Oilfield Services, Central U.S. Land
Schlumberger Drilling and Measurements
Drilling Group
Geo Market Area: South West Texas Basin
7220 W I-H 20
Midland, Texas 79706
Phone : (432) 742-5400 (Main)
Fax : (432) 742-5606 (Shared)

Schlumberger

July 30, 2018

OXY USA INC.

HOBBS OCD
AUG 16 2018
RECEIVED

Re:

18, 24S, 32E, Lea NM
32.21080 103.71460

CLIENT: OXY USA INC.
WELL: Mesa Verde BS Unit 12H
FIELD: Mesa Verde Bone Spring

RIG: H & P 657
COUNTY: Lea
API NO: 30-025-44186
JOB NO: 18MLD3087

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.

Name & Title of Surveyor	Drainhole Number	Surveyed Depths		Dates Performed		Type of Survey
Kristina Hansen FE	Mesa Verde BS Unit 12H Original Hole	10719.00 18117.00 Ft	to	June 20, 2018 June 25, 2018	to	TelePacer SlimPulse

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

Oilfield Services, Central U.S. Land
Schlumberger Drilling and Measurements
Drilling Group
Geo Market Area: South West Texas Basin
7220 W I-H 20
Midland, Texas 79706
Phone : (432) 742-5400 (Main)
Fax : (432) 742-5606 (Shared)

Schlumberger

Well Reference:
18, 24S, 32E, Lea NM
32.21080 103.71460

I, Kristina Hansen certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of June 20, 2018 through June 25, 2018, conduct or supervise the taking of the TelePacer & SlimPulse surveys from a depth of 10719.00 feet to a depth of 18117.00 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 Mesa Verde BS Unit 12H Well (Original Hole) API No. 30-025-44186 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
Kristina Hansen
FE

Subscribed and Sworn to before me this 30th day of July (month) 2018 (yr)

My Commission expires:

2-16-2022

D. Adams (signature)
Notary Public

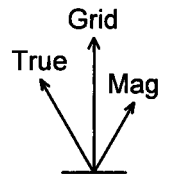
Adams County Colorado
(County State)

DONNA ADAMS
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20184007893
MY COMMISSION EXPIRES FEBRUARY 16, 2022

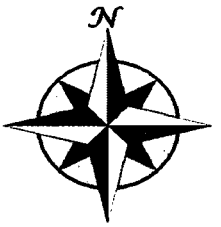
Schlumberger OXY

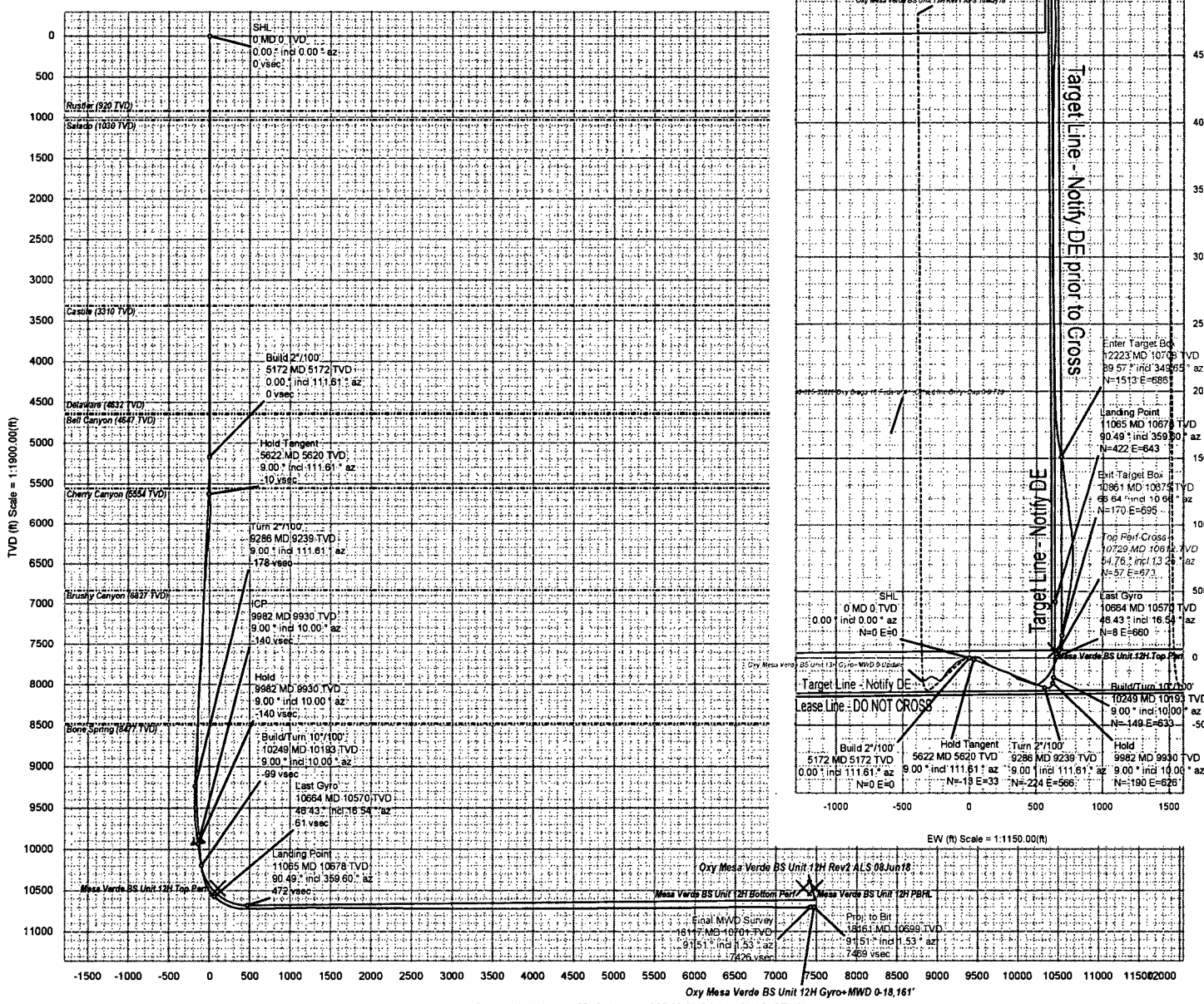
Borehole:	Well:	Field:	Structure:
Original Borehole	Oxy Mesa Verde BS Unit 12H	NM Lea County (NAD 83)	Oxy Mesa Verde BS Unit 12H

