



Reservoir Development

Schlumberger Drilling and Measurements

9200 West Reno Avenue

Oklahoma City, Oklahoma 73127 USA

Phone: (405) 789-1515

Fax: (405) 789-1519

March 20, 2017

OXY USA INC.

5 Greenway Plaza, Suite 110

Houston, TX 77046-052

Re:

29, T24S, R29E, Eddy NM
-32.19021 -103.99846

CLIENT: OXY USA INC.
WELL: CEDAR CANYON 28 FEDERAL 9H
FIELD: EAST PIERCE CROSSING BONE
SPRING
RIG: H&P 639
COUNTY: Eddy
API NO: 30-015-44016
JOB NO: 17MLD1277

Enclosed, please find the original copy of the survey performed on the referenced well by Drilling & Measurements, a division of Schlumberger Technology Corporation (P-5 No. 754900).

Other information required by your office is as follows.

<u>Name & Title of Surveyor</u>	<u>Drainhole Number</u>	<u>Surveyed Depths</u>	<u>Dates Performed</u>	<u>Type of Survey</u>
T.Brady FE	CEDAR CANYON 28 FEDERAL 9H Original Hole	8004.00 Ft to 13793.00 Ft	February 24, 2017 to March 1, 2017	TelePacer SlimPulse

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

Sincerely,

Field Service Manager

Schlumberger

Reservoir Development

Schlumberger Drilling and Measurements

9200 West Reno Avenue

Oklahoma City, Oklahoma 73127 USA

Phone: (405) 789-1515

Fax: (405) 789-1519

Well Reference:

29, T24S, R29E, Eddy NM

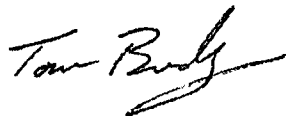
-32.19021 -103.99846

I, T.Brady certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of February 24, 2017 through March 01, 2017, conduct or supervise the taking of the TelePacer & SlimPulse surveys from a depth of 8004.00 feet to a depth of 13793.00 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 CEDAR CANYON 28 FEDERAL 9H Well (Original Hole) API No. 30-015-44016 in New Mexico; 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.

By

T.Brady

FE



Subscribed and Sworn to before me this 20th day of March (month) 2017 (yr)

My Commission expires:

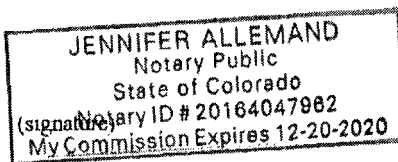
12-20-2020



Notary Public

Adams Colorado

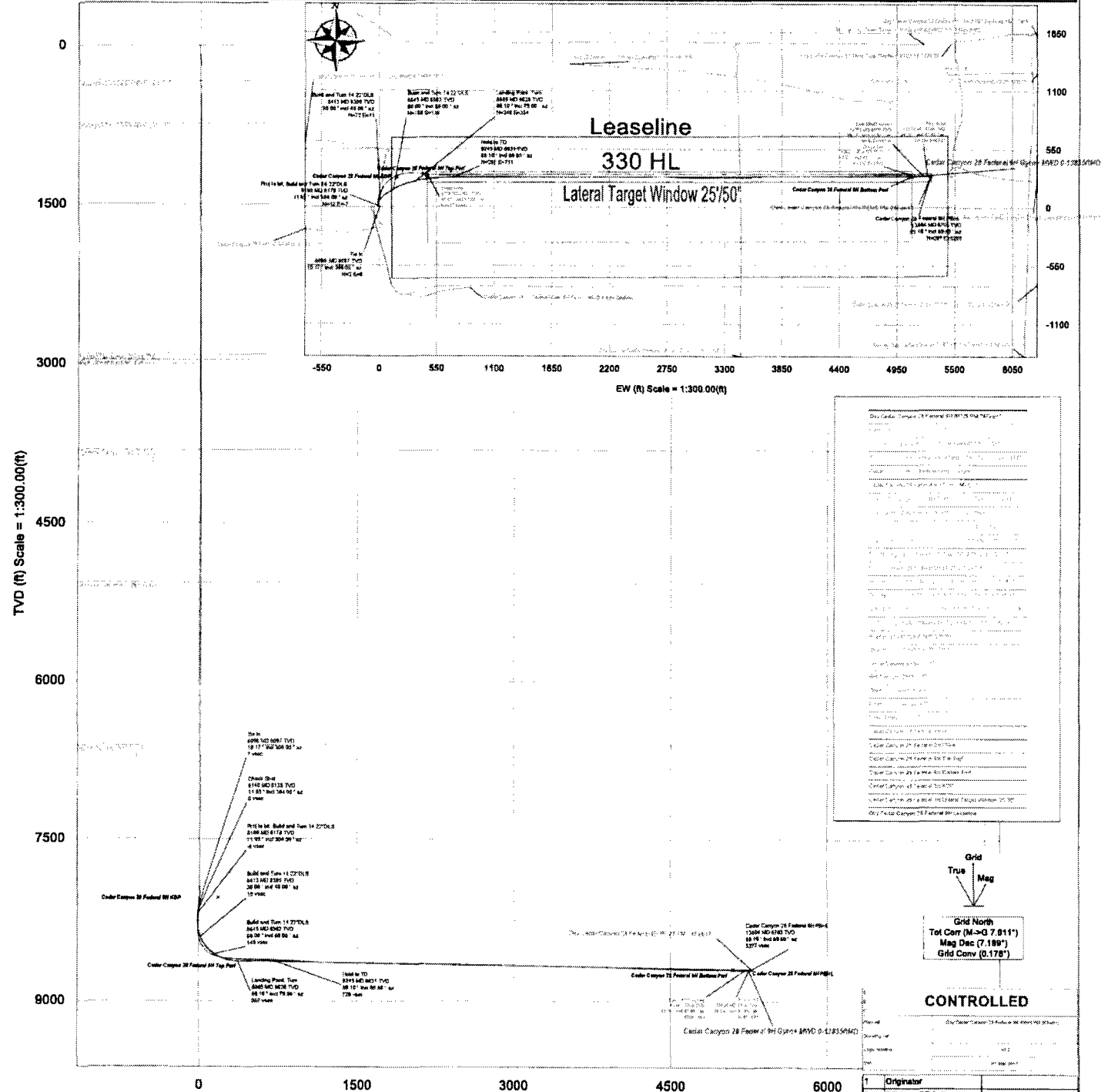
(County State)



Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Cedar Canyon 28 Federal 9H	NM Eddy County (NAD 83)	Oxy Cedar Canyon 28 Federal 9H
Gravity & Magnetic Parameters			
Model: HDM 2014	Dip: 88.872°	Date: 22-Feb-2017	Surface Location
MagDec: 7.189°	PR: 48136.885mT	Gravity PS: 980.664m/s² (9.80665 m/s²)	NAD83 New Mexico State Plane, Eastern Zone, US Feet
			LAT: N 32 11 34.74
			Northing: 433092.810US
			Easting: 644926.550US
			Grid Conv: 6.1784°
			Scale Feet: 0.99992138
			Structure
			Well: Oxy Cedar Canyon 28 Federal 9H
			YVD Ref: RKB=26.5 (2674.5ft above MSL)
			Plan: Oxy Cedar Canyon 28 Federal 9H REV5 PW 24F0417

Critical Points

Comments	Survey MWD(ft)	Inclination(deg)	Azimuth(deg)	TVD(ft)	Sub-Seg TVD	VS(ft)	RS(ft)	FW(ft)	Latitude(deg)	Longitude(deg)	Easting(ftUS)	Northing(ftUS)	DI S/P/10 (ft)	Total Face(deg)
Tie In	8098.00	10.17	308.00	8097.37	5122.87	6.52	2.49	6.39	N 32 11 24 765	W 103 59 54 394	644934.94	433095.09	9.71	-26.42
Check Shot	8140.00	11.85	304.00	8138.60	5164.10	0.29	7.18	-0.11	N 32 11 24 812	W 103 59 54 470	644928.44	433099.78	4.39	0.00
Proy to bit. Build and Turn 14.22°DLS	8180.00	11.85	304.00	8177.74	5203.24	-6.25	11.78	-6.92	N 32 11 24 857	W 103 59 54 549	644921.63	433104.38	0.00	114.73
Build and Turn 14.22°DLS	8413.42	30.00	40.00	8399.27	5424.77	15.24	71.56	11.23	N 32 11 25 448	W 103 59 54 335	644939.78	433164.16	14.22	33.08
Build and Turn 14.22°DLS	8644.57	60.00	60.00	8561.63	5587.13	147.84	168.55	138.57	N 32 11 26 404	W 103 59 52 850	645067.11	433261.14	14.22	35.34
Landing Point: Turn	8885.42	89.10	79.00	8625.65	5651.15	366.82	245.99	353.53	N 32 11 27 164	W 103 59 50 346	645282.05	433338.57	14.22	90.00
Hold to TD	9245.28	89.10	89.80	8631.32	5656.82	725.79	281.06	711.09	N 32 11 27 500	W 103 59 46 184	645639.59	433373.64	3.00	180.00
Cedar Canyon 28 Federal 9H PBHL	13803.71	89.10	89.80	8703.00	5728.50	5277.31	297.20	5268.93	N 32 11 27 515	W 103 58 53 146	650197.06	433389.78	0.00	



Vertical Section (ft) Azim = 86.772° Scale = 1:300.00(ft) Origin = 0N/-S, 0E/-W

Cedar Canyon 28 Federal 9H Gyro+ MWD 0-13835ftMD Survey Geodetic Report (Def Survey)



