

Results of Directional Survey

API number:	30-025-40528		
OGRID:		Operator:	EOG RESOURCES INC
		Property:	VACA 24 FEDERAL COM # 2H

surface	ULSTR:	M	24	T	25S	R	33E
				50	FSL	430	FWL

BH Loc	ULSTR:	L	13	T	25S	R	33E
16947	MD	9427.9	TVD	2409	FSL	463	FWL
				7689	FSL		

Top Perf/OH	ULSTR:	M	24	T	25S	R	33E
9685	MD	9512.1	TVD	434	FSL	402	FWL

Bot Perf/OH	ULSTR:	L	13	T	25S	R	33E
16826	MD	9430.2	TVD	2288	FSL	406	FWL
				7568	FSL		

	MD	N/S	E/W	VD
	9664	363.67	-27.77	9506.52
TOP PERFS/OH	9685	383.92	-27.82	9512.08
	9695	393.56	-27.84	9514.73
	16731	7423.50	-24.17	9431.89
BOT PERFS/OH	16826	7518.48	-23.82	9430.19
	16826	7518.48	-23.82	9430.19

NEXT TO LAST	16905	7597.47	32.60	9428.80
LAST READING	16947	7639.46	32.90	9427.92
TD	16947	7639.46	32.90	9427.92

Surface Location	50	FS	430	FW
Projected BHL	7689	FS	463	FW
Location of				
Top Perfs/OH	434	FS	402	FW
Bottom Perfs/OH	7568	FS	406	FW

SUMMARY of Subsurface Locations

Surface Location	M-24-25S-33E	50	FS	430	FW	Vert. Depth
Top Perfs/OH	M-24-25S-33E	434	FS	402	FW	9512.08
Bottom Perfs/OH	L-13-25S-33E	7568	FS	406	FW	9430.19
Projected TD	L-13-25S-33E	7689	FS	463	FW	9427.92

APR 10 2013

SUR: M-24-25s-33e, 50/S & 430/W
 BHL: L-13-25s-33e, 7689/S & 463/W
 API # 30-025-40528



EOG Vaca 24 Fed Com #2H Gyro+MWD 0-16947' MD Survey Geodetic Report



(Def Survey)

Report Date: December 12, 2012 - 10:11 AM
 Client: Eog Resources
 Field: NM Lea County (NAD 27)
 Structure / Siot: EOG Vaca 24 Fed Com #2H / EOG Vaca 24 Fed Com #2H
 Well: EOG Vaca 24 Fed Com #2H
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: EOG Vaca 24 Fed Com #2H Gyro+MWD 0-16947' MD
 Survey Date: November 21, 2012
 Tort / AHD / DDI / ERD Ratio: 159.908 * / 7661.849 ft / 6.338 / 0.804
 Coordinate Reference System: NAD27 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 6' 31.60800", W 103° 31' 57.86363"
 Location Grid N/E Y/X: N 404217.700 ftUS, E 747889.800 ftUS
 CRS Grid Convergence Angle: 0.4256 *
 Grid Scale Factor: 0.99997947