Gravity & Magnetic Parameters						Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet					Miscellaneous			
Model:	HDGM 2018	Dip:	59.923°	Date:	07-Jun-2018	Lat:	N 32 12 39.28	Northing:	441014.48ftUS	Grid Conv:	0.3298°	Slot:	Oxy Mesa Verde BS Unit 12H	TVD Ref:	RKB=26.5'(3598ft above MSL)
MagDec:	6.822°	FS:	47996.797nT	Gravity FS:	998.429mgn (9.80665 Based)	Lon:	W 103 42 52.89	Easting:	732669.90ftUS	Scale Fact:	0.99995102	Plan:	Oxy Mesa Verde BS Unit 12H Rev2 ALS 08Jun18		



Grid North
Tot Corr (M->G 6.492°)
Mag Dec (6.822°)
Grid Conv (0.330°)





Schlumberger

Oxy Mesa Verde BS Unit 12H Gyro+MWD 0-18,161' Survey Geodetic Report

(Def Survey)

HOBBS OCD

AUG 16 2018

RECEIVED

Report Date:	June 25, 2018 - 10:23 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	OXY	**Vertical Section Azimuth:**	4.549 ° (Grid North)
Field:	NM Lea County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Oxy Mesa Verde BS Unit 12H / Oxy Mesa Verde BS Unit 12H	**TVD Reference Datum:**	RKB=26.5'
Well:	Oxy Mesa Verde BS Unit 12H	**TVD Reference Elevation:**	3598.000 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3571.500 ft above MSL
UWI / API#:	Unknown / 30-025-44186	**Magnetic Declination:**	6.822 °
Survey Name:	Oxy Mesa Verde BS Unit 12H Gyro+MWD 0-18,161'	**Total Gravity Field Strength:**	998.4290mgn (9.80665 Based)
Survey Date:	June 07, 2018	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	250.550 ° / 8319.025 ft / 6.548 / 0.776	**Total Magnetic Field Strength:**	47996.797 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.923 °
Location Lat / Long:	N 32° 12' 39.28331", W 103° 42' 52.89471"	**Declination Date:**	June 07, 2018
Location Grid N/E Y/X:	N 441014.480 ftUS, E 732669.960 ftUS	**Magnetic Declination Model:**	HDGM 2018
CRS Grid Convergence Angle:	0.3298 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99995102	**Grid Convergence Used:**	0.3298 °
Version / Patch:	2.10.720.0	**Total Corr Mag North->Grid North:**	6.4920 °
		Local Coord Referenced To:	Well Head

