Oilfield Services, Central U.S. Land

Reservoir Development
PathFinder, a Schlumberger Company
9200 West Reno Avenue
Oklahoma City, Oklahoma 73127 USA
Phone: (405) 789-1515
Fax: (405) 789-1519

PATHFINDER
A Schlumberger Company

September 30, 2015

OXY USA Inc.
5 Greenway Plaza, Suite 110
Houston, TX 77046

Re:

Sec 34, T23S, R29E Eddy NM
N 32.00143 W 104.25394

CLIENT: OXY USA Inc.
WELL: Cypress 34 Federal 10H
FIELD: Cedar Canyon Bone Spring
RIG: *CanElson 46*
COUNTY: Eddy
API NO: 30-0150-43076
JOB NO: 15MLD2501

Enclosed, please find the original copy of the survey performed on the referenced well by PathFinder, a division of Schlumberger Technology Corporation .
Other information required by your office is as follows.

Name & Title of Surveyor	Drainhole Number	Surveyed Depths	Dates Performed	Type of Survey
Riley Swanston FE	Cypress 34 Federal 10H Original Hole	353.00 Ft to 13429.00 Ft	August 10, 2015 to August 27, 2015	Telepacer R

If any other information is required, please contact the undersigned at the above letterhead and phone number.
Sincerely,

Alexander Paharsingh
Field Service Manager

Reservoir Development
PathFinder, a Schlumberger Company
4301 SW 44th St
Oklahoma City, Oklahoma 73119 USA
Phone: (405) 682-2284
Fax: (405) 682-3937

PATHFINDER
A Schlumberger Company

Well Reference:
Sec 34, T23S, R29E Eddy NM
N 32.26789 W 103.97962

I, Riley Swanston certify that; I am employed by PathFinder, a division of Schlumberger Technology Corporation; that I did on the day(s) of August 10, 2015 through August 27, 2015, conduct or supervise the taking of the surveys from a depth of 353.00 feet to a depth of 13429.00 feet referenced to driller's depth; that the data is true, correct, complete and within the limitations of the tool as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I am authorized and qualified to make this report; that this survey was conducted at the request of OXY USA Inc. for the Cypress 34 Federal 10H Well (Original Hole) API No. 30-0150-43076 and that I have reviewed this report and find that it conforms to the principals and procedures as set forth by Drilling & Measurements, a division of Schlumberger Technology Corporation.

On Behalf of

By
Riley Swanston
FE

Subscribed and Sworn to before me this 24th day of September (month) 2015 (yr)

My Commission expires:
September 5, 2016

MICHELLE ELLWOOD
MY COMMISSION EXPIRES
September 5, 2016

Michelle Ellwood (signature)
Notary Public

Midland, TX
(County State)

Schlumberger

Oxy Cypress 34 Federal 10H MWD 0ft-13512ft Survey Geodetic Report

(Def Survey)

