0	90.37	180.74	4,468.2	-2,046.04	-25.14	2,046.18	0.91	-0.81	0.42	152.53
	NORMAL	6,260.0	90.06	180.63	4,468.1	-2,078.04	-25.52	2,078.18	1.03	-0.97	-0.34	-160.46

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec. (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	Tface (°)
9/25/2012	NORMAL	6,292.0	91.67	181.11	4,467.6	-2,110.03	-26.00	2,110.18	5.25	5.03	1.50	16.60
	NORMAL	6,324.0	93.15	182.44	4,466.3	-2,141.99	-26.99	2,142.14	6.22	4.63	4.16	41.89
9/26/2012	NORMAL	6,355.0	93.71	183.15	4,464.4	-2,172.89	-28.50	2,173.07	2.91	1.81	2.29	51.67
	NORMAL	6,419.0	93.77	183.12	4,460.3	-2,236.66	-32.00	2,236.89	0.10	0.09	-0.05	-26.52
	NORMAL	6,451.0	93.33	182.45	4,458.3	-2,268.56	-33.55	2,268.81	2.50	-1.38	-2.09	-123.32
	NORMAL	6,514.0	93.09	180.20	4,454.7	-2,331.44	-35.00	2,331.70	3.59	-0.38	-3.57	-96.03
	NORMAL	6,550.0	91.66	179.05	4,453.3	-2,367.41	-34.77	2,367.66	5.10	-3.97	-3.19	-141.19
	NORMAL	6,582.0	90.43	178.46	4,452.7	-2,399.40	-34.07	2,399.63	4.26	-3.84	-1.84	-154.37
9/26/2012	NORMAL	6,614.0	88.70	178.61	4,452.9	-2,431.38	-33.25	2,431.60	5.43	-5.41	0.47	175.05
	NORMAL	6,646.0	88.15	178.98	4,453.8	-2,463.36	-32.58	2,463.57	2.07	-1.72	1.16	146.09
	NORMAL	6,677.0	89.01	179.51	4,454.6	-2,494.35	-32.17	2,494.54	3.26	2.77	1.71	31.64
	NORMAL	6,709.0	89.57	180.02	4,455.0	-2,526.35	-32.04	2,526.54	2.37	1.75	1.59	42.33
	NORMAL	6,741.0	90.18	180.23	4,455.0	-2,558.35	-32.11	2,558.53	2.02	1.91	0.66	19.00
	NORMAL	6,773.0	91.05	180.44	4,454.7	-2,590.34	-32.30	2,590.53	2.80	2.72	0.66	13.57
	NORMAL	6,804.0	91.54	180.65	4,454.0	-2,621.34	-32.59	2,621.52	1.72	1.58	0.68	23.19
	NORMAL	6,836.0	91.48	180.64	4,453.1	-2,653.32	-32.95	2,653.51	0.19	-0.19	-0.03	-170.54
	NORMAL	6,868.0	89.94	180.70	4,452.7	-2,685.32	-33.33	2,685.50	4.82	-4.81	0.19	177.77
	NORMAL	6,900.0	88.83	180.63	4,453.1	-2,717.31	-33.70	2,717.50	3.48	-3.47	-0.22	-176.39
	NORMAL	6,931.0	87.40	180.84	4,454.1	-2,748.29	-34.10	2,748.48	4.66	-4.61	0.68	171.65
	NORMAL	6,963.0	86.42	180.93	4,455.8	-2,780.24	-34.59	2,780.44	3.08	-3.06	0.28	174.76
9/27/2012	NORMAL	7,027.0	85.24	182.11	4,460.8	-2,844.02	-36.25	2,844.24	2.02	0.00	2.03	90.03
	NORMAL	7,058.0	86.79	182.44	4,463.0	-2,874.92	-37.48	2,875.15	5.11	5.00	1.06	12.00
	NORMAL	7,090.0	88.40	183.38	4,464.3	-2,906.85	-39.10	2,907.10	5.82	5.03	2.94	30.28
	NORMAL	7,122.0	88.27	182.77	4,465.2	-2,938.79	-40.81	2,939.07	1.95	-0.41	-1.91	-102.04
	NORMAL	7,154.0	87.65	182.57	4,466.4	-2,970.74	-42.30	2,971.03	2.04	-1.94	-0.63	-162.14
	NORMAL	7,185.0	87.71	182.36	4,467.6	-3,001.68	-43.64	3,002.00	0.70	0.19	-0.68	-74.05
	NORMAL	7,217.0	88.33	182.34	4,468.7	-3,033.64	-44.95	3,033.97	1.94	1.94	-0.06	-1.85
	NORMAL	7,249.0	88.27	182.45	4,469.7	-3,065.59	-46.28	3,065.94	0.39	-0.19	0.34	118.62
	NORMAL	7,281.0	89.07	183.00	4,470.4	-3,097.55	-47.81	3,097.92	3.03	2.50	1.72	34.51
	NORMAL	7,312.0	88.70	182.29	4,471.0	-3,128.51	-49.24	3,128.90	2.58	-1.19	-2.29	-117.54
9/27/2012	NORMAL	6,995.0	85.24	181.46	4,458.2	-2,812.15	-35.25	2,812.35	4.04	-3.69	1.66	155.89
	NORMAL	7,349.0	89.51	181.82	4,471.6	-3,165.48	-50.56	3,165.88	2.53	2.19	-1.27	-30.13
	NORMAL	7,380.0	90.49	181.58	4,471.6	-3,196.47	-51.48	3,196.88	3.25	3.16	-0.77	-13.76
	NORMAL	7,412.0	90.43	181.02	4,471.4	-3,228.46	-52.21	3,228.88	1.76	-0.19	-1.75	-96.11
	NORMAL	7,444.0	91.36	180.51	4,470.9	-3,260.45	-52.64	3,260.88	3.31	2.91	-1.59	-28.73
9/30/2012	NORMAL	7,476.0	92.04	180.27	4,469.9	-3,292.44	-52.85	3,292.86	2.25	2.13	-0.75	-19.43
	NORMAL	7,508.0	91.73	179.53	4,468.9	-3,324.42	-52.80	3,324.84	2.51	-0.97	-2.31	-112.73
	NORMAL	7,540.0	92.10	179.96	4,467.8	-3,356.40	-52.65	3,356.81	1.77	1.16	1.34	49.27
	NORMAL	7,572.0	92.16	179.89	4,466.6	-3,388.38	-52.61	3,388.79	0.29	0.19	-0.22	-49.38
	NORMAL	7,604.0	91.73	179.67	4,465.5	-3,420.36	-52.49	3,420.76	1.51	-1.34	-0.69	-152.91
	NORMAL	7,667.0	92.78	179.64	4,463.0	-3,483.31	-52.11	3,483.70	1.67	1.67	-0.05	-1.63
	NORMAL	7,703.0	91.05	179.07	4,461.8	-3,519.28	-51.71	3,519.66	5.06	-4.81	-1.58	-161.76
	NORMAL	7,735.0	89.81	178.46	4,461.6	-3,551.27	-51.02	3,551.64	4.32	-3.88	-1.91	-153.80
	NORMAL	7,767.0	90.06	178.61	4,461.6	-3,583.26	-50.20	3,583.61	0.91	0.78	0.47	30.96
10/1/2012	NORMAL	7,798.0	88.70	178.74	4,462.0	-3,614.25	-49.48	3,614.58	4.41	-4.39	0.42	174.54
	NORMAL	7,830.0	88.33	178.77	4,462.8	-3,646.24	-48.79	3,646.55	1.16	-1.16	0.09	175.37
	NORMAL	7,862.0	88.08	179.06	4,463.8	-3,678.21	-48.18	3,678.51	1.20	-0.78	0.91	130.78
	NORMAL	7,894.0	88.33	178.81	4,464.8	-3,710.19	-47.59	3,710.48	1.10	0.78	-0.78	-44.99
	NORMAL	7,957.0	87.77	179.04	4,466.9	-3,773.14	-46.41	3,773.40	0.96	-0.89	0.37	157.69
	NORMAL	7,989.0	86.60	179.18	4,468.5	-3,805.10	-45.91	3,805.35	3.68	-3.66	0.44	173.19
10/1/2012	NORMAL	8,021.0	85.67	180.61	4,470.7	-3,837.03	-45.85	3,837.27	5.32	-2.91	4.47	123.14
	NORMAL	8,053.0	85.61	181.91	4,473.1	-3,868.93	-46.55	3,869.17	4.06	-0.19	4.06	92.70
	NORMAL	8,084.0	85.92	183.33	4,475.4	-3,899.81	-47.96	3,900.07	4.68	1.00	4.58	77.71
	NORMAL	8,116.0	86.91	185.55	4,477.4	-3,931.65	-50.44	3,931.95	7.58	3.09	6.94	66.00
	NORMAL	8,148.0	87.22	186.14	4,479.0	-3,963.44	-53.69	3,963.79	2.08	0.97	1.84	62.27
	NORMAL	8,180.0	88.08	185.73	4,480.3	-3,995.24	-57.00	3,995.64	2.98	2.69	-1.28	-25.48
	NORMAL	8,211.0	89.51	185.58	4,481.0	-4,026.08	-60.05	4,026.53	4.64	4.61	-0.48	-5.99

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec. (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	Tface (°)
10/1/2012	NORMAL	8,243.0	90.43	188.87	4,481.0	-4,057.82	-64.08	4,058.33	10.68	2.88	10.28	74.38
	NORMAL	8,275.0	91.92	184.17	4,480.4	-4,089.60	-67.71	4,090.16	15.40	4.66	-14.69	-72.37
	NORMAL	8,311.0	92.97	183.29	4,478.8	-4,125.49	-70.05	4,126.08	3.80	2.92	-2.44	-39.92
1/1/6002	NORMAL	6,002.0	93.21	180.74	4,472.8	-1,820.12	-23.53	1,820.26	3.33	-0.97	-3.19	-106.90

2.2 Survey Name: Zerr 31-41-1H_Survey_Final_Curve_Lateral

Survey Name	Zerr 31-41-1H_Survey_Final_Curve_Lateral	**Survey Company**	Apache
Start Date/Time	10/9/2012	**End Date/Time**	
Tool Name	200906_MWD+SC	**Survey Engineer**	Apache

2.2.1 Tie On Point

MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)
3,681.0	0.22	175.14	3,681.0	-2.77	-2.85