Report Date: March 01, 2017 - 01:58 PM Client: OXY Field: NM Eddy County (NAD 83) Structure / Slot: Oxy Cedar Canyon 28 Federal 9H / Oxy Cedar Canyon 28 Federal 9H Well: Oxy Cedar Canyon 28 Federal 9H Borehole: Original Borehole UWI / API#: Unknown / Unknown Survey Name: Cedar Canyon 28 Federal 9H Gyro+ MWD 0-13835ftMD Survey Date: December 29, 2016 Tort / AHD / DDI / ERD Ratio: 203.376° / 5474.368 ft / 6.248 / 0.629 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet Location Lat / Long: N 32° 11' 24.74050", W 103° 59' 54.46851" Location Grid N/E Y/X: N 433092.600 ftUS, E 644928.550 ftUS CRS Grid Convergence Angle: 0.1784° Grid Scale Factor: 0.99992138 Version / Patch: 2.10.254.0	Survey / DLS Computation: Minimum Curvature / Lubinski Vertical Section Azimuth: 86.772° (Grid North) Vertical Section Origin: 0.000 ft, 0.000 ft TVD Reference Datum: RKB=26.5' TVD Reference Elevation: 2974.500 ft above MSL Seabed / Ground Elevation: 2948.000 ft above MSL Magnetic Declination: 7.189° Total Gravity Field Strength: 999.4641mg (9.80665 Based) Gravity Model: GARM Total Magnetic Field Strength: 48150.065 nT Magnetic Dip Angle: 60.032° Declination Date: February 22, 2017 Magnetic Declination Model: HDGM 2016 North Reference: Grid North Grid Convergence Used: 0.1784° Total Corr Mag North->Grid North: 7.0106° Local Coord Referenced To: Well Head	
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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 ° ' ")
SHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	433092.60	644928.55	N 32 11 24.74	W 103 59 54.47
RKB	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	433092.60	644928.55	N 32 11 24.74	W 103 59 54.47
	76.00	0.21	171.38	76.00	0.01	-0.09	0.01	0.42	433092.51	644928.56	N 32 11 24.74	W 103 59 54.47
	167.00	0.40	178.37	167.00	0.02	-0.57	0.05	0.21	433092.03	644928.60	N 32 11 24.73	W 103 59 54.47
	259.00	0.52	139.71	259.00	0.26	-1.21	0.33	0.35	433091.39	644928.88	N 32 11 24.73	W 103 59 54.46
	350.00	0.62	116.06	349.99	0.94	-1.74	1.04	0.28	433090.86	644929.59	N 32 11 24.72	W 103 59 54.46
	440.00	0.67	107.37	439.99	1.85	-2.11	1.98	0.12	433090.49	644930.53	N 32 11 24.72	W 103 59 54.45
	530.00	0.85	103.16	529.98	2.99	-2.42	3.13	0.21	433090.18	644931.68	N 32 11 24.72	W 103 59 54.43
	621.00	1.06	100.58	620.97	4.45	-2.73	4.61	0.24	433089.87	644933.16	N 32 11 24.71	W 103 59 54.41
	711.00	0.62	93.93	710.96	5.74	-2.92	5.92	0.50	433089.68	644934.47	N 32 11 24.71	W 103 59 54.40
	801.00	0.08	86.83	800.95	6.27	-2.95	6.45	0.62	433089.65	644935.00	N 32 11 24.71	W 103 59 54.39
	892.00	0.01	113.91	891.95	6.33	-2.95	6.50	0.06	433089.65	644935.05	N 32 11 24.71	W 103 59 54.39
	982.00	0.01	132.69	981.95	6.34	-2.96	6.52	0.00	433089.64	644935.07	N 32 11 24.71	W 103 59 54.39
	1170.00	0.00	67.61	1169.95	6.35	-2.97	6.53	0.01	433089.63	644935.08	N 32 11 24.71	W 103 59 54.39
	1265.00	0.01	66.54	1264.95	6.36	-2.97	6.54	0.01	433089.63	644935.09	N 32 11 24.71	W 103 59 54.39
	1359.00	0.02	33.78	1358.95	6.38	-2.95	6.55	0.01	433089.65	644935.10	N 32 11 24.71	W 103 59 54.39
	1453.00	0.04	14.59	1452.95	6.40	-2.91	6.57	0.02	433089.69	644935.12	N 32 11 24.71	W 103 59 54.39
	1547.00	0.03	347.18	1546.95	6.40	-2.85	6.57	0.02	433089.75	644935.12	N 32 11 24.71	W 103 59 54.39
	1642.00	0.04	323.22	1641.95	6.38	-2.80	6.55	0.02	433089.80	644935.10	N 32 11 24.71	W 103 59 54.39
	1736.00	0.06	298.25	1735.95	6.32	-2.75	6.49	0.03	433089.85	644935.04	N 32 11 24.71	W 103 59 54.39
	1830.00	0.09	298.26	1829.95	6.22	-2.68	6.38	0.03	433089.91	644934.93	N 32 11 24.71	W 103 59 54.39
	1924.00	0.11	298.70	1923.95	6.08	-2.61	6.23	0.02	433089.99	644934.78	N 32 11 24.71	W 103 59 54.40
	2018.00	0.12	293.83	2017.95	5.91	-2.53	6.06	0.01	433090.07	644934.61	N 32 11 24.72	W 103 59 54.40
	2113.00	0.12	56.09	2112.95	5.91	-2.43	6.06	0.22	433090.17	644934.60	N 32 11 24.72	W 103 59 54.40
	2207.00	0.13	73.76	2206.95	6.10	-2.35	6.24	0.04	433090.25	644934.79	N 32 11 24.72	W 103 59 54.40
	2301.00	0.13	70.77	2300.95	6.30	-2.28	6.44	0.01	433090.32	644934.99	N 32 11 24.72	W 103 59 54.39
	2395.00	0.12	85.87	2394.95	6.50	-2.24	6.64	0.04	433090.36	644935.19	N 32 11 24.72	W 103 59 54.39
	2490.00	0.14	88.88	2489.95	6.72	-2.23	6.88	0.02	433090.37	644935.41	N 32 11 24.72	W 103 59 54.39