Report Date:	August 28, 2015 - 11:25 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	OXY	**Vertical Section Azimuth:**	177.800 ° (Grid North)
Field:	NM Eddy County (NAD 27)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Oxy Cypress 34 Federal 10H / Oxy Cypress 34 Federal 10H	**TVD Reference Datum:**	RKB
Well:	Oxy Cypress 34 Federal 10H	**TVD Reference Elevation:**	3067.300 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3049.800 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	7.375 °
Survey Name:	Oxy Cypress 34 Federal 10H MWD 0ft-13512ft	**Total Gravity Field Strength:**	998.4657mgn (9.80665 Based)
Survey Date:	August 08, 2015	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	244.873 ° / 5248.025 ft / 6.296 / 0.598	**Total Magnetic Field Strength:**	48333.012 nT
Coordinate Reference System:	*NAD27 New Mexico State Plane, Eastern Zone, US Feet*	***Magnetic Dip Angle:***	*60.135 °*
Location Lat / Long:	N 32° 16' 4.41113", W 103° 58' 46.64901"	**Declination Date:**	August 08, 2015
Location Grid N/E Y/X:	N 461357.000 ftUS, E 609328.100 ftUS	**Magnetic Declination Model:**	HDGM 2015
CRS Grid Convergence Angle:	0.1888 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99992278	**Grid Convergence Used:**	0.1888 °
Version / Patch:	*2.8.572.0*	**Total Corr Mag North->Grid North:**	*7.1857 °*
		Local Coord Referenced To:	Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Tie-In	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*N/A*	*461357.00*	*609328.10*	*N 32 16 4.41*	*W 103 58 46.65*
Ground Level	17.50	0.00	0.00	17.50	0.00	0.00	0.00	0.00	461357.00	609328.10	N 32 16 4.41	W 103 58 46.65
	353.00	1.93	292.31	352.94	-2.34	2.14	-5.23	0.58	461359.14	609322.87	N 32 16 4.43	W 103 58 46.71
	477.00	0.79	144.64	476.92	-2.49	2.24	-6.66	2.12	461359.24	609321.44	N 32 16 4.43	W 103 58 46.73
	536.00	0.18	113.03	535.91	-2.11	1.87	-6.34	1.09	461358.87	609321.76	N 32 16 4.43	W 103 58 46.72
	718.00	0.26	119.86	717.91	-1.77	1.56	-5.72	0.05	461358.55	609322.38	N 32 16 4.43	W 103 58 46.72
	785.00	0.09	152.51	784.91	-1.65	1.43	-5.57	0.28	461358.43	609322.53	N 32 16 4.43	W 103 58 46.71
	974.00	0.18	201.56	973.91	-1.24	1.02	-5.61	0.07	461358.02	609322.49	N 32 16 4.42	W 103 58 46.71
	1037.00	0.09	247.55	1036.91	-1.13	0.91	-5.69	0.21	461357.91	609322.41	N 32 16 4.42	W 103 58 46.72
	1100.00	0.09	48.15	1099.91	-1.15	0.93	-5.70	0.28	461357.93	609322.40	N 32 16 4.42	W 103 58 46.72
	1225.00	0.18	150.67	1224.91	-1.03	0.82	-5.53	0.17	461357.82	609322.57	N 32 16 4.42	W 103 58 46.71
	1287.00	0.09	223.00	1286.91	-0.91	0.70	-5.51	0.28	461357.70	609322.59	N 32 16 4.42	W 103 58 46.71
