

EXTRACTION OIL & GAS

Location: COLORADO Slot: SLOT#05 RANCHO WATER VALLEY 8(615'FNL & 266'FEL,SEC.04)
Field: WELD COUNTY (NAD83/TRUE NORTH) Well: RANCHO WATER VALLEY 8
Facility: SEC.04-T05N-R67W Wellbore: RANCHO WATER VALLEY 8 PWB

Plot reference wellpath is RANCHO WATER VALLEY 8 (REV-B.0) PWP

True vertical depths are referenced to RIG (RKB)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to RIG (RKB)	North Reference: True north
RIG (RKB) to Mean Sea Level: 4799 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#05 RANCHO WATER VALLEY 8(615'FNL & 266'FEL,SEC.04)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: painretr on 7/31/2014

Location Information

Facility Name				Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.04-T05N-R67W				3170424.561	1402077.673	40°26'07.764"N	104°53'15.936"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
SLOT#05 RANCHO WATER VALLEY 8(615'FNL & 266'FEL,SEC.04)	-397.47	-75.72	3170351.590	1401679.709	40°26'03.836"N	104°53'16.915"W	
RIG (RKB) to Mud line (At Slot: SLOT#05 RANCHO WATER VALLEY 8(615'FNL & 266'FEL,SEC.04))						4799ft	
Mean Sea Level to Mud line (At Slot: SLOT#05 RANCHO WATER VALLEY 8(615'FNL & 266'FEL,SEC.04))						0ft	
RIG (RKB) to Mean Sea Level						4799ft	