2.2.2 Survey Stations

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec. (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	Tface (°)
10/9/2012	NORMAL	5,032.0	88.33	175.14	4,514.5	-852.98	1.19	852.85	3.62	1.82	-3.14	-59.96
	NORMAL	5,063.0	88.02	172.97	4,515.5	-883.80	4.39	883.61	7.07	-1.00	-7.00	-98.17
10/9/2012	Tie On	0.0	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	NORMAL	148.0	0.10	247.11	148.0	-0.05	-0.12	0.05	0.07	0.07	0.00	245.54
	NORMAL	241.0	0.17	330.15	241.0	0.04	-0.26	-0.03	0.20	0.08	89.29	115.20
	NORMAL	342.0	0.21	285.36	342.0	0.22	-0.52	-0.21	0.15	0.04	-44.35	-98.07
	NORMAL	436.0	0.11	329.19	436.0	0.34	-0.73	-0.33	0.16	-0.11	46.63	149.75
	NORMAL	530.0	0.19	313.78	530.0	0.53	-0.89	-0.51	0.09	0.09	-16.39	-34.61
	NORMAL	623.0	0.08	227.66	623.0	0.59	-1.05	-0.57	0.22	-0.12	-92.60	-156.62
	NORMAL	717.0	0.12	359.36	717.0	0.64	-1.10	-0.62	0.19	0.04	140.11	150.73
	NORMAL	811.0	0.17	344.04	811.0	0.88	-1.13	-0.86	0.07	0.05	-16.30	-45.62
	NORMAL	905.0	0.17	10.01	905.0	1.15	-1.15	-1.13	0.08	0.00	27.63	102.98
	NORMAL	968.0	0.08	325.97	968.0	1.27	-1.16	-1.26	0.20	-0.14	-69.90	-153.69
	NORMAL	999.0	0.08	338.23	999.0	1.31	-1.18	-1.29	0.06	0.00	39.55	96.13
	NORMAL	1,030.0	0.18	333.19	1,030.0	1.38	-1.21	-1.36	0.32	0.32	-16.26	-9.05
	NORMAL	1,062.0	0.13	46.88	1,062.0	1.45	-1.20	-1.43	0.59	-0.16	230.28	138.99
	NORMAL	1,093.0	0.18	37.54	1,093.0	1.51	-1.15	-1.49	0.18	0.16	-30.13	-31.53
	NORMAL	1,124.0	0.13	55.61	1,124.0	1.57	-1.09	-1.55	0.22	-0.16	58.29	144.44
	NORMAL	1,155.0	0.14	55.93	1,155.0	1.61	-1.03	-1.59	0.03	0.03	1.03	4.47
	NORMAL	1,187.0	0.14	54.28	1,187.0	1.65	-0.97	-1.64	0.01	0.00	-5.16	-90.82
	NORMAL	1,218.0	0.15	69.56	1,218.0	1.69	-0.90	-1.67	0.13	0.03	49.29	83.22
	NORMAL	1,249.0	0.08	342.51	1,249.0	1.72	-0.86	-1.71	0.54	-0.23	-280.81	-151.29
	NORMAL	1,281.0	0.11	117.54	1,281.0	1.73	-0.84	-1.72	0.55	0.09	421.97	153.78
	NORMAL	1,312.0	0.05	332.31	1,312.0	1.73	-0.82	-1.72	0.50	-0.19	-468.48	-169.31
	NORMAL	1,343.0	0.00	332.20	1,343.0	1.74	-0.83	-1.73	0.16	-0.16	0.00	-180.00
	NORMAL	1,375.0	0.13	119.02	1,375.0	1.72	-0.80	-1.71	0.41	0.41	0.00	117.45
	NORMAL	1,406.0	0.11	126.34	1,406.0	1.69	-0.74	-1.68	0.08	-0.06	23.61	146.15
	NORMAL	1,437.0	0.10	5.09	1,437.0	1.70	-0.72	-1.69	0.59	-0.03	-391.13	-152.16
	NORMAL	1,468.0	0.15	118.88	1,468.0	1.71	-0.68	-1.69	0.68	0.16	367.06	139.47
	NORMAL	1,613.0	0.25	150.02	1,613.0	1.34	-0.36	-1.33	0.10	0.07	21.48	63.67
	NORMAL	1,645.0	0.25	149.14	1,645.0	1.22	-0.28	-1.21	0.01	0.00	-2.75	-90.44
	NORMAL	1,677.0	0.25	131.73	1,677.0	1.11	-0.20	-1.11	0.24	0.00	-54.41	-98.70
	NORMAL	1,708.0	0.33	138.25	1,708.0	1.00	-0.09	-1.00	0.28	0.26	21.03	25.70
	NORMAL	1,740.0	0.33	129.14	1,740.0	0.87	0.05	-0.88	0.16	0.00	-28.47	-94.55
	NORMAL	1,772.0	0.31	164.03	1,772.0	0.73	0.14	-0.74	0.60	-0.06	109.03	113.12

2.2.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec. (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	Tface (°)
10/9/2012	NORMAL	1,803.0	0.25	142.08	1,803.0	0.60	0.21	-0.60	0.39	-0.19	-70.81	-129.90
	NORMAL	1,835.0	0.19	145.08	1,835.0	0.50	0.28	-0.51	0.19	-0.19	9.38	170.63
	NORMAL	1,867.0	0.35	164.63	1,867.0	0.36	0.34	-0.37	0.57	0.50	61.09	39.95
	NORMAL	1,899.0	0.31	158.53	1,899.0	0.19	0.39	-0.19	0.17	-0.13	-19.06	-141.73
	NORMAL	1,930.0	0.20	186.92	1,930.0	0.06	0.42	-0.06	0.53	-0.35	91.58	144.65
	NORMAL	1,962.0	0.35	138.17	1,962.0	-0.07	0.48	0.06	0.83	0.47	-152.34	-83.33
	NORMAL	1,994.0	0.25	201.49	1,994.0	-0.21	0.52	0.20	1.02	-0.31	197.88	136.78
	NORMAL	2,026.0	0.28	178.94	2,026.0	-0.35	0.49	0.34	0.34	0.09	-70.47	-85.42
	NORMAL	2,057.0	0.22	207.01	2,057.0	-0.48	0.47	0.47	0.43	-0.19	90.55	129.68
	NORMAL	2,093.0	0.31	189.49	2,093.0	-0.64	0.42	0.63	0.33	0.25	-48.67	-50.98
	NORMAL	2,125.0	0.22	216.10	2,125.0	-0.77	0.37	0.77	0.47	-0.28	83.16	138.99
	NORMAL	2,157.0	0.31	192.72	2,157.0	-0.91	0.31	0.90	0.43	0.28	-73.06	-62.31
	NORMAL	2,189.0	0.20	173.75	2,189.0	-1.05	0.30	1.04	0.43	-0.34	-59.28	-151.72
	NORMAL	2,220.0	0.20	225.89	2,220.0	-1.14	0.27	1.14	0.57	0.00	168.19	116.07
	NORMAL	2,252.0	0.32	211.32	2,252.0	-1.25	0.18	1.25	0.43	0.38	-45.53	-36.27
	NORMAL	2,284.0	0.25	193.07	2,284.0	-1.40	0.12	1.40	0.36	-0.22	-57.03	-136.53
	NORMAL	2,315.0	0.31	187.17	2,315.0	-1.55	0.09	1.55	0.21	0.19	-19.03	-28.64
	NORMAL	2,347.0	0.25	219.61	2,347.0	-1.69	0.04	1.69	0.52	-0.19	101.38	126.44
	NORMAL	2,379.0	0.22	208.62	2,379.0	-1.80	-0.04	1.80	0.17	-0.09	-34.34	-129.06
	NORMAL	2,411.0	0.19	200.47	2,411.0	-1.90	-0.09	1.90	0.13	-0.09	-25.47	-139.84
	NORMAL	2,442.0	0.28	199.97	2,442.0	-2.02	-0.13	2.02	0.29	0.29	-1.61	-1.56
	NORMAL	2,474.0	0.25	180.00	2,474.0	-2.16	-0.16	2.16	0.30	-0.09	-62.41	-117.81
	NORMAL	2,506.0	0.33	187.68	2,506.0	-2.32	-0.17	2.33	0.28	0.25	24.00	29.79
	NORMAL	2,538.0	0.31	193.25	2,538.0	-2.50	-0.20	2.50	0.12	-0.06	17.41	125.50
	NORMAL	2,570.0	0.31	206.88	2,570.0	-2.66	-0.26	2.66	0.23	0.00	42.59	96.81
	NORMAL	2,601.0	0.32	186.59	2,601.0	-2.82	-0.31	2.83	0.36	0.03	-65.45	-95.08
	NORMAL	2,633.0	0.26	196.11	2,633.0	-2.98	-0.34	2.98	0.24	-0.19	29.75	145.93
	NORMAL	2,665.0	0.26	233.20	2,665.0	-3.09	-0.42	3.10	0.52	0.00	115.91	108.54
	NORMAL	2,696.0	0.25	208.53	2,696.0	-3.19	-0.50	3.20	0.35	-0.03	-79.58	-107.46
	NORMAL	2,728.0	0.22	220.54	2,728.0	-3.30	-0.58	3.31	0.18	-0.09	37.53	127.25
	NORMAL	2,760.0	0.28	251.25	2,760.0	-3.37	-0.69	3.38	0.45	0.19	95.97	81.75
	NORMAL	2,792.0	0.20	237.25	2,792.0	-3.43	-0.81	3.44	0.31	-0.25	-43.75	-150.62
	NORMAL	2,824.0	0.33	232.91	2,824.0	-3.52	-0.93	3.53	0.41	0.41	-13.56	-10.95
	NORMAL	2,855.0	0.25	221.50	2,855.0	-3.62	-1.05	3.64	0.32	-0.26	-36.81	-149.79
	NORMAL	2,887.0	0.17	251.79	2,887.0	-3.69	-1.14	3.70	0.42	-0.25	94.66	140.28
	NORMAL	2,919.0	0.12	231.13	2,919.0	-3.72	-1.21	3.74	0.22	-0.16	-64.56	-143.74
	NORMAL	2,950.0	0.00	144.90	2,950.0	-3.74	-1.24	3.76	0.39	-0.39	0.00	-180.00
	NORMAL	2,982.0	0.06	84.40	2,982.0	-3.74	-1.22	3.76	0.19	0.19	0.00	82.83
	NORMAL	3,014.0	0.14	333.44	3,014.0	-3.70	-1.22	3.72	0.53	0.25	-346.75	-130.10
	NORMAL	3,046.0	0.14	350.94	3,046.0	-3.63	-1.24	3.65	0.13	0.00	54.69	98.75
	NORMAL	3,078.0	0.00	189.79	3,078.0	-3.59	-1.25	3.61	0.44	-0.44	0.00	-180.00
	NORMAL	3,109.0	0.20	337.11	3,109.0	-3.54	-1.27	3.56	0.65	0.65	0.00	335.54
	NORMAL	3,141.0	0.20	314.01	3,141.0	-3.45	-1.33	3.47	0.25	0.00	-72.19	-101.55
	NORMAL	3,173.0	0.22	338.31	3,173.0	-3.36	-1.40	3.38	0.28	0.06	75.94	89.68
	NORMAL	3,205.0	0.12	326.48	3,205.0	-3.27	-1.44	3.29	0.33	-0.31	-36.97	-166.51
	NORMAL	3,236.0	0.12	294.01	3,236.0	-3.23	-1.49	3.25	0.22	0.00	-104.74	-106.23
	NORMAL	3,268.0	0.14	307.95	3,268.0	-3.19	-1.55	3.22	0.12	0.06	43.56	64.79
	NORMAL	3,300.0	0.20	253.07	3,300.0	-3.19	-1.63	3.21	0.52	0.19	-171.50	-98.67
	NORMAL	3,332.0	0.26	261.84	3,332.0	-3.21	-1.76	3.24	0.22	0.19	27.41	34.84
	NORMAL	3,363.0	0.26	279.46	3,363.0	-3.21	-1.90	3.24	0.26	0.00	56.84	98.81
	NORMAL	3,395.0	0.14	259.11	3,395.0	-3.21	-2.01	3.24	0.43	-0.38	-63.59	-159.28
	NORMAL	3,427.0	0.14	240.22	3,427.0	-3.23	-2.08	3.27	0.14	0.00	-59.03	-99.44
	NORMAL	3,459.0	0.25	261.62	3,459.0	-3.26	-2.18	3.30	0.41	0.34	66.88	44.52
	NORMAL	3,490.0	0.20	352.43	3,490.0	-3.22	-2.26	3.25	1.04	-0.16	292.94	141.66
	NORMAL	3,522.0	0.22	310.91	3,522.0	-3.12	-2.31	3.16	0.47	0.06	-129.75	-103.60
	NORMAL	3,554.0	0.22	306.53	3,554.0	-3.05	-2.40	3.09	0.05	0.00	-13.69	-92.19
	NORMAL	3,585.0	0.20	284.23	3,585.0	-3.00	-2.50	3.04	0.27	-0.06	-71.94	-114.73

