

# KERR-MCGEE OIL & GAS ONSHORE LP

Location: COLORADO Slot: SLOT#14 VOLLMAR 28N-11HZ (1219'FNL & 1922'FWL, SEC.14)  
Field: WELD COUNTY (KERR MCGEE) Well: VOLLMAR 28N-11HZ  
Facility: SEC.14-T2N-R67W Wellbore: VOLLMAR 28N-11HZ PWB

Plot reference wellpath is VOLLMAR 28N-11HZ (PERMIT REV-1) PWP

True vertical depths are referenced to PERMIT (RKB)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (501), US feet
Measured depths are referenced to PERMIT (RKB)	North Reference: True north
PERMIT (RKB) to Mean Sea Level: 4958 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#14 VOLLMAR 28N-11HZ (1219'FNL & 1922'FWL, SEC.14)): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: amarcar on 9/10/2014

## Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.14-T2N-R67W			3179914.426	1291732.032	40°07'56.662"N	104°51'23.565"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SLOT#14 VOLLMAR 28N-11HZ (1219FNL & 1922FWL, SEC.14)	3485.22	-1075.30	3178813.907	1295209.205	40°08'31.103"N	104°51'37.411"W
PERMIT (RKB) to Mud line (At Slot: SLOT#14 VOLLMAR 28N-11HZ (1219FNL & 1922FWL, SEC.14))					4958ft	
Mean Sea Level to Mud line (At Slot: SLOT#14 VOLLMAR 28N-11HZ (1219FNL & 1922FWL, SEC.14))					0ft	
PERMIT (RKB) to Mean Sea Level					4958ft	

## Survey Program

Start MD (ft)	End MD (ft)	Tool	Model	Log Name/Comment	Wellbore
17.00	1129.00	Generic gyro - continuous	Generic gyro - continuous (Standard)		VOLLMAR 28N-11HZ PWB
1129.00	7800.01	NaviTrak	NaviTrak (MAGCORR,IFR)		VOLLMAR 28N-11HZ PWB
7800.01	12873.68	NaviTrak	NaviTrak (MAGCORR,IFR)		VOLLMAR 28N-11HZ PWB

## Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
TIE-ON	17.00	0.000	35.170	17.00	0.00	0.00	0.00	0.00
BEGIN NUDGE	3000.00	0.000	35.170	3000.00	0.00	0.00	0.00	0.00
END NUDGE	3785.50	15.710	35.170	3775.69	87.48	61.64	2.00	85.51
KOP, BUILD @ 10°/100'	7021.06	15.710	35.170	6890.39	803.63	566.28	0.00	785.50
LANDING POINT	7800.01	90.395	358.205	7333.00	1369.00	624.00	10.00	1348.78
TOTAL DEPTH	12873.68	90.395	358.205	7298.00	6440.05	465.07	0.00	6422.33

## Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
VOLLMAR SEC.11 SECTION LINES		0.00	-11.64	-89.23	3178724.76	1295196.93	40°08'30.988"N	104°51'38.560"W
VOLLMAR SEC.14 SECTION LINES		0.00	-11.64	-89.23	3178724.76	1295196.93	40°08'30.988"N	104°51'38.560"W
VOLLMAR 28N-11HZ BHL ON PLAT (50'FNL & 2346'FWL, SEC.11)	12873.68	7298.00	6440.05	465.07	3179232.50	1301652.17	40°09'34.744"N	104°51'31.421"W
VOLLMAR 28N-11HZ LAND BOX		7298.00	0.00	0.00	3178813.91	1295209.21	40°08'31.103"N	104°51'37.411"W
VOLLMAR SEC.11 HARDLINES (460' SETBACKS)		7313.00	-11.64	-89.23	3178724.76	1295196.93	40°08'30.988"N	104°51'38.560"W
VOLLMAR SEC.14 HARDLINES (460' SETBACKS)		7313.00	-11.64	-89.23	3178724.76	1295196.93	40°08'30.988"N	104°51'38.560"W

