

Oxy
Cedar Canyon 21-22 Federal
Com # 34H
30-015-44134

NM OIL CONSERVATION
ARTESIA DISTRICT

AUG 01 2017

Schlumberger

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)

RECEIVED

Well Reference:
21 T, 24 S, 29 E, NMPM Eddy, NM
-32.20045 -102.99675

I, Drew Mikkonen certify that; I am employed by Drilling & Measurements, a division of Schlumberger Technology Corporation; that I did on the day(s) of June 03, 2017 through June 08, 2017, conduct or supervise the taking of the Telepacer&SlimPulse surveys from a depth of 157.00 feet to a depth of 19941.00 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 21-22 Fed Com 34H Well (Original Hole) API No 30-015-44134 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
Drew Mikkonen
FS

Drew Mikkonen

JENNIFER ALLEMAND
Notary Public
State of Colorado
Notary ID # 20164047962
My Commission Expires 12-20-2020

Subscribed and Sworn to before me this 5 day of July (month) 2017 (yr)

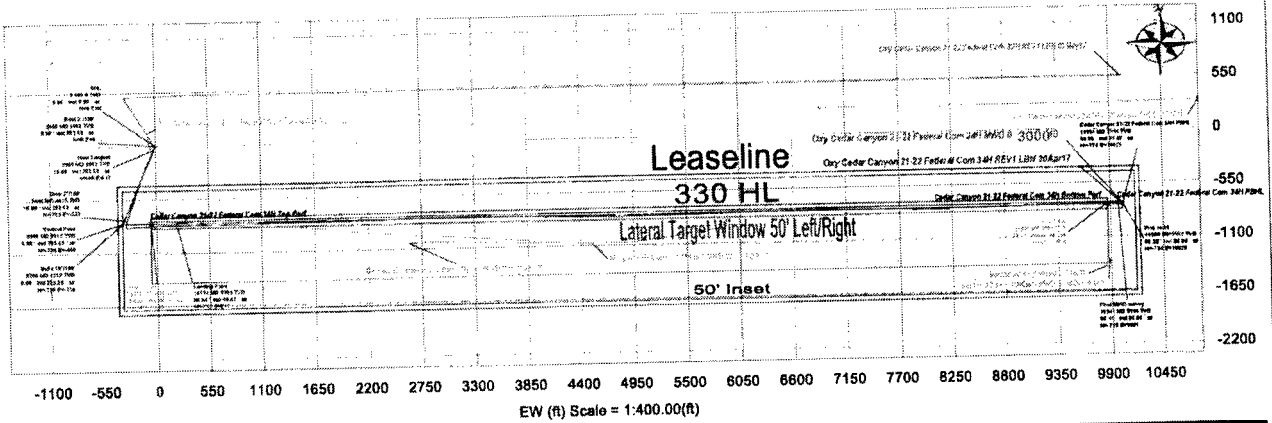
My Commission expires:
12-20-2020

J. Allemand (signature)
Notary Public
Adams County Colorado
(County State)

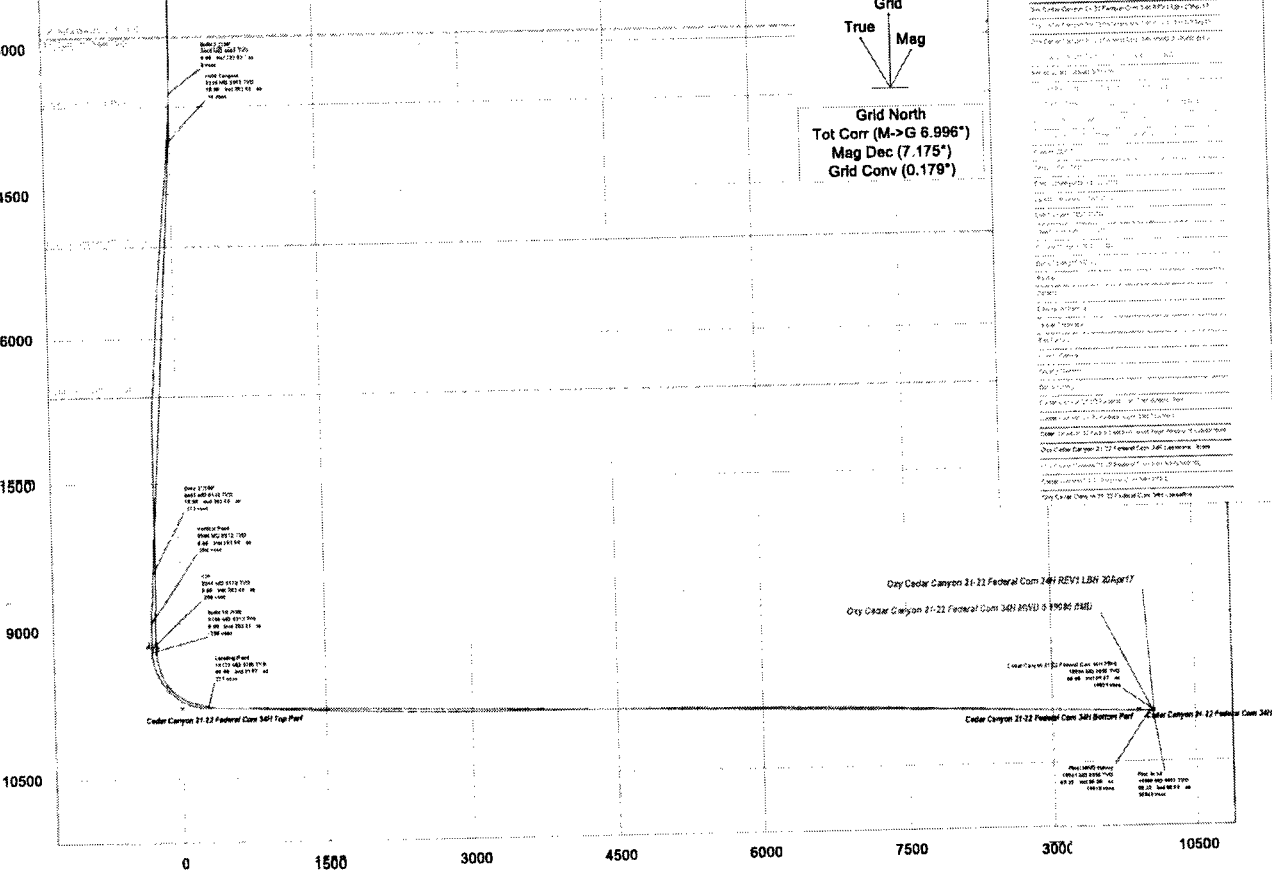


Borehole: **Original Borehole** Well: **Oxy Cedar Canyon 21-22 Federal Com 34H** Field: **NM Eddy County (NAD 83)** Structure: **Oxy Cedar Canyon 21-22 Federal Com 34H**

Company & Magnetic Parameters: Model: **HDDM 2016** Dip: **68.043°** Date: **04-May-2017** Surface Location: **NAD83 New Mexico State Plane, Eastern Zone, US Feet** Northing: **43826.771618** Grid Conv.: **8.1794°** Plot: **21-22 Federal** TVD Ref: **RKB=26.5(2654.3M above MSL)**
 MagDec: **7.175°** FS: **48132.1616T** Density: **P8** **899.4877mgm (P 80085 Broad)** Lon: **W 103.59 44.31** Easting: **645446.270128** Scale Fact: **0.9998215** Plan: **Oxy Cedar Canyon 21-22 Federal Com 34H REV1 LBN 20Apr17**



Comments	Survey Azim (deg)	Inclination (deg)	Approach Azimuth (deg)	Vert. Sep. (ft)	VS (ft)	NS (ft)	EW (ft)	Latitude (deg)	Longitude (deg)	Easting (ft)	Northing (ft)	RKB (ft)	Tool Face (deg)