2.2.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec. (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	Tface (°)
10/9/2012	NORMAL	3,617.0	0.17	299.16	3,617.0	-2.96	-2.60	3.00	0.18	-0.09	46.66	129.21
	NORMAL	3,649.0	0.40	311.23	3,649.0	-2.86	-2.73	2.91	0.74	0.72	37.72	20.72
	NORMAL	3,681.0	0.22	292.92	3,681.0	-2.77	-2.87	2.81	0.64	-0.56	-57.22	-160.12
	NORMAL	3,692.0	0.50	209.10	3,692.0	-2.80	-2.91	2.85	4.76	2.55	-762.00	-108.48
	NORMAL	3,724.0	1.84	167.67	3,724.0	-3.42	-2.87	3.47	4.69	4.19	-129.47	-54.15
	NORMAL	3,756.0	4.55	180.60	3,755.9	-5.20	-2.77	5.24	8.71	8.47	40.41	21.41
	NORMAL	3,788.0	6.28	179.79	3,787.8	-8.22	-2.78	8.26	5.41	5.41	-2.53	-2.93
	NORMAL	3,819.0	8.77	185.80	3,818.5	-12.26	-3.01	12.31	8.41	8.03	19.39	20.54
	NORMAL	3,851.0	10.56	187.48	3,850.0	-17.60	-3.64	17.65	5.66	5.59	5.25	9.78
	NORMAL	3,883.0	12.47	187.31	3,881.4	-23.93	-4.46	24.00	5.97	5.97	-0.53	-1.10
	NORMAL	3,915.0	13.72	185.52	3,912.6	-31.14	-5.27	31.22	4.11	3.91	-5.59	-18.85
	NORMAL	3,946.0	15.69	185.84	3,942.6	-38.97	-6.05	39.06	6.36	6.35	1.03	2.52
	NORMAL	3,978.0	17.39	185.65	3,973.2	-48.03	-6.96	48.14	5.32	5.31	-0.59	-1.91
	NORMAL	4,010.0	18.91	183.06	4,003.6	-57.97	-7.70	58.08	5.38	4.75	-8.09	-29.19
	NORMAL	4,042.0	21.51	181.61	4,033.7	-69.01	-8.15	69.13	8.27	8.13	-4.53	-11.59
	NORMAL	4,073.0	23.88	182.49	4,062.3	-80.96	-8.58	81.09	7.72	7.65	2.84	8.56
	NORMAL	4,105.0	26.02	182.50	4,091.3	-94.45	-9.17	94.58	6.69	6.69	0.03	0.12
	NORMAL	4,137.0	27.59	181.49	4,119.8	-108.87	-9.66	109.01	5.11	4.91	-3.16	-16.63
	NORMAL	4,169.0	29.80	182.25	4,147.9	-124.22	-10.17	124.37	7.00	6.91	2.38	9.71
	NORMAL	4,200.0	31.58	183.13	4,174.6	-140.03	-10.92	140.19	5.92	5.74	2.84	14.54
	NORMAL	4,232.0	34.16	181.84	4,201.4	-157.38	-11.66	157.55	8.35	8.06	-4.03	-15.73
	NORMAL	4,264.0	36.21	182.09	4,227.6	-175.80	-12.29	175.98	6.42	6.41	0.78	4.12
	NORMAL	4,296.0	38.50	181.73	4,253.0	-195.21	-12.94	195.39	7.19	7.16	-1.13	-5.59
	NORMAL	4,327.0	41.20	179.88	4,276.8	-215.07	-13.21	215.25	9.51	8.71	-5.97	-24.42
	NORMAL	4,359.0	44.41	180.67	4,300.3	-236.81	-13.32	236.99	10.17	10.03	2.47	9.79
	NORMAL	4,391.0	46.79	179.45	4,322.7	-259.67	-13.34	259.85	7.92	7.44	-3.81	-20.54
	NORMAL	4,423.0	49.07	179.69	4,344.1	-283.42	-13.16	283.60	7.15	7.13	0.75	4.55
	NORMAL	4,454.0	51.56	180.36	4,363.9	-307.27	-13.17	307.45	8.20	8.03	2.16	11.91
	NORMAL	4,486.0	54.75	179.97	4,383.1	-332.88	-13.25	333.05	10.02	9.97	-1.22	-5.71
	NORMAL	4,518.0	57.29	180.27	4,401.0	-359.41	-13.30	359.58	7.98	7.94	0.94	5.68
	NORMAL	4,550.0	59.88	180.12	4,417.7	-386.72	-13.39	386.89	8.10	8.09	-0.47	-2.87
	NORMAL	4,581.0	62.44	179.35	4,432.6	-413.87	-13.27	414.03	8.54	8.26	-2.48	-14.95
	NORMAL	4,613.0	65.89	178.89	4,446.6	-442.67	-12.82	442.82	10.86	10.78	-1.44	-6.94
	NORMAL	4,645.0	69.25	178.99	4,458.8	-472.24	-12.28	472.37	10.50	10.50	0.31	1.60
	NORMAL	4,677.0	71.86	178.74	4,469.4	-502.40	-11.68	502.52	8.19	8.16	-0.78	-5.20
	NORMAL	4,708.0	74.77	178.91	4,478.3	-532.09	-11.07	532.20	9.40	9.39	0.55	3.23
	NORMAL	4,740.0	77.43	178.43	4,486.0	-563.14	-10.35	563.23	8.44	8.31	-1.50	-9.99
	NORMAL	4,772.0	78.62	178.16	4,492.6	-594.43	-9.42	594.50	3.81	3.72	-0.84	-12.54
	NORMAL	4,804.0	81.26	177.86	4,498.2	-625.91	-8.32	625.97	8.30	8.25	-0.94	-6.41
	NORMAL	4,835.0	83.44	177.71	4,502.4	-656.61	-7.13	656.64	7.05	7.03	-0.48	-3.91
	NORMAL	4,867.0	85.61	178.10	4,505.4	-688.44	-5.97	688.45	6.89	6.78	1.22	10.16
	NORMAL	4,899.0	85.91	179.31	4,507.8	-720.35	-5.25	720.34	3.89	0.94	3.78	76.08
	NORMAL	5,097.0	89.32	172.64	4,516.2	-917.52	8.65	917.26	3.94	3.82	-0.97	-14.24
	NORMAL	5,128.0	90.62	173.89	4,516.3	-948.31	12.29	947.98	5.82	4.19	4.03	43.88
	NORMAL	5,160.0	90.93	174.90	4,515.8	-980.15	15.41	979.77	3.30	0.97	3.16	72.93
	NORMAL	5,192.0	90.19	175.39	4,515.5	-1,012.03	18.12	1,011.61	2.77	-2.31	1.53	146.49
	NORMAL	5,223.0	90.80	177.61	4,515.2	-1,042.97	20.01	1,042.51	7.43	1.97	7.16	74.63
	NORMAL	5,255.0	91.36	180.38	4,514.6	-1,074.96	20.57	1,074.49	8.83	1.75	8.66	78.54
	NORMAL	5,287.0	91.73	182.02	4,513.8	-1,106.94	19.90	1,106.47	5.25	1.16	5.13	77.26
	NORMAL	5,319.0	92.47	182.69	4,512.6	-1,138.89	18.59	1,138.44	3.12	2.31	2.09	42.13
	NORMAL	5,350.0	93.15	183.06	4,511.1	-1,169.81	17.04	1,169.39	2.50	2.19	1.19	28.51
	NORMAL	5,387.0	92.90	182.47	4,509.1	-1,206.72	15.26	1,206.31	1.73	-0.68	-1.59	-112.98
	NORMAL	5,418.0	92.35	182.51	4,507.7	-1,237.66	13.91	1,237.27	1.78	-1.77	0.13	175.84
	NORMAL	5,450.0	92.53	182.59	4,506.4	-1,269.60	12.49	1,269.23	0.62	0.56	0.25	23.94
	NORMAL	5,482.0	92.84	183.24	4,504.9	-1,301.52	10.86	1,301.17	2.25	0.97	2.03	64.46
	NORMAL	5,514.0	92.84	183.60	4,503.3	-1,333.42	8.96	1,333.10	1.12	0.00	1.13	89.99
	NORMAL	5,545.0	92.97	183.53	4,501.7	-1,364.32	7.03	1,364.03	0.48	0.42	-0.23	-28.27