Targets

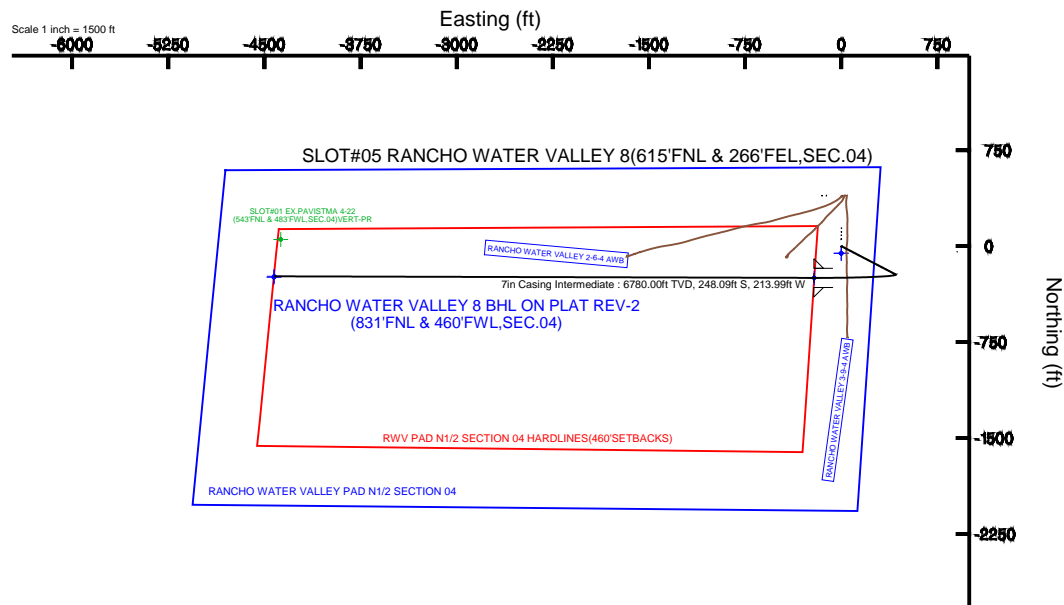
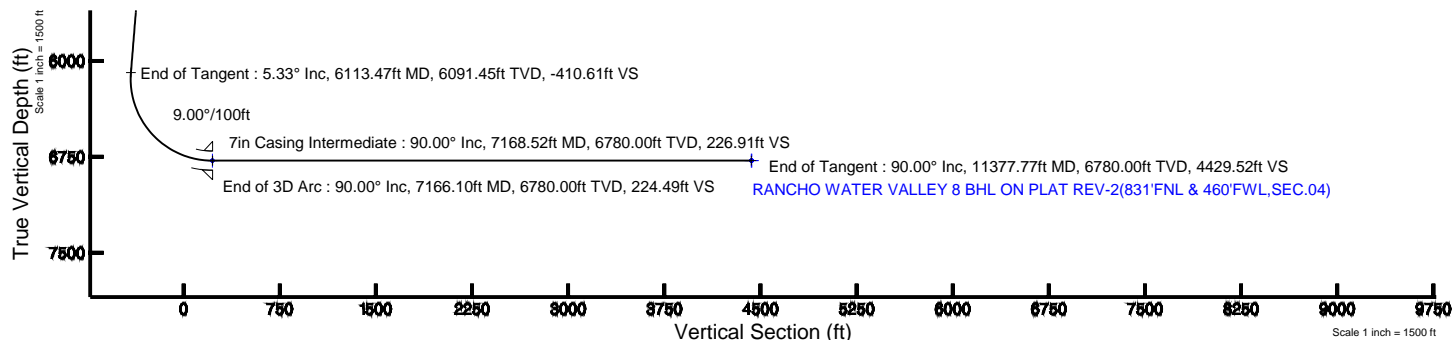
Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	
RANCHO WATER VALLEY PAD N1/2 SECTION 04		0.00	-56.10	-0.56	3170351.42	1401623.60	40°26'03.282"N	104°53'16.922"W	
RANCHO WATER VALLEY 8 BHL ON PLAT REV-1(840'FNL & 460'FWL,SEC.04)		6780.00	-243.33	-4425.73	3169927.82	1401405.85	40°26'01.428"N	104°54'14.148"W	
RANCHO WATER VALLEY 8 BHL ON PLAT REV-2(831'FNL & 460'FWL,SEC.04)		11377.77	6780.00	-236.04	-4423.22	3169930.28	1401413.16	40°26'01.500"N	104°54'14.116"W
RANCHO WATER VALLEY 8 LANDING		7166.10	6780.00	-248.10	-211.57	3170141.74	1401430.17	40°26'01.385"N	104°53'19.651"W
RWV PAD N1/2 SECTION 04 HARDLINES(460'SETBACKS)		6780.00	-56.10	-0.56	3170351.42	1401623.60	40°26'03.282"N	104°53'16.922"W	

Survey Program

Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
24.00	13000.00	NaviTrak	NaviTrak (Standard)		RANCHO WATER VALLEY 8 PWB

Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	24.00	0.000	117.521	24.00	0.00	0.00	0.00	0.00
End of Tangent	850.00	0.000	117.521	850.00	0.00	0.00	0.00	0.00
End of Build	1116.71	5.334	117.521	1116.32	-5.73	11.00	2.00	-10.68
End of Tangent	6113.47	5.334	117.521	6091.45	-220.37	422.96	0.00	-410.61
End of 3D Arc	7166.10	90.000	270.164	6780.00	-248.10	-211.57	9.00	224.49
End of Tangent	11377.77	90.000	270.164	6780.00	-236.04	-4423.22	0.00	4429.52



BGGM (1945.0 to 2016.0) Dip: 66.95° Field: 52759.7 nT
Magnetic North is 8.61 degrees East of True North (at 7/2/2014)

To correct azimuth from Magnetic to True add 8.61 degrees



Planned Wellpath Report

RANCHO WATER VALLEY 8 (REV-B.0) PWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	EXTRACTION OIL & GAS	Slot	SLOT#05 RANCHO WATER VALLEY 8(615'FNL & 266'FEL,SEC.04)
Area	COLORADO	Well	RANCHO WATER VALLEY 8
Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	RANCHO WATER VALLEY 8 PWB
Facility	SEC.04-T05N-R67W		