	2584.00	0.13	88.38	2583.95	6.94	-2.23	7.08	0.01	433090.37	644935.63	N 32 11 24.72	W 103 59 54.39
	2678.00	0.17	92.49	2677.95	7.19	-2.23	7.32	0.04	433090.37	644935.87	N 32 11 24.72	W 103 59 54.38
	2772.00	0.16	90.41	2771.95	7.46	-2.24	7.59	0.01	433090.36	644936.14	N 32 11 24.72	W 103 59 54.38
	2866.00	0.12	98.16	2865.95	7.68	-2.25	7.82	0.05	433090.35	644936.37	N 32 11 24.72	W 103 59 54.38
	2961.00	0.10	99.19	2960.95	7.88	-2.28	8.00	0.02	433090.32	644936.55	N 32 11 24.72	W 103 59 54.38
	3055.00	0.11	91.18	3054.95	8.03	-2.30	8.17	0.02	433090.30	644936.72	N 32 11 24.72	W 103 59 54.37
	3149.00	0.11	87.33	3148.95	8.21	-2.29	8.36	0.01	433090.31	644936.90	N 32 11 24.72	W 103 59 54.37
	3243.00	0.11	78.94	3242.95	8.39	-2.27	8.53	0.02	433090.33	644937.08	N 32 11 24.72	W 103 59 54.37
	3338.00	0.11	79.85	3337.95	8.57	-2.24	8.71	0.00	433090.36	644937.26	N 32 11 24.72	W 103 59 54.37
	3432.00	0.11	76.98	3431.95	8.75	-2.20	8.89	0.01	433090.40	644937.44	N 32 11 24.72	W 103 59 54.37
	3526.00	0.11	74.85	3525.95	8.93	-2.16	9.06	0.00	433090.44	644937.61	N 32 11 24.72	W 103 59 54.36
	3620.00	0.11	73.84	3619.95	9.11	-2.11	9.24	0.00	433090.49	644937.79	N 32 11 24.72	W 103 59 54.36
	3715.00	0.11	71.27	3714.95	9.28	-2.05	9.41	0.01	433090.55	644937.96	N 32 11 24.72	W 103 59 54.36
	3809.00	0.10	70.29	3808.95	9.45	-2.00	9.58	0.01	433090.60	644938.12	N 32 11 24.72	W 103 59 54.36
	3903.00	0.11	73.65	3902.95	9.61	-1.94	9.74	0.01	433090.66	644938.29	N 32 11 24.72	W 103 59 54.36
	3997.00	0.11	70.89	3996.95	9.79	-1.89	9.91	0.01	433090.71	644938.46	N 32 11 24.72	W 103 59 54.35
	4091.00	0.11	65.87	4090.95	9.96	-1.82	10.08	0.01	433090.78	644938.63	N 32 11 24.72	W 103 59 54.35
	4186.00	0.11	66.63	4185.95	10.13	-1.75	10.25	0.00	433090.85	644938.79	N 32 11 24.72	W 103 59 54.35
	4280.00	0.11	62.89	4279.95	10.30	-1.67	10.41	0.01	433090.93	644938.96	N 32 11 24.72	W 103 59 54.35
	4374.00	0.11	58.92	4373.95	10.46	-1.59	10.57	0.01	433091.01	644939.12	N 32 11 24.72	W 103 59 54.35
	4468.00	0.10	53.65	4467.95	10.61	-1.49	10.71	0.01	433091.11	644939.26	N 32 11 24.73	W 103 59 54.34
	4563.00	0.11	56.98	4562.95	10.76	-1.39	10.85	0.01	433091.21	644939.40	N 32 11 24.73	W 103 59 54.34
	4657.00	0.10	62.24	4656.95	10.91	-1.30	11.00	0.01	433091.30	644939.55	N 32 11 24.73	W 103 59 54.34
	4751.00	0.10	63.06	4750.95	11.06	-1.23	11.15	0.00	433091.37	644939.70	N 32 11 24.73	W 103 59 54.34
	4845.00	0.10	57.87	4844.95	11.21	-1.15	11.29	0.01	433091.45	644939.84	N 32 11 24.73	W 103 59 54.34
	4940.00	0.11	61.89	4939.95	11.36	-1.06	11.44	0.01	433091.54	644939.99	N 32 11 24.73	W 103 59 54.34
	5034.00	0.09	67.50	5033.95	11.51	-0.99	11.59	0.02	433091.61	644940.14	N 32 11 24.73	W 103 59 54.33
	5128.00	0.10	72.94	5127.95	11.66	-0.94	11.73	0.01	433091.66	644940.28	N 32 11 24.73	W 103 59 54.33
	5222.00	0.09	65.12	5221.95	11.81	-0.88	11.88	0.02	433091.72	644940.43	N 32 11 24.73	W 103 59 54.33
	5316.00	0.09	65.22	5315.95	11.95	-0.82	12.01	0.00	433091.78	644940.56	N 32 11 24.73	W 103 59 54.33
	5411.00	0.10	61.91	5410.95	12.09	-0.75	12.15	0.01	433091.85	644940.70	N 32 11 24.73	W 103 59 54.33
	5505.00	0.10	59.74	5504.95	12.24	-0.67	12.30	0.00	433091.93	644940.85	N 32 11 24.73	W 103 59 54.33
	5599.00	0.10	57.43	5598.95	12.39	-0.59	12.44	0.00	433092.02	644940.99	N 32 11 24.73	W 103 59 54.32
	5693.00	0.10	64.42	5692.95	12.53	-0.50	12.58	0.01	433092.10	644941.13	N 32 11 24.74	W 103 59 54.32
	5788.00	0.09	63.62	5787.95	12.68	-0.44	12.72	0.01	433092.16	644941.27	N 32 11 24.74	W 103 59 54.32
	5882.00	0.08	59.52	5881.95	12.81	-0.37	12.85	0.01	433092.23	644941.40	N 32 11 24.74	W 103 59 54.32
	5976.00	0.10	58.29	5975.95	12.95	-0.29	12.99	0.01	433092.31	644941.53	N 32 11 24.74	W 103 59 54.32
	6070.00	0.11	57.84	6069.95	13.10	-0.19	13.13	0.01	433092.41	644941.68	N 32 11 24.74	W 103 59 54.32
	6165.00	0.10	53.52	6164.95	13.25	-0.10	13.28	0.01	433092.50	644941.82	N 32 11 24.74	W 103 59 54.31
	6259.00	0.10	55.64	6258.94	13.39	0.00	13.41	0.00	433092.60	644941.96	N 32 11 24.74	W 103 59 54.31
	6353.00	0.10	65.54	6352.94	13.53	0.08	13.55	0.02	433092.68	644942.10	N 32 11 24.74	W 103 59 54.31
	6510.00	0.12	135.91	6509.94	13.77	0.02	13.79	0.08	433092.62	644942.34	N 32 11 24.74	W 103 59 54.31
	6604.00	0.11	136.38	6603.94	13.89	-0.12	13.92	0.01	433092.48	644942.47	N 32 11 24.74	W 103 59 54.31