2.2.2 Survey Stations (Continued)

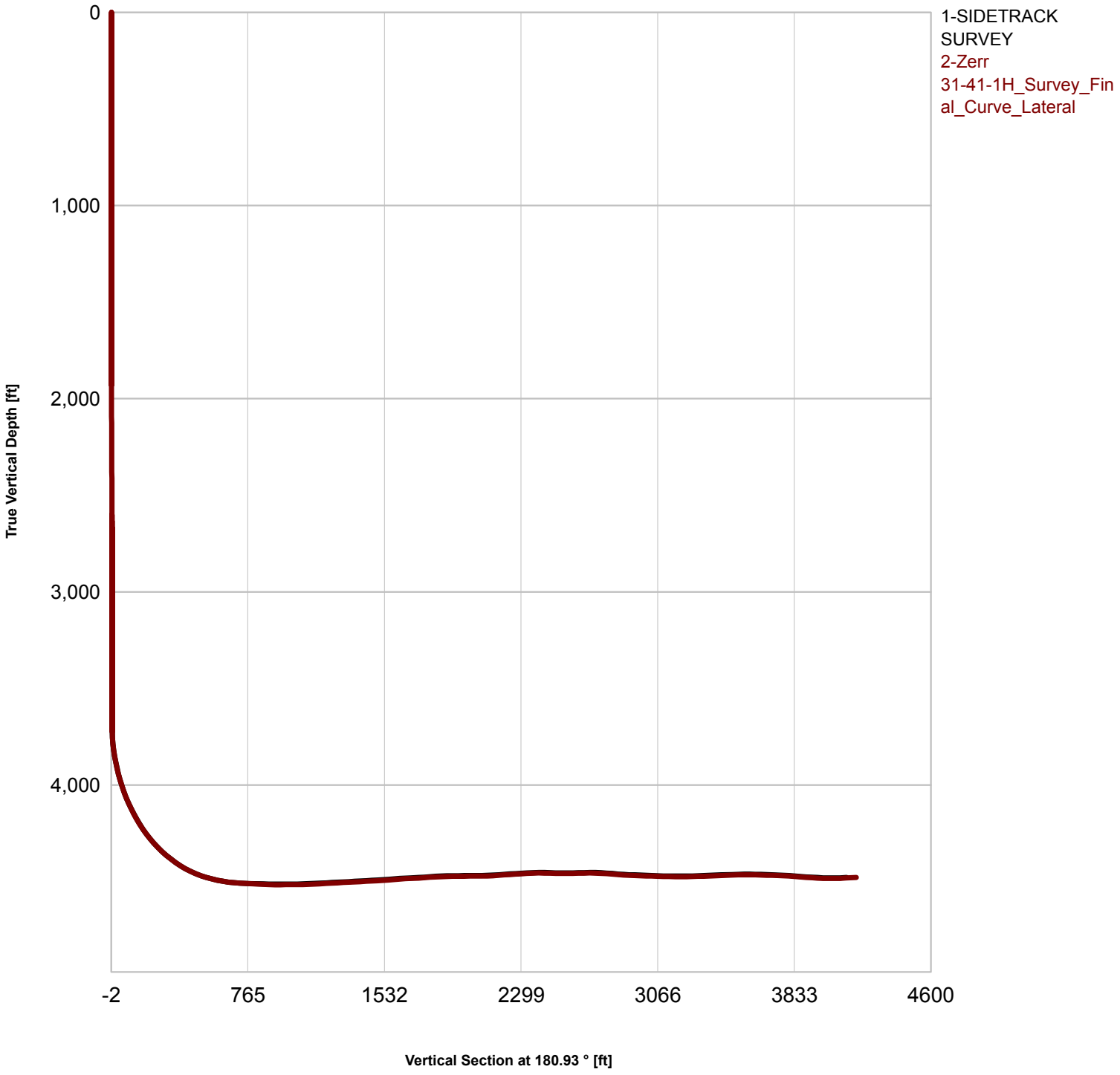
Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec. (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	Tface (°)
10/9/2012	NORMAL	5,577.0	93.09	183.53	4,500.0	-1,396.22	5.06	1,395.95	0.38	0.38	0.00	0.00
	NORMAL	5,609.0	94.14	183.67	4,498.0	-1,428.09	3.06	1,427.85	3.31	3.28	0.44	7.58
	NORMAL	5,641.0	91.92	183.36	4,496.3	-1,459.98	1.10	1,459.78	7.00	-6.94	-0.97	-172.05
	NORMAL	5,672.0	91.79	183.19	4,495.3	-1,490.92	-0.67	1,490.73	0.69	-0.42	-0.55	-127.42
	NORMAL	5,736.0	94.88	184.46	4,491.6	-1,554.66	-4.93	1,554.53	5.22	4.83	1.98	22.28
	NORMAL	5,768.0	94.45	184.56	4,489.0	-1,586.45	-7.44	1,586.37	1.38	-1.34	0.31	166.95
	NORMAL	5,799.0	94.21	184.94	4,486.6	-1,617.26	-10.00	1,617.21	1.45	-0.77	1.23	122.34
	NORMAL	5,831.0	92.29	183.83	4,484.8	-1,649.11	-12.44	1,649.10	6.93	-6.00	-3.47	-149.97
	NORMAL	5,863.0	92.22	183.21	4,483.6	-1,681.03	-14.40	1,681.04	1.95	-0.22	-1.94	-96.43
	NORMAL	5,906.0	93.40	182.86	4,481.4	-1,723.91	-16.68	1,723.96	2.86	2.74	-0.81	-16.49
	NORMAL	5,938.0	93.40	182.45	4,479.5	-1,755.82	-18.16	1,755.89	1.28	0.00	-1.28	-89.99
	NORMAL	5,970.0	93.52	181.76	4,477.6	-1,787.74	-19.33	1,787.82	2.18	0.38	-2.16	-80.10
	NORMAL	6,002.0	93.21	180.74	4,475.7	-1,819.68	-20.03	1,819.77	3.33	-0.97	-3.19	-106.90
	NORMAL	6,034.0	92.41	179.97	4,474.2	-1,851.64	-20.23	1,851.72	3.47	-2.50	-2.41	-136.11
	NORMAL	6,065.0	90.87	180.03	4,473.3	-1,882.63	-20.23	1,882.71	4.97	-4.97	0.19	177.77
	NORMAL	6,097.0	90.80	180.18	4,472.8	-1,914.62	-20.28	1,914.70	0.52	-0.22	0.47	115.02
	NORMAL	6,129.0	90.99	180.58	4,472.3	-1,946.62	-20.50	1,946.70	1.38	0.59	1.25	64.59
	NORMAL	6,161.0	90.62	180.71	4,471.9	-1,978.61	-20.86	1,978.69	1.23	-1.16	0.41	160.64
	NORMAL	6,197.0	90.62	180.61	4,471.5	-2,014.61	-21.27	2,014.69	0.28	0.00	-0.28	-90.00
	NORMAL	6,228.0	90.37	180.74	4,471.2	-2,045.61	-21.64	2,045.69	0.91	-0.81	0.42	152.53
	NORMAL	6,260.0	90.06	180.63	4,471.1	-2,077.60	-22.02	2,077.69	1.03	-0.97	-0.34	-160.46
	NORMAL	6,292.0	91.67	181.11	4,470.6	-2,109.59	-22.51	2,109.68	5.25	5.03	1.50	16.60
	NORMAL	6,324.0	93.15	182.44	4,469.3	-2,141.55	-23.50	2,141.65	6.22	4.63	4.16	41.89
	NORMAL	6,355.0	93.71	183.15	4,467.4	-2,172.46	-25.00	2,172.58	2.91	1.81	2.29	51.67
	NORMAL	6,387.0	93.71	182.94	4,465.3	-2,204.34	-26.70	2,204.49	0.65	0.00	-0.66	-89.99
	NORMAL	6,419.0	93.77	183.12	4,463.2	-2,236.23	-28.39	2,236.40	0.59	0.19	0.56	71.52
	NORMAL	6,451.0	93.33	182.45	4,461.3	-2,268.13	-29.94	2,268.32	2.50	-1.38	-2.09	-123.32
	NORMAL	6,482.0	93.46	181.77	4,459.4	-2,299.06	-31.08	2,299.26	2.23	0.42	-2.19	-79.14
	NORMAL	6,514.0	93.09	180.20	4,457.6	-2,331.00	-31.63	2,331.20	5.03	-1.16	-4.91	-103.24
	NORMAL	6,550.0	91.66	179.05	4,456.1	-2,366.97	-31.39	2,367.16	5.10	-3.97	-3.19	-141.19
	NORMAL	6,582.0	90.43	178.46	4,455.5	-2,398.95	-30.70	2,399.13	4.26	-3.84	-1.84	-154.37
	NORMAL	6,614.0	88.70	178.61	4,455.8	-2,430.94	-29.88	2,431.10	5.43	-5.41	0.47	175.05
	NORMAL	6,646.0	88.15	178.98	4,456.6	-2,462.92	-29.21	2,463.07	2.07	-1.72	1.16	146.09
	NORMAL	6,677.0	89.01	179.51	4,457.4	-2,493.91	-28.80	2,494.05	3.26	2.77	1.71	31.64
	NORMAL	6,709.0	89.57	180.02	4,457.8	-2,525.90	-28.67	2,526.04	2.37	1.75	1.59	42.33
	NORMAL	6,741.0	90.18	180.23	4,457.9	-2,557.90	-28.74	2,558.03	2.02	1.91	0.66	19.00
	NORMAL	6,773.0	91.05	180.44	4,457.5	-2,589.90	-28.92	2,590.03	2.80	2.72	0.66	13.57
	NORMAL	6,804.0	91.54	180.65	4,456.8	-2,620.89	-29.22	2,621.02	1.72	1.58	0.68	23.19
	NORMAL	6,836.0	91.48	180.64	4,456.0	-2,652.88	-29.58	2,653.01	0.19	-0.19	-0.03	-170.54
	NORMAL	6,868.0	89.94	180.70	4,455.6	-2,684.87	-29.95	2,685.01	4.82	-4.81	0.19	177.77
	NORMAL	6,900.0	88.83	180.63	4,455.9	-2,716.87	-30.32	2,717.00	3.48	-3.47	-0.22	-176.39
	NORMAL	6,931.0	87.40	180.84	4,457.0	-2,747.85	-30.72	2,747.99	4.66	-4.61	0.68	171.65
	NORMAL	6,963.0	86.42	180.93	4,458.7	-2,779.80	-31.22	2,779.94	3.08	-3.06	0.28	174.76
	NORMAL	6,995.0	85.24	181.46	4,461.0	-2,811.71	-31.88	2,811.85	4.04	-3.69	1.66	155.89
	NORMAL	7,027.0	85.24	182.11	4,463.7	-2,843.58	-32.87	2,843.74	2.02	0.00	2.03	90.03
	NORMAL	7,058.0	86.79	182.44	4,465.8	-2,874.48	-34.10	2,874.65	5.11	5.00	1.06	12.00
	NORMAL	7,090.0	88.40	183.38	4,467.2	-2,906.41	-35.73	2,906.61	5.82	5.03	2.94	30.28
	NORMAL	7,122.0	88.27	182.77	4,468.1	-2,938.35	-37.44	2,938.57	1.95	-0.41	-1.91	-102.04
	NORMAL	7,154.0	87.65	182.57	4,469.2	-2,970.29	-38.93	2,970.53	2.04	-1.94	-0.63	-162.14
	NORMAL	7,185.0	87.71	182.36	4,470.5	-3,001.24	-40.26	3,001.50	0.70	0.19	-0.68	-74.05
	NORMAL	7,217.0	88.33	182.34	4,471.6	-3,033.19	-41.57	3,033.47	1.94	1.94	-0.06	-1.85
	NORMAL	7,249.0	88.27	182.45	4,472.5	-3,065.15	-42.91	3,065.44	0.39	-0.19	0.34	118.62
	NORMAL	7,281.0	89.07	183.00	4,473.3	-3,097.11	-44.43	3,097.42	3.03	2.50	1.72	34.51
	NORMAL	7,312.0	88.70	182.29	4,473.9	-3,128.07	-45.86	3,128.40	2.58	-1.19	-2.29	-117.54
	NORMAL	7,349.0	89.51	181.82	4,474.5	-3,165.04	-47.19	3,165.39	2.53	2.19	-1.27	-30.13
	NORMAL	7,380.0	90.49	181.58	4,474.5	-3,196.02	-48.11	3,196.38	3.25	3.16	-0.77	-13.76
	NORMAL	7,412.0	90.43	181.02	4,474.2	-3,228.01	-48.83	3,228.38	1.76	-0.19	-1.75	-96.11

