

[Original Hole] Actual Survey Survey Report

(Non-Def Survey)

Report Date: December 07, 2014 - 12:09 AM
Client: Cascade Petroleum, LLC
Field: CO, Lincoln County (NAD 83 CZ)
Structure / Slot: Cascade Petroleum, LLC 8-9S-55W (Gaede 9S-55W-08-12) - Xtreme
Well: Gaede 9S-55W-08-12
Borehole: Original Hole
UWI / API#: Unknown / Unknown
Survey Name: [Original Hole] Actual Survey
Survey Date: November 25, 2014
Tort / AHD / DDI / ERD Ratio: 49.101 ° / 503.342 ft / 4.394 / 0.064
Coordinate Reference System: NAD83 Colorado State Plane, Central Zone, US Feet
Location Lat / Long: N 39° 17' 5.63508", W 103° 34' 34.90448"
Location Grid N/E Y/X: N 1534421.906 ftUS, E 3544438.867 ftUS
CRS Grid Convergence Angle: 1.2132 °
Grid Scale Factor: 0.99994104
Version / Patch: 2.8.572.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 278.170 ° (True North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: KB 15.5ft
TVD Reference Elevation: 5566.500 ft above MSL
Seabed / Ground Elevation: 5551.000 ft above MSL
Magnetic Declination: 7.793 °
Total Gravity Field Strength: 998.9154mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 52169.203 nT
Magnetic Dip Angle: 66.218 °
Declination Date: November 25, 2014
Magnetic Declination Model: BGGM 2014
North Reference: True North
Grid Convergence Used: 0.0000 °
Total Corr Mag North->True North: 7.7926 °
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	VSEC (ft)	NS (N/S ft)	EW (E/W ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
Surface	0.00	0.00	278.17	0.00	0.00	N 0.00	E 0.00	0.00	0.00	N/A	259.06M
	50.00	0.16	259.06	50.00	0.07	S 0.01	W 0.07	0.07	259.06	0.32	218.93M
	100.00	0.23	218.93	100.00	0.18	S 0.10	W 0.20	0.23	242.42	0.30	172.94M
	150.00	0.43	172.94	150.00	0.19	S 0.37	W 0.24	0.44	213.07	0.63	168.42M
	200.00	0.64	168.42	200.00	0.04	S 0.83	W 0.16	0.84	191.00	0.43	151.89M
	250.00	0.71	151.89	249.99	-0.24	S 1.38	E 0.04	1.38	178.29	0.41	132.41M
	300.00	0.98	132.41	299.99	-0.77	S 1.94	E 0.50	2.00	165.45	0.78	124.23M
	350.00	1.06	124.23	349.98	-1.54	S 2.49	E 1.20	2.76	154.22	0.33	127.29M
	400.00	1.09	127.29	399.97	-2.37	S 3.03	E 1.96	3.61	147.12	0.13	150.89M
	736.00	1.58	150.89	735.88	-7.97	S 9.02	E 6.76	11.27	143.15	0.22	162.88M
	797.00	1.41	162.88	796.86	-8.80	S 10.47	E 7.39	12.81	144.79	0.58	243.11M
	858.00	0.79	243.11	857.85	-8.78	S 11.38	E 7.23	13.48	147.55	2.45	216.89M
	918.00	0.62	216.89	917.85	-8.28	S 11.82	E 6.67	13.57	150.57	0.60	261.58M
	979.00	1.41	261.58	978.84	-7.40	S 12.20	E 5.73	13.48	154.84	1.74	266.51M
	1041.00	1.89	266.51	1040.81	-5.67	S 12.37	E 3.95	12.99	162.28	0.81	282.19M
	1102.00	3.12	282.19	1101.75	-3.03	S 12.08	E 1.33	12.15	173.73	2.29	281.01M
	1187.00	2.68	281.01	1186.64	1.26	S 11.21	W 2.88	11.58	194.42	0.52	288.39M
	1272.00	3.52	288.39	1271.52	5.81	S 10.01	W 7.31	12.40	216.14	1.09	293.88M
	1358.00	4.09	293.88	1357.33	11.36	S 7.94	W 12.62	14.91	237.84	0.79	297.18M