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 ° ' ")
RKB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	441014.48	732669.96	N 32 12 39.28	W 103 42 52.89
SHL	26.50	0.00	0.00	26.50	0.00	0.00	0.00	0.00	441014.48	732669.96	N 32 12 39.28	W 103 42 52.89
	84.83	0.95	337.23	84.83	0.43	0.45	-0.19	1.63	441014.93	732669.77	N 32 12 39.29	W 103 42 52.90
	178.16	0.96	335.99	178.14	1.80	1.87	-0.80	0.02	441016.35	732669.16	N 32 12 39.30	W 103 42 52.90
	271.41	0.81	327.42	271.38	3.02	3.14	-1.48	0.21	441017.62	732668.48	N 32 12 39.31	W 103 42 52.91
	364.72	0.58	309.38	364.69	3.81	4.00	-2.20	0.34	441018.48	732667.76	N 32 12 39.32	W 103 42 52.92
	458.12	0.50	287.80	458.08	4.17	4.42	-2.95	0.23	441018.90	732667.01	N 32 12 39.33	W 103 42 52.93
	551.46	0.66	264.25	551.42	4.17	4.49	-3.87	0.30	441018.97	732666.09	N 32 12 39.33	W 103 42 52.94
	644.76	0.91	263.36	644.71	3.93	4.35	-5.14	0.27	441018.83	732664.82	N 32 12 39.33	W 103 42 52.95
	738.01	0.97	266.88	737.95	3.68	4.22	-6.67	0.09	441018.70	732663.29	N 32 12 39.33	W 103 42 52.97
	831.30	0.93	267.32	831.22	3.48	4.15	-8.21	0.04	441018.63	732661.75	N 32 12 39.32	W 103 42 52.99
	924.66	0.77	271.99	924.57	3.36	4.13	-9.60	0.19	441018.61	732660.36	N 32 12 39.32	W 103 42 53.01
	1017.95	0.46	279.06	1017.86	3.36	4.21	-10.59	0.34	441018.69	732659.37	N 32 12 39.33	W 103 42 53.02
	1111.20	0.05	69.67	1111.11	3.41	4.29	-10.92	0.54	441018.77	732659.04	N 32 12 39.33	W 103 42 53.02
	1204.51	0.06	68.17	1204.42	3.45	4.32	-10.84	0.01	441018.80	732659.12	N 32 12 39.33	W 103 42 53.02
	1297.79	0.03	74.30	1297.70	3.48	4.34	-10.77	0.03	441018.82	732659.19	N 32 12 39.33	W 103 42 53.02
	1390.85	0.06	63.39	1390.76	3.51	4.37	-10.70	0.03	441018.85	732659.26	N 32 12 39.33	W 103 42 53.02
	1484.17	0.03	60.40	1484.08	3.55	4.41	-10.64	0.03	441018.89	732659.32	N 32 12 39.33	W 103 42 53.02
	1577.46	0.07	59.64	1577.37	3.59	4.45	-10.57	0.04	441018.93	732659.39	N 32 12 39.33	W 103 42 53.02
	1670.80	0.06	73.21	1670.71	3.65	4.49	-10.47	0.02	441018.97	732659.49	N 32 12 39.33	W 103 42 53.02
	1764.09	0.06	9.38	1764.00	3.71	4.55	-10.42	0.07	441019.03	732659.54	N 32 12 39.33	W 103 42 53.02
	1857.47	0.05	1.46	1857.38	3.80	4.64	-10.41	0.01	441019.12	732659.55	N 32 12 39.33	W 103 42 53.02
	1952.16	0.06	354.79	1952.07	3.89	4.73	-10.41	0.01	441019.21	732659.55	N 32 12 39.33	W 103 42 53.02
	2046.99	0.06	0.72	2046.90	3.99	4.83	-10.42	0.01	441019.31	732659.54	N 32 12 39.33	W 103 42 53.02
	2141.59	0.06	9.62	2141.50	4.09	4.93	-10.41	0.01	441019.41	732659.55	N 32 12 39.33	W 103 42 53.02
	2236.07	0.05	17.62	2235.98	4.18	5.02	-10.39	0.01	441019.50	732659.57	N 32 12 39.33	W 103 42 53.02