2.2.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec. (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	Tface (°)
10/9/2012	NORMAL	7,444.0	91.36	180.51	4,473.7	-3,260.01	-49.26	3,260.38	3.31	2.91	-1.59	-28.73
	NORMAL	7,476.0	92.04	180.27	4,472.8	-3,291.99	-49.48	3,292.36	2.25	2.13	-0.75	-19.43
	NORMAL	7,508.0	91.73	179.53	4,471.7	-3,323.97	-49.42	3,324.34	2.51	-0.97	-2.31	-112.73
	NORMAL	7,540.0	92.10	179.96	4,470.6	-3,355.96	-49.28	3,356.31	1.77	1.16	1.34	49.27
	NORMAL	7,572.0	92.16	179.89	4,469.5	-3,387.93	-49.24	3,388.29	0.29	0.19	-0.22	-49.38
	NORMAL	7,604.0	91.73	179.67	4,468.4	-3,419.92	-49.12	3,420.26	1.51	-1.34	-0.69	-152.91
	NORMAL	7,667.0	92.78	179.64	4,465.9	-3,482.86	-48.74	3,483.20	1.67	1.67	-0.05	-1.63
	NORMAL	7,703.0	91.05	179.07	4,464.7	-3,518.84	-48.33	3,519.16	5.06	-4.81	-1.58	-161.76
	NORMAL	7,735.0	89.81	178.46	4,464.4	-3,550.83	-47.64	3,551.14	4.32	-3.88	-1.91	-153.80
	NORMAL	7,767.0	90.06	178.61	4,464.5	-3,582.82	-46.82	3,583.11	0.91	0.78	0.47	30.96
	NORMAL	7,798.0	88.70	178.74	4,464.8	-3,613.81	-46.11	3,614.08	4.41	-4.39	0.42	174.54
	NORMAL	7,830.0	88.33	178.77	4,465.6	-3,645.79	-45.41	3,646.05	1.16	-1.16	0.09	175.37
	NORMAL	7,862.0	88.08	179.06	4,466.6	-3,677.77	-44.81	3,678.01	1.20	-0.78	0.91	130.78
	NORMAL	7,894.0	88.33	178.81	4,467.6	-3,709.75	-44.21	3,709.98	1.10	0.78	-0.78	-44.99
	NORMAL	7,926.0	88.70	179.00	4,468.5	-3,741.73	-43.60	3,741.95	1.30	1.16	0.59	27.18
	NORMAL	7,957.0	87.77	179.04	4,469.4	-3,772.71	-43.07	3,772.92	3.00	-3.00	0.13	177.54
	NORMAL	7,989.0	86.60	179.18	4,471.0	-3,804.67	-42.57	3,804.86	3.68	-3.66	0.44	173.19
	NORMAL	8,021.0	85.67	180.61	4,473.2	-3,836.60	-42.52	3,836.78	5.32	-2.91	4.47	123.14
	NORMAL	8,053.0	85.61	181.91	4,475.6	-3,868.49	-43.22	3,868.69	4.06	-0.19	4.06	92.70
	NORMAL	8,084.0	85.92	183.33	4,477.9	-3,899.38	-44.63	3,899.59	4.68	1.00	4.58	77.71
	NORMAL	8,116.0	86.91	185.55	4,479.9	-3,931.22	-47.10	3,931.46	7.58	3.09	6.94	66.00
	NORMAL	8,148.0	87.22	186.14	4,481.5	-3,963.01	-50.36	3,963.30	2.08	0.97	1.84	62.27
	NORMAL	8,180.0	88.08	185.73	4,482.8	-3,994.81	-53.66	3,995.15	2.98	2.69	-1.28	-25.48
	NORMAL	8,211.0	89.51	185.58	4,483.5	-4,025.65	-56.72	4,026.04	4.64	4.61	-0.48	-5.99
	NORMAL	8,243.0	90.43	184.87	4,483.5	-4,057.52	-59.63	4,057.95	3.63	2.88	-2.22	-37.66
	NORMAL	8,275.0	91.92	184.17	4,482.8	-4,089.41	-62.15	4,089.88	5.14	4.66	-2.19	-25.15
	NORMAL	8,311.0	92.97	183.29	4,481.3	-4,125.30	-64.49	4,125.80	3.80	2.92	-2.44	-39.92
10/11/2012	NORMAL	8,367.0	92.97	183.29	4,478.4	-4,181.13	-67.70	4,181.68	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

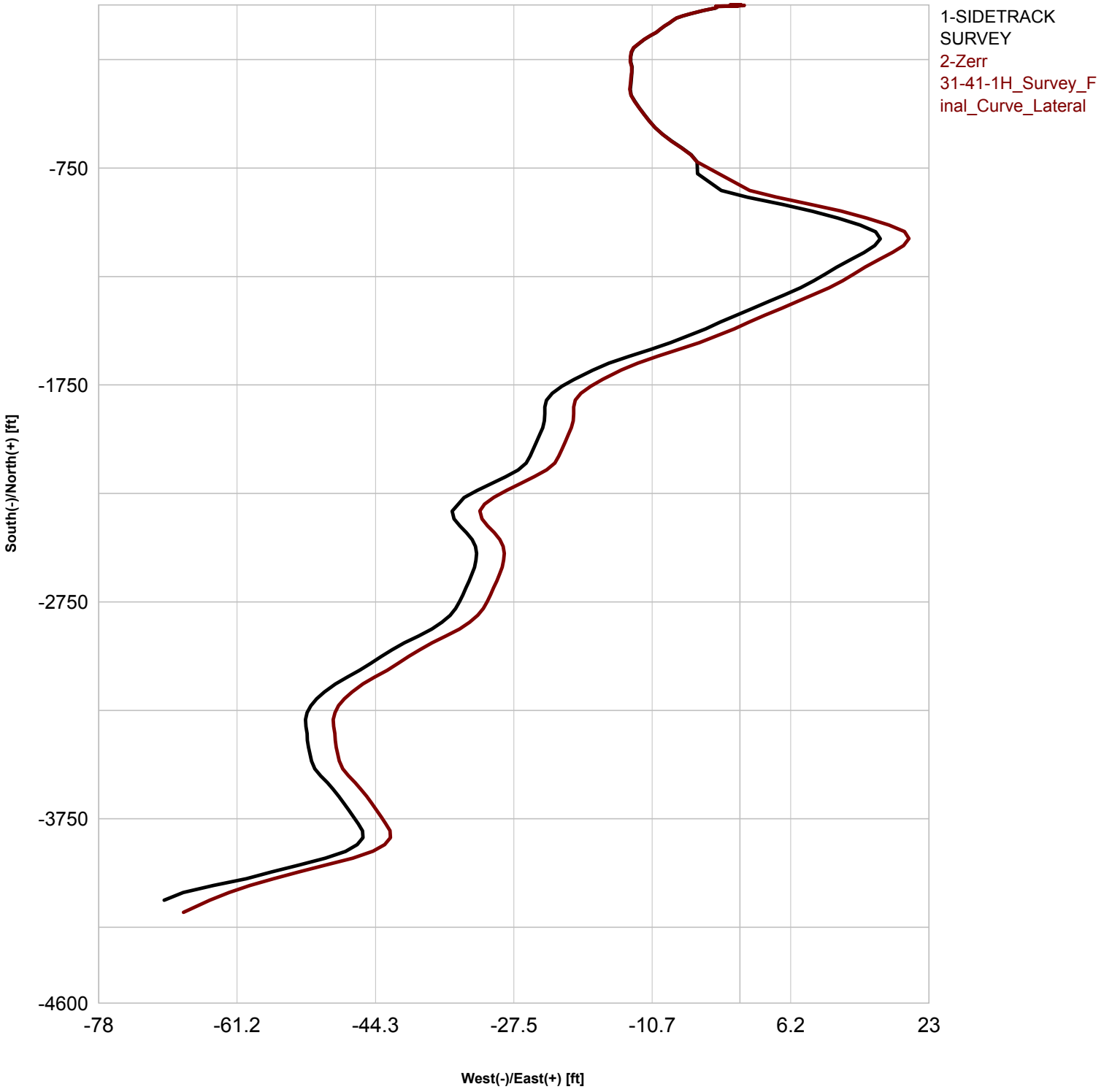
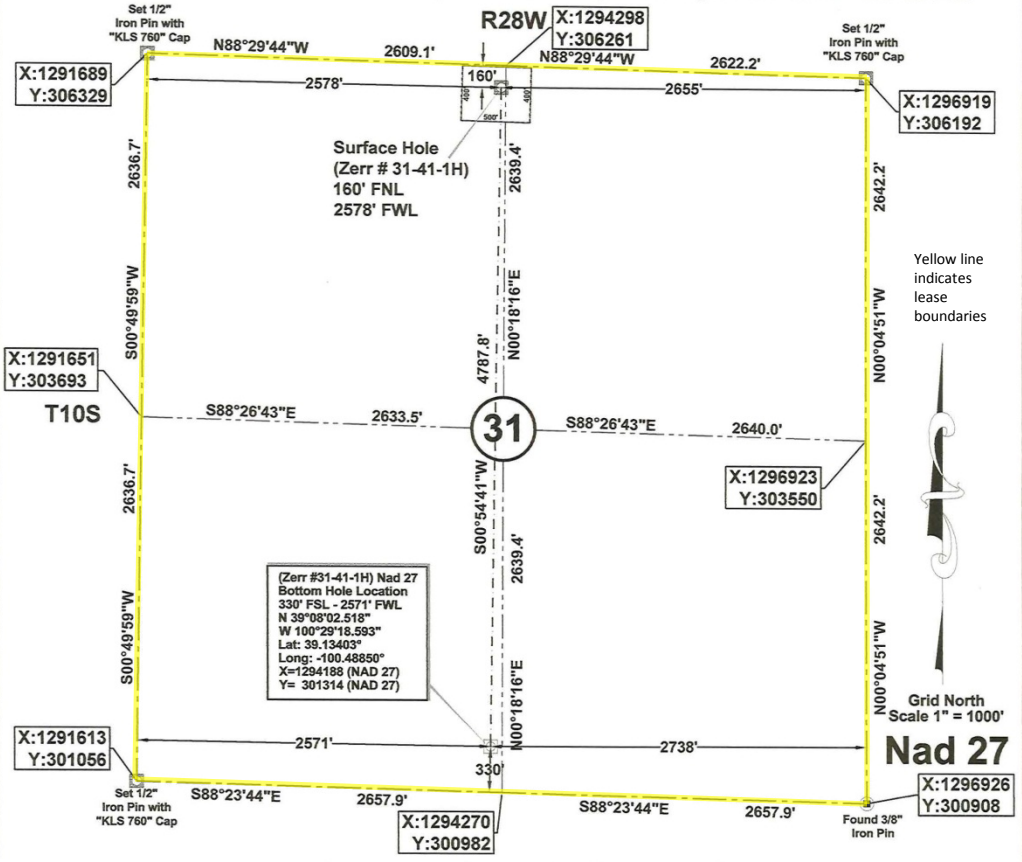

1-SIDETRACK
SURVEY
2-Zerr
31-41-1H_Survey_Final_Curve_Lateral
-750
-1750
-2750
-3750
-4600
South(-)/North(+) [ft]
-78
-61.2
-44.3
-27.5
-10.7
6.2
23
West(-)/East(+) [ft]

Table of Contents

Sheridan County, Kansas.

BHL 330' FSL - 2571' FWL, Section 31, T 10 S, R 28 6th P.M. West



BOTTOM HOLE INFORMATION PROVIDED BY OPERATOR LISTED, NOT SURVEYED.
CORNER COORDINATES ARE TAKEN FROM POINTS SURVEYED IN THE FIELD.