SBL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N 32 12 1.618	W 103 59 48 308	645446.23	43826.77	0.00	203.69
Rustler	294.00	0.00	203.69	294.00	0.00	0.00	0.00	N 32 12 1.618	W 103 59 48 308	645446.23	43826.77	0.00	203.69
Salado	563.00	0.00	203.69	563.00	0.00	0.00	0.00	N 32 12 1.618	W 103 59 48 308	645446.23	43826.77	0.00	203.69
Castle (Athyrite)	1305.00	0.00	203.69	1305.00	0.00	0.00	0.00	N 32 12 1.618	W 103 59 48 308	645446.23	43826.77	0.00	203.69
Lamar/Delaware	2863.00	0.00	203.69	2863.00	0.00	0.00	0.00	N 32 12 1.618	W 103 59 48 308	645446.23	43826.77	0.00	203.69
Bell Canyon	2899.00	0.00	203.69	2899.00	0.00	0.00	0.00	N 32 12 1.618	W 103 59 48 308	645446.23	43826.77	0.00	203.69
Bulk 21'100'	3483.00	0.00	203.69	3483.00	0.00	0.00	0.00	N 32 12 1.618	W 103 59 48 308	645446.23	43826.77	0.00	203.69
Cherry Canyon	3600.00	0.00	203.69	3600.00	-1.05	-2.91	-1.29	N 32 12 1.588	W 103 59 48 323	645444.95	43826.77	2.00	0.00
Hold Tangent	3964.50	10.00	203.69	3962.37	14.35	-39.84	-17.48	E 32 12 1.225	W 103 59 48 515	645428.75	43826.77	0.00	0.00
Brushy Canyon	5050.17	10.00	203.69	5041.00	77.12	-213.96	-91.30	N 32 11 59.554	W 103 59 49 008	645352.34	43826.77	0.00	0.00
Bane Spring	6651.33	19.00	203.69	6608.00	158.20	-468.92	-204.32	N 32 11 54.122	W 103 59 50 716	645211.33	43826.77	0.00	0.00
Drop 2"180'	8485.99	19.00	203.69	8414.00	273.43	-758.59	-332.92	N 32 11 53.729	W 103 59 52 415	645095.96	43826.77	2.00	0.00
Vertical Pipe	8988.89	0.00	203.69	8912.17	-287.73	-758.43	-350.40	N 32 11 53.729	W 103 59 52 415	645095.96	43826.77	0.00	0.00
ICP	9243.72	0.00	203.69	9170.00	-287.73	-758.43	-350.40	N 32 11 53.729	W 103 59 52 415	645095.96	43826.77	0.00	0.00
Build 10"1100'	9280.89	0.00	203.69	9212.17	-287.73	-758.43	-350.40	N 32 11 53.729	W 103 59 52 415	645095.96	43826.77	0.00	0.00
Landing Point	10173.93	89.50	89.87	9789.00	271.44	-797.29	-210.60	N 32 11 53.723	W 103 59 45 887	645656.81	43826.77	0.00	0.00
Cedar Canyon 21 22 Federal Com 34H FBHL	18994.27	88.80	89.87	9990.91	10658.72	-775.61	-10026.77	N 32 11 53.610	W 103 57 51 629	645674.19	43826.77	0.00	0.00



