

EXTRACTION OIL & GAS

Location: COLORADO Slot: SLOT#02 RANCHO WATER VALLEY 5(671'FNL & 262'FEL,SEC.04)
Field: WELD COUNTY (NAD83/TRUE NORTH) Well: RANCHO WATER VALLEY 5
Facility: SEC.04-T05N-R67W Wellbore: RANCHO WATER VALLEY 5 PWB

Plot reference wellpath is RANCHO WATER VALLEY 5 (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#02 RANCHO WATER VALLEY 5(671'FNL & 262'FEL,SEC.04)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: painsetr 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#02 RANCHO WATER VALLEY 5(671'FNL & 262'FEL,SEC.04)	-453.57	-76.28	3170351.421	1401623.605	40°26'03.282"N	104°53'16.922"W
RIG (RKB) to Mud line (At Slot: SLOT#02 RANCHO WATER VALLEY 5(671'FNL & 262'FEL,SEC.04))					4799ft	
Mean Sea Level to Mud line (At Slot: SLOT#02 RANCHO WATER VALLEY 5(671'FNL & 262'FEL,SEC.04))					0ft	
RIG (RKB) to Mean Sea Level					4799ft	

Targets

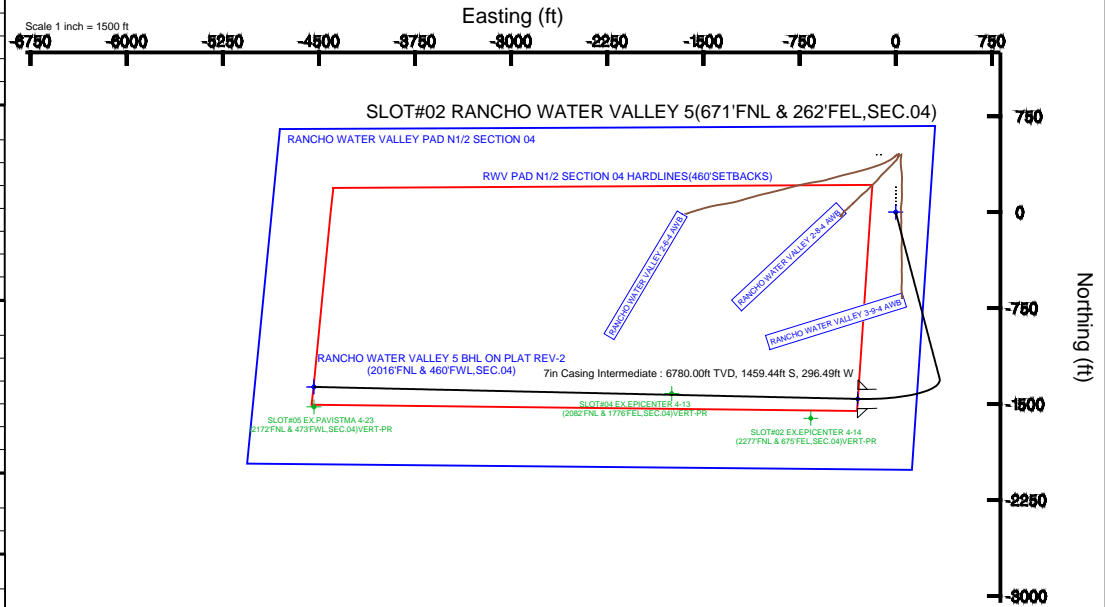
Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
RANCHO WATER VALLEY PAD N1/2 SECTION 04		0.00	0.00	0.00	3170351.42	1401623.60	40°26'03.282"N	104°53'16.922"W
RANCHO WATER VALLEY 5 BHL ON PLAT REV-1(2022'FNL & 460'FWL,SEC.04)		6780.00	-1365.76	-4538.97	3169822.16	1400226.61	40°25'49.782"N	104°54'15.617"W
RANCHO WATER VALLEY 5 BHL ON PLAT REV-2(2016'FNL & 460'FWL,SEC.04)	11586.37	6780.00	-1365.76	-4538.99	3169822.15	1400226.61	40°25'49.782"N	104°54'15.617"W
RANCHO WATER VALLEY 5 LANDING	7342.84	6780.00	-1459.44	-296.49	3170065.02	1400162.21	40°25'48.860"N	104°53'20.756"W
RWW PAD N1/2 SECTION 04 HARDLINES(460'SETBACKS)		6780.00	0.00	0.00	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 5 PWB