OPERATOR: Apache Corporation **WELL NO.:** 31-41-1H

ELEVATION: 2748' GR. AT STAKE

LEASE NAME: Zerr

TOPOGRAPHY & VEGETATION: Level to sloped grass pasture.

GOOD DRILL SITE: YES

REFERENCE STAKES OR ALTERNATE LOCATION
STAKES SET: NONE

BEST ACCESSIBILITY TO LOCATION: From the south or northwest

DISTANCE & DIRECTION
FROM HWY JCT OR TOWN: Beginning at the intersection 010 Hwy 40 & Hwy 23, north on Hwy 23 0.75 mi. to the, west on Gove road 1.0 mi., north on CR 48 2.0 mi., west on CR FF 0.90 mi. to a two track road, west on two track road 0.10 mi. to a pasture, west along north line of Section 31 0.50 mi. to location.

48 HOURS BEFORE YOU DIG...
CALL KANSAS ONE-CALL
1-800-344-7233
KANSAS ONE-CALL SYSTEM
Buried utilities are not necessarily shown. It is the contractor's responsibility to locate and preserve all utility services.
Contractor is responsible for contacting all utility companies prior to construction.

REVISION:
INVOICE #: 17266

DATE OF DRAWING: June 4, 2012
DATE STAKED: May 31, 2012

STAKED SURFACE HOLE

DATUM:Nad 27
N: 39°08'49.839"
W: 100°29'19.296"
LAT: 39.14718°
LONG: -100.48869°
STATE PLANE
COORDINATES: (US FEET)
ZONE: OK North
X: 1294264
Y: 306102

We do hereby certify that this survey was done in accordance to records, maps and other information as provided to us by the client herein named and that great care was taken in the actual staking of this well and the determination of any obstacles thereupon. However, the accuracy of this survey is not guaranteed and if there appears to be any discrepancy, please notify us immediately.

06-05-12

Survey is valid only if print has original seal and signature of surveyor present

JIVIDENS LAND SURVEY CO., INC.
1210 19TH STREET / P.O. BOX 943
WOODWARD, OKLAHOMA 73802
Phone 580-256-7174 - Fax 580-256-3424
roger@jividenslandsurvey.com mike@jividenslandsurvey.com

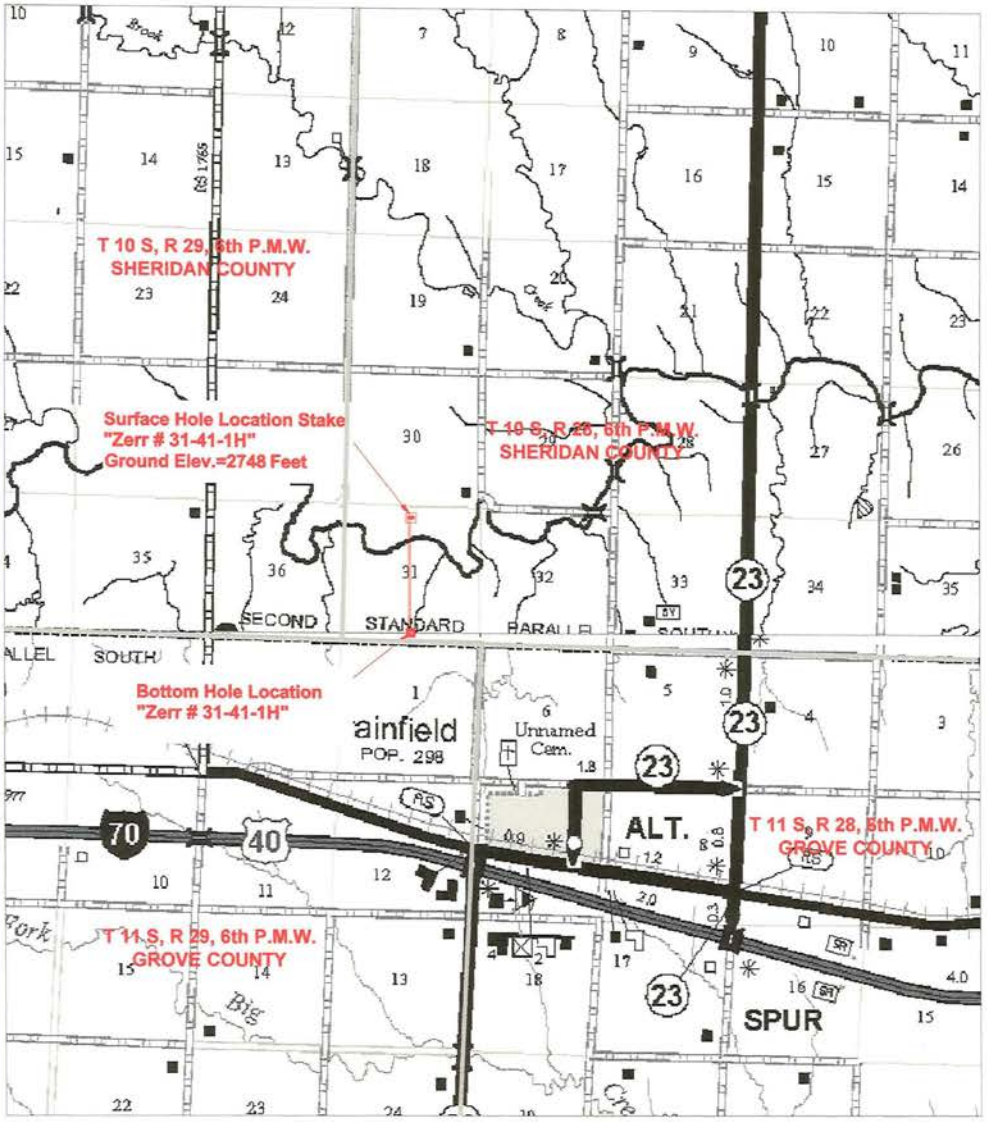
Survey For:
Apache Corporation
2000 Post Oak Blvd., Ste. 100
Houston, Texas 77056

JOB	DATE OF PLAT	SCALE	SHEET
339-12	06-04-2012	1"=1000'	1 OF 4

DRAWN BY R.D.J.

OKLA. CA #2064, EXP. 06/30/2013
KANSAS CA #143, EXP. 12/31/2012

Sheridan County, Kansas.
BHL 330' FSL - 2571' FWL, Section 31, T 10 S, R 28 6th P.M. West



VICINITY MAP

ELEVATION:
2748' GR. AT STAKE

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Grid North
NTS

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OPERATOR: Apache Corporation **WELL NO.:31-41-1H**

LEASE NAME: Zerr

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WOODWARD, OKLAHOMA 73802
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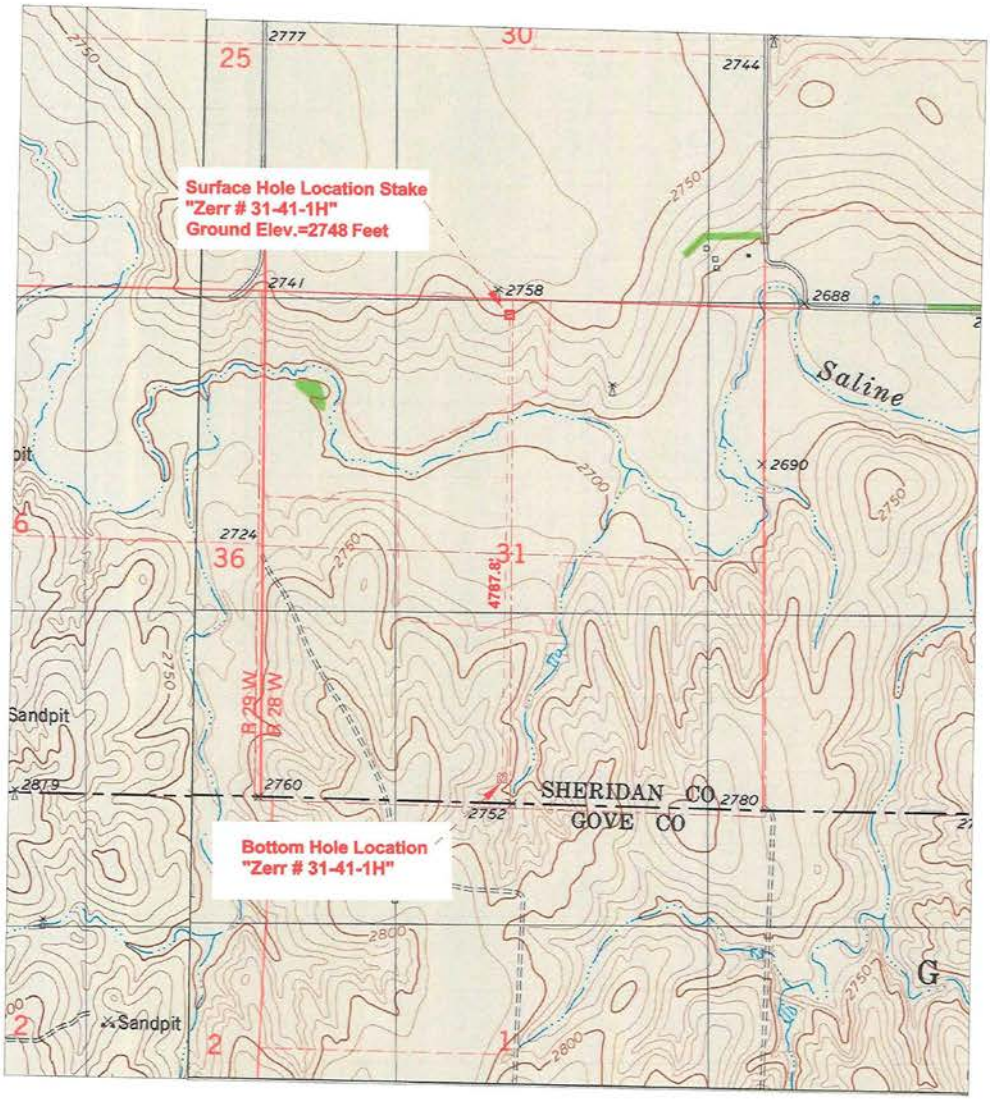
roger@jividenslandsurvey.com mike@jividenslandsurvey.com

Survey For:
Apache Corporation
2000 Post Oak Blvd., Ste. 100
Houston, Texas 77056

JOB	DATE OF PLAT	SCALE	SHEET
339-12	06-04-2012	NTS	2 OF 4

DRAWN BY	
R.D.J.	OKLA. CA #2064, EXP. 06/30/2013 KANSAS CA #143, EXP. 12/31/2012

Sheridan County, Kansas.
BHL 330' FSL - 2571' FWL, Section 31, T 10 S, R 28 6th P.M. West



ELEVATION MAP

ELEVATION:
2748' GR. AT STAKE

48 HOURS BEFORE YOU DIG...
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1-800-344-7233
KANSAS ONE-CALL SYSTEM
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Grid North
NTS

