



## Gaede 9S-55W-08-12 R1 mdv 29Sept14 Proposal Geodetic Report

(Def Plan)

Report Date: September 29, 2014 - 02:21 PM  
Client: Cascade Petroleum, LLC  
Field: CO, Lincoln County (NAD 83 CZ)  
Structure / Slot: Cascade Petroleum, LLC 8-9S-55W (Gaede 9S-55W-08-12) / Gaede 9S-55W-08-12  
Well: Gaede 9S-55W-08-12  
Borehole: Original Hole  
UWI / API#: Unknown / Unknown  
Survey Name: Gaede 9S-55W-08-12 R1 mdv 29Sept14  
Survey Date: September 12, 2014  
Tort / AHD / DDI / ERD Ratio: 21.581 \* / 529.171 ft / 4.060 / 0.061  
Coordinate Reference System: NAD83 Colorado State Plane, Central Zone, US Feet  
Location Lat / Long: N 39° 17' 5.83508", W 103° 34' 34.90448"  
Location Grid N/E Y/X: N 1534421.906 RUS, E 3544438.867 RUS  
CRS Grid Convergence Angle: 1.2132 \*  
Grid Scale Factor: 0.99994104  
Version / Patch: 2.8.551.0

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 12ft  
TVD Reference Elevation: 5583.000 ft above MSL  
Seabed / Ground Elevation: 5551.000 ft above MSL  
Magnetic Declination: 7.812 \*  
Total Gravity Field Strength: 998.9157mgn (9.80865 Based)  
Gravity Model: GARM  
Total Magnetic Field Strength: 52196.412 nT  
Magnetic Dip Angle: 66.226 \*  
Declination Date: September 12, 2014  
Magnetic Declination Model: BGGM 2014  
North Reference: True North  
Grid Convergence Used: 0.0000 \*  
Total Corr Mag North->True North: 7.8120 \*  
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azlm True (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	
Surface	0.00	0.00	278.17	0.00	0.00	0.00	0.00	N/A	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	100.00	0.00	278.17	100.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	200.00	0.00	278.17	200.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	300.00	0.00	278.17	300.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	400.00	0.00	278.17	400.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	500.00	0.00	278.17	500.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	600.00	0.00	278.17	600.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	700.00	0.00	278.17	700.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	800.00	0.00	278.17	800.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	900.00	0.00	278.17	900.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	1000.00	0.00	278.17	1000.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	1100.00	0.00	278.17	1100.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	1200.00	0.00	278.17	1200.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	1300.00	0.00	278.17	1300.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	1400.00	0.00	278.17	1400.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	1500.00	0.00	278.17	1500.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	1600.00	0.00	278.17	1600.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	1700.00	0.00	278.17	1700.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	1800.00	0.00	278.17	1800.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	1900.00	0.00	278.17	1900.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	2000.00	0.00	278.17	2000.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	2100.00	0.00	278.17	2100.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	2200.00	0.00	278.17	2200.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	2300.00	0.00	278.17	2300.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	2400.00	0.00	278.17	2400.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	2500.00	0.00	278.17	2500.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	2600.00	0.00	278.17	2600.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	2700.00	0.00	278.17	2700.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	2800.00	0.00	278.17	2800.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	2900.00	0.00	278.17	2900.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	3000.00	0.00	278.17	3000.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	3100.00	0.00	278.17	3100.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	3200.00	0.00	278.17	3200.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
	3300.00	0.00	278.17	3300.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