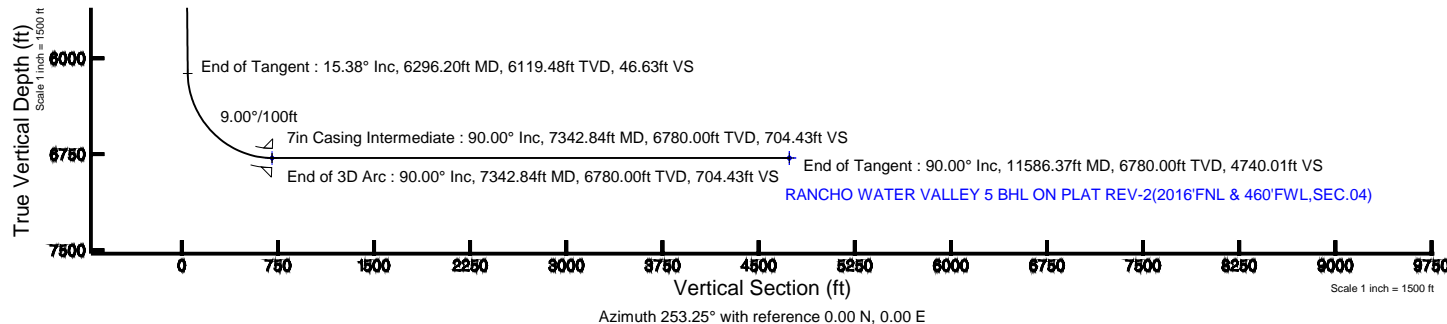
Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	24.00	0.000	165.243	24.00	0.00	0.00	0.00	0.00
End of Tangent	850.00	0.000	165.243	850.00	0.00	0.00	0.00	0.00
End of Build	1619.05	15.381	165.243	1609.85	-99.22	26.14	2.00	3.56
End of Tangent	6296.20	15.381	165.243	6119.48	-1298.85	342.12	0.00	46.63
End of 3D Arc	7342.84	90.000	271.265	6780.00	-1459.44	-296.49	9.00	704.43
End of Tangent	11586.37	90.000	271.265	6780.00	-1365.76	-4538.99	0.00	4740.01



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 5 (REV-B.0) PWP

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REFERENCE WELLPATH IDENTIFICATION

Operator	EXTRACTION OIL & GAS	Slot	SLOT#02 RANCHO WATER VALLEY 5(671'FNL & 262'FEL,SEC.04)
Area	COLORADO	Well	RANCHO WATER VALLEY 5
Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	RANCHO WATER VALLEY 5 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 9:09:40 AM
Convergence at slot	n/a	Database/Source file	WA_Denver/RANCHO_WATER_VALLEY_5_PWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-453.57	-76.28	3170351.42	1401623.61	40°26'03.282"N	104°53'16.922"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#02 RANCHO WATER VALLEY 5(671'FNL & 262'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	253.25°