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 359.561 * (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: KB
 TVD Reference Elevation: 3371.900 ft above
 Seabed / Ground Elevation: 3341.900 ft above
 Magnetic Declination: 7.484 *
 Total Gravity Field Strength: 999.1603 mgn (9.8 based)
 Total Magnetic Field Strength: 48394.361 nT
 Magnetic Dip Angle: 60.010 *
 Declination Date: November 21, 2012
 Magnetic Declination Model: BGGM 2012
 North Reference: Grid North
 Grid Convergence Used: 0.4256 *
 Total Corr Mag North->Grid North: 7.0585 *
 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	359.56	0.00	0.00	0.00	0.00	N/A	404217.70	747889.80	N 32 6 31.61	W 103 31 57.86
	100.00	0.17	304.73	100.00	0.09	0.08	-0.12	0.17	404217.78	747889.68	N 32 6 31.61	W 103 31 57.87
	200.00	0.17	307.39	200.00	0.26	0.26	-0.36	0.01	404217.96	747889.44	N 32 6 31.61	W 103 31 57.87
	300.00	0.10	260.50	300.00	0.34	0.33	-0.57	0.13	404218.03	747889.23	N 32 6 31.61	W 103 31 57.87
	400.00	0.11	257.39	400.00	0.31	0.30	-0.75	0.01	404218.00	747889.05	N 32 6 31.61	W 103 31 57.87
	500.00	0.09	229.28	500.00	0.23	0.23	-0.90	0.05	404217.93	747888.90	N 32 6 31.61	W 103 31 57.87
	600.00	0.01	223.74	600.00	0.18	0.17	-0.96	0.08	404217.87	747888.84	N 32 6 31.61	W 103 31 57.87
	700.00	0.05	227.11	700.00	0.14	0.13	-1.00	0.04	404217.83	747888.80	N 32 6 31.61	W 103 31 57.88
	800.00	0.06	219.51	800.00	0.07	0.06	-1.07	0.01	404217.76	747888.73	N 32 6 31.61	W 103 31 57.88
	900.00	0.04	223.15	900.00	0.01	0.00	-1.12	0.02	404217.70	747888.68	N 32 6 31.61	W 103 31 57.88
	1000.00	0.12	286.68	1000.00	0.01	0.00	-1.25	0.11	404217.70	747888.55	N 32 6 31.61	W 103 31 57.88
Last Gyro	1100.00	0.11	317.80	1100.00	0.11	0.10	-1.41	0.06	404217.80	747888.39	N 32 6 31.61	W 103 31 57.88
	1125.00	0.15	301.39	1125.00	0.15	0.14	-1.46	0.22	404217.84	747888.34	N 32 6 31.61	W 103 31 57.88
	1268.00	0.08	140.82	1268.00	0.17	0.16	-1.55	0.16	404217.86	747888.25	N 32 6 31.61	W 103 31 57.88
	1361.00	0.10	301.79	1361.00	0.16	0.15	-1.58	0.19	404217.85	747888.22	N 32 6 31.61	W 103 31 57.88
	1551.00	0.07	230.11	1551.00	0.18	0.16	-1.81	0.05	404217.86	747887.99	N 32 6 31.61	W 103 31 57.88
	1742.00	0.11	353.26	1742.00	0.29	0.27	-1.92	0.08	404217.97	747887.88	N 32 6 31.61	W 103 31 57.89
	1932.00	0.14	271.18	1932.00	0.47	0.46	-2.18	0.09	404218.16	747887.62	N 32 6 31.61	W 103 31 57.89
	2121.00	0.14	332.52	2121.00	0.69	0.67	-2.51	0.08	404218.37	747887.29	N 32 6 31.61	W 103 31 57.89
	2311.00	0.11	306.12	2311.00	1.00	0.98	-2.77	0.03	404218.68	747887.03	N 32 6 31.62	W 103 31 57.90
	2501.00	0.05	286.15	2501.00	1.13	1.11	-3.00	0.03	404218.81	747886.80	N 32 6 31.62	W 103 31 57.90
	2691.00	0.05	279.82	2691.00	1.17	1.15	-3.16	0.00	404218.85	747886.64	N 32 6 31.62	W 103 31 57.90
	2881.00	0.08	232.92	2881.00	1.11	1.08	-3.34	0.03	404218.78	747886.46	N 32 6 31.62	W 103 31 57.90
	3070.00	0.08	169.37	3070.00	0.90	0.87	-3.43	0.04	404218.57	747886.37	N 32 6 31.62	W 103 31 57.90
	3261.00	0.10	321.45	3261.00	0.90	0.87	-3.50	0.09	404218.57	747886.30	N 32 6 31.62	W 103 31 57.90
	3451.00	0.08	107.13	3451.00	0.99	0.96	-3.48	0.09	404218.66	747886.32	N 32 6 31.62	W 103 31 57.90
	3641.00	0.21	337.09	3641.00	1.27	1.24	-3.49	0.14	404218.94	747886.31	N 32 6 31.62	W 103 31 57.90