Grid
 True
 Mag
 Grid North
 Tot Corr (M->G 6.996")
 Mag Dec (7.175")
 Grid Conv (0.178")

Vertical Section (ft) Azim = 94.422° Scale = 1:400.00(ft) Origin = 0N/-S, 0E/-W

Oxy Cedar Canyon 21-22 Federal Com 34H MWD 0-19980 ftMD Survey
 Geodetic Report
 (Def Survey)



Report Date: June 09, 2017 - 11 26 AM
 Client: OXY
 Field: NM Eddy County (NAD 83)
 Structure / Slot: Oxy Cedar Canyon 21-22 Federal Com 34H / Oxy Cedar Canyon 21-22 Federal Com 34H
 Well: Oxy Cedar Canyon 21-22 Federal Com 34H
 Borehole: Original Borehole
 UWM / API#: Unknown / Unknown
 Survey Name: Oxy Cedar Canyon 21-22 Federal Com 34H MWD 0-19980 RMD
 Survey Date: May 04, 2017
 Tori / AHD / DDI / ERO Ratio: 180.514 * / 11242.232 ft / 6.608 / 1.125
 Coordinate Reference System: NAD83 New Mexico State Plane - Eastern Zone, US Feet
 Location Lat / Long: N 32° 12' 1.61825" W 103° 59' 48.30835"
 Location Grid N/E Y/X: N 436920 770 RUS, E 645446 230 RUS
 CRS Grid Convergence Angle: 0.1794 *
 Grid Scale Factor: 0.9999215
 Version / Patch: 2.10.302.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 94.422 * (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB=26.5'
 TVD Reference Elevation: 2954.500 ft above MSL
 Seabed / Ground Elevation: 2928.000 ft above MSL
 Magnetic Declination: 7.175 *
 Total Gravity Field Strength: 9.7816m/s2
 Gravity Model: GARM
 Total Magnetic Field Strength: 48132.161 nT
 Magnetic Dip Angle: 60.043 *
 Declination Date: May 04, 2017
 Magnetic Declination Model: HDGM 2016
 North Reference: Grid North
 Grid Convergence Used: 0.1794 *
 Total Corr Mag North->Grid North: 6.9958 *
 Local Coord Referenced To: Well Head