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	6698.00	0.13	140.34	6697.94	14.01	-0.27	14.05	0.02	433092.33	644942.60	N 32 11 24.74 W 103 59 54.31	
	6793.00	0.15	145.24	6792.94	14.14	-0.46	14.19	0.02	433092.14	644942.74	N 32 11 24.74 W 103 59 54.30	
	6887.00	0.15	148.30	6886.94	14.26	-0.66	14.32	0.01	433091.94	644942.87	N 32 11 24.73 W 103 59 54.30	
	6981.00	0.10	104.12	6980.94	14.40	-0.79	14.47	0.11	433091.81	644943.01	N 32 11 24.73 W 103 59 54.30	
	7075.00	0.10	125.91	7074.94	14.54	-0.85	14.61	0.04	433091.75	644943.16	N 32 11 24.73 W 103 59 54.30	
	7170.00	0.09	132.42	7169.94	14.66	-0.95	14.73	0.02	433091.65	644943.28	N 32 11 24.73 W 103 59 54.30	
	7264.00	0.10	140.06	7263.94	14.76	-1.07	14.84	0.02	433091.53	644943.39	N 32 11 24.73 W 103 59 54.30	
	7358.00	0.12	144.68	7357.94	14.86	-1.21	14.95	0.02	433091.39	644943.50	N 32 11 24.73 W 103 59 54.29	
	7452.00	0.13	139.34	7451.94	14.98	-1.37	15.08	0.02	433091.23	644943.63	N 32 11 24.73 W 103 59 54.29	
	7547.00	0.13	142.51	7546.94	15.10	-1.54	15.21	0.01	433091.06	644943.76	N 32 11 24.72 W 103 59 54.29	
	7641.00	0.14	140.71	7640.94	15.23	-1.71	15.35	0.01	433090.89	644943.90	N 32 11 24.72 W 103 59 54.29	
	7735.00	0.17	145.55	7734.94	15.37	-1.91	15.50	0.03	433090.69	644944.05	N 32 11 24.72 W 103 59 54.29	
	7808.00	0.21	151.04	7807.94	15.48	-2.12	15.63	0.06	433090.48	644944.18	N 32 11 24.72 W 103 59 54.29	
	7875.00	0.13	125.34	7874.94	15.60	-2.27	15.75	0.16	433090.33	644944.30	N 32 11 24.72 W 103 59 54.29	
	8004.00	1.51	264.67	8003.93	14.01	-2.51	14.18	1.25	433090.09	644942.73	N 32 11 24.72 W 103 59 54.30	
	8098.00	10.17	308.00	8097.37	6.52	2.49	6.39	9.71	433095.09	644934.94	N 32 11 24.76 W 103 59 54.39	
	8218.00	11.05	344.26	8215.45	-3.95	20.10	-5.09	5.52	433112.70	644923.46	N 32 11 24.94 W 103 59 54.53	
	8311.00	23.09	353.89	8304.20	-8.81	46.92	-9.47	13.26	433139.51	644919.08	N 32 11 25.21 W 103 59 54.58	
	8405.00	30.82	11.23	8388.05	-1.71	88.99	-6.73	11.65	433181.58	644921.82	N 32 11 25.62 W 103 59 54.54	
	8499.00	41.63	28.04	8463.96	20.63	140.45	12.74	15.53	433233.03	644941.29	N 32 11 26.13 W 103 59 54.32	
	8593.00	57.31	38.32	8524.85	63.40	199.50	52.25	18.60	433292.08	644980.80	N 32 11 26.71 W 103 59 53.85	
	8687.00	69.93	49.70	8566.74	125.27	259.48	110.84	17.23	433352.06	645039.38	N 32 11 27.30 W 103 59 53.17	
	8767.00	76.98	69.29	8589.71	193.11	297.96	176.62	25.05	433390.53	645105.15	N 32 11 27.88 W 103 59 52.40	
	8780.00	78.29	71.57	8592.50	205.30	302.21	188.68	19.88	433394.79	645117.12	N 32 11 27.73 W 103 59 52.26	
	8818.00	82.76	78.54	8598.76	241.97	311.85	224.77	21.58	433404.43	645153.30	N 32 11 27.82 W 103 59 51.84	
	8874.00	87.01	86.66	8603.76	297.54	319.02	280.02	16.31	433411.59	645208.55	N 32 11 27.89 W 103 59 51.20	
	8995.00	87.59	92.59	8604.75	318.48	319.15	300.99	28.34	433411.73	645229.51	N 32 11 27.89 W 103 59 50.95	
	9068.00	87.66	95.33	8607.77	390.84	314.12	373.74	3.75	433406.69	645302.26	N 32 11 27.84 W 103 59 50.11	
	9046.00	86.66	93.91	8610.28	468.06	307.84	451.45	2.23	433400.41	645379.96	N 32 11 27.77 W 103 59 49.20	
	9233.00	87.66	92.66	8616.28	653.76	297.13	638.04	0.86	433389.70	645586.53	N 32 11 27.66 W 103 59 47.03	
	9326.00	84.70	94.07	8620.05	746.06	291.67	730.80	1.52	433364.25	645658.29	N 32 11 27.60 W 103 59 45.95	
	9420.00	87.69	91.31	8623.83	838.48	287.27	824.61	2.93	433379.64	645753.09	N 32 11 27.58 W 103 59 44.86	
	9513.00	87.56	89.07	8627.68	932.23	286.96	917.52	2.41	433379.53	645846.00	N 32 11 27.55 W 103 59 43.78	
	9607.00	87.76	88.73	8631.52	1026.06	268.76	1011.43	0.42	433381.34	645939.90	N 32 11 27.57 W 103 59 42.69	
	9795.00	87.59	90.45	8639.15	1213.69	290.11	1199.26	0.82	433382.68	646127.71	N 32 11 27.57 W 103 59 40.50	
	9888.00	88.49	91.66	8642.33	1306.38	288.39	1292.19	1.62	433380.97	646220.63	N 32 11 27.55 W 103 59 39.42	
	9982.00	88.49	90.59	8644.81	1400.07	286.55	1386.14	1.14	433379.13	646314.57	N 32 11 27.53 W 103 59 38.33	
	10075.00	88.59	90.64	8647.18	1482.83	285.55	1479.10	0.12	433378.13	646407.53	N 32 11 27.52 W 103 59 37.25	