3400.00	0.00	278.17	3400.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90			
KOP, Build 1.5"/100'	3500.00	0.00	278.17	3500.00	0.00	0.00	0.00	0.00	1534421.91	3544438.87	N 39 17 5.64 W 103 34 34.90		
Hold 10.78" INC	3600.00	1.50	278.17	3599.99	1.31	0.19	-1.30	1.50	1534422.06	3544437.57	N 39 17 5.64 W 103 34 34.92		
	3700.00	3.00	278.17	3699.91	5.23	0.74	-5.18	1.50	1534422.54	3544433.67	N 39 17 5.64 W 103 34 34.97		
	3800.00	4.50	278.17	3799.89	11.77	1.67	-11.66	1.50	1534423.33	3544427.18	N 39 17 5.65 W 103 34 35.05		
	3900.00	6.00	278.17	3899.27	20.92	2.97	-20.71	1.50	1534424.44	3544418.10	N 39 17 5.68 W 103 34 35.17		
	4000.00	7.50	278.17	3998.57	32.68	4.64	-32.35	1.50	1534425.86	3544406.43	N 39 17 5.68 W 103 34 35.32		
	4100.00	9.00	278.17	4097.54	47.03	6.86	-46.55	1.50	1534427.80	3544392.19	N 39 17 5.70 W 103 34 35.50		
	4200.00	10.50	278.17	4196.09	63.96	9.09	-63.31	1.50	1534429.85	3544375.38	N 39 17 5.72 W 103 34 35.71		
	4218.69	10.78	278.17	4214.46	67.41	9.58	-66.73	1.50	1534430.07	3544371.95	N 39 17 5.73 W 103 34 35.75		
	4300.00	10.78	278.17	4294.33	82.62	11.74	-81.78	0.00	1534431.91	3544356.88	N 39 17 5.75 W 103 34 35.94		
	4400.00	10.78	278.17	4392.57	101.33	14.40	-100.30	0.00	1534434.18	3544338.29	N 39 17 5.78 W 103 34 36.18		
	4500.00	10.78	278.17	4490.80	120.03	17.08	-118.81	0.00	1534436.44	3544319.73	N 39 17 5.80 W 103 34 36.42		
	4600.00	10.78	278.17	4589.04	138.73	19.72	-137.33	0.00	1534438.71	3544301.16	N 39 17 5.83 W 103 34 36.65		
	4700.00	10.78	278.17	4687.27	157.44	22.37	-155.64	0.00	1534440.97	3544282.80	N 39 17 5.86 W 103 34 36.89		
	4800.00	10.78	278.17	4785.51	176.14	25.03	-174.38	0.00	1534443.24	3544264.03	N 39 17 5.88 W 103 34 37.12		
	4900.00	10.78	278.17	4883.74	194.85	27.69	-192.87	0.00	1534445.50	3544245.47	N 39 17 5.91 W 103 34 37.38		
	5000.00	10.78	278.17	4981.98	213.55	30.35	-211.39	0.00	1534447.77	3544226.90	N 39 17 5.94 W 103 34 37.59		
	5100.00	10.78	278.17	5080.21	232.28	33.01	-229.90	0.00	1534450.04	3544208.33	N 39 17 5.96 W 103 34 37.83		
	5200.00	10.78	278.17	5178.45	250.96	35.66	-248.41	0.00	1534452.30	3544189.77	N 39 17 5.99 W 103 34 38.06		
	5300.00	10.78	278.17	5276.68	269.67	38.32	-266.93	0.00	1534454.57	3544171.20	N 39 17 6.01 W 103 34 38.30		
	5400.00	10.78	278.17	5374.92	288.37	40.98	-285.44	0.00	1534456.83	3544152.64	N 39 17 6.04 W 103 34 38.53		
	5500.00	10.78	278.17	5473.15	307.07	43.64	-303.96	0.00	1534459.10	3544134.07	N 39 17 6.07 W 103 34 38.77		
	5600.00	10.78	278.17	5571.39	325.78	46.30	-322.47	0.00	1534461.36	3544115.51	N 39 17 6.09 W 103 34 39.01		
	5700.00	10.78	278.17	5669.62	344.48	48.95	-340.99	0.00	1534463.63	3544096.94	N 39 17 6.12 W 103 34 39.24		
	5800.00	10.78	278.17	5767.86	363.19	51.61	-359.50	0.00	1534465.89	3544078.37	N 39 17 6.15 W 103 34 39.48		
	5900.00	10.78	278.17	5866.09	381.89	54.27	-378.02	0.00	1534468.16	3544059.81	N 39 17 6.17 W 103 34 39.71		
	6000.00	10.78	278.17	5964.33	400.60	56.93	-396.53	0.00	1534470.42	3544041.24	N 39 17 6.20 W 103 34 39.95		
	6100.00	10.78	278.17	6062.56	419.30	59.59	-415.05	0.00	1534472.69	3544022.68	N 39 17 6.22 W 103 34 40.18		
	6200.00	10.78	278.17	6160.80	438.01	62.24	-433.56	0.00	1534474.95	3544004.11	N 39 17 6.25 W 103 34 40.42		
	6300.00	10.78	278.17	6259.03	456.71	64.90	-452.08	0.00	1534477.22	3543985.55	N 39 17 6.28 W 103 34 40.65		
	KOP, Drop 1.5"/100'	6328.98	10.78	278.17	6285.54	461.76	65.82	-457.07	0.00	1534477.83	3543980.54	N 39 17 6.28 W 103 34 40.72	
	Hold Vertical	6400.00	9.89	278.17	6357.40	474.73	67.46	-469.91	1.50	1534479.40	3543967.88	N 39 17 6.30 W 103 34 40.86	
		6500.00	8.19	278.17	6456.18	490.28	69.87	-485.28	1.50	1534481.28	3543952.25	N 39 17 6.32 W 103 34 41.08	
		6600.00	6.69	278.17	6555.34	503.20	71.51	-498.09	1.50	1534482.85	3543939.40	N 39 17 6.34 W 103 34 41.24	
		6700.00	5.19	278.17	6654.80	513.54	72.98	-508.33	1.50	1534484.10	3543929.14	N 39 17 6.36 W 103 34 41.37	
6800.00		3.69	278.17	6754.49	521.27	74.08	-515.98	1.50	1534485.04	3543921.46	N 39 17 6.37 W 103 34 41.47		
6900.00		2.19	278.17	6854.36	526.39	74.81	-521.05	1.50	1534485.66	3543916.38	N 39 17 6.37 W 103 34 41.53		
7000.00		0.69	278.17	6954.33	528.90	75.16	-523.53	1.50	1534485.96	3543913.90	N 39 17 6.38 W 103 34 41.58		
7045.67		0.00	278.17	7000.00									