	2330.87	0.05	12.20	2330.78	4.26	5.10	-10.37	0.00	441019.58	732659.59	N 32 12 39.33	W 103 42 53.02
	2425.49	0.05	16.07	2425.40	4.34	5.18	-10.35	0.00	441019.66	732659.61	N 32 12 39.34	W 103 42 53.01
	2520.05	0.05	13.25	2519.96	4.42	5.26	-10.33	0.00	441019.74	732659.64	N 32 12 39.34	W 103 42 53.01
	2614.71	0.03	301.96	2614.62	4.47	5.31	-10.34	0.05	441019.79	732659.62	N 32 12 39.34	W 103 42 53.01
	2709.13	0.04	334.35	2709.04	4.51	5.35	-10.37	0.02	441019.83	732659.59	N 32 12 39.34	W 103 42 53.02
	2803.71	0.03	347.02	2803.62	4.57	5.41	-10.39	0.01	441019.89	732659.57	N 32 12 39.34	W 103 42 53.02
	2898.24	0.02	313.77	2898.15	4.60	5.44	-10.41	0.02	441019.92	732659.55	N 32 12 39.34	W 103 42 53.02
	2992.90	0.04	335.18	2992.81	4.64	5.48	-10.44	0.02	441019.96	732659.53	N 32 12 39.34	W 103 42 53.02
	3087.64	0.03	297.34	3087.55	4.68	5.53	-10.47	0.03	441020.01	732659.49	N 32 12 39.34	W 103 42 53.02
	3182.35	0.04	326.96	3182.26	4.71	5.56	-10.51	0.02	441020.04	732659.45	N 32 12 39.34	W 103 42 53.02
	3277.06	0.07	334.77	3276.97	4.79	5.64	-10.55	0.03	441020.12	732659.41	N 32 12 39.34	W 103 42 53.02
	3371.77	0.07	321.78	3371.68	4.88	5.74	-10.61	0.02	441020.22	732659.35	N 32 12 39.34	W 103 42 53.02
	3466.32	0.07	319.38	3466.23	4.97	5.83	-10.69	0.00	441020.31	732659.27	N 32 12 39.34	W 103 42 53.02
	3560.94	0.07	332.96	3560.85	5.06	5.93	-10.75	0.02	441020.41	732659.21	N 32 12 39.34	W 103 42 53.02
	3655.59	0.07	321.12	3655.50	5.15	6.02	-10.81	0.02	441020.50	732659.15	N 32 12 39.34	W 103 42 53.02
	3750.32	0.06	314.04	3750.23	5.22	6.10	-10.89	0.01	441020.58	732659.07	N 32 12 39.34	W 103 42 53.02
	3844.93	0.03	304.28	3844.84	5.26	6.15	-10.94	0.03	441020.63	732659.02	N 32 12 39.34	W 103 42 53.02
	3939.69	0.02	250.02	3939.60	5.27	6.16	-10.98	0.03	441020.64	732658.98	N 32 12 39.34	W 103 42 53.02
	4034.16	0.03	278.02	4034.07	5.26	6.16	-11.02	0.02	441020.64	732658.94	N 32 12 39.34	W 103 42 53.02
	4128.84	0.02	276.67	4128.75	5.27	6.16	-11.06	0.01	441020.64	732658.90	N 32 12 39.34	W 103 42 53.02
	4223.59	0.04	260.15	4223.50	5.26	6.16	-11.11	0.02	441020.64	732658.85	N 32 12 39.34	W 103 42 53.02
	4318.29	0.03	260.68	4318.20	5.24	6.15	-11.17	0.01	441020.63	732658.80	N 32 12 39.34	W 103 42 53.02
	4413.06	0.02	299.10	4412.97	5.25	6.15	-11.20	0.02	441020.63	732658.76	N 32 12 39.34	W 103 42 53.02
	4507.65	0.03	354.82	4507.56	5.28	6.19	-11.22	0.03	441020.67	732658.74	N 32 12 39.35	W 103 42 53.02
	4602.45	0.02	227.01	4602.36	5.29	6.20	-11.24	0.05	441020.68	732658.73	N 32 12 39.35	W 103 42 53.03
	4697.12	0.03	262.06	4697.03	5.27	6.19	-11.27	0.02	441020.66	732658.69	N 32 12 39.35	W 103 42 53.03
	4791.88	0.05	237.98	4791.79	5.24	6.16	-11.33	0.03	441020.64	732658.63	N 32 12 39.34	W 103 42 53.03