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Facility	SEC.04-T05N-R67W		

WELLPATH DATA (122 stations) † = interpolated/extrapolated station								Comments
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	
0.00†	0.000	165.243	0.00	0.00	0.00	0.00	0.00	
24.00	0.000	165.243	24.00	0.00	0.00	0.00	0.00	Tie On
124.00†	0.000	165.243	124.00	0.00	0.00	0.00	0.00	
224.00†	0.000	165.243	224.00	0.00	0.00	0.00	0.00	
324.00†	0.000	165.243	324.00	0.00	0.00	0.00	0.00	
424.00†	0.000	165.243	424.00	0.00	0.00	0.00	0.00	
524.00†	0.000	165.243	524.00	0.00	0.00	0.00	0.00	
624.00†	0.000	165.243	624.00	0.00	0.00	0.00	0.00	
724.00†	0.000	165.243	724.00	0.00	0.00	0.00	0.00	
824.00†	0.000	165.243	824.00	0.00	0.00	0.00	0.00	
850.00	0.000	165.243	850.00	0.00	0.00	0.00	0.00	End of Tangent
924.00†	1.480	165.243	923.99	0.03	-0.92	0.24	2.00	
1024.00†	3.480	165.243	1023.89	0.18	-5.11	1.35	2.00	
1124.00†	5.480	165.243	1123.58	0.45	-12.66	3.34	2.00	
1224.00†	7.480	165.243	1222.94	0.85	-23.57	6.21	2.00	
1324.00†	9.480	165.243	1321.84	1.36	-37.83	9.97	2.00	
1424.00†	11.480	165.243	1420.17	1.99	-55.42	14.60	2.00	
1524.00†	13.480	165.243	1517.80	2.74	-76.32	20.10	2.00	
1619.05	15.381	165.243	1609.85	3.56	-99.22	26.14	2.00	End of Build
1624.00†	15.381	165.243	1614.62	3.61	-100.49	26.47	0.00	
1724.00†	15.381	165.243	1711.04	4.53	-126.14	33.23	0.00	
1824.00†	15.381	165.243	1807.46	5.45	-151.79	39.98	0.00	
1924.00†	15.381	165.243	1903.87	6.37	-177.44	46.74	0.00	
2024.00†	15.381	165.243	2000.29	7.29	-203.09	53.49	0.00	
2124.00†	15.381	165.243	2096.71	8.21	-228.74	60.25	0.00	
2224.00†	15.381	165.243	2193.13	9.13	-254.38	67.01	0.00	
2324.00†	15.381	165.243	2289.55	10.05	-280.03	73.76	0.00	
2424.00†	15.381	165.243	2385.97	10.98	-305.68	80.52	0.00	
2524.00†	15.381	165.243	2482.38	11.90	-331.33	87.27	0.00	
2624.00†	15.381	165.243	2578.80	12.82	-356.98	94.03	0.00	



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Area	COLORADO	Well	RANCHO WATER VALLEY 5
Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	RANCHO WATER VALLEY 5 PWB
Facility	SEC.04-T05N-R67W		

WELLPATH DATA (122 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
2724.00†	15.381	165.243	2675.22	13.74	-382.63	100.78	0.00	
2824.00†	15.381	165.243	2771.64	14.66	-408.28	107.54	0.00	
2924.00†	15.381	165.243	2868.06	15.58	-433.93	114.30	0.00	
3024.00†	15.381	165.243	2964.48	16.50	-459.58	121.05	0.00	
3124.00†	15.381	165.243	3060.89	17.42	-485.22	127.81	0.00	
3224.00†	15.381	165.243	3157.31	18.34	-510.87	134.56	0.00	
3324.00†	15.381	165.243	3253.73	19.26	-536.52	141.32	0.00	
3424.00†	15.381	165.243	3350.15	20.18	-562.17	148.08	0.00	
3524.00†	15.381	165.243	3446.57	21.11	-587.82	154.83	0.00	
3624.00†	15.381	165.243	3542.99	22.03	-613.47	161.59	0.00	
3724.00†	15.381	165.243	3639.40	22.95	-639.12	168.34	0.00	
3824.00†	15.381	165.243	3735.82	23.87	-664.77	175.10	0.00	
3924.00†	15.381	165.243	3832.24	24.79	-690.41	181.86	0.00	
4024.00†	15.381	165.243	3928.66	25.71	-716.06	188.61	0.00	
4124.00†	15.381	165.243	4025.08	26.63	-741.71	195.37	0.00	
4224.00†	15.381	165.243	4121.50	27.55	-767.36	202.12	0.00	
4324.00†	15.381	165.243	4217.91	28.47	-793.01	208.88	0.00	
4424.00†	15.381	165.243	4314.33	29.39	-818.66	215.64	0.00	
4524.00†	15.381	165.243	4410.75	30.31	-844.31	222.39	0.00	
4624.00†	15.381	165.243	4507.17	31.24	-869.96	229.15	0.00	
4724.00†	15.381	165.243	4603.59	32.16	-895.60	235.90	0.00	
4824.00†	15.381	165.243	4700.01	33.08	-921.25	242.66	0.00	
4924.00†	15.381	165.243	4796.42	34.00	-946.90	249.41	0.00	
5024.00†	15.381	165.243	4892.84	34.92	-972.55	256.17	0.00	
5124.00†	15.381	165.243	4989.26	35.84	-998.20	262.93	0.00	
5224.00†	15.381	165.243	5085.68	36.76	-1023.85	269.68	0.00	
5324.00†	15.381	165.243	5182.10	37.68	-1049.50	276.44	0.00	
5424.00†	15.381	165.243	5278.52	38.60	-1075.15	283.19	0.00	
5524.00†	15.381	165.243	5374.93	39.52	-1100.79	289.95	0.00	
5624.00†	15.381	165.243	5471.35	40.44	-1126.44	296.71	0.00	