	3830.00	0.08	238.79	3830.00	1.52	1.49	-3.74	0.12	404219.19	747886.06	N 32 6 31.62	W 103 31 57.91
	4020.00	0.07	133.91	4020.00	1.37	1.35	-3.77	0.06	404219.05	747886.03	N 32 6 31.62	W 103 31 57.91
	4210.00	0.10	184.81	4209.99	1.13	1.10	-3.70	0.04	404218.80	747886.10	N 32 6 31.62	W 103 31 57.91
	4400.00	0.11	226.39	4399.99	0.84	0.81	-3.84	0.04	404218.51	747885.96	N 32 6 31.62	W 103 31 57.91
	4590.00	0.26	114.56	4589.99	0.53	0.50	-3.58	0.17	404218.20	747885.22	N 32 6 31.61	W 103 31 57.91
	4780.00	0.41	184.68	4779.99	-0.33	-0.35	-3.25	0.21	404217.35	747886.55	N 32 6 31.60	W 103 31 57.90
	4970.00	0.14	162.81	4969.99	-1.23	-1.25	-3.23	0.15	404216.45	747886.57	N 32 6 31.60	W 103 31 57.90
	4995.00	0.12	86.73	4994.99	-1.26	-1.28	-3.20	0.64	404216.42	747886.60	N 32 6 31.60	W 103 31 57.90
	5150.00	0.08	250.05	5149.99	-1.28	-1.31	-3.14	0.13	404216.39	747886.66	N 32 6 31.60	W 103 31 57.90
	5245.00	0.08	236.92	5244.99	-1.34	-1.37	-3.26	0.02	404216.33	747886.54	N 32 6 31.59	W 103 31 57.90
	5435.00	0.10	302.47	5434.99	-1.32	-1.35	-3.51	0.05	404216.35	747886.29	N 32 6 31.59	W 103 31 57.90
	5625.00	0.10	69.89	5624.99	-1.18	-1.20	-3.49	0.09	404216.50	747886.31	N 32 6 31.60	W 103 31 57.90
	5815.00	0.08	249.57	5814.99	-1.17	-1.19	-3.46	0.09	404216.51	747886.34	N 32 6 31.60	W 103 31 57.90
	6005.00	0.11	331.41	6004.99	-1.05	-1.08	-3.67	0.07	404216.62	747886.13	N 32 6 31.60	W 103 31 57.91
	6195.00	0.07	223.15	6194.99	-0.97	-1.00	-3.84	0.08	404216.70	747885.96	N 32 6 31.60	W 103 31 57.91
	6384.00	0.11	297.39	6383.99	-0.97	-1.00	-4.08	0.06	404216.70	747885.72	N 32 6 31.60	W 103 31 57.91
	6574.00	0.11	14.06	6573.99	-0.71	-0.74	-4.20	0.07	404216.96	747885.60	N 32 6 31.60	W 103 31 57.91
	6764.00	0.11	233.16	6763.99	-0.64	-0.68	-4.30	0.11	404217.02	747885.50	N 32 6 31.60	W 103 31 57.91
	6954.00	0.10	26.23	6953.99	-0.60	-0.64	-4.37	0.11	404217.06	747885.43	N 32 6 31.60	W 103 31 57.91
	7143.00	0.12	126.98	7142.99	-0.58	-0.61	-4.14	0.09	404217.09	747885.66	N 32 6 31.60	W 103 31 57.91
	7332.00	0.11	111.04	7331.99	-0.76	-0.79	-3.81	0.02	404216.91	747885.99	N 32 6 31.60	W 103 31 57.91
	7521.00	0.14	232.39	7520.99	-0.97	-1.00	-3.83	0.12	404216.70	747885.97	N 32 6 31.60	W 103 31 57.91
	7710.00	0.10	203.42	7709.99	-1.26	-1.29	-4.07	0.04	404216.41	747885.73	N 32 6 31.60	W 103 31 57.91
	7900.00	0.07	359.03	7899.99	-1.29	-1.33	-4.14	0.09	404216.37	747885.66	N 32 6 31.60	W 103 31 57.91
	8090.00	0.11	18.38	8089.99	-1.00	-1.04	-4.09	0.03	404216.66	747885.71	N 32 6 31.60	W 103 31 57.91
	8280.00	0.14	79.86	8279.99	-0.79	-0.82	-3.81	0.07	404216.88	747885.99	N 32 6 31.60	W 103 31 57.91
	8470.00	0.10	224.16	8469.99	-0.87	-0.90	-3.70	0.12	404216.80	747886.10	N 32 6 31.60	W 103 31 57.91
	8660.00	0.10	222.36	8659.98	-1.11	-1.14	-3.93	0.00	404216.56	747885.87	N 32 6 31.60	W 103 31 57.91
	8849.00	0.14	146.17	8848.98	-1.42	-1.45	-3.91	0.08	404216.25	747885.89	N 32 6 31.59	W 103 31 57.91
	8902.00	0.14	97.17	8901.98	-1.49	-1.51	-3.81	0.22	404216.19	747885.99	N 32 6 31.59	W 103 31 57.91
	8936.00	0.17	86.72	8935.98	-1.49	-1.52	-3.72	0.12	404216.18	747886.08	N 32 6 31.59	W 103 31 57.91
	8968.00	0.66	334.74	8967.98	-1.32	-1.35	-3.75	2.31	404216.35	747886.05	N 32 6 31.59	W 103 31 57.91