	10188.00	89.21	90.26	8648.98	1586.62	284.81	1573.08	0.77	433377.39	646501.50	N 32 11 27.51 W 103 59 36.15	
	10263.00	89.55	91.16	8650.00	1680.39	283.65	1667.06	1.02	433376.23	646595.48	N 32 11 27.50 W 103 59 35.06	
	10356.00	89.38	90.53	8650.87	1773.15	282.28	1760.05	0.70	433374.85	646688.46	N 32 11 27.48 W 103 59 33.88	
	10450.00	89.07	89.71	8652.14	1866.98	282.08	1854.04	0.93	433374.66	646782.44	N 32 11 27.47 W 103 59 32.88	
	10544.00	88.80	89.58	8653.88	1960.85	282.66	1948.02	0.32	433375.24	646876.42	N 32 11 27.48 W 103 59 31.79	
	10638.00	88.87	89.48	8655.80	2054.72	283.43	2042.00	0.13	433376.01	646970.39	N 32 11 27.48 W 103 59 30.70	
	10733.00	89.52	89.84	8657.13	2148.59	284.00	2136.99	0.78	433376.57	647065.37	N 32 11 27.48 W 103 59 29.59	
	10827.00	88.38	88.85	8658.85	2243.48	285.07	2230.96	1.81	433377.65	647159.33	N 32 11 27.49 W 103 59 28.50	
	10920.00	88.83	89.08	8661.12	2336.38	286.75	2323.92	0.54	433379.33	647252.28	N 32 11 27.51 W 103 59 27.42	
	11014.00	88.14	88.31	8663.60	2430.29	288.89	2417.86	1.10	433381.47	647346.22	N 32 11 27.52 W 103 59 26.32	
	11107.00	88.55	88.63	8666.23	2523.21	291.37	2510.79	0.56	433383.95	647439.14	N 32 11 27.55 W 103 59 25.24	
	11201.00	88.86	90.97	8667.59	2617.06	291.70	2604.77	2.85	433384.28	647533.11	N 32 11 27.55 W 103 59 24.15	
	11294.00	88.69	92.21	8667.86	2709.73	289.12	2697.73	1.35	433381.70	647626.07	N 32 11 27.52 W 103 59 23.07	
	11482.00	89.21	92.39	8669.76	2806.85	281.58	2885.57	0.27	433374.15	647813.89	N 32 11 27.44 W 103 59 20.88	
	11576.00	90.41	91.32	8670.07	2990.48	278.53	2979.52	1.71	433371.11	647907.83	N 32 11 27.40 W 103 59 19.79	
	11669.00	89.24	89.05	8670.36	3083.30	278.23	3072.51	2.75	433370.81	648000.81	N 32 11 27.40 W 103 59 18.71	
	11763.00	88.21	89.34	8672.45	3177.19	279.55	3166.48	1.14	433372.13	648094.77	N 32 11 27.41 W 103 59 17.61	
	11857.00	89.04	88.21	8674.71	3271.11	281.56	3260.43	1.49	433374.14	648189.71	N 32 11 27.42 W 103 59 16.52	
	11950.00	90.52	90.76	8675.06	3363.99	282.40	3353.41	3.17	433374.97	648281.69	N 32 11 27.43 W 103 59 15.44	
	12044.00	88.83	89.33	8675.51	3457.83	282.32	3447.40	2.27	433374.90	648375.68	N 32 11 27.43 W 103 59 14.34	
	12138.00	89.35	89.01	8676.92	3551.74	283.69	3541.38	0.56	433376.26	648469.65	N 32 11 27.44 W 103 59 13.25	
	12232.00	89.48	88.49	8677.88	3645.68	285.74	3635.36	0.57	433378.31	648563.61	N 32 11 27.45 W 103 59 12.16	
	12326.00	88.14	88.98	8679.64	3739.60	287.80	3729.31	1.52	433380.38	648657.56	N 32 11 27.47 W 103 59 11.06	
	12420.00	89.10	89.43	8682.10	3833.49	289.10	3823.27	1.12	433381.67	648751.52	N 32 11 27.48 W 103 59 9.97	
	12514.00	88.11	89.06	8684.39	3927.37	290.34	3917.24	1.12	433382.91	648845.47	N 32 11 27.49 W 103 59 8.88	
	12701.00	88.28	89.80	8690.28	4114.07	292.20	4104.13	0.41	433384.77	649032.35	N 32 11 27.50 W 103 59 6.70	
	12795.00	88.90	86.03	8692.59	4208.01	295.61	4198.02	4.06	433388.19	649126.24	N 32 11 27.53 W 103 59 5.61	
	12888.00	88.83	89.89	8694.46	4301.95	298.98	4291.93	4.11	433391.53	649220.13	N 32 11 27.56 W 103 59 4.52	
	12983.00	89.14	89.50	8696.12	4395.82	299.48	4385.91	0.53	433392.04	649314.11	N 32 11 27.57 W 103 59 3.42	
	13076.00	87.83	88.08	8698.58	4488.72	301.42	4478.85	2.08	433394.00	649407.04	N 32 11 27.58 W 103 59 2.34	
	13264.00	89.90	88.46	8702.30	4676.61	307.10	4666.72	1.12	433399.67	649594.90	N 32 11 27.63 W 103 59 0.15	
	13358.00	90.07	87.95	8702.33	4770.58	310.04	4760.68	0.57	433402.62	649688.84	N 32 11 27.66 W 103 58 59.06	
	13452.00	88.83	89.17	8703.23	4864.53	312.40	4854.64	1.85	433404.98	649782.80	N 32 11 27.68 W 103 58 57.97	
	13546.00	88.48	90.04	8705.44	4958.38	313.05	4948.61	1.00	433405.63	649876.76	N 32 11 27.68 W 103 58 56.87	
	13640.00	89.55	91.65	8707.05	5052.13	311.66	5042.58	2.06	433404.24	649970.72	N 32 11 27.67 W 103 58 55.78	
Last MWD survey	13793.00	89.76	91.85	8707.97	5204.55	308.99	5195.51	0.19	433399.57	650123.64	N 32 11 27.81 W 103 58 54.00	
Proj. to bit	13835.00	89.78	91.85	8708.15	5248.38	305.64	5237.48	0.00	433398.21	650165.61	N 32 11 27.60 W 103 58 53.51	