	1413.00	0.18	273.28	1412.91	-0.86	0.64	-5.78	0.11	461357.64	609322.32	N 32 16 4.42	W 103 58 46.72
	1476.00	0.18	203.99	1475.91	-0.78	0.56	-5.92	0.32	461357.56	609322.18	N 32 16 4.42	W 103 58 46.72
	1539.00	0.18	204.69	1538.91	-0.61	0.38	-6.00	0.00	461357.38	609322.10	N 32 16 4.42	W 103 58 46.72
	1601.00	0.18	17.67	1600.91	-0.61	0.38	-6.01	0.58	461357.38	609322.09	N 32 16 4.42	W 103 58 46.72
	1727.00	0.09	113.63	1726.91	-0.75	0.53	-5.86	0.17	461357.53	609322.24	N 32 16 4.42	W 103 58 46.72
	1915.00	0.09	83.66	1914.91	-0.70	0.49	-5.58	0.02	461357.49	609322.52	N 32 16 4.42	W 103 58 46.71
	2103.00	0.09	19.88	2102.91	-0.85	0.64	-5.38	0.05	461357.64	609322.72	N 32 16 4.42	W 103 58 46.71
	2292.00	0.18	177.48	2291.91	-0.69	0.48	-5.32	0.14	461357.48	609322.78	N 32 16 4.42	W 103 58 46.71
	2418.00	0.26	99.48	2417.91	-0.43	0.24	-5.03	0.23	461357.24	609323.07	N 32 16 4.41	W 103 58 46.71
	2607.00	0.18	87.06	2606.91	-0.35	0.18	-4.31	0.05	461357.18	609323.79	N 32 16 4.41	W 103 58 46.70
	2794.00	1.58	205.46	2793.89	1.93	-2.13	-5.12	0.89	461354.87	609322.98	N 32 16 4.39	W 103 58 46.71
	2963.00	0.18	8.71	2962.87	3.73	-3.97	-6.08	1.04	461353.03	609322.02	N 32 16 4.37	W 103 58 46.72
	3106.00	0.09	184.49	3105.87	3.62	-3.86	-6.06	0.19	461353.14	609322.04	N 32 16 4.37	W 103 58 46.72
	3294.00	0.09	266.49	3293.87	3.77	-4.02	-6.22	0.06	461352.98	609321.88	N 32 16 4.37	W 103 58 46.72
	3483.00	0.09	172.88	3482.87	3.93	-4.17	-6.35	0.07	461352.83	609321.75	N 32 16 4.37	W 103 58 46.72
	3547.00	0.00	172.88	3546.87	3.98	-4.22	-6.34	0.14	461352.78	609321.76	N 32 16 4.37	W 103 58 46.72
	3736.00	0.09	190.79	3735.87	4.12	-4.37	-6.37	0.05	461352.63	609321.73	N 32 16 4.37	W 103 58 46.72
	3924.00	*0.09*	*178.57*	*3923.87*	*4.41*	*-4.66*	*-6.39*	*0.01*	*461352.34*	*609321.71*	*N 32 16 4.37*	*W 103 58 46.72*
	4112.00	0.09	110.23	4111.87	4.62	-4.86	-6.25	0.05	461352.14	609321.85	N 32 16 4.36	W 103 58 46.72
	4299.00	0.09	260.87	4298.87	4.69	-4.93	-6.26	0.09	461352.07	609321.84	N 32 16 4.36	W 103 58 46.72
	4424.00	0.09	275.54	4423.86	4.69	-4.94	-6.45	0.02	461352.06	609321.65	N 32 16 4.36	W 103 58 46.72
	4612.00	0.09	170.79	4611.86	4.82	-5.07	-6.58	0.08	461351.93	609321.52	N 32 16 4.36	W 103 58 46.73
	4801.00	0.00	170.79	4800.86	4.96	-5.22	-6.55	0.05	461351.78	609321.55	N 32 16 4.36	W 103 58 46.73
	4988.00	0.09	72.74	4987.86	4.92	-5.17	-6.41	0.05	461351.83	609321.69	N 32 16 4.36	W 103 58 46.72
	5176.00	0.09	37.83	5175.86	4.77	-5.01	-6.18	0.03	461351.99	609321.92	N 32 16 4.36	W 103 58 46.72
	5364.00	0.09	233.34	5363.86	4.74	-4.99	-6.21	0.09	461352.01	609321.89	N 32 16 4.36	W 103 58 46.72
	5551.00	0.09	202.94	5550.86	4.96	-5.21	-6.38	0.03	461351.79	609321.72	N 32 16 4.36	W 103 58 46.72