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 ° ' ")
	8999.00	2.42	333.67	8998.97	-0.57	-0.60	-4.12	5.88	404217.10	74785.68	N 32 6 31.60	W 103 31 57.91
	9030.00	5.01	335.73	9029.90	1.26	1.22	-4.96	8.36	404218.92	747884.84	N 32 6 31.62	W 103 31 57.92
	9062.00	8.32	337.81	9061.68	4.69	4.64	-6.41	10.37	404222.34	747883.39	N 32 6 31.65	W 103 31 57.94
	9094.00	11.47	342.21	9093.20	9.88	9.81	-8.26	10.12	404227.51	747881.54	N 32 6 31.71	W 103 31 57.96
	9124.00	14.56	345.76	9122.43	16.39	16.31	-10.10	10.63	404234.01	747879.70	N 32 6 31.77	W 103 31 57.98
	9157.00	18.21	348.70	9154.08	25.48	25.48	-12.13	11.34	404243.09	747877.67	N 32 6 31.86	W 103 31 58.00
	9189.00	21.74	349.66	9184.15	36.24	36.13	-14.17	11.08	404253.83	747875.63	N 32 6 31.97	W 103 31 58.03
	9219.00	24.86	350.85	9211.70	47.95	47.82	-16.17	10.52	404265.52	747873.63	N 32 6 32.08	W 103 31 58.05
	9252.00	28.03	352.84	9241.25	62.51	62.37	-18.24	9.97	404280.07	747871.56	N 32 6 32.23	W 103 31 58.07
	9283.00	30.35	355.38	9268.31	77.55	77.40	-19.78	8.48	404295.10	747870.02	N 32 6 32.38	W 103 31 58.09
	9314.00	32.88	356.63	9294.71	93.77	93.61	-20.91	8.43	404311.31	747868.89	N 32 6 32.54	W 103 31 58.10
	9347.00	36.37	357.47	9321.86	112.50	112.34	-21.87	10.67	404330.03	747867.93	N 32 6 32.72	W 103 31 58.11
	9379.00	39.90	357.32	9347.03	132.24	132.07	-22.77	11.04	404349.77	747867.03	N 32 6 32.92	W 103 31 58.12
	9409.00	43.14	356.88	9369.48	152.11	151.93	-23.77	10.84	404369.63	747866.03	N 32 6 33.11	W 103 31 58.13
	9442.00	46.60	357.23	9392.87	175.37	175.18	-24.97	10.51	404392.88	747864.83	N 32 6 33.34	W 103 31 58.14
	9474.00	50.14	357.25	9414.12	199.26	199.07	-26.12	11.06	404416.76	747863.68	N 32 6 33.58	W 103 31 58.15
	9505.00	53.61	357.77	9433.26	223.63	223.43	-27.18	11.27	404441.12	747862.62	N 32 6 33.82	W 103 31 58.16
	9538.00	56.74	359.12	9452.10	250.71	250.50	-27.91	10.06	404468.20	747861.90	N 32 6 34.09	W 103 31 58.17
	9569.00	60.07	359.52	9468.34	277.11	276.90	-28.22	10.80	404494.59	747861.58	N 32 6 34.35	W 103 31 58.17
South Hardline Crossing	9572.22	60.46	359.63	9469.94	279.91	279.70	-28.24	12.38	404497.39	747861.56	N 32 6 34.38	W 103 31 58.17
	9600.00	63.81	0.50	9482.92	304.46	304.25	-28.21	12.38	404521.94	747861.59	N 32 6 34.62	W 103 31 58.17
	9632.00	68.37	0.40	9495.89	333.70	333.50	-27.98	14.25	404551.19	747861.82	N 32 6 34.91	W 103 31 58.16
	9664.00	72.82	0.40	9506.52	363.87	363.67	-27.77	13.91	404581.36	747862.03	N 32 6 35.21	W 103 31 58.16
	9695.00	76.46	359.34	9514.73	393.76	393.56	-27.84	12.20	404611.25	747861.96	N 32 6 35.50	W 103 31 58.15
	9727.00	80.54	358.22	9521.11	425.11	424.90	-28.51	13.20	404642.59	747861.29	N 32 6 35.81	W 103 31 58.16
	9759.00	85.39	357.46	9525.02	456.84	456.63	-29.71	15.34	404674.32	747860.09	N 32 6 36.13	W 103 31 58.17
	9791.00	90.00	357.24	9526.31	488.78	488.56	-31.18	14.42	404706.25	747858.62	N 32 6 36.44	W 103 31 58.18
	9822.00	90.89	356.91	9526.07	519.75	519.52	-32.77	3.06	404737.21	747857.03	N 32 6 36.75	W 103 31 58.20
	9854.00	90.83	356.90	9525.59	551.72	551.47	-34.49	0.19	404769.15	747855.31	N 32 6 37.07	W 103 31 58.22
	9892.00	90.58	356.74	9525.12	589.67	589.41	-36.60	0.78	404807.09	747853.20	N 32 6 37.44	W 103 31 58.24
	9987.00	90.58	357.40	9524.16	684.57	684.28	-41.46	0.69	404901.96	747848.34	N 32 6 38.38	W 103 31 58.29
	10081.00	90.69	358.52	9523.12	778.53	778.21	-44.80	1.20	404995.89	747845.00	N 32 6 39.31	W 103 31 58.32
	10176.00	90.86	359.55	9521.83	873.52	873.19	-46.40	1.10	405090.87	747843.40	N 32 6 40.25	W 103 31 58.33
	10271.00	90.65	0.51	9520.58	968.50	968.18	-46.35	1.03	405185.85	747843.45	N 32 6 41.19	W 103 31 58.32
	10366.00	90.52	0.91	9519.61	1063.48	1063.16	-45.18	0.44	405280.84	747844.63	N 32 6 42.13	W 103 31 58.30
	10461.00	90.58	1.05	9518.70	1158.45	1158.15	-43.55	0.16	405375.82	747846.25	N 32 6 43.07	W 103 31 58.27
	10556.00	90.58	1.19	9517.74	1253.41	1253.12	-41.69	0.15	405470.79	747848.11	N 32 6 44.01	W 103 31 58.24
	10650.00	90.10	0.89	9517.18	1347.37	1347.11	-39.99	0.60	405564.77	747849.81	N 32 6 44.94	W 103 31 58.21