	1443.00	4.00	297.18	1442.12	17.09	S 5.36	W 18.03	18.81	253.46	0.29	287.82M
	1530.00	3.69	287.82	1528.92	22.71	S 3.11	W 23.39	23.60	262.42	0.80	290.1M
	1616.00	3.69	290.10	1614.75	28.15	S 1.31	W 28.63	28.66	267.37	0.17	292.61M
	1786.00	3.69	292.61	1784.39	38.80	N 2.67	W 38.82	38.91	273.93	0.10	279.82M
	1914.00	4.09	279.82	1912.10	47.35	N 5.03	W 47.12	47.38	276.09	0.74	284.7M
	2043.00	3.60	284.70	2040.81	55.97	N 6.84	W 55.57	55.99	277.02	0.46	292.79M
	2171.00	4.09	292.79	2168.52	64.38	N 9.63	W 63.66	64.39	278.60	0.57	284.3M
	2299.00	4.31	284.30	2296.18	73.58	N 12.59	W 72.53	73.61	279.85	0.51	281.49M
	2384.00	4.09	281.49	2380.95	79.79	N 13.98	W 78.60	79.83	280.09	0.35	266.42M
	2469.00	4.48	266.42	2465.72	86.06	N 14.38	W 84.88	86.09	279.61	1.40	263.52M
	2554.00	4.22	263.52	2550.47	92.34	N 13.82	W 91.30	92.34	278.61	0.40	267.3M
	2640.00	4.31	267.30	2636.23	98.57	N 13.31	W 97.67	98.58	277.76	0.34	261.8M
	2725.00	3.78	261.80	2721.02	104.40	N 12.76	W 103.64	104.42	277.02	0.77	260.79M
	2810.00	4.39	260.79	2805.81	110.19	N 11.84	W 109.62	110.26	276.16	0.72	255.39M
	2896.00	3.91	255.39	2891.58	116.04	N 10.57	W 115.71	116.19	275.22	0.72	254.82M
	3023.00	4.09	254.82	3018.27	124.19	N 8.29	W 124.27	124.54	273.82	0.15	248.31M
	3151.00	3.91	248.31	3145.96	132.16	N 5.48	W 132.73	132.84	272.37	0.38	251.3M
	3279.00	4.39	251.30	3273.62	140.32	N 2.30	W 141.42	141.44	270.93	0.41	251.39M
	3407.00	4.22	251.39	3401.26	148.89	S 0.77	W 150.53	150.53	269.71	0.13	245.19M
	3535.00	4.00	245.19	3528.93	156.84	S 4.15	W 159.04	159.10	268.51	0.39	257.19M
	3663.00	4.48	257.19	3656.59	165.25	S 7.13	W 167.97	168.12	267.57	0.79	256.88M
	3791.00	3.12	256.88	3784.30	173.17	S 9.03	W 176.24	176.47	267.07	1.06	273.71M
	3920.00	2.81	273.71	3913.13	179.59	S 9.62	W 182.81	183.07	266.99	0.71	268M
	4047.00	2.11	268.00	4040.01	185.00	S 9.50	W 188.26	188.50	267.11	0.58	280.79M
	4177.00	2.50	280.79	4169.91	190.18	S 9.06	W 193.43	193.65	267.32	0.49	289.49M
	4305.00	2.99	289.49	4297.76	196.25	S 7.42	W 199.32	199.46	267.87	0.50	293.88M
	4434.00	4.09	293.88	4426.51	203.97	S 4.43	W 206.70	206.75	268.77	0.88	297.09M
	4562.00	3.91	297.09	4554.20	212.50	S 0.80	W 214.76	214.76	269.84	0.22	305.71M
	4690.00	4.92	305.71	4681.82	221.49	N 4.59	W 223.10	223.15	271.18	0.94	286.59M
	4818.00	6.20	286.59	4809.23	233.20	N 9.77	W 234.19	234.39	272.39	1.75	301.71M
	4946.00	5.19	301.71	4936.60	245.34	N 14.79	W 245.74	246.18	273.44	1.41	296.92M
	5074.00	5.19	296.92	5064.08	256.13	N 20.45	W 255.82	256.64	274.57	0.34	294.72M
	5202.00	5.80	294.72	5191.49	267.81	N 25.78	W 266.86	268.10	275.52	0.50	292.52M
	5330.00	5.80	292.52	5318.83	280.28	N 30.96	W 278.71	280.42	276.34	0.17	286M
	5458.00	5.80	286.00	5446.18	292.95	N 35.22	W 290.90	293.03	276.90	0.51	275.91M
	5586.00	5.10	275.91	5573.60	305.05	N 37.59	W 302.78	305.10	277.08	0.93	274.9M
	5716.00	4.61	274.90	5703.14	316.04	N 38.63	W 313.73	316.10	277.02	0.38	273.89M

Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	VSEC (ft)	NS (N/S ft)	EW (E/W ft)	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)	TF (°)
	5845.00	4.92	273.89	5831.69	326.73	N 39.45	W 324.41	326.80	276.93	0.25	286.98M
	5972.00	5.10	286.98	5958.21	337.74	N 41.46	W 335.25	337.80	277.05	0.91	273.89M
	6101.00	4.79	273.89	6086.73	348.77	N 43.50	W 346.10	348.83	277.16	0.90	288M
	6229.00	4.31	288.00	6214.33	358.84	N 45.35	W 356.01	358.89	277.26	0.95	289.09M
	6357.00	4.70	289.09	6341.94	368.73	N 48.55	W 365.54	368.75	277.57	0.31	283.91M
	6485.00	3.91	283.91	6469.58	378.22	N 51.32	W 374.73	378.23	277.80	0.69	288.7M
	6613.00	4.92	288.70	6597.20	387.96	N 54.13	W 384.17	387.96	278.02	0.84	291.99M
	6744.00	5.10	291.99	6727.70	399.14	N 58.11	W 394.89	399.14	278.37	0.26	291.2M
	6872.00	4.39	291.20	6855.26	409.44	N 62.01	W 404.73	409.45	278.71	0.56	288.22M
	7000.00	3.78	288.22	6982.93	418.36	N 65.10	W 413.31	418.40	278.95	0.50	289.8M
	7128.00	4.22	289.80	7110.62	427.13	N 68.02	W 421.75	427.20	279.16	0.35	289.09M
	7170.00	3.78	289.09	7152.52	430.00	N 68.99	W 424.51	430.08	279.23	1.05	288.79M
	7255.00	4.09	288.79	7237.32	435.73	N 70.89	W 430.03	435.83	279.36	0.37	278.9M
	7383.00	3.60	278.90	7365.03	444.24	N 72.98	W 438.32	444.35	279.45	0.64	282.59M
	7468.00	3.30	282.59	7449.87	449.35	N 73.92	W 443.34	449.46	279.47	0.44	276.22M
	7553.00	2.29	276.22	7534.77	453.48	N 74.64	W 447.42	453.60	279.47	1.24	260.22M
	7639.00	2.42	260.22	7620.70	456.93	N 74.52	W 450.91	457.03	279.38	0.78	264.7M
	7767.00	1.42	264.70	7748.63	461.04	N 73.91	W 455.16	461.12	279.22	0.79	292.92M
	7895.00	0.88	292.92	7876.60	463.53	N 74.15	W 457.64	463.61	279.20	0.60	

Survey Type: Non-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	15.500	Act Stns	30.000	30.000	SLB_MWD-STD-Depth Only	Original Hole / [Original Hole] Actual Survey
	1	15.500	400.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Hole / [Original Hole] Actual Survey
	1	400.000	736.000	1/98.425	30.000	30.000	SLB_MWD-STD	Original Hole / [Original Hole] Actual Survey
	1	736.000	7895.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Hole / [Original Hole] Actual Survey