Comments	MD (ft)	Inc (")	Azim Grid (")	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS ("100ft)	Northing (RUS)	Easting (RUS)	Latitude (N/S * * *)	Longitude (E/W * * *)
SHL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	436820.77	645446.23	N 32 12 1.62 W	103 59 48.31
	157.00	0.16	89.21	157.00	0.20	0.08	0.20	0.10	436820.85	645446.43	N 32 12 1.62 W	103 59 48.31
	215.00	0.32	100.35	215.00	0.43	0.08	0.44	0.35	436820.85	645446.67	N 32 12 1.62 W	103 59 48.30
	333.00	0.45	102.41	333.00	1.22	-0.08	1.22	0.11	436820.69	645447.45	N 32 12 1.62 W	103 59 48.29
	422.00	0.44	114.53	422.00	1.89	-0.30	1.87	0.11	436820.47	645448.10	N 32 12 1.61 W	103 59 48.29
	471.00	0.82	103.75	470.99	2.32	-0.44	2.30	0.42	436920.33	645448.53	N 32 12 1.61 W	103 59 48.28
	565.00	0.63	111.24	564.99	3.53	-0.81	3.48	0.97	436819.95	645449.71	N 32 12 1.61 W	103 59 48.27
	595.00	0.55	253.46	594.98	3.54	-0.95	3.49	1.17	436819.92	645449.92	N 32 12 1.61 W	103 59 48.27
	665.00	0.57	115.76	664.98	3.55	-1.16	3.48	1.18	436819.61	645449.70	N 32 12 1.60 W	103 59 48.27
	778.00	0.56	114.13	777.98	4.41	-1.55	4.31	0.02	436819.22	645480.54	N 32 12 1.60 W	103 59 48.26
	869.00	0.29	123.02	868.95	5.03	-1.66	4.91	0.30	436818.91	645451.14	N 32 12 1.60 W	103 59 48.25
	952.00	0.03	92.19	951.98	5.24	-1.97	5.10	0.32	436818.80	645451.33	N 32 12 1.60 W	103 59 48.25
	1042.00	0.09	164.08	1041.98	5.29	-2.04	5.15	0.10	436818.73	645451.38	N 32 12 1.60 W	103 59 48.25
	1142.00	0.06	169.24	1141.98	5.33	-2.17	5.18	0.03	436818.60	645451.41	N 32 12 1.60 W	103 59 48.25
	1236.00	0.25	33.33	1235.98	5.44	-2.05	5.30	0.31	436818.72	645451.53	N 32 12 1.60 W	103 59 48.25
	1329.00	0.16	44.74	1328.97	5.82	-1.78	5.50	0.11	436818.99	645451.73	N 32 12 1.60 W	103 59 48.24
	1425.00	0.01	64.36	1424.97	5.72	-1.69	5.60	0.16	436819.08	645451.83	N 32 12 1.60 W	103 59 48.24
	1520.00	0.04	168.97	1519.97	5.73	-1.71	5.62	0.05	436819.06	645451.85	N 32 12 1.60 W	103 59 48.24
	1615.00	0.04	309.34	1614.97	5.72	-1.73	5.60	0.08	436819.04	645451.83	N 32 12 1.60 W	103 59 48.24
	1709.00	0.02	319.57	1708.97	5.68	-1.99	5.56	0.02	436819.12	645451.78	N 32 12 1.60 W	103 59 48.24
	1804.00	0.04	348.78	1803.97	5.66	-1.85	5.52	0.04	436819.16	645451.75	N 32 12 1.60 W	103 59 48.24
	1879.00	0.04	308.89	1878.97	5.63	-1.61	5.51	0.06	436819.26	645451.74	N 32 12 1.60 W	103 59 48.24
	1993.00	0.07	13.34	1992.97	5.81	-1.51	5.51	0.08	436819.33	645451.70	N 32 12 1.60 W	103 59 48.24
	2088.00	0.06	292.78	2087.97	5.57	-1.44	5.47	0.09	436819.38	645451.65	N 32 12 1.60 W	103 59 48.25
	2182.00	0.03	341.83	2181.97	5.51	-1.39	5.42	0.05	436819.38	645451.64	N 32 12 1.60 W	103 59 48.25
	2277.00	0.05	187.83	2276.97	5.50	-1.41	5.41	0.08	436819.36	645451.64	N 32 12 1.60 W	103 59 48.25
	2371.00	0.03	1.52	2370.97	5.50	-1.43	5.40	0.08	436819.34	645451.63	N 32 12 1.60 W	103 59 48.25
	2466.00	0.14	223.63	2465.97	5.42	-1.49	5.32	0.17	436819.28	645451.55	N 32 12 1.60 W	103 59 48.25
	2560.00	0.07	216.51	2559.97	5.32	-1.62	5.21	0.08	436819.15	645451.44	N 32 12 1.60 W	103 59 48.25
	2655.00	0.08	222.37	2654.97	5.25	-1.71	5.13	0.01	436819.06	645451.36	N 32 12 1.60 W	103 59 48.25
	2749.00	0.02	11.06	2748.97	5.21	-1.74	5.09	0.10	436819.03	645451.32	N 32 12 1.60 W	103 59 48.25
	2843.00	0.02	40.42	2842.97	5.22	-1.72	5.10	0.01	436819.05	645451.33	N 32 12 1.60 W	103 59 48.25
	2938.00	0.07	276.81	2937.97	5.17	-1.70	5.06	0.09	436819.07	645451.29	N 32 12 1.60 W	103 59 48.25
	3032.00	0.06	313.38	3031.97	5.08	-1.96	4.96	0.04	436819.11	645451.19	N 32 12 1.60 W	103 59 48.25
	3127.00	0.06	308.71	3126.97	5.01	-1.58	4.90	0.02	436819.19	645451.13	N 32 12 1.60 W	103 59 48.25
	3222.00	0.20	188.08	3221.97	4.97	-1.70	4.85	0.26	436819.07	645451.08	N 32 12 1.60 W	103 59 48.25
	3317.00	1.57	212.01	3316.96	4.35	-2.97	4.13	0.88	436819.00	645430.36	N 32 12 1.59 W	103 59 48.26
	3412.00	3.35	205.47	3411.87	2.62	-6.51	2.12	1.88	436814.28	645448.35	N 32 12 1.55 W	103 59 48.28