Comments	MD (ft)	Incl (°)	Azim True (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS ("/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	7200.00	0.00	278.17	7154.33	529.17	75.20	-523.80	0.00	1534486.00	3543913.62	N 39 17 6.38	W 103 34 41.57
	7300.00	0.00	278.17	7254.33	529.17	75.20	-523.80	0.00	1534486.00	3543913.62	N 39 17 6.38	W 103 34 41.57
	7400.00	0.00	278.17	7354.33	529.17	75.20	-523.80	0.00	1534486.00	3543913.62	N 39 17 6.38	W 103 34 41.57
	7500.00	0.00	278.17	7454.33	529.17	75.20	-523.80	0.00	1534486.00	3543913.62	N 39 17 6.38	W 103 34 41.57
	7600.00	0.00	278.17	7554.33	529.17	75.20	-523.80	0.00	1534486.00	3543913.62	N 39 17 6.38	W 103 34 41.57
	7700.00	0.00	278.17	7654.33	529.17	75.20	-523.80	0.00	1534486.00	3543913.62	N 39 17 6.38	W 103 34 41.57
	7800.00	0.00	278.17	7754.33	529.17	75.20	-523.80	0.00	1534486.00	3543913.62	N 39 17 6.38	W 103 34 41.57
	7900.00	0.00	278.17	7854.33	529.17	75.20	-523.80	0.00	1534486.00	3543913.62	N 39 17 6.38	W 103 34 41.57
	8000.00	0.00	278.17	7954.33	529.17	75.20	-523.80	0.00	1534486.00	3543913.62	N 39 17 6.38	W 103 34 41.57
	8100.00	0.00	278.17	8054.33	529.17	75.20	-523.80	0.00	1534486.00	3543913.62	N 39 17 6.38	W 103 34 41.57
	8200.00	0.00	278.17	8154.33	529.17	75.20	-523.80	0.00	1534486.00	3543913.62	N 39 17 6.38	W 103 34 41.57
	8300.00	0.00	278.17	8254.33	529.17	75.20	-523.80	0.00	1534486.00	3543913.62	N 39 17 6.38	W 103 34 41.57
	8400.00	0.00	278.17	8354.33	529.17	75.20	-523.80	0.00	1534486.00	3543913.62	N 39 17 6.38	W 103 34 41.57
	8500.00	0.00	278.17	8454.33	529.17	75.20	-523.80	0.00	1534486.00	3543913.62	N 39 17 6.38	W 103 34 41.57
	8600.00	0.00	278.17	8554.33	529.17	75.20	-523.80	0.00	1534486.00	3543913.62	N 39 17 6.38	W 103 34 41.57
	8700.00	0.00	278.17	8654.33	529.17	75.20	-523.80	0.00	1534486.00	3543913.62	N 39 17 6.38	W 103 34 41.57
Gaede 9S-55W-08-12 BHL	8739.67	0.00	278.17	8694.00	529.17	75.20	-523.80	0.00	1534486.00	3543913.62	N 39 17 6.38	W 103 34 41.57

Survey Type: Def Plan

Survey Error Model: ISCWSA Rev 0 \*\*\* 3-D 95.000% Confidence 2.7855 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	12.000	1/100.000	30.000	30.000	SLB_MWD-STD-Depth Only	Original Hole / Gaede 9S-55W-08-12 R1 mdv 29Sept14
	1	12.000	8739.674	1/100.000	30.000	30.000	SLB_MWD-STD	Original Hole / Gaede 9S-55W-08-12 R1 mdv 28Sept14