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	26.500	1/98.425	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Cedar Canyon 28 Federal 9H Gyro+ MWD 0-13835ftMD
	1	26.500	26.500	Act Sins	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Cedar Canyon 28 Federal 9H Gyro+ MWD 0-13835ftMD
	1	26.500	7808.000	Act Sins	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / Cedar Canyon 28 Federal 9H Gyro+ MWD 0-
	1	7808.000	13835.000	Act Sins	30.000	30.000	NAL_MWD_PLUS_0.5_DEG	Original Borehole / Cedar Canyon 28 Federal 9H Gyro+ MWD 0-

OXY

SURVEY REPORT

CEDAR CANYON 28 FED COM # 9H

H & P 639

1/20/2017

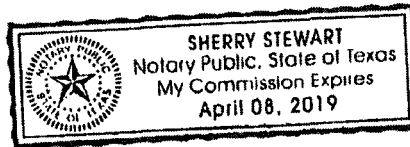
This survey is correct to the best of my knowledge and is supported by actual field data.

[Signature]

Notarized this date 19th of April, 2017.

[Signature: Sherry Stewart]

Notary Signature
County of Midland
State of Texas



Scientific Drilling

The Ultimate Partner In Wellbore Placement

SURVEY REPORT

CEDAR CANYON 28 FED COM # 9H

COMPUTED OUTRUN KEEPER GYRO SURVEY

CUSTOMER	OXY	SDI JOB NO.	412254
PROJECT	CEDAR CANYON 28 FED COM # 9H	SDI DISTRICT	Midland
FIELD	CEDAR CANYON 28 FED COM	SDI KIT/UNIT	

SITE INFORMATION

Site Name	CEDAR CANYON 28 FED COM	Section	
Lat/Long	32.1902057° N, 103.9984635° W	Township	
Northing	433,092.6 ft	Range	
Easting	644,928.55 ft		

MAP INFORMATION

North Reference	Grid North
Grid Correction	-0.18 deg
System	US State Plane 1983
Datum	North American Datum 1983 (GRS 1980)
Map Zone	New Mexico East: 3001

**WELL INFORMATION**

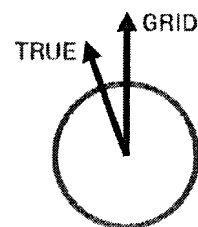
Lat/Long	32.1902057° N, 103.9984635° W
Northing	433,092.6 ft
Easting	644,928.55 ft
UWI	30-015-44016

DEPTH AND ELEVATION REFERENCE

Ground Level	2948 ft above Mean Sea Level
Reference Datum	KB
Reference Height	26.5 ft above G.L.
Reference Elevation	2974.5 ft

VERTICAL SECTION REFERENCE

+N/-S	0 ft
+E/-W	0 ft
Proposal Direction	86.77°
Calculation Method	Minimum Curvature

**LOCAL GRAVITY REFERENCE INFORMATION**

Local Gravity	998.541 mG [computed]
True to Grid	subtract 0.18°

WELL NOTES**OPERATORS**

H.SANGHOTT

SDI Operator Name (Printed)

SIGNATURE

DATE

SURVEY REPORT

EDAR CANYON 28 FED COM # 9H

COMPUTED OUTRUN KEEPER GYRO SURVE

MD	INC	AZIM	TVD	VS	+N/S	+E/W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	%/100ft	ft	deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
76.00	0.21	171.38	76.00	0.01	-0.14	0.02	0.28	0.14	171.38
167.00	0.40	178.37	167.00	0.02	-0.63	0.06	0.21	0.63	174.92
259.00	0.52	139.71	259.00	0.26	-1.27	0.33	0.35	1.31	165.27
350.00	0.62	116.06	349.99	0.94	-1.80	1.04	0.28	2.08	149.85
440.00	0.67	107.37	439.99	1.86	-2.17	1.98	0.12	2.94	137.55
530.00	0.85	103.16	529.98	2.99	-2.48	3.13	0.22	3.99	128.31
621.00	1.06	100.58	620.97	4.45	-2.78	4.62	0.23	5.39	121.09
711.00	0.62	93.93	710.96	5.74	-2.97	5.92	0.50	6.62	116.65
801.00	0.06	88.83	800.95	6.27	-3.00	6.44	0.62	7.11	114.97
892.00	0.01	113.91	891.95	6.32	-3.00	6.50	0.05	7.16	114.81
982.00	0.01	132.69	981.95	6.34	-3.01	6.52	0.01	7.18	114.82
1170.00	0.00	67.61	1169.95	6.35	-3.02	6.53	0.00	7.19	114.82
1265.00	0.01	66.54	1264.95	6.36	-3.01	6.54	0.01	7.20	114.75
1359.00	0.02	33.78	1358.95	6.38	-3.00	6.56	0.01	7.21	114.55
1453.00	0.04	14.59	1452.95	6.40	-2.95	6.58	0.02	7.21	114.14
1547.00	0.03	347.18	1546.95	6.41	-2.89	6.58	0.02	7.19	113.72
1642.00	0.04	323.22	1641.95	6.39	-2.84	6.56	0.02	7.15	113.45
1736.00	0.06	298.25	1735.95	6.33	-2.80	6.49	0.03	7.07	113.29
1830.00	0.09	298.26	1829.95	6.22	-2.74	6.39	0.03	6.95	113.21
1924.00	0.11	298.70	1923.95	6.09	-2.66	6.25	0.03	6.79	113.08
2018.00	0.12	293.83	2017.95	5.92	-2.58	6.07	0.02	6.60	112.99
2113.00	0.12	56.09	2112.95	5.91	-2.48	6.06	0.22	6.55	112.26
2207.00	0.13	73.76	2206.95	6.10	-2.40	6.24	0.04	6.69	110.99
2301.00	0.13	70.77	2300.95	6.30	-2.33	6.45	0.01	6.85	109.88
2395.00	0.12	85.87	2394.95	6.51	-2.29	6.65	0.04	7.03	109.01
2490.00	0.14	88.88	2489.95	6.73	-2.28	6.86	0.02	7.23	108.37
2584.00	0.13	88.38	2583.95	6.95	-2.27	7.09	0.01	7.44	107.79
2678.00	0.17	92.49	2677.95	7.20	-2.28	7.34	0.04	7.68	107.25
2772.00	0.16	90.41	2771.95	7.46	-2.28	7.60	0.01	7.94	106.73
2866.00	0.12	98.16	2865.95	7.69	-2.30	7.83	0.04	8.16	106.36
2961.00	0.10	99.19	2960.95	7.87	-2.33	8.02	0.03	8.35	106.19