	5739.00	0.09	161.41	5738.86	5.23	-5.48	-6.39	0.03	461351.52	609321.71	N 32 16 4.36	W 103 58 46.72
	5926.00	0.09	142.37	5925.86	5.50	-5.74	-6.26	0.02	461351.26	609321.84	N 32 16 4.35	W 103 58 46.72
	6052.00	0.09	238.85	6051.86	5.62	-5.87	-6.28	0.11	461351.13	609321.82	N 32 16 4.35	W 103 58 46.72
	6240.00	0.09	98.70	6239.86	5.72	-5.97	-6.26	0.09	461351.03	609321.84	N 32 16 4.35	W 103 58 46.72
	6427.00	0.09	163.98	6426.86	5.89	-6.13	-6.08	0.05	461350.87	609322.02	N 32 16 4.35	W 103 58 46.72
	6491.00	4.66	194.06	6490.79	8.44	-8.70	-6.69	7.16	461348.30	609321.41	N 32 16 4.33	W 103 58 46.73
	6616.00	9.23	177.93	6614.85	23.35	-23.66	-7.57	3.94	461333.35	609320.53	N 32 16 4.18	W 103 58 46.74
	6648.00	7.56	159.65	6646.51	27.92	-28.20	-6.74	9.77	461328.81	609321.36	N 32 16 4.13	W 103 58 46.73
	6742.00	8.00	102.94	6739.78	35.51	-35.47	1.80	7.85	461321.53	609329.90	N 32 16 4.06	W 103 58 46.63
	6804.00	*8.35*	*85.58*	*6801.16*	*36.46*	*-36.09*	*10.49*	*4.01*	*461320.92*	*609338.59*	*N 32 16 4.05*	*W 103 58 46.53*
	6867.00	8.62	69.54	6863.48	34.81	-34.08	19.48	3.77	461322.92	609347.57	N 32 16 4.07	W 103 58 46.42
	6930.00	7.47	51.35	6925.86	30.89	-29.88	27.10	4.41	461327.13	609355.20	N 32 16 4.11	W 103 58 46.33
	7056.00	7.74	21.55	7050.80	18.26	-16.86	36.62	3.10	461340.14	609364.71	N 32 16 4.24	W 103 58 46.22
	7120.00	7.74	15.32	7114.22	10.20	-8.70	39.34	1.31	461348.30	609367.43	N 32 16 4.32	W 103 58 46.19
	7182.00	10.38	12.82	7175.44	0.82	0.78	41.68	4.30	461357.78	609369.78	N 32 16 4.42	W 103 58 46.16
	7245.00	10.02	358.18	7237.46	-10.14	11.79	42.77	4.14	461368.79	609370.86	N 32 16 4.53	W 103 58 46.15
	7308.00	10.73	355.65	7299.43	-21.48	23.12	42.15	1.34	461380.11	609370.24	N 32 16 4.64	W 103 58 46.16
	7371.00	10.82	358.41	7361.32	-33.26	34.88	41.54	0.83	461391.87	609369.63	N 32 16 4.75	W 103 58 46.16
	7434.00	*10.64*	*3.73*	*7423.22*	*-44.95*	*46.59*	*41.75*	*1.60*	*461403.59*	*609369.85*	*N 32 16 4.87*	*W 103 58 46.16*
	7497.00	9.23	7.76	7485.27	-55.72	57.40	42.81	2.49	461414.40	609370.91	N 32 16 4.98	W 103 58 46.15
	7559.00	8.18	9.56	7546.56	-64.93	66.68	44.22	1.75	461423.67	609372.31	N 32 16 5.07	W 103 58 46.13
	7622.00	6.60	5.39	7609.03	-72.91	74.70	45.30	2.65	461431.70	609373.40	N 32 16 5.15	W 103 58 46.12
	7685.00	4.66	17.36	7671.73	-78.91	80.75	46.41	3.58	461437.74	609374.50	N 32 16 5.21	W 103 58 46.11
	7748.00	4.84	55.54	7734.53	-82.74	84.70	49.36	4.93	461441.69	609377.46	N 32 16 5.25	W 103 58 46.07
	7810.00	5.72	91.60	7796.28	-83.93	86.09	54.61	5.44	461443.09	609382.70	N 32 16 5.26	W 103 58 46.01
	7873.00	9.67	92.00	7858.70	-83.34	85.82	63.04	6.27	461442.81	609391.13	N 32 16 5.26	W 103 58 45.91