	3506.00	5.00	210.02	3505.62	-0.27	-12.47	-1.24	1.76	436808.30	645444.99	N 32 12 1.48 W	103 59 48.32
	3601.00	6.56	208.08	3600.13	-4.24	-20.65	-5.86	1.65	436799.93	645440.37	N 32 12 1.41 W	103 59 48.38
	3695.00	7.96	207.79	3693.37	-8.98	-31.34	-11.43	1.49	436789.43	645434.80	N 32 12 1.31 W	103 59 48.44
	3790.00	9.25	207.40	3787.30	-14.57	-43.94	-18.01	1.36	436776.83	645428.22	N 32 12 1.18 W	103 59 48.52
	3885.00	10.61	206.97	3880.58	-20.90	-58.51	-25.49	1.43	436762.26	645420.74	N 32 12 1.04 W	103 59 48.61
	3979.00	11.49	206.36	3973.13	-27.72	-74.82	-33.57	0.94	436746.16	645412.66	N 32 12 0.88 W	103 59 48.70
	4074.00	12.85	206.06	4066.03	-35.08	-92.44	-42.34	1.22	436728.34	645403.89	N 32 12 0.70 W	103 59 48.80
	4169.00	13.63	205.60	4157.37	-42.88	-111.67	-51.65	1.05	436709.10	645394.59	N 32 12 0.51 W	103 59 48.91
	4263.00	14.45	205.06	4249.73	-51.11	-132.51	-61.51	0.87	436688.27	645384.73	N 32 12 0.31 W	103 59 49.03
	4358.00	14.80	204.50	4341.85	-59.45	-154.29	-71.56	0.40	436666.50	645374.88	N 32 12 0.09 W	103 59 49.15
	4452.00	15.04	204.48	4432.48	-67.76	-176.31	-81.59	0.25	436644.47	645364.85	N 32 11 59.88 W	103 59 49.26
	4547.00	15.46	204.01	4524.14	-76.22	-199.10	-91.84	0.46	436621.69	645354.36	N 32 11 58.05 W	103 59 49.38
	4641.00	15.93	203.94	4614.64	-84.09	-222.59	-101.55	1.01	436598.20	645344.69	N 32 11 56.42 W	103 59 49.50
	4736.00	16.12	203.35	4705.94	-92.07	-246.88	-111.44	0.73	436573.91	645334.80	N 32 11 54.18 W	103 59 49.61
	4830.00	16.64	202.66	4796.15	-100.49	-271.20	-121.76	0.49	436549.59	645324.48	N 32 11 58.94 W	103 59 49.74
	4924.00	16.68	202.12	4886.23	-108.78	-296.05	-132.00	0.22	436524.75	645314.24	N 32 11 58.69 W	103 59 49.86
	5018.00	16.87	201.79	4977.24	-116.99	-321.33	-142.19	0.10	436499.47	645304.05	N 32 11 58.44 W	103 59 49.97
	5113.00	16.55	201.83	5067.31	-125.02	-346.28	-152.17	0.13	436474.52	645294.07	N 32 11 58.20 W	103 59 50.09
	5207.00	16.81	201.16	5157.33	-132.96	-371.46	-162.09	0.43	436449.34	645284.16	N 32 11 57.95 W	103 59 50.21
	5302.00	17.01	201.38	5248.20	-140.99	-397.28	-172.14	0.13	436423.52	645274.10	N 32 11 57.66 W	103 59 50.33
	5397.00	17.43	200.35	5338.94	-148.95	-423.56	-182.15	0.55	436397.25	645264.09	N 32 11 57.43 W	103 59 50.44
	5491.00	16.83	199.78	5428.77	-156.42	-449.56	-191.66	0.66	436371.24	645254.59	N 32 11 57.18 W	103 59 50.56
	5585.00	16.22	199.93	5519.85	-163.39	-475.08	-200.81	0.89	436345.75	645245.63	N 32 11 56.92 W	103 59 50.66
	5681.00	15.86	199.70	5611.10	-169.95	-500.05	-209.13	0.18	436320.76	645237.12	N 32 11 56.92 W	103 59 50.78
	5775.00	15.89	199.84	5701.52	-176.32	-524.30	-217.40	0.40	436296.41	645228.84	N 32 11 56.44 W	103 59 50.86
	5869.00	15.71	201.68	5792.01	-183.26	-548.25	-225.21	0.82	436272.55	645220.04	N 32 11 55.96 W	103 59 50.96
	5964.00	15.52	199.43	5883.51	-190.37	-572.19	-235.19	0.67	436248.62	645211.06	N 32 11 55.73 W	103 59 51.16
	6058.00	15.17	199.45	5974.16	-196.81	-595.65	-243.47	0.37	436225.17	645202.78	N 32 11 55.50 W	103 59 51.26
	6153.00	15.35	199.09	6065.81	-203.01	-619.32	-251.51	0.42	436201.50	645194.74	N 32 11 55.50 W	103 59 51.26
	6247.00	14.50	197.92	6156.84	-208.69	-642.35	-259.00	0.81	436178.48	645187.25	N 32 11 55.27 W	103 59 51.35
	6342.00	14.88	198.99	6248.57	-214.50	-665.04	-266.57	0.34	436155.78	645179.68	N 32 11 55.05 W	103 59 51.43
	6437.00	14.23	197.75	6340.57	-220.22	-687.55	-274.05	0.57	436133.28	645172.20	N 32 11 54.82 W	103 59 51.52
	6531.00	14.11	197.07	6431.71	-225.39	-709.50	-280.93	0.22	436111.32	645165.32	N 32 11 54.81 W	103 59 51.60
	6626.00	14.27	200.45	6523.81	-231.16	-731.54	-288.42	0.89	436088.28	645157.83	N 32 11 54.39 W	103 59 51.69
	6720.00	14.09	201.59	6614.94	-237.73	-753.04	-294.68	0.35	436067.79	645149.57	N 32 11 54.16 W	103 59 51.79
	6814.00	12.52	200.17	6706.42	-243.88	-773.24	-304.41</					