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Area	COLORADO	Well	RANCHO WATER VALLEY 5
Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	RANCHO WATER VALLEY 5 PWB
Facility	SEC.04-T05N-R67W		

WELLPATH DATA (122 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
5724.00†	15.381	165.243	5567.77	41.37	-1152.09	303.46	0.00	
5824.00†	15.381	165.243	5664.19	42.29	-1177.74	310.22	0.00	
5924.00†	15.381	165.243	5760.61	43.21	-1203.39	316.97	0.00	
6024.00†	15.381	165.243	5857.03	44.13	-1229.04	323.73	0.00	
6124.00†	15.381	165.243	5953.44	45.05	-1254.69	330.49	0.00	
6224.00†	15.381	165.243	6049.86	45.97	-1280.34	337.24	0.00	
6296.20	15.381	165.243	6119.48	46.63	-1298.85	342.12	0.00	End of Tangent
6324.00†	14.905	174.658	6146.32	47.47	-1305.98	343.39	9.00	
6424.00†	16.477	207.896	6242.78	60.00	-1331.37	337.94	9.00	
6524.00†	21.890	230.114	6337.31	87.17	-1355.91	316.96	9.00	
6624.00†	29.071	242.866	6427.60	128.29	-1378.99	280.96	9.00	
6724.00†	37.002	250.726	6511.40	182.36	-1400.05	230.83	9.00	
6824.00†	45.288	256.090	6586.66	248.05	-1418.56	167.81	9.00	
6924.00†	53.761	260.091	6651.53	323.73	-1434.07	93.44	9.00	
7024.00†	62.341	263.300	6704.41	407.55	-1446.21	9.55	9.00	
7124.00†	70.984	266.037	6743.99	497.45	-1454.66	-81.78	9.00	
7224.00†	79.663	268.501	6769.31	591.20	-1459.22	-178.31	9.00	
7324.00†	88.360	270.831	6779.73	686.49	-1459.79	-277.66	9.00	
7342.84	90.000	271.265	6780.00 [†]	704.43	-1459.44	-296.49	9.00	End of 3D Arc
7424.00†	90.000	271.265	6780.00	781.61	-1457.65	-377.63	0.00	
7524.00†	90.000	271.265	6780.00	876.71	-1455.44	-477.61	0.00	
7624.00†	90.000	271.265	6780.00	971.81	-1453.23	-577.58	0.00	
7724.00†	90.000	271.265	6780.00	1066.91	-1451.03	-677.56	0.00	
7824.00†	90.000	271.265	6780.00	1162.01	-1448.82	-777.53	0.00	
7924.00†	90.000	271.265	6780.00	1257.11	-1446.61	-877.51	0.00	
8024.00†	90.000	271.265	6780.00	1352.21	-1444.40	-977.48	0.00	
8124.00†	90.000	271.265	6780.00	1447.31	-1442.20	-1077.46	0.00	
8224.00†	90.000	271.265	6780.00	1542.41	-1439.99	-1177.44	0.00	
8324.00†	90.000	271.265	6780.00	1637.51	-1437.78	-1277.41	0.00	
8424.00†	90.000	271.265	6780.00	1732.61	-1435.57	-1377.39	0.00	