True Vertical Depth (ft)  
Scale 1 inch = 1000 ft  
4 1/2" LINER TOP : 15.71° Inc, 6505.00ft MD, 6393.61ft TVD, 673.85ft VS

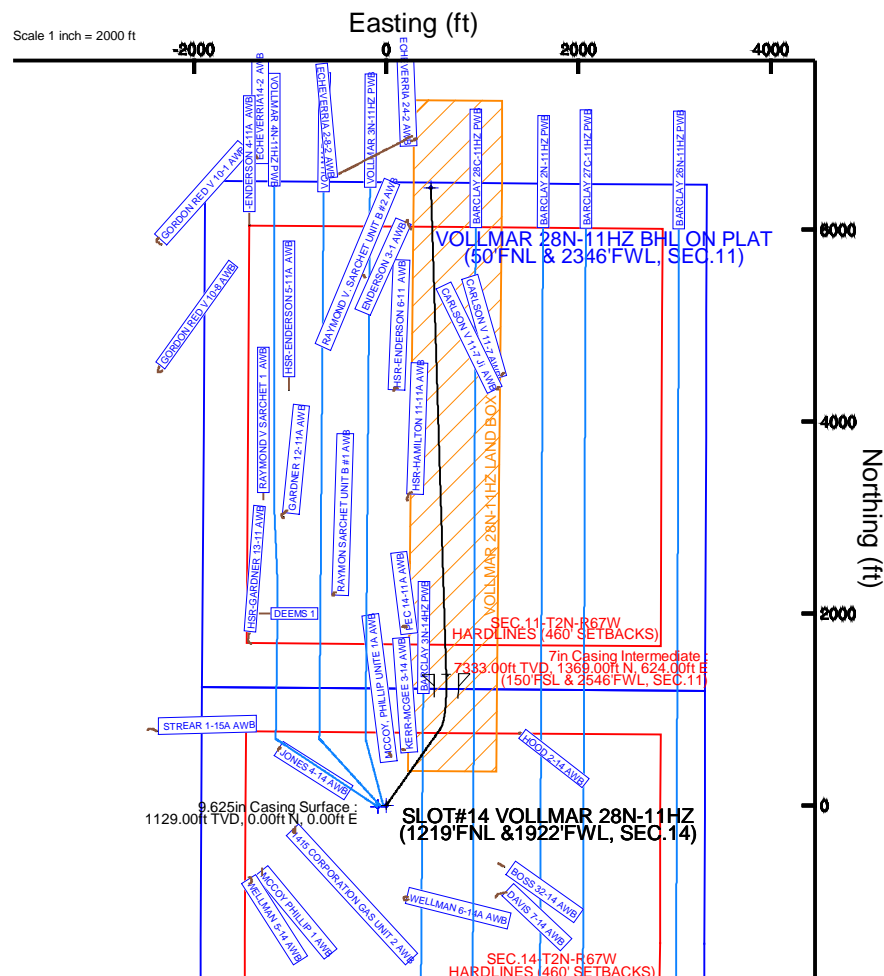
KOP, BUILD @ 10°/100' : 15.71° Inc, 7021.06ft MD, 6890.39ft TVD, 785.50ft VS

SSPG : 39.28° Inc, 7278.74ft MD, 7118.00ft TVD, 895.01ft VS  
NBRR : 51.00° Inc, 7399.43ft MD, 7203.00ft TVD, 979.14ft VS  
N470 C CK : 58.66° Inc, 7477.60ft MD, 7248.00ft TVD, 1042.52ft VS  
N700 C CK : 76.95° Inc, 7663.62ft MD, 7318.00ft TVD, 1213.56ft VS  
N700 C CK : 90.40° Inc, 9974.49ft MD, 7318.00ft TVD, 3523.20ft VS

7in Casing Intermediate : 90.39° Inc, 7800.01ft MD, 7333.00ft TVD, 1348.78ft VS  
LANDING POINT : 90.40° Inc, 7800.01ft MD, 7333.00ft TVD, 1348.78ft VS