Comments	MD (ft)	Incl (°)	Azjm Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	7382.00	0.30	167.69	7269.86	-246.57	-834.70	-311.97	2.00	435986.14	645134.29	N 32 11 53.37	W 103 59 51.97
	7476.00	0.08	96.10	7363.86	-246.53	-834.82	-311.94	0.37	435985.92	645134.32	N 32 11 53.37	W 103 59 51.97
	7570.00	0.11	353.38	7457.86	-246.59	-834.80	-311.89	0.12	435986.03	645134.37	N 32 11 53.37	W 103 59 51.97
	7665.00	0.06	210.78	7552.86	-246.62	-834.76	-311.92	0.17	435986.08	645134.34	N 32 11 53.37	W 103 59 51.97
	7760.00	0.06	148.80	7647.86	-246.61	-834.85	-311.91	0.06	435985.99	645134.35	N 32 11 53.37	W 103 59 51.97
	7854.00	0.13	281.05	7741.86	-246.68	-834.87	-311.89	0.19	435985.97	645134.27	N 32 11 53.37	W 103 59 51.97
	7949.00	0.38	269.26	7836.86	-247.11	-834.85	-312.41	0.27	435985.98	645133.85	N 32 11 53.37	W 103 59 51.97
	8044.00	0.25	223.18	7931.86	-247.55	-835.01	-312.87	0.29	435985.83	645133.39	N 32 11 53.37	W 103 59 51.98
	8138.00	0.06	171.44	8026.86	-247.67	-835.21	-313.00	0.23	435985.63	645133.26	N 32 11 53.36	W 103 59 51.98
	8233.00	0.13	238.87	8120.86	-247.74	-835.31	-313.08	0.13	435985.53	645133.17	N 32 11 53.36	W 103 59 51.98
	8327.00	0.00	115.12	8214.86	-247.83	-835.37	-313.18	0.14	435985.47	645133.08	N 32 11 53.36	W 103 59 51.98
	8421.00	0.18	168.69	8308.86	-247.79	-835.51	-313.15	0.19	435985.33	645133.11	N 32 11 53.36	W 103 59 51.98
	8516.00	0.06	198.06	8403.86	-247.76	-835.70	-313.13	0.14	435985.13	645133.12	N 32 11 53.36	W 103 59 51.98
	8610.00	0.00	275.85	8497.86	-247.77	-835.75	-313.15	0.06	435985.09	645133.11	N 32 11 53.36	W 103 59 51.98
	8705.00	0.13	168.77	8592.86	-247.74	-835.89	-313.12	0.14	435984.98	645133.14	N 32 11 53.36	W 103 59 51.98
	8799.00	0.06	343.03	8686.86	-247.72	-835.85	-313.08	0.09	435984.98	645133.20	N 32 11 53.36	W 103 59 51.98
	8894.00	0.06	79.24	8781.86	-247.70	-835.81	-313.06	0.11	435985.03	645133.17	N 32 11 53.36	W 103 59 51.98
	8988.00	0.06	324.79	8875.86	-247.68	-835.81	-313.06	0.11	435985.03	645133.17	N 32 11 53.36	W 103 59 51.98
	9082.00	0.35	200.86	8969.86	-247.79	-836.04	-313.19	0.41	435984.80	645133.00	N 32 11 53.35	W 103 59 51.98
	9143.00	0.16	179.79	9030.86	-247.84	-836.29	-313.26	0.34	435984.54	645133.00	N 32 11 53.35	W 103 59 51.98
	9342.00	2.18	94.94	9229.81	-244.03	-836.90	-309.48	1.09	435983.94	645136.77	N 32 11 53.35	W 103 59 51.94
	9440.00	13.92	93.16	9326.67	-230.33	-837.71	-295.81	11.98	435983.13	645150.45	N 32 11 53.34	W 103 59 51.78
	9534.00	16.62	86.78	9418.89	-204.14	-837.49	-269.52	5.34	435983.34	645176.73	N 32 11 53.34	W 103 59 51.48
	9627.00	27.96	82.85	9502.22	-167.98	-833.94	-232.98	10.18	435986.90	645213.27	N 32 11 53.37	W 103 59 51.05
	9722.00	40.87	90.93	9580.47	-114.89	-831.66	-178.55	14.39	435989.17	645266.69	N 32 11 53.39	W 103 59 50.43
	9816.00	53.46	86.23	9644.27	-46.52	-829.67	-110.82	13.88	435991.17	645335.41	N 32 11 53.41	W 103 59 49.63
	9910.00	81.01	86.45	9695.10	31.68	-824.63	-32.00	8.03	435996.20	645414.23	N 32 11 53.46	W 103 59 48.71
	10005.00	74.69	88.70	9730.84	118.84	-821.01	55.70	14.56	435999.83	645501.93	N 32 11 53.49	W 103 59 47.88
	10099.00	76.85	89.03	9754.10	209.48	-819.20	148.75	2.11	436001.63	645592.97	N 32 11 53.51	W 103 59 46.63
	10197.00	79.45	91.30	9774.40	305.08	-819.49	242.61	3.65	436001.35	645688.82	N 32 11 53.50	W 103 59 45.51
	10291.00	86.87	90.20	9785.58	398.15	-820.70	335.87	7.98	436000.13	645782.07	N 32 11 53.49	W 103 59 44.43
	10385.00	89.00	89.37	9788.87	491.78	-820.35	429.80	2.43	436000.49	645876.00	N 32 11 53.49	W 103 59 43.34
	10479.00	87.87	89.31	9791.46	585.37	-819.27	523.76	1.10	436001.57	645969.85	N 32 11 53.50	W 103 59 42.24
	10569.00	87.01	89.73	9798.73	673.50	-817.68	617.57	0.55	436003.15	646058.74	N 32 11 53.50	W 103 59 41.05
	10662.00	87.08	89.72	9804.68	767.06	-817.23	706.44	0.08	436003.60	646252.61	N 32 11 53.51	W 103 59 39.95
	10657.00	86.84	89.07	9809.62	861.56	-816.23	791.30	0.73	436004.60	646347.46	N 32 11 53.51	W 103 59 37.85
	10651.00	87.42	89.55	9814.32	955.07	-815.10	876.18	0.60	436005.73	646441.33	N 32 11 53.52	W 103 59 36.76
	11045.00	88.11	89.30	9817.99	1148.64	-814.18	969.10	0.78	436006.88	646535.24	N 32 11 53.53	W 103 59 35.68