	10745.00	90.79	0.90	9516.44	1442.34	1442.09	-38.50	0.73	405659.76	747851.30	N 32 6 45.88	W 103 31 58.19
	10841.00	91.00	1.35	9514.94	1538.06	1538.06	-36.62	0.52	405755.72	747853.18	N 32 6 46.83	W 103 31 58.16
	10934.00	91.41	2.39	9512.99	1631.20	1630.99	-33.59	1.20	405848.65	747856.22	N 32 6 47.75	W 103 31 58.11
	11028.00	90.55	1.93	9511.38	1725.09	1724.91	-30.04	1.04	405942.57	747859.76	N 32 6 48.68	W 103 31 58.06
	11123.00	90.89	2.35	9510.19	1819.98	1819.83	-26.50	0.57	406037.49	747863.30	N 32 6 49.62	W 103 31 58.01
	11218.00	90.48	1.67	9509.05	1914.89	1914.77	-23.16	0.84	406132.42	747866.64	N 32 6 50.56	W 103 31 57.97
	11313.00	90.72	0.52	9508.06	2009.85	2009.74	-21.35	1.24	406227.40	747868.45	N 32 6 51.50	W 103 31 57.94
	11407.00	90.45	0.83	9507.10	2103.82	2103.73	-20.24	0.44	406321.38	747869.56	N 32 6 52.43	W 103 31 57.92
	11502.00	90.34	359.63	9506.44	2198.81	2198.73	-19.86	1.27	406416.38	747869.94	N 32 6 53.37	W 103 31 57.90
	11597.00	91.07	359.34	9505.27	2293.81	2293.71	-20.71	0.83	406511.36	747869.09	N 32 6 54.31	W 103 31 57.91
	11691.00	91.20	358.90	9503.41	2387.78	2387.68	-22.16	0.49	406605.33	747867.64	N 32 6 55.24	W 103 31 57.92
	11786.00	91.13	359.57	9501.48	2482.76	2482.66	-23.43	0.71	406700.30	747866.37	N 32 6 56.18	W 103 31 57.92
	11881.00	89.76	358.85	9500.74	2577.75	2577.64	-24.74	1.63	406795.28	747865.06	N 32 6 57.12	W 103 31 57.93
	11977.00	91.20	359.38	9499.94	2673.75	2673.62	-26.22	1.60	406891.26	747863.58	N 32 6 58.07	W 103 31 57.94
	12072.00	91.20	0.80	9497.95	2768.72	2768.60	-26.07	1.49	406986.24	747863.73	N 32 6 59.01	W 103 31 57.93
	12166.00	91.03	1.96	9496.12	2862.65	2862.55	-23.81	1.25	407080.19	747865.99	N 32 6 59.94	W 103 31 57.89
	12261.00	91.34	2.70	9494.15	2957.52	2957.45	-19.94	0.84	407175.09	747869.86	N 32 7 0.87	W 103 31 57.84
	12356.00	91.03	3.14	9492.19	3052.34	3052.31	-15.11	0.57	407269.94	747874.69	N 32 7 1.81	W 103 31 57.78
	12451.00	91.41	3.17	9490.17	3147.13	3147.14	-9.88	0.40	407364.77	747879.92	N 32 7 2.75	W 103 31 57.71
	12546.00	90.99	3.05	9488.18	3241.92	3241.98	-4.73	0.46	407459.61	747885.07	N 32 7 3.69	W 103 31 57.64
	12641.00	91.24	3.50	9486.33	3336.71	3336.81	0.70	0.54	407554.43	747890.50	N 32 7 4.63	W 103 31 57.57
	12736.00	91.10	3.38	9484.39	3431.47	3431.62	6.40	0.19	407649.24	747896.20	N 32 7 5.56	W 103 31 57.49
	12830.00	91.13	1.22	9482.56	3525.34	3525.52	10.17	2.30	407743.14	747899.97	N 32 7 6.49	W 103 31 57.44
	12935.00	91.41	1.04	9480.23	3630.27	3630.47	12.24	0.32	407848.09	747902.04	N 32 7 7.53	W 103 31 57.41
	13031.00	91.58	0.48	9477.73	3726.22	3726.43	13.51	0.61	407944.05	747903.31	N 32 7 8.48	W 103 31 57.38
	13125.00	91.51	359.62	9475.19	3820.18	3820.40	13.60	0.92	408038.01	747903.40	N 32 7 9.41	W 103 31 57.38
	13220.00	92.06	359.60	9472.23	3915.13	3915.35	12.95	0.58	408132.96	747902.75	N 32 7 10.35	W 103 31 57.37
	13314.00	90.96	358.86	9469.76	4009.10	4009.30	11.69	1.41	408226.91	747901.49	N 32 7 11.28	W 103 31 57.38
	13408.00	91.58	358.41	9467.67	4103.06	4103.25	9.45	0.81	408320.86	747899.25	N 32 7 12.21	W 103 31 57.40
	13503.00	91.82	357.93	9464.85	4197.99	4198.16	6.42	0.56	408415.77	747896.22	N 32 7 13.15	W 103 31 57.43
	13598.00	91.51	356.43	9462.09	4292.87	4293.01	1.74	1.61	408510.61	747891.54	N 32 7 14.09	W 103 31 57.47
	13693.00	91.51	356.04	9459.59	4387.67	4387.77	-4.49	0.41	408605.37	747885.31	N 32 7 15.03	W 103 31 57.54
	13788.00	91.07	355.93	9457.45	4482.46	4482.51	-11.14	0.48	408700.11	747878.66	N 32 7 15.96	W 103 31 57.61
	13882.00	90.89	356.60	9456.01	4576.30	4576.30	-17.26	0.82	408793.90	747872.54	N 32 7 16.89	W 103 31 57.67
	13977.00	89.93	356.97	9455.49	4671.18	4671.15	-22.59	0.89	408888.74	747867.21	N 32 7 17.83	W 103 31 57.72
	14072.00	90.76	357.47	9454.92	4766.10	4766.03	-27.20	1.02	408983.62	747862.60	N 32 7 18.77	W 103 31 57.77
	14167.00	90.65	358.05	9453.75	4861.05	4860.95	-30.91	0.62	409078.54	747858.89	N 32 7 19.71	W 103 31 57.80
	14262.00	89.79	357.58	9453.39	4956.00	4955.88	-34.53	1.03	409173.47	747855.27	N 32 7 20.65	W 103 31 57.84
	14356.00	90.82	357.55	9452.89	5049.94	5049.79						