Vertical Section (ft)

Azimuth 358.20° with reference 0.00 N, 0.00 E



VOLLMAR 28N-11HZ BHL ON PLAT (50'FNL & 2346'FWL, SEC.11)  
TOTAL DEPTH : 90.40° Inc, 12873.68ft MD, 7298.00ft TVD, 6422.33ft VS

Scale 1 inch = 1000 ft

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 VOLLMAR 28N-11HZ (1219'FNL &1922'FWL, SEC.14)
Area	COLORADO	Well	VOLLMAR 28N-11HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	VOLLMAR 28N-11HZ PWB
Facility	SEC.14-T2N-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	Amarcar
Scale	0.999959	Report Generated	9/10/2014 at 4:42:32 PM
Convergence at slot	n/a	Database/Source file	WellArchitectDB/VOLLMAR_28N-11HZ_PWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	3485.22	-1075.30	3178813.91	1295209.21	40°08'31.103"N	104°51'37.411"W
Facility Reference Pt			3179914.43	1291732.03	40°07'56.662"N	104°51'23.565"W
Field Reference Pt			3197771.84	1268891.29	40°04'09.600"N	104°47'36.000"W

WELLPATH DATUM			
Calculation method	Minimum curvature	PERMIT (RKB) to Facility Vertical Datum	4958.00ft
Horizontal Reference Pt	Slot	PERMIT (RKB) to Mean Sea Level	4958.00ft
Vertical Reference Pt	PERMIT (RKB)	PERMIT (RKB) to Mud Line at Slot (SLOT#14 VOLLMAR 28N-11HZ (1219'FNL &1922'FWL, SEC.14))	4958.00ft
MD Reference Pt	PERMIT (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	358.20°

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 VOLLMAR 28N-11HZ (1219'FNL &1922'FWL, SEC.14)
Area	COLORADO	Well	VOLLMAR 28N-11HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	VOLLMAR 28N-11HZ PWB
Facility	SEC.14-T2N-R67W		

WELLPATH DATA (145 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00†	0.000	35.170	0.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
17.00	0.000	35.170	17.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	TIE-ON
117.00†	0.000	35.170	117.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
217.00†	0.000	35.170	217.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
317.00†	0.000	35.170	317.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
417.00†	0.000	35.170	417.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
517.00†	0.000	35.170	517.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
617.00†	0.000	35.170	617.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
717.00†	0.000	35.170	717.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
801.00†	0.000	35.170	801.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	BASE FOX HILLS
817.00†	0.000	35.170	817.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
917.00†	0.000	35.170	917.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
1017.00†	0.000	35.170	1017.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
1117.00†	0.000	35.170	1117.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
1129.00†	0.000	35.170	1129.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	SURFACE CSG SETTING DEPTH
1217.00†	0.000	35.170	1217.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
1317.00†	0.000	35.170	1317.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
1417.00†	0.000	35.170	1417.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
1517.00†	0.000	35.170	1517.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
1617.00†	0.000	35.170	1617.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
1717.00†	0.000	35.170	1717.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
1817.00†	0.000	35.170	1817.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
1917.00†	0.000	35.170	1917.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
2017.00†	0.000	35.170	2017.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
2117.00†	0.000	35.170	2117.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
2217.00†	0.000	35.170	2217.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
2317.00†	0.000	35.170	2317.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
2417.00†	0.000	35.170	2417.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
2517.00†	0.000	35.170	2517.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
2617.00†	0.000	35.170	2617.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
2717.00†	0.000	35.170	2717.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
2817.00†	0.000	35.170	2817.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
2917.00†	0.000	35.170	2917.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	
3000.00	0.000	35.170	3000.00	0.00	0.00	0.00	40°08'31.103"N	104°51'37.411"W	0.00	BEGIN NUDGE
3017.00†	0.340	35.170	3017.00	0.04	0.04	0.03	40°08'31.103"N	104°51'37.411"W	2.00	
3117.00†	2.340	35.171	3116.97	1.91	1.95	1.38	40°08'31.122"N	104°51'37.393"W	2.00	
3217.00†	4.340	35.171	3216.79	6.56	6.71	4.73	40°08'31.169"N	104°51'37.350"W	2.00	
3317.00†	6.340	35.171	3316.35	14.00	14.32	10.09	40°08'31.245"N	104°51'37.281"W	2.00	
3417.00†	8.340	35.171	3415.53	24.21	24.77	17.45	40°08'31.348"N	104°51'37.186"W	2.00	
3517.00†	10.340	35.171	3514.20	37.17	38.03	26.80	40°08'31.479"N	104°51'37.066"W	2.00	
3617.00†	12.340	35.170	3612.24	52.88	54.10	38.12	40°08'31.638"N	104°51'36.920"W	2.00	
3717.00†	14.340	35.171	3709.54	71.32	72.96	51.41	40°08'31.824"N	104°51'36.749"W	2.00	
3785.50	15.710	35.170	3775.69	85.51	87.48	61.64	40°08'31.967"N	104°51'36.617"W	2.00	END NUDGE
3817.00†	15.710	35.170	3806.02	92.32	94.45	66.56	40°08'32.036"N	104°51'36.554"W	0.00	
3917.00†	15.710	35.171	3902.28	113.95	116.58	82.15	40°08'32.255"N	104°51'36.353"W	0.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 VOLLMAR 28N-11HZ (1219'FNL &1922'FWL, SEC.14)
Area	COLORADO	Well	VOLLMAR 28N-11HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	VOLLMAR 28N-11HZ PWB
Facility	SEC.14-T2N-R67W		