	11140.00	88.08	89.26	9821.15	1243.20	-812.97	1184.04	0.05	436007.87	646630.18	N 32 11 53.54	W 103 59 34.56
	11234.00	88.38	89.07	9824.05	1336.76	-811.60	1277.99	0.38	436009.24	646724.11	N 32 11 53.55	W 103 59 33.47
	11424.00	87.15	89.46	9831.46	1525.85	-809.16	1467.82	0.68	436011.87	646813.93	N 32 11 53.57	W 103 59 31.26
	11518.00	87.18	89.60	9836.11	1619.39	-808.39	1656.58	0.15	436012.44	647007.81	N 32 11 53.57	W 103 59 30.16
	11613.00	87.11	89.30	9840.84	1713.91	-807.48	1846.58	0.32	436013.35	647192.68	N 32 11 53.58	W 103 59 29.06
	11707.00	86.25	89.24	9844.65	1807.46	-806.28	2036.35	1.21	436014.55	647378.58	N 32 11 53.59	W 103 59 27.97
	11803.00	88.45	89.20	9847.41	1903.02	-804.96	2226.21	0.21	436015.85	647564.58	N 32 11 53.60	W 103 59 26.85
	11899.00	88.56	89.08	9849.32	1998.58	-803.54	2416.20	0.17	436017.30	647750.45	N 32 11 53.61	W 103 59 25.73
	11993.00	88.49	88.92	9852.34	2092.13	-801.90	2606.25	0.19	436018.94	647936.27	N 32 11 53.62	W 103 59 24.64
	12088.00	88.49	88.91	9854.84	2186.66	-800.10	2796.31	0.01	436020.74	648122.03	N 32 11 53.63	W 103 59 23.55
	12182.00	88.31	89.10	9857.46	2280.20	-798.47	2986.38	0.28	436022.37	648307.81	N 32 11 53.65	W 103 59 22.44
	12277.00	88.56	89.24	9860.06	2374.77	-797.09	3176.44	0.30	436023.74	648493.58	N 32 11 53.66	W 103 59 21.33
	12372.00	88.56	88.92	9862.45	2469.32	-795.57	2415.17	0.34	436025.27	648679.35	N 32 11 53.67	W 103 59 20.23
	12561.00	89.00	89.24	9866.47	2657.46	-792.53	2604.10	0.29	436028.30	648865.12	N 32 11 53.69	W 103 59 18.03
	12656.00	89.07	89.04	9868.07	2752.04	-791.11	2793.08	0.22	436029.73	649050.90	N 32 11 53.71	W 103 59 16.83
	12749.00	89.35	89.52	9869.35	2844.66	-789.54	2982.06	0.60	436030.90	649236.67	N 32 11 53.71	W 103 59 15.65
	12941.00	89.79	89.30	9870.79	3035.92	-787.96	3171.03	0.26	436032.87	649422.44	N 32 11 53.73	W 103 59 13.61
	13036.00	90.21	89.15	9870.79	3130.53	-786.66	3360.00	0.47	436034.18	649608.21	N 32 11 53.74	W 103 59 12.51
	13130.00	90.24	89.44	9870.42	3224.15	-785.52	3548.97	0.31	436035.31	649793.98	N 32 11 53.75	W 103 59 11.41
	13225.00	89.97	89.00	9870.25	3318.76	-784.23	3737.94	0.54	436036.61	649979.75	N 32 11 53.76	W 103 59 10.30
	13320.00	90.17	89.23	9870.13	3413.35	-782.78	3926.91	0.32	436038.07	650165.52	N 32 11 53.77	W 103 59 9.21
	13415.00	88.83	89.10	9870.13	3508.08	-783.02	4115.88	1.99	436037.81	650351.29	N 32 11 53.78	W 103 59 8.09
	13509.00	89.87	89.59	9870.30	3601.92	-784.85	4304.85	0.26	436038.18	650537.06	N 32 11 53.74	W 103 59 7.00
	13603.00	90.24	90.95	9869.85	3790.56	-787.68	4493.82	0.15	436033.15	650722.83	N 32 11 53.71	W 103 59 4.80
	13793.00	90.07	91.13	9869.69	3885.40	-789.41	4682.79	0.28	436031.43	650908.60	N 32 11 53.89	W 103 59 3.70
	13887.00	90.17	91.05	9869.50	3979.24	-791.20	4871.76	0.14	436029.64	651094.37	N 32 11 53.87	W 103 59 2.60
	13982.00	89.87	91.18	9869.38	4073.08	-793.04	5060.73	0.25	436027.79	651280.14	N 32 11 53.84	W 103 59 1.50
	14077.00	89.97	91.07	9869.43	4168.92	-794.91	5249.70	0.12	436025.92	651465.91	N 32 11 53.82	W 103 59 0.39
	14266.00	90.14	91.36	9869.25	4357.82	-798.92	5438.67	0.18	436021.92	651651.68	N 32 11 53.58	W 103 58 58.19
	14361.00	90.07	91.14	9869.08	4442.48	-800.99	5627.64	0.24	436018.84	651837.45	N 32 11 53.55	W 103 58 57.09
	14456.00	90.03	90.85	9868.99	4547.31	-802.64	5816.61	0.31	436018.20	652023.22	N 32 11 53.53	W 103 58 55.98
	14551.00	90.10	90.85	9868.88	4642.12	-804.05	6005.58	0.07	436016.79	652208.99	N 32 11 53.52	W 103 58 54.88
	14645.00	89.86	90.80	9868.92	4735.94	-805.40	6194.55	0.26	436015.43	652394.76	N 32 11 53.50	W 103 58 53.78
	14741.00	88.76	90.44	9870.07	4831.72	-806.44	6383.52	1.21	436014.39	652580.53	N 32 11 53.49	W 103 58 52.67
	14836.00	89.38	89.33	9871.62	4926.41	-808.25	6572.49	1.34	436014.58	652766.30	N 32 11 53.49	W 103 58 51.56
	14930.00	89.11	89.11	9872.65	5020.20	-809.25	6761.46	0.37	436015.86	652952.07	N 32 11 53.50	W 103 58 50.46
	15025.00	89.53	89.17	9874.60	5114.60	-803.54	6950.43	0.26	436017.29	653137.84	N 32 11 53.51	W 103 58 49.36
	15120.00	89.00	89.16	9875.95	5209.18	-802.18	7139.40	0.07	436018.62	653323.61	N 32 11 53.5	