	4886.64	0.07	243.19	4886.55	5.19	6.11	-11.42	0.02	441020.59	732658.54	N 32 12 39.34	W 103 42 53.03
	4981.17	0.25	212.46	4981.08	4.97	5.91	-11.58	0.20	441020.39	732658.38	N 32 12 39.34	W 103 42 53.03
	5075.75	0.48	186.81	5075.65	4.40	5.34	-11.74	0.29	441019.82	732658.22	N 32 12 39.34	W 103 42 53.03
	5170.36	0.67	145.60	5170.26	3.57	4.49	-11.47	0.47	441018.97	732658.49	N 32 12 39.33	W 103 42 53.03
	5265.03	1.22	110.69	5264.92	2.86	3.68	-10.22	0.82	441018.16	732659.74	N 32 12 39.32	W 103 42 53.01
	5359.67	3.54	98.04	5359.47	2.40	2.92	-6.38	2.50	441017.40	732663.58	N 32 12 39.31	W 103 42 52.97
	5454.23	5.31	93.45	5453.74	2.31	2.24	0.88	1.91	441016.72	732670.84	N 32 12 39.31	W 103 42 52.88
	5549.03	6.97	85.50	5548.00	3.30	2.43	10.99	1.96	441016.91	732680.95	N 32 12 39.31	W 103 42 52.77
	5643.64	8.93	81.85	5641.69	5.81	3.92	23.98	2.14	441018.40	732693.94	N 32 12 39.32	W 103 42 52.62
	5738.14	10.62	81.02	5734.82	9.46	6.32	39.85	1.79	441020.80	732709.81	N 32 12 39.34	W 103 42 52.43
	5832.79	10.13	94.69	5827.94	11.48	7.00	56.76	2.65	441021.48	732726.72	N 32 12 39.35	W 103 42 52.23
	5927.51	9.66	113.40	5921.27	8.90	3.17	72.36	3.42	441017.65	732742.32	N 32 12 39.31	W 103 42 52.05
	6022.39	9.30	128.43	6014.87	2.05	-4.76	85.67	2.63	441009.72	732755.63	N 32 12 39.23	W 103 42 51.90
	6117.03	9.19	130.90	6108.28	-6.69	-14.46	97.38	0.44	441000.02	732767.33	N 32 12 39.13	W 103 42 51.76
	6212.03	8.90	130.23	6202.10	-15.48	-24.18	108.72	0.32	440990.30	732778.68	N 32 12 39.04	W 103 42 51.63
	6306.90	8.33	131.27	6295.90	-23.87	-33.45	119.49	0.62	440981.03	732789.44	N 32 12 38.95	W 103 42 51.51
	6401.57	8.43	129.74	6389.56	-31.97	-42.41	129.98	0.26	440972.07	732799.93	N 32 12 38.86	W 103 42 51.38
	6496.33	9.08	123.23	6483.22	-39.56	-50.95	141.58	1.25	440963.53	732811.53	N 32 12 38.77	W 103 42 51.25
	6591.15	10.09	117.30	6576.71	-46.36	-58.86	155.22	1.49	440955.63	732825.17	N 32 12 38.69	W 103 42 51.09
	6685.91	10.63	115.58	6669.93	-52.71	-66.44	170.48	0.66	440948.04	732840.43	N 32 12 38.62	W 103 42 50.92
	6780.51	11.22	114.09	6762.81	-58.92	-73.96	186.75	0.69	440940.52	732856.70	N 32 12 38.54	W 103 42 50.73
	6875.19	10.55	115.56	6855.79	-65.11	-81.46	202.98	0.77	440933.02	732872.93	N 32 12 38.47	W 103 42 50.54
	6969.75	10.35	112.38	6948.78	-70.81	-88.43	218.64	0.65	440926.05	732888.59	N 32 12 38.40	W 103 42 50.36
	7064.34	9.02	110.38	7042.02	-75.44	-94.25	233.45	1.45	440920.24	732903.40	N 32 12 38.34	W 103 42 50.18
	7158.91	9.04	109.17	7135.42	-79.33	-99.27	247.42	0.20	440915.21	732917.36	N 32 12 38.29	W 103 42 50.02
	7253.66	8.55	107.96	7229.06	-82.85	-103.89	261.15	0.55	440910.60	732931.09	N 32 12 38.24	W 103 42 49.86