REPORT SETUP INFORMATION			
Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 4.0.0
North Reference	True	User	Painsetr
Scale	0.999962	Report Generated	7/31/2014 at 9:29:02 AM
Convergence at slot	n/a	Database/Source file	WA_Denver/RANCHO_WATER_VALLEY_8_PWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-397.47	-75.72	3170351.59	1401679.71	40°26'03.836"N	104°53'16.915"W
Facility Reference Pt			3170424.56	1402077.67	40°26'07.764"N	104°53'15.936"W
Field Reference Pt			3185481.27	1419166.81	40°28'55.560"N	104°49'59.556"W

WELLPATH DATUM			
Calculation method	Minimum curvature	RIG (RKB) to Facility Vertical Datum	4799.00ft
Horizontal Reference Pt	Slot	RIG (RKB) to Mean Sea Level	4799.00ft
Vertical Reference Pt	RIG (RKB)	RIG (RKB) to Mud Line at Slot (SLOT#05 RANCHO WATER VALLEY 8(615'FNL & 266'FEL,SEC.04))	4799.00ft
MD Reference Pt	RIG (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	266.95°



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Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	RANCHO WATER VALLEY 8 PWB
Facility	SEC.04-T05N-R67W		

WELLPATH DATA (120 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
0.00†	0.000	117.521	0.00	0.00	0.00	0.00	0.00	
24.00	0.000	117.521	24.00	0.00	0.00	0.00	0.00	Tie On
124.00†	0.000	117.521	124.00	0.00	0.00	0.00	0.00	
224.00†	0.000	117.521	224.00	0.00	0.00	0.00	0.00	
324.00†	0.000	117.521	324.00	0.00	0.00	0.00	0.00	
424.00†	0.000	117.521	424.00	0.00	0.00	0.00	0.00	
524.00†	0.000	117.521	524.00	0.00	0.00	0.00	0.00	
624.00†	0.000	117.521	624.00	0.00	0.00	0.00	0.00	
724.00†	0.000	117.521	724.00	0.00	0.00	0.00	0.00	
824.00†	0.000	117.521	824.00	0.00	0.00	0.00	0.00	
850.00	0.000	117.521	850.00	0.00	0.00	0.00	0.00	End of Tangent
924.00†	1.480	117.521	923.99	-0.82	-0.44	0.85	2.00	
1024.00†	3.480	117.521	1023.89	-4.55	-2.44	4.68	2.00	
1116.71	5.334	117.521	1116.32	-10.68	-5.73	11.00	2.00	End of Build
1124.00†	5.334	117.521	1123.58	-11.26	-6.05	11.60	0.00	
1224.00†	5.334	117.521	1223.15	-19.27	-10.34	19.85	0.00	
1324.00†	5.334	117.521	1322.72	-27.27	-14.64	28.09	0.00	
1424.00†	5.334	117.521	1422.28	-35.28	-18.93	36.34	0.00	
1524.00†	5.334	117.521	1521.85	-43.28	-23.23	44.58	0.00	
1624.00†	5.334	117.521	1621.42	-51.28	-27.52	52.83	0.00	
1724.00†	5.334	117.521	1720.99	-59.29	-31.82	61.07	0.00	
1824.00†	5.334	117.521	1820.55	-67.29	-36.11	69.31	0.00	
1924.00†	5.334	117.521	1920.12	-75.30	-40.41	77.56	0.00	
2024.00†	5.334	117.521	2019.69	-83.30	-44.71	85.80	0.00	
2124.00†	5.334	117.521	2119.25	-91.30	-49.00	94.05	0.00	
2224.00†	5.334	117.521	2218.82	-99.31	-53.30	102.29	0.00	
2324.00†	5.334	117.521	2318.39	-107.31	-57.59	110.54	0.00	
2424.00†	5.334	117.521	2417.95	-115.31	-61.89	118.78	0.00	
2524.00†	5.334	117.521	2517.52	-123.32	-66.18	127.03	0.00	
2624.00†	5.334	117.521	2617.09	-131.32	-70.48	135.27	0.00	