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 ° ' ")
	14642.00	89.76	358.74	9451.72	5335.85	5335.65	-47.30	0.38	409553.23	747842.51	N 32 7 24.41	W 103 31 57.95
	14737.00	90.62	359.19	9451.40	5430.85	5430.63	-49.01	1.02	409648.21	747840.79	N 32 7 25.35	W 103 31 57.96
	14832.00	90.55	359.94	9450.43	5525.84	5525.62	-49.73	0.79	409743.20	747840.07	N 32 7 26.29	W 103 31 57.96
	14926.00	90.24	0.69	9449.78	5619.83	5619.62	-49.22	0.86	409837.19	747840.59	N 32 7 27.22	W 103 31 57.95
	15021.00	90.41	0.97	9449.24	5714.80	5714.60	-47.84	0.34	409932.18	747841.96	N 32 7 28.16	W 103 31 57.93
	15117.00	90.13	0.80	9448.79	5810.78	5810.59	-46.36	0.34	410028.16	747843.44	N 32 7 29.11	W 103 31 57.90
	15212.00	91.27	0.77	9447.63	5905.75	5905.57	-45.06	1.20	410123.14	747844.75	N 32 7 30.05	W 103 31 57.88
	15307.00	90.79	0.02	9445.92	6000.72	6000.56	-44.40	0.94	410218.12	747845.40	N 32 7 30.99	W 103 31 57.86
	15402.00	90.89	359.56	9444.53	6095.71	6095.54	-44.75	0.50	410313.11	747845.05	N 32 7 31.93	W 103 31 57.86
	15497.00	91.37	358.83	9442.66	6190.69	6190.52	-46.08	0.92	410408.08	747843.72	N 32 7 32.87	W 103 31 57.86
	15592.00	90.34	358.58	9441.24	6285.66	6285.48	-48.23	1.12	410503.04	747841.57	N 32 7 33.81	W 103 31 57.88
	15687.00	90.75	358.09	9440.34	6380.64	6380.43	-50.99	0.67	410597.99	747838.81	N 32 7 34.75	W 103 31 57.91
	15782.00	90.20	358.08	9439.55	6475.60	6475.38	-54.16	0.58	410692.93	747835.64	N 32 7 35.69	W 103 31 57.93
	15877.00	90.17	359.13	9439.24	6570.59	6570.35	-58.48	1.11	410787.90	747833.32	N 32 7 36.63	W 103 31 57.95
	15972.00	90.51	1.11	9438.68	6665.58	6665.34	-56.28	2.11	410882.89	747833.52	N 32 7 37.57	W 103 31 57.94
	16067.00	90.54	1.80	9437.81	6760.52	6760.31	-53.87	0.73	410977.85	747835.94	N 32 7 38.51	W 103 31 57.91
	16162.00	91.23	2.76	9436.34	6855.40	6855.22	-50.09	1.24	411072.76	747839.71	N 32 7 39.45	W 103 31 57.85
	16257.00	90.75	3.63	9434.70	6950.19	6950.05	-44.79	1.05	411167.60	747845.01	N 32 7 40.38	W 103 31 57.78
	16352.00	90.28	3.55	9433.85	7044.96	7044.86	-38.84	0.50	411262.41	747850.96	N 32 7 41.32	W 103 31 57.71
	16447.00	90.17	3.41	9433.47	7139.73	7139.69	-33.08	0.19	411357.23	747856.72	N 32 7 42.26	W 103 31 57.63
	16542.00	89.99	2.43	9433.34	7234.57	7234.56	-28.24	1.05	411452.10	747861.56	N 32 7 43.20	W 103 31 57.57
	16637.00	90.27	0.97	9433.12	7329.50	7329.52	-25.42	1.56	411547.05	747864.38	N 32 7 44.14	W 103 31 57.53
	16731.00	91.23	0.55	9431.89	7423.47	7423.50	-24.17	1.11	411641.03	747865.63	N 32 7 45.07	W 103 31 57.50
	16826.00	90.82	359.88	9430.19	7518.45	7518.48	-23.82	0.83	411736.02	747865.98	N 32 7 46.01	W 103 31 57.49
North Hardline Crossing	16849.92	90.94	359.73	9429.83	7542.36	7542.40	-23.90	0.77	411759.93	747865.90	N 32 7 46.24	W 103 31 57.49
Last MWD	16905.00	91.20	359.40	9428.80	7597.43	7597.47	-24.31	0.77	411815.00	747865.49	N 32 7 46.79	W 103 31 57.49
Projection to Bit	16947.00	91.20	359.40	9427.92	7639.42	7639.46	-24.75	0.00	411856.99	747865.05	N 32 7 47.20	W 103 31 57.49