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 ° ' ")
	7348.31	7.57	107.90	7322.77	-85.92	-107.97	273.77	1.04	440906.51	732943.72	N 32 12 38.20	W 103 42 49.72
	7443.09	6.89	105.48	7416.80	-88.44	-111.41	285.19	0.79	440903.08	732955.14	N 32 12 38.16	W 103 42 49.58
	7537.81	7.33	108.26	7510.79	-90.95	-114.82	296.41	0.59	440899.67	732966.35	N 32 12 38.13	W 103 42 49.45
	7632.33	7.65	117.49	7604.50	-94.83	-119.61	307.71	1.32	440894.87	732977.66	N 32 12 38.08	W 103 42 49.32
	7726.91	7.77	125.09	7698.23	-100.53	-126.19	318.53	1.08	440888.29	732988.47	N 32 12 38.02	W 103 42 49.20
	7821.52	8.20	127.53	7791.92	-107.45	-133.98	329.11	0.58	440880.51	732999.06	N 32 12 37.94	W 103 42 49.07
	7916.12	8.44	127.49	7885.53	-114.90	-142.32	339.97	0.25	440872.17	733009.91	N 32 12 37.86	W 103 42 48.95
	8010.84	8.73	124.97	7979.19	-122.32	-150.67	351.38	0.50	440863.82	733021.32	N 32 12 37.77	W 103 42 48.82
	8105.50	8.95	117.18	8072.73	-128.79	-158.15	363.82	1.28	440856.34	733033.76	N 32 12 37.70	W 103 42 48.67
	8200.03	8.61	105.57	8166.16	-132.97	-163.41	377.17	1.91	440851.08	733047.11	N 32 12 37.64	W 103 42 48.52
	8294.72	8.35	101.05	8259.81	-135.11	-166.63	390.75	0.76	440847.86	733060.69	N 32 12 37.61	W 103 42 48.36
	8389.38	7.96	107.07	8353.52	-137.31	-169.87	403.76	0.99	440844.62	733073.70	N 32 12 37.58	W 103 42 48.21
	8483.87	7.32	106.37	8447.17	-139.96	-173.48	415.79	0.68	440841.00	733085.73	N 32 12 37.54	W 103 42 48.07
	8578.37	6.33	107.18	8541.00	-142.33	-176.72	426.55	1.05	440837.77	733096.48	N 32 12 37.51	W 103 42 47.94
	8673.15	5.14	108.08	8635.30	-144.47	-179.58	435.57	1.26	440834.91	733105.51	N 32 12 37.48	W 103 42 47.84
	8767.84	5.00	109.46	8729.62	-146.52	-182.27	443.50	0.20	440832.22	733113.43	N 32 12 37.45	W 103 42 47.75
	8862.55	5.39	108.60	8823.94	-148.66	-185.07	451.60	0.42	440829.42	733121.54	N 32 12 37.43	W 103 42 47.65
	8957.19	6.91	109.45	8918.03	-151.21	-188.38	461.19	1.61	440826.11	733131.12	N 32 12 37.39	W 103 42 47.54
	9051.89	8.02	115.88	9011.93	-155.07	-193.16	472.50	1.47	440821.33	733142.44	N 32 12 37.35	W 103 42 47.41
	9146.50	7.56	111.33	9105.67	-159.27	-198.30	484.24	0.81	440816.19	733154.17	N 32 12 37.29	W 103 42 47.27
	9241.09	6.43	102.08	9199.56	-161.76	-201.68	495.21	1.68	440812.81	733165.15	N 32 12 37.26	W 103 42 47.14
	9335.77	5.92	87.52	9293.69	-161.86	-202.57	505.28	1.73	440811.92	733175.21	N 32 12 37.25	W 103 42 47.03
	9430.43	5.41	75.49	9387.89	-159.80	-201.25	514.47	1.36	440813.24	733184.41	N 32 12 37.26	W 103 42 46.92
	9525.20	4.67	50.20	9482.31	-155.65	-197.66	521.76	2.45	440816.83	733191.70	N 32 12 37.30	W 103 42 46.84
	9618.85	5.64	52.27	9575.58	-149.89	-192.40	528.33	1.05	440822.09	733198.26	N 32 12 37.35	W 103 42 46.76
	9713.64	7.59	53.27	9669.73	-142.62	-185.80	537.03	2.06	440828.68	733206.97	N 32 12 37.41	W 103 42 46.66
	9808.41	7.43	52.63	9763.69	-134.40	-178.34	546.92	0.19	440836.15	733216.85	N 32 12 37.49	W 103 42 46.54
	9903.01	5.74	53.81	9857.66	-127.23	-171.84	555.60	1.79	440842.65	733225.53	N 32 12 37.55	W 103 42 46.44
	9997.78	4.97	53.43	9952.02	-121.43	-166.59	562.72	0.81	440847.90	733232.65	N 32 12 37.60	W 103 42 46.36
	10092.70	4.94	50.35	10046.58	-115.88	-161.53	569.17	0.28	440852.95	733239.10	N 32 12 37.65	W 103 42 46.28
	10187.47	7.70	33.67	10140.77	-107.49	-153.64	575.83	3.47	440860.84	733245.76	N 32 12 37.73	W 103 42 46.20
	10282.22	13.96	41.70	10233.80	-92.82	-139.81	586.97	6.78	440874.67	733256.90	N 32 12 37.87	W 103 42 46.07
	10376.97	15.58	33.76	10325.42	-72.60	-120.70	601.64	2.73	440893.79	733271.57	N 32 12 38.05	W 103 42 45.90
	10471.53	23.34	29.22	10414.52	-44.45	-93.75	617.87	8.35	440920.73	733287.80	N 32 12 38.32	W 103 42 45.71
	10566.37	35.72	23.73	10496.89	-1.05	-51.84	638.27	13.35	440962.64	733308.19	N 32 12 38.73	W 103 42 45.47
Last Gyro	10663.86	46.43	16.54	10570.32	60.59	8.28	659.85	11.99	441022.76	733329.77	N 32 12 39.33	W 103 42 45.21