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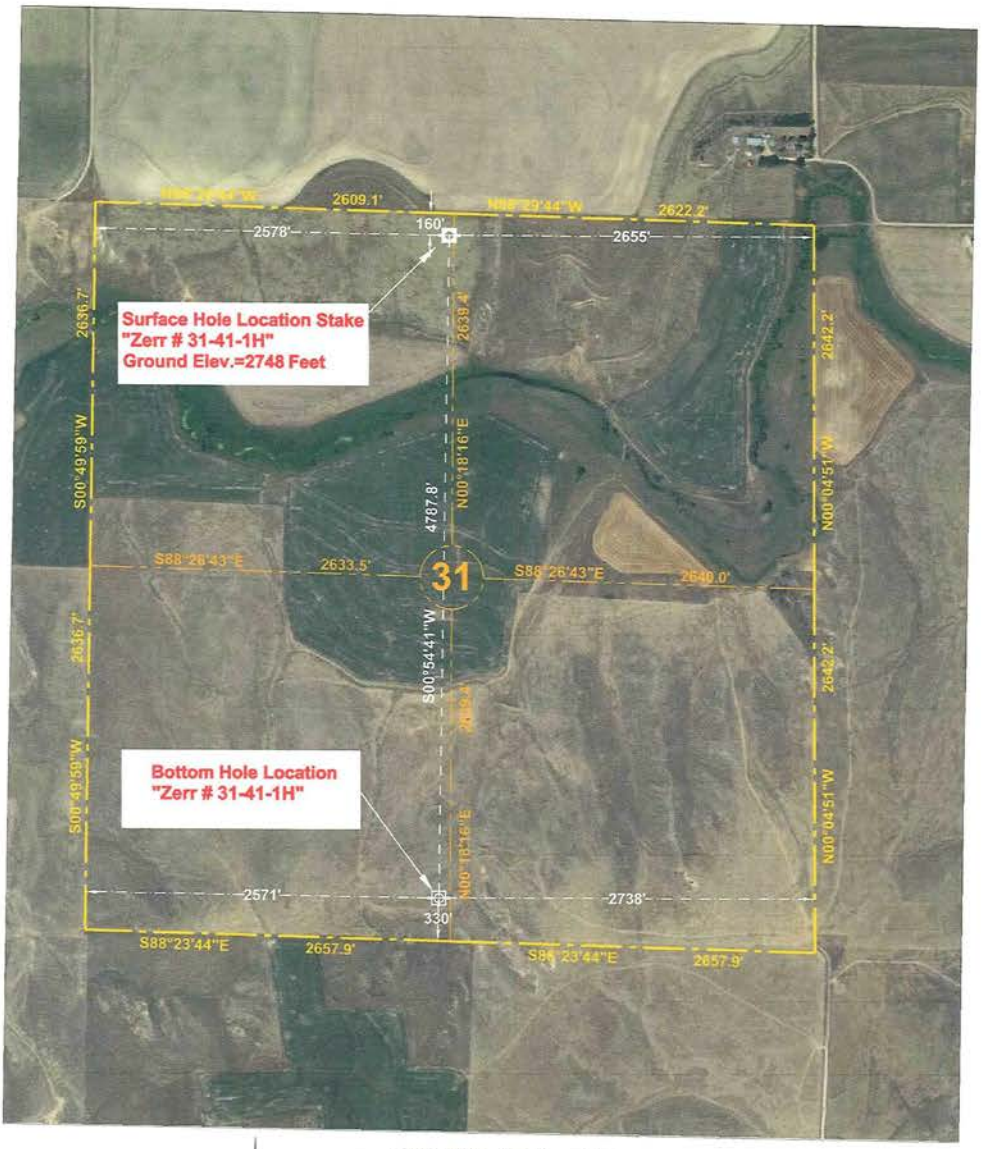
Survey For:
Apache Corporation
2000 Post Oak Blvd., Ste. 100
Houston, Texas 77056

JOB	DATE OF PLAT	SCALE	SHEET
339-12	06-04-2012	NTS	3 OF 4

DRAWN BY R.D.J.

OKLA. CA #2064, EXP. 06/30/2013
KANSAS CA #143, EXP. 12/31/2012

Sheridan County, Kansas.
BHL 330' FSL - 2571' FWL, Section 31, T 10 S, R 28 6th P.M. West



2010 Photo

ELEVATION:
2748' GR. AT STAKE

48 HOURS BEFORE YOU DIG...
CALL KANSAS ONE-CALL
1-800-344-7233

KANSAS ONE-CALL SYSTEM

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CORNER COORDINATES ARE TAKEN FROM POINTS SURVEYED IN THE FIELD.

OPERATOR: Apache Corporation **WELL NO.:31-41-1H**

LEASE NAME: Zerr

Grid North
Scale 1" = 1000'

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WOODWARD, OKLAHOMA 73802
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Survey For:
Apache Corporation
2000 Post Oak Blvd., Ste. 100
Houston, Texas 77056

JOB	DATE OF PLAT	SCALE	SHEET
339-12	06-04-2012	1"=1000'	4 OF 4

DRAWN BY R.D.J.

OKLA. CA #2064, EXP. 06/30/2013
KANSAS CA #143, EXP. 12/31/2012

HALLIBURTON

Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 300496	**Ship To #:** 2939179	**Quote #:**	**Sales Order #:** 9745119
Customer: APACHE CORP		**Customer Rep:** Johnston, Dwayne	
Well Name: Zerr	**Well #:** 31-41-1H		**API/UWI #:** 15-179-2130701
Field:	**City (SAP):** HOXIE	**County/Parish:** Sheridan	**State:** Kansas
Legal Description: Section 31 Township 10S Range 28W			
Contractor: Heraclas	**Rig/Platform Name/Num:**		
Job Purpose: Cement Surface Casing			
Well Type: Development Well	**Job Type:** Cement Surface Casing		
Sales Person: MEREDITH, JERRY	**Srvc Supervisor:** RODRIGUEZ, EDGAR	**MBU ID Emp #:** 442125	

Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
AGUILERA, FABIAN J	9	442123	ATCHISON, DON	9	.	JOURNAGEN, MICHAEL	3	524224
NORTON, BRUCE	9	499926	RODRIGUEZ, EDGAR Alejandro	9	442125	SALAZAR, JERRY Edward	9	270722

Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way

Job Hours

Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours
8/18/2012	9	4						
TOTAL			*Total is the sum of each column separately*					

Job

Formation Name					
Formation Depth (MD)	**Top**		**Bottom**		
Form Type		**BHST**	82 degF		
Job depth MD	1536.5 ft	**Job Depth TVD**	15440. ft		
Water Depth		**Wk Ht Above Floor**	5. ft		
Perforation Depth (MD)	**From**		**To**		

Job Times

	Date	Time	Time Zone
Called Out	18 - Aug - 2012	06:00	CST
On Location	18 - Aug - 2012	11:05	CST
Job Started	18 - Aug - 2012	13:25	CST
Job Completed	18 - Aug - 2012	20:41	CST
Departed Loc	18 - Aug - 2012	22:00	CST

Well Data

Description	New / Used	Max pressure psig	Size in	ID in	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
Surface Open Hole				12.25				30.	1500.		
Conductor	Unknown		20.	19.166	90.		K-55	.	30.		
Surface Casing	Unknown		9.625	8.835	40.	8 RD (LT&C)	J-55	.	1500.		

Sales/Rental/3rd Party (HES)

Description	Qty	Qty uom	Depth	Supplier
SHOE,GID,9-5/8 8RD	1	EA		
CENTRALIZER-9-5/8"-CSG-12 1/4"-HINGED	13	EA		
COLLAR-STOP-9 5/8"-FRICTION-HINGED	3	EA		
KIT,HALL WELD-A	2	EA		
BASKET - CEMENT - 9-5/8 CSG X 12-1/4	1	EA		
CLR,FLT,9-5/8 LG 8RD 36-40PPF,2-3/4NR	1	EA		
PLUG-CMTG-TOP-9-5/8 IN. NR TYPE 24TH	1	EA		
PLUG-CMTG-BOT-9-5/8 IN. NR TYPE 24TH	1	EA		
SUGAR - GRANULATED	100	LB		

Tools and Accessories

Type	Size	Qty	Make	Depth	Type	Size	Qty	Make	Depth	Type	Size	Qty	Make
Guide Shoe	9 5/8	1	HES		**Packer**					**Top Plug**	9 5/8	1	HES

HALLIBURTON

Cementing Job Summary

Float Shoe					**Bridge Plug**					**Bottom Plug**	9 5/8	1	HES
Float Collar	9 5/8	1	HES		**Retainer**					**SSR plug set**			
Insert Float										**Plug Container**			
Stage Tool										**Centralizers**	9 5/8	13	HES

Miscellaneous Materials

Gelling Agt		**Conc**		**Surfactant**		**Conc**		**Acid Type**		**Qty**		**Conc**	**%**
Treatment Fld		**Conc**		**Inhibitor**		**Conc**		**Sand Type**		**Size**		**Qty**	

Fluid Data

Stage/Plug #: 1

Fluid #	Stage Type	Fluid Name	Qty	Qty uom	Mixing Density lbm/gal	Yield ft3/sk	Mix Fluid Gal/sk	Rate bbl/min	Total Mix Fluid Gal/sk
1	**Water Spacer**		**50.00**	**bbl**	**8.33**	**.0**	**.0**	**.0**	
2	**Lead Cement**	**HALLIBURTON LIGHT STANDARD - SBM (12313)**	**305.0**	**sacks**	**12.5**	**2.02**	**11.03**		**11.03**
1 %		CALCIUM CHLORIDE, PELLET, 50 LB (101509387)							
0.125 lbm		POLY-E-FLAKE (101216940)							
11.031 Gal		FRESH WATER							
3	**Tail Cement**	**CMT - STANDARD CEMENT (100003684)**	**135.0**	**sacks**	**15.6**	**1.19**	**5.22**		**5.22**
94 lbm		CMT - STANDARD - CLASS A REG OR TYPE I, BULK (100003684)							
1 %		CALCIUM CHLORIDE, PELLET, 50 LB (101509387)							
0.125 lbm		POLY-E-FLAKE (101216940)							
5.221 Gal		FRESH WATER							
4	**Displacement (TBC)**		**110.00**	**bbl**	**.**	**.0**	**.0**	**.0**	
5	**200 SK of neat class "A"**	**CMT - STANDARD CEMENT (100003684)**	**200.0**	**sacks**	**15.6**	**1.18**	**5.23**		**5.23**
94 lbm		CMT - STANDARD - CLASS A REG OR TYPE I, BULK (100003684)							
5.225 Gal		FRESH WATER							

Calculated Values		Pressures		Volumes					
Displacement	108	**Shut In: Instant**		**Lost Returns**		**Cement Slurry**	181	**Pad**	
Top Of Cement	SURFACE	**5 Min**		**Cement Returns**	0	**Actual Displacement**	108	**Treatment**	
Frac Gradient		**15 Min**		**Spacers**	50	**Load and Breakdown**		**Total Job**	**344**

Rates

Circulating	**5**		**Mixing**	5		**Displacement**	5		**Avg. Job**	5			
Cement Left In Pipe	**Amount**	39.50 ft	**Reason**	Shoe Joint									
Frac Ring # 1 @		**ID**		**Frac ring # 2 @**		**ID**		**Frac Ring # 3 @**		**ID**		**Frac Ring # 4 @**		**ID**	