SURVEY REPORT

EDAR CANYON 28 FED COM # 9H

COMPUTED OUTRUN KEEPER GYRO SURVE

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	%/100ft	ft	deg
3055.00	0.11	91.18	3054.95	8.04	-2.34	8.18	0.02	8.51	105.98
3149.00	0.11	87.33	3148.95	8.21	-2.34	8.36	0.01	8.68	105.64
3243.00	0.11	78.94	3242.95	8.39	-2.32	8.53	0.02	8.84	105.21
3338.00	0.11	79.85	3337.95	8.56	-2.29	8.71	0.00	9.00	104.71
3432.00	0.11	76.98	3431.95	8.74	-2.25	8.88	0.01	9.17	104.21
3526.00	0.11	74.85	3525.95	8.92	-2.21	9.06	0.00	9.33	103.68
3620.00	0.11	73.84	3619.95	9.10	-2.16	9.24	0.00	9.48	103.15
3715.00	0.11	71.27	3714.95	9.27	-2.10	9.41	0.01	9.64	102.60
3809.00	0.10	70.29	3808.95	9.44	-2.05	9.57	0.01	9.79	102.06
3903.00	0.11	73.65	3902.95	9.61	-1.99	9.74	0.01	9.94	101.57
3997.00	0.11	70.89	3996.95	9.78	-1.94	9.90	0.01	10.09	101.08
4091.00	0.11	65.87	4090.95	9.94	-1.87	10.07	0.01	10.24	100.55
4186.00	0.11	66.63	4185.95	10.11	-1.80	10.23	0.00	10.39	100.00
4280.00	0.11	62.89	4279.95	10.28	-1.73	10.39	0.01	10.54	99.43
4374.00	0.11	58.92	4373.95	10.44	-1.64	10.55	0.01	10.68	98.82
4468.00	0.10	53.65	4467.95	10.59	-1.54	10.70	0.01	10.81	98.19
4563.00	0.11	56.98	4562.95	10.74	-1.44	10.84	0.01	10.94	97.57
4657.00	0.10	62.24	4656.95	10.89	-1.35	10.99	0.01	11.07	97.02
4751.00	0.10	63.06	4750.95	11.04	-1.28	11.13	0.01	11.20	96.56
4845.00	0.10	57.87	4844.95	11.19	-1.20	11.27	0.01	11.33	96.08
4940.00	0.11	61.89	4939.95	11.34	-1.12	11.42	0.01	11.47	95.58
5034.00	0.09	67.50	5033.95	11.49	-1.04	11.57	0.02	11.61	95.16
5128.00	0.10	72.94	5127.95	11.64	-0.99	11.71	0.01	11.75	94.84
5222.00	0.09	65.12	5221.95	11.78	-0.94	11.85	0.02	11.89	94.53
5316.00	0.09	65.22	5315.95	11.91	-0.88	11.98	0.00	12.01	94.20
5411.00	0.10	61.91	5410.95	12.06	-0.81	12.12	0.02	12.15	93.82
5505.00	0.10	59.74	5504.95	12.20	-0.73	12.27	0.01	12.29	93.41
5599.00	0.10	57.43	5598.95	12.35	-0.65	12.40	0.00	12.42	92.98
5693.00	0.10	64.42	5692.95	12.49	-0.57	12.54	0.01	12.56	92.59
5788.00	0.09	63.62	5787.95	12.64	-0.50	12.69	0.01	12.70	92.24
5882.00	0.09	59.52	5881.95	12.78	-0.42	12.83	0.01	12.83	91.88
5976.00	0.10	58.29	5975.95	12.93	-0.34	12.96	0.01	12.97	91.50

SURVEY REPORT

CEDAR CANYON 28 FED COM # 9H

COMPUTED OUTRUN KEEPER GYRO SURVE

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	%/100ft	ft	deg
6070.00	0.11	57.84	6069.95	13.07	-0.25	13.11	0.00	13.11	91.09
6165.00	0.10	53.52	6164.95	13.22	-0.15	13.25	0.01	13.25	90.67
6259.00	0.10	55.64	6258.94	13.36	-0.06	13.38	0.01	13.38	90.25
6353.00	0.10	65.54	6352.94	13.51	0.02	13.53	0.02	13.53	89.90
6510.00	0.12	135.91	6509.94	13.75	-0.04	13.78	0.08	13.78	90.15
6604.00	0.11	138.38	6603.94	13.87	-0.17	13.90	0.02	13.91	90.72
6698.00	0.13	140.34	6697.94	13.99	-0.32	14.03	0.02	14.03	91.31
6793.00	0.15	145.24	6792.94	14.12	-0.51	14.17	0.03	14.18	92.06
6887.00	0.15	148.30	6886.94	14.24	-0.71	14.31	0.01	14.32	92.86
6981.00	0.10	104.12	6980.94	14.38	-0.84	14.45	0.11	14.47	93.31
7075.00	0.10	125.91	7074.94	14.52	-0.90	14.59	0.04	14.62	93.54
7170.00	0.09	132.42	7169.94	14.64	-1.00	14.72	0.01	14.75	93.90
7264.00	0.10	140.06	7263.94	14.74	-1.12	14.83	0.01	14.87	94.31
7358.00	0.12	144.68	7357.94	14.84	-1.26	14.93	0.02	14.99	94.82
7452.00	0.13	139.34	7451.94	14.96	-1.42	15.06	0.02	15.13	95.38
7547.00	0.13	142.51	7546.94	15.08	-1.59	15.20	0.01	15.28	95.96
7641.00	0.14	140.71	7640.94	15.21	-1.76	15.34	0.01	15.44	96.56
7735.00	0.17	145.55	7734.94	15.36	-1.97	15.49	0.04	15.62	97.25
7808.00	0.21	151.04	7807.94	15.47	-2.18	15.62	0.06	15.77	97.95