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	7935.00	5.45	87.22	7920.15	-82.98	85.78	71.19	6.88	461442.77	609399.28	N 32 16 5.26	W 103 58 45.82
	7997.00	1.06	98.19	7982.03	-82.91	85.84	74.70	7.12	461442.83	609402.79	N 32 16 5.26	W 103 58 45.78
	8095.00	*0.26*	*235.93*	*8080.03*	*-82.63*	*85.59*	*75.41*	*1.29*	*461442.58*	*609403.50*	*N 32 16 5.26*	*W 103 58 45.77*
	8145.00	0.44	254.21	8130.03	-82.53	85.47	75.13	0.42	461442.47	609403.22	N 32 16 5.25	W 103 58 45.77
	8175.00	2.46	193.73	8160.02	-81.88	84.82	74.87	7.59	461441.81	609402.96	N 32 16 5.25	W 103 58 45.77
	8207.00	6.68	185.40	8191.91	-79.37	82.29	74.53	13.32	461439.29	609402.62	N 32 16 5.22	W 103 58 45.78
	8238.00	10.99	181.94	8222.53	-74.64	77.54	74.26	14.00	461434.54	609402.35	N 32 16 5.18	W 103 58 45.78
	8269.00	15.04	181.91	8252.73	-67.67	70.57	74.02	13.06	461427.56	609402.12	N 32 16 5.11	W 103 58 45.78
	8300.00	19.26	183.20	8282.35	-58.57	61.44	73.60	13.67	461418.43	609401.70	N 32 16 5.02	W 103 58 45.79
	8332.00	22.77	185.47	8312.21	-47.17	50.00	72.72	11.26	461407.00	609400.81	N 32 16 4.90	W 103 58 45.80
	8362.00	25.68	187.01	8339.57	-35.00	37.77	71.37	9.93	461394.76	609399.47	N 32 16 4.78	W 103 58 45.82
	8394.00	27.79	186.74	8368.15	-20.79	23.48	69.65	6.60	461380.47	609397.75	N 32 16 4.64	W 103 58 45.84
	8424.00	29.81	186.53	8394.43	-6.50	9.12	67.98	6.74	461366.12	609396.08	N 32 16 4.50	W 103 58 45.86
	8456.00	*30.42*	*184.99*	*8422.11*	*9.40*	*-6.85*	*66.37*	*3.08*	*461350.15*	*609394.47*	*N 32 16 4.34*	*W 103 58 45.88*
	8487.00	31.49	183.45	8448.70	25.24	-22.75	65.20	4.29	461334.25	609393.30	N 32 16 4.18	W 103 58 45.89
	8517.00	33.15	184.44	8474.05	41.19	-38.75	64.10	5.81	461318.25	609392.19	N 32 16 4.03	W 103 58 45.90
	8580.00	36.67	189.79	8525.72	76.72	-74.49	59.56	7.39	461282.52	609387.66	N 32 16 3.67	W 103 58 45.96
	8642.00	44.32	190.17	8572.83	116.04	-114.11	52.58	12.35	461242.90	609380.68	N 32 16 3.28	W 103 58 46.04
	8705.00	50.47	189.08	8615.46	161.41	-159.80	44.86	9.84	461197.21	609372.95	N 32 16 2.83	W 103 58 46.13
	8768.00	56.81	182.53	8652.82	211.59	-210.22	39.85	13.08	461146.80	609367.95	N 32 16 2.33	W 103 58 46.19
	8831.00	62.08	176.41	8684.86	265.77	-264.41	40.43	11.83	461092.61	609368.53	N 32 16 1.79	W 103 58 46.19
	8894.00	66.82	174.76	8710.51	323.21	-321.72	44.88	12.52	461035.30	609372.98	N 32 16 1.23	W 103 58 46.14
	8960.00	76.46	174.76	8729.64	386.25	-384.58	50.65	10.06	460972.45	609378.74	N 32 16 0.60	W 103 58 46.07
	9022.00	77.21	174.68	8743.76	446.53	-444.70	56.20	1.22	460912.34	609384.30	N 32 16 0.01	W 103 58 46.01