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REFERENCE WELLPATH IDENTIFICATION			
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Area	COLORADO	Well	RANCHO WATER VALLEY 8
Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	RANCHO WATER VALLEY 8 PWB
Facility	SEC.04-T05N-R67W		

WELLPATH DATA (120 stations) † = interpolated/extrapolated station								
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
2724.00†	5.334	117.521	2716.65	-139.33	-74.77	143.51	0.00	
2824.00†	5.334	117.521	2816.22	-147.33	-79.07	151.76	0.00	
2924.00†	5.334	117.521	2915.79	-155.33	-83.37	160.00	0.00	
3024.00†	5.334	117.521	3015.36	-163.34	-87.66	168.25	0.00	
3124.00†	5.334	117.521	3114.92	-171.34	-91.96	176.49	0.00	
3224.00†	5.334	117.521	3214.49	-179.34	-96.25	184.74	0.00	
3324.00†	5.334	117.521	3314.06	-187.35	-100.55	192.98	0.00	
3424.00†	5.334	117.521	3413.62	-195.35	-104.84	201.23	0.00	
3524.00†	5.334	117.521	3513.19	-203.36	-109.14	209.47	0.00	
3624.00†	5.334	117.521	3612.76	-211.36	-113.43	217.71	0.00	
3724.00†	5.334	117.521	3712.32	-219.36	-117.73	225.96	0.00	
3824.00†	5.334	117.521	3811.89	-227.37	-122.03	234.20	0.00	
3924.00†	5.334	117.521	3911.46	-235.37	-126.32	242.45	0.00	
4024.00†	5.334	117.521	4011.02	-243.38	-130.62	250.69	0.00	
4124.00†	5.334	117.521	4110.59	-251.38	-134.91	258.94	0.00	
4224.00†	5.334	117.521	4210.16	-259.38	-139.21	267.18	0.00	
4324.00†	5.334	117.521	4309.73	-267.39	-143.50	275.43	0.00	
4424.00†	5.334	117.521	4409.29	-275.39	-147.80	283.67	0.00	
4524.00†	5.334	117.521	4508.86	-283.39	-152.09	291.91	0.00	
4624.00†	5.334	117.521	4608.43	-291.40	-156.39	300.16	0.00	
4724.00†	5.334	117.521	4707.99	-299.40	-160.69	308.40	0.00	
4824.00†	5.334	117.521	4807.56	-307.41	-164.98	316.65	0.00	
4924.00†	5.334	117.521	4907.13	-315.41	-169.28	324.89	0.00	
5024.00†	5.334	117.521	5006.69	-323.41	-173.57	333.14	0.00	
5124.00†	5.334	117.521	5106.26	-331.42	-177.87	341.38	0.00	
5224.00†	5.334	117.521	5205.83	-339.42	-182.16	349.62	0.00	
5324.00†	5.334	117.521	5305.40	-347.42	-186.46	357.87	0.00	
5424.00†	5.334	117.521	5404.96	-355.43	-190.75	366.11	0.00	
5524.00†	5.334	117.521	5504.53	-363.43	-195.05	374.36	0.00	
5624.00†	5.334	117.521	5604.10	-371.44	-199.35	382.60	0.00	



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REFERENCE WELLPATH IDENTIFICATION

Operator	EXTRACTION OIL & GAS	Slot	SLOT#05 RANCHO WATER VALLEY 8(615'FNL & 266'FEL,SEC.04)
Area	COLORADO	Well	RANCHO WATER VALLEY 8
Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	RANCHO WATER VALLEY 8 PWB
Facility	SEC.04-T05N-R67W		