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 ° ' ")
	18926.00	88.04	88.99	9985.45	8900.61	-779.11	8866.93	0.22	436041.72	654312.45	N 32 11 53.62 W 103 58 5.15	
	18921.00	88.04	89.33	9968.70	8995.15	-777.72	8961.87	0.36	436043.12	654407.37	N 32 11 53.63 W 103 58 4.04	
	19110.00	88.52	88.84	9974.37	9183.25	-774.70	9150.75	0.36	436046.13	654596.25	N 32 11 53.66 W 103 59 1.85	
	19299.00	88.59	89.08	9979.14	9371.33	-771.27	9339.86	0.13	436049.56	654785.14	N 32 11 53.68 W 103 57 59.65	
	19395.00	88.21	88.92	9981.82	9466.86	-769.60	9435.51	0.43	436051.24	654881.08	N 32 11 53.70 W 103 57 56.53	
	19488.00	88.59	88.96	9984.44	9560.39	-767.86	9529.56	0.41	436052.97	654975.02	N 32 11 53.71 W 103 57 67.44	
	19584.00	88.56	88.67	9986.81	9654.91	-765.89	9624.51	0.31	436054.94	655069.96	N 32 11 53.73 W 103 57 56.33	
	19678.00	88.56	88.65	9989.17	9748.41	-763.70	9718.45	0.02	436057.14	655163.80	N 32 11 53.75 W 103 57 55.24	
	19772.00	88.62	89.12	9991.48	9841.94	-761.87	9812.41	0.50	436058.95	655257.85	N 32 11 53.76 W 103 57 54.15	
	19866.00	88.63	88.90	9993.74	9935.48	-760.24	9906.37	0.23	436060.59	655351.80	N 32 11 53.77 W 103 57 53.05	
Final MWD survey	19941.00	88.35	88.88	9995.71	10010.12	-758.79	9981.33	0.37	436062.04	655426.75	N 32 11 53.79 W 103 57 52.18	
Proj. to bit	19980.00	88.35	88.88	9995.84	10048.92	-758.03	10020.30	0.00	436062.80	655465.73	N 32 11 53.79 W 103 57 51.73	

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_MWD_PLUS_0.5_DEG-Depth Only	Original Borehole / Oxy Cedar Canyon 21-22 Federal Com 34H MWD 0-19980 ftMD
	1	26.500	26.500	Act Slits	30.000	30.000	NAL_MWD_PLUS_0.5_DEG-Depth Only	Original Borehole / Oxy Cedar Canyon 21-22 Federal Com 34H MWD 0-19980 ftMD
	1	26.500	19980.000	Act Slits	30.000	30.000	NAL_MWD_PLUS_0.5_DEG	Original Borehole / Oxy Cedar Canyon 21-22 Federal Com 34H