	9085.00	80.02	172.59	8756.20	508.12	-506.07	63.05	5.52	460850.97	609391.15	N 32 15 59.40	W 103 58 45.93
	9148.00	83.10	170.80	8765.45	570.07	-567.72	72.06	5.64	460789.32	609400.15	N 32 15 58.79	W 103 58 45.83
	9211.00	86.35	172.01	8771.24	632.40	-629.74	81.43	5.50	460727.31	609409.52	N 32 15 58.18	W 103 58 45.72
	9274.00	89.52	173.08	8773.51	695.09	-692.16	89.60	5.31	460664.90	609417.69	N 32 15 57.56	W 103 58 45.63
	9337.00	91.54	173.79	8772.93	757.90	-754.74	96.80	3.40	460602.32	609424.89	N 32 15 56.94	W 103 58 45.55
	9400.00	91.19	173.51	8771.42	820.72	-817.34	103.76	0.71	460539.73	609431.86	N 32 15 56.32	W 103 58 45.47
	9463.00	91.28	173.35	8770.07	883.52	-879.91	110.97	0.29	460477.16	609439.06	N 32 15 55.70	W 103 58 45.39
	9526.00	91.36	174.11	8768.62	946.34	-942.51	117.85	1.21	460414.56	609445.94	N 32 15 55.08	W 103 58 45.31
	9589.00	91.36	174.91	8767.12	1009.22	-1005.21	123.87	1.27	460351.87	609451.96	N 32 15 54.46	W 103 58 45.24
	9652.00	91.28	174.77	8765.67	1072.12	-1067.93	129.54	0.26	460289.15	609457.63	N 32 15 53.84	W 103 58 45.18
	9714.00	91.63	174.65	8764.09	1134.01	-1129.65	135.25	0.60	460227.44	609463.34	N 32 15 53.23	W 103 58 45.12
	9777.00	92.59	175.47	8761.78	1196.89	-1192.37	140.68	2.00	460164.72	609468.76	N 32 15 52.61	W 103 58 45.06
	9840.00	93.47	176.61	8758.44	1259.77	-1255.13	145.02	2.28	460101.97	609473.11	N 32 15 51.99	W 103 58 45.01
	9903.00	93.21	177.42	8754.77	1322.66	-1317.94	148.30	1.35	460039.17	609476.38	N 32 15 51.36	W 103 58 44.97
	9966.00	92.51	180.09	8751.63	1385.57	-1380.84	149.66	4.38	459976.27	609477.75	N 32 15 50.74	W 103 58 44.96
	10028.00	91.80	181.17	8749.30	1447.45	-1442.79	148.98	2.08	459914.32	609477.07	N 32 15 50.13	W 103 58 44.97
	10154.00	91.01	182.97	8746.21	1573.05	-1568.66	144.43	1.56	459788.46	609472.52	N 32 15 48.88	W 103 58 45.03
	10284.00	89.25	181.10	8745.91	1702.69	-1698.57	139.81	1.98	459658.56	609467.90	N 32 15 47.60	W 103 58 45.09
	10346.00	90.13	181.39	8746.25	1764.57	-1760.56	138.47	1.49	459596.58	609466.56	N 32 15 46.99	W 103 58 45.10
	10471.00	89.08	180.26	8747.11	1889.39	-1885.54	136.67	1.23	459471.61	609464.76	N 32 15 45.75	W 103 58 45.13
	10597.00	88.55	180.01	8749.72	2015.26	-2011.51	136.37	0.47	459345.65	609464.46	N 32 15 44.50	W 103 58 45.14
	10722.00	86.88	180.83	8754.70	2140.02	-2136.40	135.46	1.49	459220.77	609463.55	N 32 15 43.27	W 103 58 45.15
	10848.00	85.30	181.08	8763.29	2265.54	-2262.08	133.36	1.27	459095.09	609461.45	N 32 15 42.02	W 103 58 45.18