	10719.00	53.73	13.69	10605.68	102.14	49.08	670.81	13.82	441063.56	733340.74	N 32 12 39.73	W 103 42 45.08
	10814.00	63.54	10.02	10655.08	182.49	128.38	687.32	10.84	441142.85	733357.24	N 32 12 40.51	W 103 42 44.89
	10909.00	69.80	11.28	10692.69	269.18	214.06	703.45	6.70	441228.53	733373.38	N 32 12 41.36	W 103 42 44.69
	10956.00	76.99	10.59	10706.11	313.91	258.26	711.99	15.36	441272.72	733381.91	N 32 12 41.80	W 103 42 44.59
	11003.00	83.69	10.71	10713.99	359.96	303.76	720.55	14.26	441318.23	733390.47	N 32 12 42.25	W 103 42 44.49
	11096.00	90.65	9.56	10718.58	452.35	395.14	736.88	7.58	441409.60	733406.80	N 32 12 43.15	W 103 42 44.29
	11197.00	91.17	8.97	10716.98	552.99	494.81	753.14	0.78	441509.27	733423.06	N 32 12 44.14	W 103 42 44.10
	11292.00	91.07	6.91	10715.12	647.80	588.88	766.26	2.17	441603.33	733436.18	N 32 12 45.07	W 103 42 43.94
	11386.00	91.10	3.38	10713.34	741.77	682.47	774.68	3.75	441696.91	733444.60	N 32 12 45.99	W 103 42 43.83
	11481.00	90.96	359.79	10711.63	836.61	777.40	777.31	3.78	441791.84	733447.23	N 32 12 46.93	W 103 42 43.80
	11577.00	91.10	355.53	10709.90	931.88	873.28	773.39	4.44	441887.72	733443.31	N 32 12 47.88	W 103 42 43.83
	11670.00	90.96	351.64	10708.23	1023.15	965.67	763.00	4.18	441980.10	733432.93	N 32 12 48.80	W 103 42 43.95
	11763.00	91.00	352.27	10706.64	1113.90	1057.74	749.99	0.68	442072.17	733419.91	N 32 12 49.71	W 103 42 44.09
	11858.00	90.52	352.54	10705.38	1206.76	1151.90	737.44	0.58	442166.32	733407.36	N 32 12 50.64	W 103 42 44.23
	11952.00	89.55	351.85	10705.32	1298.58	1245.03	724.67	1.27	442259.44	733394.59	N 32 12 51.56	W 103 42 44.38
	12046.00	89.28	352.16	10706.28	1390.33	1338.11	711.60	0.44	442352.52	733381.52	N 32 12 52.48	W 103 42 44.52
	12141.00	89.45	352.16	10707.33	1483.12	1432.21	698.64	0.18	442446.62	733368.56	N 32 12 53.42	W 103 42 44.67
	12235.00	89.59	349.28	10708.12	1574.38	1524.97	683.48	3.07	442539.37	733353.41	N 32 12 54.33	W 103 42 44.84
	12329.00	89.90	349.94	10708.54	1665.20	1617.43	666.53	0.78	442631.82	733336.46	N 32 12 55.25	W 103 42 45.03
	12423.00	89.72	353.52	10708.85	1756.84	1710.43	653.01	3.81	442724.83	733322.94	N 32 12 56.17	W 103 42 45.18
	12518.00	89.62	356.56	10709.40	1850.52	1805.07	644.80	3.20	442819.45	733314.73	N 32 12 57.11	W 103 42 45.27
	12706.00	88.93	358.71	10711.78	2037.13	1992.88	637.04	1.20	443007.26	733306.97	N 32 12 58.97	W 103 42 45.35
	12801.00	90.17	359.68	10712.53	2131.71	2087.86	635.71	1.66	443102.24	733305.64	N 32 12 59.91	W 103 42 45.36
	12990.00	89.04	358.86	10713.83	2319.90	2276.84	633.30	0.74	443291.20	733303.23	N 32 13 1.78	W 103 42 45.37
	13084.00	89.45	358.98	10715.07	2413.44	2370.81	631.53	0.45	443385.17	733301.46	N 32 13 2.71	W 103 42 45.39
	13178.00	89.48	359.23	10715.94	2507.01	2464.80	630.06	0.27	443479.15	733299.99	N 32 13 3.64	W 103 42 45.40
	13272.00	89.66	359.64	10716.65	2600.63	2558.79	629.13	0.48	443573.14	733299.06	N 32 13 4.57	W 103 42 45.40
	13366.00	89.45	357.97	10717.38	2694.15	2652.76	627.17	1.79	443667.11	733297.10	N 32 13 5.50	W 103 42 45.42
	13461.00	90.17	357.52	10717.70	2788.48	2747.69	623.44	0.89	443762.03	733293.36	N 32 13 6.44	W 103 42 45.45
	13555.00	89.69	358.64	10717.81	2881.88	2841.63	620.29	1.30	443855.97	733290.21	N 32 13 7.37	W 103 42 45.48
	13650.00	89.83	359.80	10718.21	2976.47	2936.62	618.99	1.23	443950.95	733288.92	N 32 13 8.31	W 103 42 45.49
	13743.00	89.93	0.71	10718.40	3069.21	3029.62	619.41	0.98	444043.95	733289.33	N 32 13 9.23	W 103 42 45.48
	13838.00	90.03	0.15	10718.44	3163.96	3124.62	620.12	0.60	444138.94	733290.05	N 32 13 10.17	W 103 42 45.47
	13932.00	89.93	0.65	10718.47	3257.71	3218.61	620.78	0.54	444232.93	733290.70	N 32 13 11.10	W 103 42 45.45
	14026.00	89.93	0.27	10718.58	3351.47	3312.61	621.53	0.40	444326.92	733291.46	N 32 13 12.03	W 103 42 45.44