WELLPATH DATA (120 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
5724.00†	5.334	117.521	5703.66	-379.44	-203.64	390.85	0.00	
5824.00†	5.334	117.521	5803.23	-387.44	-207.94	399.09	0.00	
5924.00†	5.334	117.521	5902.80	-395.45	-212.23	407.34	0.00	
6024.00†	5.334	117.521	6002.36	-403.45	-216.53	415.58	0.00	
6113.47	5.334	117.521	6091.45	-410.61	-220.37	422.96	0.00	End of Tangent
6124.00†	4.515	123.079	6101.94	-411.37	-220.82	423.74	9.00	
6224.00†	5.760	244.991	6201.74	-409.89	-225.10	422.49	9.00	
6324.00†	14.418	260.557	6300.11	-392.83	-229.27	405.62	9.00	
6424.00†	23.334	264.456	6394.64	-360.60	-233.24	373.56	9.00	
6524.00†	32.295	266.272	6483.00	-314.01	-236.90	327.10	9.00	
6624.00†	41.271	267.362	6563.01	-254.20	-240.16	267.37	9.00	
6724.00†	50.255	268.119	6632.70	-182.63	-242.94	195.86	9.00	
6824.00†	59.243	268.701	6690.36	-101.08	-245.18	114.31	9.00	
6924.00†	68.232	269.182	6734.56	-11.55	-246.82	24.74	9.00	
7024.00†	77.223	269.607	6764.22	83.76	-247.82	-70.65	9.00	
7124.00†	86.215	270.001	6778.61	182.49	-248.16	-169.50	9.00	
7166.10	90.000	270.164	6780.00 ¹	224.49	-248.10	-211.57	9.00	End of 3D Arc
7224.00†	90.000	270.164	6780.00	282.30	-247.93	-269.47	0.00	
7324.00†	90.000	270.164	6780.00	382.15	-247.65	-369.47	0.00	
7424.00†	90.000	270.164	6780.00	481.99	-247.36	-469.47	0.00	
7524.00†	90.000	270.164	6780.00	581.83	-247.07	-569.47	0.00	
7624.00†	90.000	270.164	6780.00	681.67	-246.79	-669.47	0.00	
7724.00†	90.000	270.164	6780.00	781.51	-246.50	-769.47	0.00	
7824.00†	90.000	270.164	6780.00	881.36	-246.21	-869.47	0.00	
7924.00†	90.000	270.164	6780.00	981.20	-245.93	-969.47	0.00	
8024.00†	90.000	270.164	6780.00	1081.04	-245.64	-1069.47	0.00	
8124.00†	90.000	270.164	6780.00	1180.88	-245.36	-1169.47	0.00	
8224.00†	90.000	270.164	6780.00	1280.73	-245.07	-1269.47	0.00	
8324.00†	90.000	270.164	6780.00	1380.57	-244.78	-1369.47	0.00	
8424.00†	90.000	270.164	6780.00	1480.41	-244.50	-1469.47	0.00	



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Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	RANCHO WATER VALLEY 8 PWB
Facility	SEC.04-T05N-R67W		