	10911.00	85.30	180.31	8768.45	2328.24	-2324.87	132.60	1.22	459032.32	609460.69	N 32 15 41.40	W 103 58 45.19
	11019.00	92.51	178.41	8770.52	2436.11	-2432.76	133.81	6.90	458924.43	609461.90	N 32 15 40.33	W 103 58 45.18
	11143.00	92.51	177.71	8765.09	2559.99	-2556.57	138.00	0.56	458800.63	609466.09	N 32 15 39.11	W 103 58 45.14
	11267.00	93.03	177.87	8759.09	2683.84	-2680.34	142.78	0.44	458676.88	609470.87	N 32 15 37.88	W 103 58 45.09
	11391.00	92.51	178.12	8753.10	2807.70	-2804.12	147.11	0.47	458553.11	609475.20	N 32 15 36.66	W 103 58 45.04
	11517.00	91.54	181.60	8748.65	2933.51	-2930.02	147.42	2.87	458427.22	609475.50	N 32 15 35.41	W 103 58 45.04
	11643.00	91.01	178.04	8745.84	3059.38	-3055.96	147.81	2.86	458301.28	609475.90	N 32 15 34.17	W 103 58 45.05
	11768.00	91.10	177.28	8743.54	3184.36	-3180.84	152.92	0.61	458176.42	609481.00	N 32 15 32.93	W 103 58 44.99
	11893.00	89.87	176.85	8742.48	3309.34	-3305.67	159.32	1.04	458051.60	609487.40	N 32 15 31.70	W 103 58 44.92
	12017.00	89.87	175.73	8742.77	3433.30	-3429.40	167.34	0.90	457927.87	609495.43	N 32 15 30.47	W 103 58 44.83
	12143.00	90.84	175.54	8741.98	3559.21	-3555.03	176.93	0.78	457802.25	609505.01	N 32 15 29.23	W 103 58 44.73
	12268.00	87.67	177.34	8743.61	3684.14	-3679.76	184.69	2.92	457677.53	609512.77	N 32 15 27.99	W 103 58 44.64
	12392.00	86.70	178.36	8749.70	3807.99	-3803.52	189.34	1.13	457553.78	609517.42	N 32 15 26.77	W 103 58 44.59
	12517.00	88.46	178.95	8754.98	3932.85	-3928.37	192.27	1.48	457428.94	609520.35	N 32 15 25.53	W 103 58 44.56
	12641.00	*87.49*	*178.33*	*8759.36*	*4056.76*	*-4052.26*	*195.21*	*0.93*	*457305.07*	*609523.29*	*N 32 15 24.31*	*W 103 58 44.53*
	12766.00	90.04	177.69	8762.05	4181.72	-4177.14	199.55	2.10	457180.19	609527.63	N 32 15 23.07	W 103 58 44.49
	12890.00	90.04	176.96	8761.97	4305.72	-4301.00	205.33	0.59	457056.34	609533.42	N 32 15 21.84	W 103 58 44.42
	13016.00	90.22	175.49	8761.68	4431.66	-4426.73	213.63	1.18	456930.62	609541.71	N 32 15 20.60	W 103 58 44.33
	13141.00	90.92	175.29	8760.44	4556.55	-4551.32	223.68	0.58	456806.05	609551.76	N 32 15 19.37	W 103 58 44.22
	13267.00	90.84	179.09	8758.50	4682.50	-4677.13	229.85	3.02	456680.24	609557.93	N 32 15 18.12	W 103 58 44.15
	13393.00	92.59	182.41	8754.73	4808.26	-4803.04	228.20	2.98	456554.34	609556.29	N 32 15 16.88	W 103 58 44.18
Last Survey	13429.00	92.95	181.80	8752.99	4844.11	-4838.97	226.88	1.97	456518.41	609554.97	N 32 15 16.52	W 103 58 44.19
Proj to Bit	13512.00	92.95	181.80	8748.72	4926.80	-4921.82	224.28	0.00	456435.57	609552.36	N 32 15 15.70	W 103 58 44.23