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8524.00†	90.000	271.265	6780.00	1827.71	-1433.37	-1477.36	0.00	
8624.00†	90.000	271.265	6780.00	1922.81	-1431.16	-1577.34	0.00	
8724.00†	90.000	271.265	6780.00	2017.91	-1428.95	-1677.31	0.00	
8824.00†	90.000	271.265	6780.00	2113.01	-1426.74	-1777.29	0.00	
8924.00†	90.000	271.265	6780.00	2208.11	-1424.53	-1877.26	0.00	
9024.00†	90.000	271.265	6780.00	2303.21	-1422.33	-1977.24	0.00	
9124.00†	90.000	271.265	6780.00	2398.31	-1420.12	-2077.22	0.00	
9224.00†	90.000	271.265	6780.00	2493.41	-1417.91	-2177.19	0.00	
9324.00†	90.000	271.265	6780.00	2588.51	-1415.70	-2277.17	0.00	
9424.00†	90.000	271.265	6780.00	2683.61	-1413.50	-2377.14	0.00	
9524.00†	90.000	271.265	6780.00	2778.70	-1411.29	-2477.12	0.00	
9624.00†	90.000	271.265	6780.00	2873.80	-1409.08	-2577.09	0.00	
9724.00†	90.000	271.265	6780.00	2968.90	-1406.87	-2677.07	0.00	
9824.00†	90.000	271.265	6780.00	3064.00	-1404.67	-2777.05	0.00	
9924.00†	90.000	271.265	6780.00	3159.10	-1402.46	-2877.02	0.00	
10024.00†	90.000	271.265	6780.00	3254.20	-1400.25	-2977.00	0.00	
10124.00†	90.000	271.265	6780.00	3349.30	-1398.04	-3076.97	0.00	
10224.00†	90.000	271.265	6780.00	3444.40	-1395.84	-3176.95	0.00	
10324.00†	90.000	271.265	6780.00	3539.50	-1393.63	-3276.92	0.00	
10424.00†	90.000	271.265	6780.00	3634.60	-1391.42	-3376.90	0.00	
10524.00†	90.000	271.265	6780.00	3729.70	-1389.21	-3476.87	0.00	
10624.00†	90.000	271.265	6780.00	3824.80	-1387.01	-3576.85	0.00	
10724.00†	90.000	271.265	6780.00	3919.90	-1384.80	-3676.83	0.00	
10824.00†	90.000	271.265	6780.00	4015.00	-1382.59	-3776.80	0.00	
10924.00†	90.000	271.265	6780.00	4110.10	-1380.38	-3876.78	0.00	
11024.00†	90.000	271.265	6780.00	4205.20	-1378.18	-3976.75	0.00	
11124.00†	90.000	271.265	6780.00	4300.30	-1375.97	-4076.73	0.00	
11224.00†	90.000	271.265	6780.00	4395.40	-1373.76	-4176.70	0.00	
11324.00†	90.000	271.265	6780.00	4490.50	-1371.55	-4276.68	0.00	
11424.00†	90.000	271.265	6780.00	4585.60	-1369.35	-4376.66	0.00	



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11524.00†	90.000	271.265	6780.00	4680.70	-1367.14	-4476.63	0.00	
11586.37	90.000	271.265	6780.00 ²	4740.01	-1365.76	-4538.99	0.00	End of Tangent

HOLE & CASING SECTIONS -

Ref Wellbore: RANCHO WATER VALLEY 5 PWB Ref Wellpath: RANCHO WATER VALLEY 5 (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	7342.84	7318.84	24.00	6780.00	0.00	0.00	-1459.44	-296.49



Planned Wellpath Report

RANCHO WATER VALLEY 5 (REV-B.0) PWP

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REFERENCE WELLPATH IDENTIFICATION			
Operator	EXTRACTION OIL & GAS	Slot	SLOT#02 RANCHO WATER VALLEY 5(671'FNL & 262'FEL,SEC.04)
Area	COLORADO	Well	RANCHO WATER VALLEY 5
Field	WELD COUNTY (NAD83/TRUE NORTH)	Wellbore	RANCHO WATER VALLEY 5 PWB
Facility	SEC.04-T05N-R67W		

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	0.00	0.00	3170351.42	1401623.60	40°26'03.282"N	104°53'16.922"W	polygon
RANCHO WATER VALLEY 5 BHL ON PLAT REV-1(2022'FNL & 460'FWL,SEC.04)		6780.00	-1365.76	-4538.97	3165822.16	1400226.61	40°25'49.782"N	104°54'15.617"W	point
2) RANCHO WATER VALLEY 5 BHL ON PLAT REV-2(2016'FNL & 460'FWL,SEC.04)	11586.37	6780.00	-1365.76	-4538.99	3165822.15	1400226.61	40°25'49.782"N	104°54'15.617"W	point
1) RANCHO WATER VALLEY 5 LANDING	7342.84	6780.00	-1459.44	-296.49	3170065.02	1400162.21	40°25'48.860"N	104°53'20.756"W	point
RWV PAD N1/2 SECTION 04 HARDLINES(460'SETBACKS)		6780.00	0.00	0.00	3170351.42	1401623.60	40°26'03.282"N	104°53'16.922"W	polygon

SURVEY PROGRAM - Ref Wellbore: RANCHO WATER VALLEY 5 PWB Ref Wellpath: RANCHO WATER VALLEY 5 (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 5 PWB