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MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
8524.00†	90.000	270.164	6780.00	1580.25	-244.21	-1569.47	0.00	
8624.00†	90.000	270.164	6780.00	1680.09	-243.92	-1669.47	0.00	
8724.00†	90.000	270.164	6780.00	1779.94	-243.64	-1769.47	0.00	
8824.00†	90.000	270.164	6780.00	1879.78	-243.35	-1869.47	0.00	
8924.00†	90.000	270.164	6780.00	1979.62	-243.07	-1969.47	0.00	
9024.00†	90.000	270.164	6780.00	2079.46	-242.78	-2069.47	0.00	
9124.00†	90.000	270.164	6780.00	2179.31	-242.49	-2169.47	0.00	
9224.00†	90.000	270.164	6780.00	2279.15	-242.21	-2269.47	0.00	
9324.00†	90.000	270.164	6780.00	2378.99	-241.92	-2369.47	0.00	
9424.00†	90.000	270.164	6780.00	2478.83	-241.64	-2469.46	0.00	
9524.00†	90.000	270.164	6780.00	2578.67	-241.35	-2569.46	0.00	
9624.00†	90.000	270.164	6780.00	2678.52	-241.06	-2669.46	0.00	
9724.00†	90.000	270.164	6780.00	2778.36	-240.78	-2769.46	0.00	
9824.00†	90.000	270.164	6780.00	2878.20	-240.49	-2869.46	0.00	
9924.00†	90.000	270.164	6780.00	2978.04	-240.20	-2969.46	0.00	
10024.00†	90.000	270.164	6780.00	3077.89	-239.92	-3069.46	0.00	
10124.00†	90.000	270.164	6780.00	3177.73	-239.63	-3169.46	0.00	
10224.00†	90.000	270.164	6780.00	3277.57	-239.35	-3269.46	0.00	
10324.00†	90.000	270.164	6780.00	3377.41	-239.06	-3369.46	0.00	
10424.00†	90.000	270.164	6780.00	3477.25	-238.77	-3469.46	0.00	
10524.00†	90.000	270.164	6780.00	3577.10	-238.49	-3569.46	0.00	
10624.00†	90.000	270.164	6780.00	3676.94	-238.20	-3669.46	0.00	
10724.00†	90.000	270.164	6780.00	3776.78	-237.91	-3769.46	0.00	
10824.00†	90.000	270.164	6780.00	3876.62	-237.63	-3869.46	0.00	
10924.00†	90.000	270.164	6780.00	3976.47	-237.34	-3969.46	0.00	
11024.00†	90.000	270.164	6780.00	4076.31	-237.06	-4069.46	0.00	
11124.00†	90.000	270.164	6780.00	4176.15	-236.77	-4169.46	0.00	
11224.00†	90.000	270.164	6780.00	4275.99	-236.48	-4269.46	0.00	
11324.00†	90.000	270.164	6780.00	4375.84	-236.20	-4369.46	0.00	
11377.77	90.000	270.164	6780.00 ²	4429.52	-236.04	-4423.22	0.00	End of Tangent



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Facility	SEC.04-T05N-R67W		

HOLE & CASING SECTIONS - Ref Wellbore: RANCHO WATER VALLEY 8 PWB Ref Wellpath: RANCHO WATER VALLEY 8 (REV-B.0) PWP									
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
7in Casing Intermediate	24.00	7168.52	7144.52	24.00	6780.00	0.00	0.00	-248.09	-213.99

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
RANCHO WATER VALLEY PAD N1/2 SECTION 04		0.00	-56.10	-0.56	3170351.42	1401623.60	40°26'03.282"N	104°53'16.922"W	polygon
RANCHO WATER VALLEY 8 BHL ON PLAT REV-1(840'FNL & 460'FWL,SEC.04)		6780.00	-243.33	-4425.73	3165927.82	1401405.85	40°26'01.428"N	104°54'14.148"W	point
2) RANCHO WATER VALLEY 8 BHL ON PLAT REV-2(831'FNL & 460'FWL,SEC.04)	11377.77	6780.00	-236.04	-4423.22	3165930.28	1401413.16	40°26'01.500"N	104°54'14.116"W	point
1) RANCHO WATER VALLEY 8 LANDING	7166.10	6780.00	-248.10	-211.57	3170141.74	1401430.17	40°26'01.385"N	104°53'19.651"W	point
RWV PAD N1/2 SECTION 04 HARDLINES(460'SETBACKS)		6780.00	-56.10	-0.56	3170351.42	1401623.60	40°26'03.282"N	104°53'16.922"W	polygon

SURVEY PROGRAM - Ref Wellbore: RANCHO WATER VALLEY 8 PWB Ref Wellpath: RANCHO WATER VALLEY 8 (REV-B.0) PWP				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
24.00	13000.00	NaviTrak (Standard)		RANCHO WATER VALLEY 8 PWB