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	17.500	Act Stns	30.000	30.000	SLB_MWD-STD_HDGM-Depth Only	Original Borehole / Oxy Cypress 34 Federal 10H MWD 0ft-13512ft
	1	*17.500*	*353.000*	*1/98.425*	*30.000*	*30.000*	*SLB_MWD-STD_HDGM*	Original Borehole / Oxy Cypress 34 Federal 10H MWD 0ft-13512ft
	1	353.000	13512.000	Act Stns	30.000	30.000	SLB_MWD-STD_HDGM	Original Borehole / Oxy Cypress 34 Federal 10H MWD 0ft-13512ft

Plan - Rev3

OXY

Schlumberger

Borehole:	Well:	Field:	Structure:
Original Borehole	Cypress 34 Federal 10H	NM Eddy County (NAD 27)	CanElson 46

Gravity & Magnetic Parameters					Surface Location	NAD27 New Mexico State Plane Eastern Zone US Feet				Miscellaneous			
Model:	HDGM 2015	Dip:	60.135°	Date:	08-Aug-2015	Lat:	N 32 16 4 41	Northing	461357ftUS	Grid Conv:	0 188°	Slot:	Cypress 34 Federal 10H	TVD Ref:	RKB(3467.3ft above MSL)
MagDec:	7.375°	FS:	48333.012nT	Gravity FS:	998.466mgn (9.80665 Based)	Lon	W 103 58 46 55	Easting	609328.1ftUS	Scale Fact:	0.99992278	Plan:	MWD 0ft-13512ft		

Critical Points

Comments	Survey MD(ft)	Inclination(deg)	Azimuth(deg)	TVD(ft)	Sub-Sea TVD	VS(ft)	NS(ft)	EW(ft)	Latitude(deg)	Longitude(deg)	Easting(ftUS)	Northing(ftUS)	DLS(°/100ft)	Tool Face(deg)
Tie-In	3483 00	0 09	172 88	3482 87	415 57	3 93	-4 17	-6 35	N 32 16 4 370	W 103 58 46 723	609321 75	461352 83	0 07	8 71
PTB	3520 00	0 18	8 71	3519 87	452 57	3 90	-4 14	-6 34	N 32 16 4 370	W 103 58 46 723	609321 77	461352 86	0 72	8 71
Cherry Canyon	3918 44	0 18	8 71	3918 30	851 00	2 67	-2 91	-6 15	N 32 16 4 383	W 103 58 46 721	609321 96	461354 09	0 00	8 71
Brushy Canyon	5177 44	0 18	8 71	5177 30	2110 00	-1 21	1 00	-5 55	N 32 16 4 421	W 103 58 46 714	609322 55	461358 00	0 00	8 71
KOP - Backbuild 2°/100' DLS to 7° Inc	6500 15	0 18	8 71	6500 00	3432 70	-5 30	5 11	-4 92	N 32 16 4 462	W 103 58 46 706	609323 18	461362 11	0 00	0 82
1st Bone Spring	6768 88	5 54	33 66	6768 30	3701 00	-16 20	16 30	2 38	N 32 16 4 577	W 103 58 46 621	609330 48	461373 30	2 00	34 03
Hold 7° Inc	*6842 04*	*7 00*	*34 03*	*6841 93*	*3777 72*	*-22 65*	*22 93*	*5 84*	*N 32 16 4 638*	*W 103 58 46 569*	*609334 94*	*461379 93*	*2 00*	*34 03*
Drop 2°/100' DLS to Vertical	7657 09	7 00	34 03	7650 00	4582 70	-102 78	105 25	62 42	N 32 16 5 451	W 103 58 45 918	609390 52	461462 24	0 00	34 03
2nd Bone Spring	7899 24	2 16	34 03	7891 30	4824 00	-118 36	121 26	73 24	N 32 16 5 609	W 103 58 45 791	609401 33	461478 25	2 00	34 03
Hold Vertical	8007 09	0 00	34 03	7999 13	4931 83	-120 00	122 94	74 37	N 32 16 5 625	W 103 58 45 778	609402 47	461479 93	2 00	34 03
KOP - Build 10°/100' DLS Curve	8189 31	0 00	34 03	8181 34	5114 04	-120 00	122 94	74 37	N 32 16 5 625	W 103 58 45 778	609402 47	461479 93	0 00	178 70
Landing Point @ 90° Inc	9089 31	90 00	178 70	8754 30	5687 00	452 89	-449 87	87 34	N 32 15 59 957	W 103 58 45 649	609415 44	460907 17	10 00	
Oxy Cypress 34 Federal 10H PBHL	13546 97	90 00	178 70	8754 30	5687 00	4910 00	-4906 39	188 25	N 32 15 15 855	W 103 58 44 645	609516 34	456451 00	0 00