	14121.00	90.00	359.72	10718.64	3446.17	3407.61	621.52	0.58	444421.92	733291.45	N 32 13 12.97	W 103 42 45.43
	14310.00	89.83	0.34	10718.92	3634.58	3596.61	621.62	0.34	444610.91	733291.55	N 32 13 14.84	W 103 42 45.42
	14404.00	90.17	0.80	10718.92	3728.36	3690.60	622.56	0.61	444704.90	733292.48	N 32 13 15.77	W 103 42 45.40
	14593.00	90.58	359.21	10717.68	3916.75	3879.59	622.57	0.87	444893.88	733292.50	N 32 13 17.64	W 103 42 45.39
	14782.00	90.65	1.76	10715.66	4105.25	4068.56	624.17	1.35	445082.83	733294.10	N 32 13 19.51	W 103 42 45.36
	14971.00	89.42	359.34	10715.54	4293.77	4257.53	625.99	1.44	445271.80	733295.91	N 32 13 21.38	W 103 42 45.32
	15160.00	89.48	4.83	10717.36	4482.52	4446.33	632.86	2.90	445460.58	733302.79	N 32 13 23.24	W 103 42 45.23
	15255.00	90.24	2.32	10717.59	4577.49	4541.14	638.78	2.76	445555.38	733308.71	N 32 13 24.18	W 103 42 45.15
	15350.00	90.69	1.41	10716.82	4672.39	4636.08	641.87	1.07	445650.32	733311.80	N 32 13 25.12	W 103 42 45.11
	15444.00	90.86	0.26	10715.55	4766.18	4730.06	643.24	1.24	445744.30	733313.17	N 32 13 26.05	W 103 42 45.09
	15539.00	91.17	357.04	10713.86	4860.65	4825.01	641.01	3.40	445839.24	733310.93	N 32 13 26.99	W 103 42 45.11
	15634.00	89.69	357.62	10713.15	4954.89	4919.90	636.58	1.67	445934.13	733306.51	N 32 13 27.93	W 103 42 45.15
	15824.00	89.97	358.45	10713.71	5143.66	5109.78	630.07	0.46	446124.00	733299.99	N 32 13 29.81	W 103 42 45.22
	16013.00	90.86	356.52	10712.34	5331.21	5298.59	621.77	1.12	446312.80	733291.70	N 32 13 31.68	W 103 42 45.30
	16108.00	89.73	357.74	10711.86	5425.41	5393.46	617.02	1.75	446407.67	733286.95	N 32 13 32.62	W 103 42 45.35
	16297.00	90.45	0.09	10711.56	5613.48	5582.41	613.44	1.30	446596.61	733283.37	N 32 13 34.49	W 103 42 45.38
	16392.00	89.55	359.82	10711.56	5708.18	5677.41	613.36	0.99	446691.60	733283.29	N 32 13 35.43	W 103 42 45.37
	16487.00	90.89	1.04	10711.19	5802.93	5772.40	614.08	1.91	446786.59	733284.01	N 32 13 36.37	W 103 42 45.36
	16582.00	91.00	2.46	10709.63	5897.80	5867.34	616.98	1.50	446881.53	733286.91	N 32 13 37.31	W 103 42 45.32
	16772.00	90.79	358.14	10706.66	6087.21	6057.27	617.97	2.28	447071.45	733287.90	N 32 13 39.18	W 103 42 45.30
	16866.00	90.48	357.78	10705.62	6180.58	6151.21	614.63	0.51	447165.37	733284.56	N 32 13 40.11	W 103 42 45.33
	17056.00	91.10	358.44	10703.00	6369.36	6341.09	608.36	0.48	447355.24	733278.29	N 32 13 41.99	W 103 42 45.39
	17245.00	90.96	0.57	10699.60	6557.59	6530.04	606.73	1.13	447544.18	733276.66	N 32 13 43.86	W 103 42 45.39
	17435.00	89.79	358.51	10698.35	6746.84	6720.01	605.20	1.25	447734.15	733275.13	N 32 13 45.74	W 103 42 45.40
	17625.00	88.04	357.59	10701.95	6935.58	6909.86	598.74	1.04	447923.99	733268.67	N 32 13 47.62	W 103 42 45.46
	17815.00	89.59	359.17	10705.88	7124.43	7099.73	593.37	1.16	448113.85	733263.30	N 32 13 49.50	W 103 42 45.51
	17910.00	91.03	0.01	10705.37	7219.07	7194.72	592.69	1.75	448208.84	733262.62	N 32 13 50.44	W 103 42 45.51
	18099.00	91.55	0.96	10701.11	7407.54	7383.67	594.29	0.57	448397.77	733264.22	N 32 13 52.31	W 103 42 45.48
Final MWD Survey	18117.00	91.51	1.53	10700.63	7425.50	7401.66	594.68	3.17	448415.76	733264.61	N 32 13 52.49	W 103 42 45.48
Proj. to Bit	18161.00	91.51	1.53	10699.47	7469.43	7445.62	595.86	0.00	448459.72	733265.78	N 32 13 52.92	W 103 42 45.46

Survey Type: Def Survey

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

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 ° ' ")

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 / Oxy Mesa Verde BS Unit 12H Gyro+MWD 0-18,161'
	1	26.500	26.500	Act Stns	30.000	30.000	NAL_NSG+MSHOT-Depth Only	Original Borehole / Oxy Mesa Verde BS Unit 12H Gyro+MWD 0-18,161'
	1	26.500	10663.860	Act Stns	30.000	30.000	NAL_NSG+MSHOT	Original Borehole / Oxy Mesa Verde BS Unit 12H Gyro+MWD 0-
	1	10663.860	18161.000	Act Stns	30.000	30.000	NAL_MWD_PLUS_0.5_DEG	Original Borehole / Oxy Mesa Verde BS Unit 12H Gyro+MWD 0-