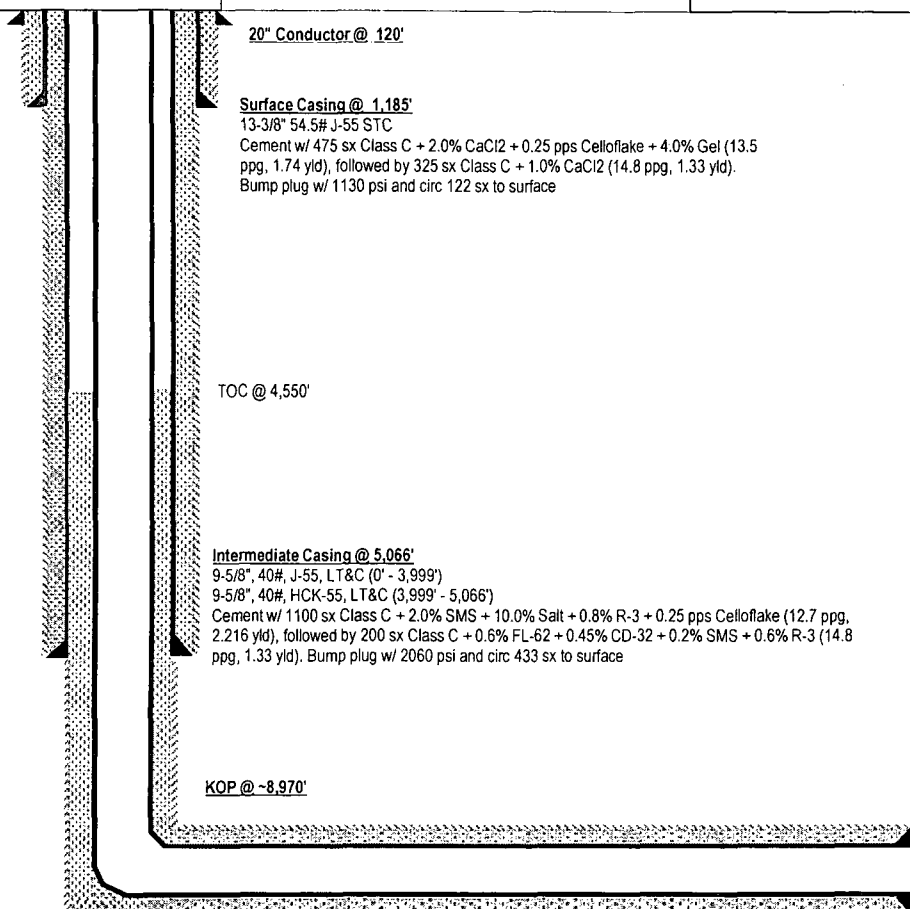
Survey Type: Def Survey

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

Survey Program:

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	0.000	30.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT-Depth Only	Original Borehole / EOG Vaca 24 Fed Com #2H Gyro+MWD 0- 16947'MD
	30.000	1125.000	Act Stns	30.000	30.000	SLB_NSG+MSHOT	Original Borehole / EOG Vaca 24 Fed Com #2H Gyro+MWD 0-
	1125.000	16905.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Borehole / EOG Vaca 24 Fed Com #2H Gyro+MWD 0-
	16905.000	16947.000	Act Stns	30.000	30.000	SLB_BLIND+TREND	Original Borehole / EOG Vaca 24 Fed Com #2H Gyro+MWD 0-

CURRENT WELL SKETCH

DEPTH (ft)	MARKERS (KB)	LITHOLOGY	OGRID: API: 30-025-40528 AFE: 104812 SPUD: 11/20/12 @ 05:30 hrs FRR: 12/7/12 @ 22:30 hrs RIG: Cactus #123	Vaca 24 Fed Com #2H Red Hills(Bone Spring) Field Lea County, New Mexico	SURF: 50' FSL & 430' FWL LOC: Sec. 24 SURVEY: T-25-S, R-33-E GL: 3341.9' KB: 3371.9' ZERO: 30.0' AGL	HOLE SIZE	MW (ppg)	MUD	BHST (°F)	LOT (ppg)	EVALUATION
2,000'	Rustler - 1050' Top Salt - 1450'			20" Conductor @ 120'		17-1/2"	8.6	FW		N/A	
3,000'				Surface Casing @ 1,185' 13-3/8" 54.5# J-55 STC Cement w/ 475 sx Class C + 2.0% CaCl2 + 0.25 pps Celloflake + 4.0% Gel (13.5 ppg, 1.74 yld), followed by 325 sx Class C + 1.0% CaCl2 (14.8 ppg, 1.33 yld). Bump plug w/ 1130 psi and circ 122 sx to surface			9.0		86		
5,000'	Base Salt - 4900' Lamar - 5140' Bell Canyon - 5170'			TOC @ 4,550'		12-1/4"	10.0	Brine			
6,000'	Cherry Canyon - 6200'									NA	
7,000'				Intermediate Casing @ 5,066' 9-5/8", 40# J-55, LT&C (0' - 3,999') 9-5/8", 40# HCK-55, LT&C (3,999' - 5,066') Cement w/ 1100 sx Class C + 2.0% SMS + 10.0% Salt + 0.8% R-3 + 0.25 pps Celloflake (12.7 ppg, 2.216 yld), followed by 200 sx Class C + 0.6% FL-62 + 0.45% CD-32 + 0.2% SMS + 0.6% R-3 (14.8 ppg, 1.33 yld). Bump plug w/ 2060 psi and circ 433 sx to surface			10.2				
8,000'	Brushy Canyon - 7780'			KOP @ ~8,970'			8.4			N/A	
9,000'	Bone Spring Lime - 9280'					8-3/4"		WBM			
10,000'				Production Casing @ 16,902' MD, 9,429' TVD 5-1/2" 17# HCP-110 LTC (MJ @ 8810') Cement w/ 350 sx 60:40:0 Class C + 15.0 pps BA-90 + 4.0% MPA-5 + 3.0% SMS + 5.0% A-10 + 1.0% BA-10A + 0.80% ASA-301 + 3.10% R-21 + 8.0 pps LCM-1 (10.8 ppg, 3.681 yld), followed by 400 sx 50:50:10 Class H + 0.80% FL-52 + 0.30% ASA-301 + 0.50% SMS + 2.0% Salt + 0.05% R-21 + 3.0 pps LCM-1 + 0.25 pps Celloflake (11.8 ppg, 2.38 yld), followed by 1750 sx 50:50:2 Class H + 0.65% FL-52 + 0.50% CD-32 + 0.40% SMS + 2.0% Salt + 0.15% R-3 (14.2 ppg, 1.281 yld). Bump plug w/ 2050 psi. Did not circ cement			9.3				
11,000'										140	

Drig Eng:

S. Munsell

Date:

12/10/2012

Drig Eng: S. Munsell
Date: 12/10/2012

SURVEYING • MAPPING • GIS • GPS
2903 NORTH BIG SPRING • MIDLAND, TEXAS 79705
TELEPHONE: (432) 682-1653 • FAX (432) 682-1743
1400 EVERMAN PARKWAY, Ste. 187 • FT. WORTH, TEXAS 76140
TELEPHONE: (817) 744-7512 • FAX (817) 744-7548
2225 PERRYTON PARKWAY • PAMPA, TEXAS 79065
TELEPHONE: (806) 665-7218 • FAX (806) 665-7210
TOPOGGRAPHIC.COM