The Information Stated Herein Is Correct	Customer Representative Signature

HALLIBURTON

Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 300496	**Ship To #:** 2939179	**Quote #:**	**Sales Order #:** 9745172
Customer: APACHE CORP		**Customer Rep:** Johnston, Dwayne	
Well Name: Zerr	**Well #:** 31-41-1H		**API/UWI #:** 15-179-2130701
Field:	**City (SAP):** HOXIE	**County/Parish:** Sheridan	**State:** Kansas
Legal Description: Section 31 Township 10S Range 28W			
Contractor: Heraclas	**Rig/Platform Name/Num:**		
Job Purpose: Cement Intermediate Casing			
Well Type: Development Well	**Job Type:** Cement Intermediate Casing		
Sales Person: MEREDITH, JERRY	**Srvc Supervisor:** LEE, SEITH	**MBU ID Emp #:** 483600	

Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
ATCHISON, DONALD Edward	25	106258	BERUMEN, EDUARDO	25	267804	COFFMAN, TYLER Richard	25	511173
JOHNSON, MARK D	25	514724	LEE, SEITH Adam	25.0	483600	SALAZAR, JERRY Edward	25	270722

Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way

Job Hours

Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours
9/13/2012	11	0	9/14/2012	14	2			
TOTAL			*Total is the sum of each column separately*					

Job

Formation Name					
Formation Depth (MD)	**Top**		**Bottom**		
Form Type		**BHST**		125 degF	
Job depth MD	5200. ft	**Job Depth TVD**		5200. ft	
Water Depth		**Wk Ht Above Floor**		6	
Perforation Depth (MD)	**From**		**To**		

Job Times

	Date	Time	Time Zone
Called Out	13 - Sep - 2012	04:00	CST
On Location	13 - Sep - 2012	13:00	CST
Job Started	14 - Sep - 2012	10:19	CST
Job Completed	14 - Sep - 2012	12:07	CST
Departed Loc	14 - Sep - 2012	14:20	CST

Well Data

Description	New / Used	Max pressure psig	Size in	ID in	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
Intermediate Open Hole				8.75				1500.	4900.	1500.	4500.
Intermediate Casing	Unknown		7.	6.276	26.	BUTTRESS	HCP110	.	4900.	.	4500.
Surface Casing	Unknown		9.625	8.835	40.	8 RD (LT&C)	J-55	.	1500.		

Sales/Rental/3rd Party (HES)

Description	Qty	Qty uom	Depth	Supplier
SHOE,FLT,7 BUTRS,P/Q,4-1/4 SSII	2	EA		
CTRZR ASSY,API,7 CSG X 8 3/4HOLE,HNGD	10	EA		
KIT,HALL WELD-A	4	EA		
CLR,FLT,7 BUTRS 23-38PPF,P/Q,4-1/4NR	2	EA		
PLUG,CMTG,BOT,7 IN 17-32#,5.870 NR 24TH	2	EA		
PLUG,CMTG,TOP,7 IN 17-32#,5.870 NR 24TH	2	EA		
CENTRALIZER-STRAIGHT-7"-SLIP ON	7	EA		
CLAMP - LIMIT - 7 - HINGED -	2	EA		

Tools and Accessories

Type	Size	Qty	Make	Depth	Type	Size	Qty	Make	Depth	Type	Size	Qty	Make
Guide Shoe					**Packer**					**Top Plug**			
Float Shoe					**Bridge Plug**					**Bottom Plug**			

HALLIBURTON

Cementing Job Summary

Float Collar					**Retainer**					**SSR plug set**				
Insert Float										**Plug Container**				
Stage Tool										**Centralizers**				

Miscellaneous Materials

Gelling Agt		**Conc**		**Surfactant**		**Conc**		**Acid Type**		**Qty**		**Conc**	**%**
Treatment Fld		**Conc**		**Inhibitor**		**Conc**		**Sand Type**		**Size**		**Qty**	

Fluid Data

Stage/Plug #: 1

Fluid #	Stage Type	Fluid Name	Qty	Qty uom	Mixing Density lbm/gal	Yield ft3/sk	Mix Fluid Gal/sk	Rate bbl/min	Total Mix Fluid Gal/sk
1	**Water Spacer**		**50.00**	**bbl**	**8.33**	**.0**	**.0**	**5**	
2	**Lead Cement**	**HALLIBURTON LIGHT STANDARD - SBM (12313)**	**350.0**	**sacks**	**12.5**	**2.01**	**10.96**	**5**	**10.96**
0.3 %		HALAD(R)-23, 50 LB (101209204)							
0.125 lbm		POLY-E-FLAKE (101216940)							
10.956 Gal		FRESH WATER							
3	**Tail Cement**	**CMT - PREMIUM CEMENT (100003687)**	**165.0**	**sacks**	**15.8**	**1.15**	**4.99**	**4**	**4.99**
94 lbm		CMT - PREMIUM - CLASS H REG OR TYPE V, BULK (100003687)							
4.989 Gal		FRESH WATER							
4	**Displacement (TBC)**		**188.00**	**bbl**	**.**			**7**	

Calculated Values		Pressures		Volumes					
Displacement	188	**Shut In: Instant**		**Lost Returns**	0	**Cement Slurry**	260	**Pad**	
Top Of Cement	0	**5 Min**		**Cement Returns**	0	**Actual Displacement**	188	**Treatment**	
Frac Gradient		**15 Min**		**Spacers**	50	**Load and Breakdown**		**Total Job**	

Rates

Circulating	**4**	**Mixing**	4	**Displacement**	4	**Avg. Job**	4

Cement Left In Pipe	**Amount**	47 ft	**Reason**	Shoe Joint											
Frac Ring # 1 @		**ID**		**Frac ring # 2 @**		**ID**		**Frac Ring # 3 @**		**ID**		**Frac Ring # 4 @**		**ID**	

The Information Stated Herein Is Correct	Customer Representative Signature

HALLIBURTON

Cementing Job Summary

The Road to Excellence Starts with Safety

Sold To #: 300496	**Ship To #:** 2939179	**Quote #:**	**Sales Order #:** 9863649
Customer: APACHE CORP		**Customer Rep:** Johnston, Dwayne	
Well Name: Zerr	**Well #:** 31-41-1H		**API/UWI #:** 15-179-2130701
Field:	**City (SAP):** HOXIE	**County/Parish:** Sheridan	**State:** Kansas
Legal Description: Section 31 Township 10S Range 28W			
Contractor: Heraclas	**Rig/Platform Name/Num:**		
Job Purpose: Cement Production Liner			
Well Type: Development Well	**Job Type:** Cement Production Liner		
Sales Person: MEREDITH, JERRY	**Srvc Supervisor:** LEE, SEITH	**MBU ID Emp #:** 483600	

Job Personnel

HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #	HES Emp Name	Exp Hrs	Emp #
BRINKMAN, BENNETT Wade	20	414024	COFFMAN, TYLER Richard	20	511173	HAGEE, MILES Killion	20	427231
JOHNSON, MATTHEW Warren	20	525955	LEE, SEITH Adam	20	483600	MENDOZA, VICTOR	20	442596

Equipment

HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way	HES Unit #	Distance-1 way

Job Hours

Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours	Date	On Location Hours	Operating Hours
2012 0CT 4	6	0	2012 OCT 5	14	2.5			
TOTAL			*Total is the sum of each column separately*					

Job

Formation Name					
Formation Depth (MD)	**Top**		**Bottom**		
Form Type		**BHST**		130 degF	
Job depth MD	8357. ft	**Job Depth TVD**			
Water Depth		**Wk Ht Above Floor**		6	
Perforation Depth (MD)	**From**		**To**		

Job Times

	Date	Time	Time Zone
Called Out	04 - Oct - 2012	10:00	CST
On Location	04 - Oct - 2012	18:00	CST
Job Started	05 - Oct - 2012	09:05	CST
Job Completed	05 - Oct - 2012	02:00	CST
Departed Loc	05 - Oct - 2012	14:00	CST

Well Data

Description	New / Used	Max pressure psig	Size in	ID in	Weight lbm/ft	Thread	Grade	Top MD ft	Bottom MD ft	Top TVD ft	Bottom TVD ft
Liner Open Hole				6.75				4954.	8357.	4500.	4516.
Intermediate Casing	Unknown		7.	6.276	26.	BUTTRESS	HCP110	.	4954.	.	4500.
Production Liner	Unknown		4.5	3.92	13.5	HYDRIL - SERIES 500 TYPE 521	P-110	4025.	8357.	4025.	4516.
Drill Pipe	Unknown		4.	3.34	16.14	XT-39	S-135	.	4025.		

Sales/Rental/3rd Party (HES)

Description	Qty	Qty uom	Depth	Supplier
CNTRLZR SLIDER II 4-1/2X6/18,#0412-0618S	120	EA		
SOLID STOP COLLAR 4-1/2", #0412-00SO	240	EA		
SUGAR - GRANULATED	40	LB		

Tools and Accessories

Type	Size	Qty	Make	Depth	Type	Size	Qty	Make	Depth	Type	Size	Qty	Make
Guide Shoe					**Packer**					**Top Plug**			
Float Shoe				7721	**Bridge Plug**					**Bottom Plug**			
Float Collar				7669	**Retainer**					**SSR plug set**			
Insert Float										**Plug Container**			
Stage Tool				3384						**Centralizers**			

Miscellaneous Materials

Gelling Agt		**Conc**		**Surfactant**		**Conc**		**Acid Type**		**Qty**		**Conc**	%

HALLIBURTON

Cementing Job Summary

Treatment Fld		Conc		Inhibitor		Conc		Sand Type		Size		Qty	

Fluid Data

Stage/Plug #: 1

Fluid #	Stage Type	Fluid Name	Qty	Qty uom	Mixing Density lbm/gal	Yield ft3/sk	Mix Fluid Gal/sk	Rate bbl/min	Total Mix Fluid Gal/sk
1	DUAL SPACER	DUAL SPACER - SBM (13251)		bbl	9.2	.0	.0	4	
0.1 gal/bbl		DUAL SPACER MIXING AID LXP (100003878)							
38.2 gal/bbl		FRESH WATER							
0.05 gal/bbl		D-AIR 3000L, 5 GAL PAIL (101007444)							
2	Liner Cement	POZ STANDARD 50/50 - SBM (12308)		sacks	13.6	1.52	7.12	5	7.12
2 %		BENTONITE, BULK (100003682)							
0.4 %		HALAD(R)-9, 50 LB (100001617)							
2 lbm		KOL-SEAL, BULK (100064233)							
0.2 %		HR-800, 50 LB SACK (101619742)							
7.121 Gal		FRESH WATER							
3	Water Displacement			bbl	8.33	.0	.0	6	

Calculated Values		Pressures		Volumes					
Displacement	93	Shut In: Instant		Lost Returns	0	Cement Slurry	135	Pad	
Top Of Cement	2459	5 Min		Cement Returns	20	Actual Displacement	93	Treatment	
Frac Gradient		15 Min		Spacers	50	Load and Breakdown		Total Job	

Rates

Circulating	4	Mixing	4	Displacement	6	Avg. Job	5

Cement Left In Pipe	Amount	52 ft	Reason	Shoe Joint

Frac Ring # 1 @		ID		Frac ring # 2 @		ID		Frac Ring # 3 @		ID		Frac Ring # 4 @		ID	

The Information Stated Herein Is Correct	Customer Representative Signature