WELLPATH DATA (145 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4017.00†	15.710	35.170	3998.55	135.59	138.72	97.75	40°08'32.474"N	104°51'36.152"W	0.00	
4063.18†	15.710	35.170	4043.00	145.58	148.94	104.95	40°08'32.575"N	104°51'36.060"W	0.00	PARKMAN
4117.00†	15.710	35.171	4094.81	157.22	160.85	113.34	40°08'32.693"N	104°51'35.952"W	0.00	
4217.00†	15.710	35.170	4191.08	178.86	182.99	128.94	40°08'32.911"N	104°51'35.751"W	0.00	
4317.00†	15.710	35.170	4287.34	200.49	205.12	144.54	40°08'33.130"N	104°51'35.550"W	0.00	
4417.00†	15.710	35.171	4383.60	222.13	227.25	160.13	40°08'33.349"N	104°51'35.349"W	0.00	
4500.52†	15.710	35.170	4464.00	240.19	245.74	173.16	40°08'33.531"N	104°51'35.181"W	0.00	SUSSEX
4517.00†	15.710	35.171	4479.87	243.76	249.39	175.73	40°08'33.567"N	104°51'35.148"W	0.00	
4617.00†	15.710	35.170	4576.13	265.39	271.52	191.33	40°08'33.786"N	104°51'34.947"W	0.00	
4717.00†	15.710	35.170	4672.40	287.03	293.65	206.92	40°08'34.005"N	104°51'34.747"W	0.00	
4817.00†	15.710	35.170	4768.66	308.66	315.79	222.52	40°08'34.224"N	104°51'34.546"W	0.00	
4917.00†	15.710	35.171	4864.93	330.30	337.92	238.12	40°08'34.442"N	104°51'34.345"W	0.00	
5017.00†	15.710	35.171	4961.19	351.93	360.06	253.71	40°08'34.661"N	104°51'34.144"W	0.00	
5117.00†	15.710	35.170	5057.46	373.57	382.19	269.31	40°08'34.880"N	104°51'33.943"W	0.00	
5217.00†	15.710	35.170	5153.72	395.20	404.32	284.91	40°08'35.099"N	104°51'33.742"W	0.00	
5317.00†	15.710	35.171	5249.98	416.83	426.46	300.50	40°08'35.317"N	104°51'33.542"W	0.00	
5417.00†	15.710	35.170	5346.25	438.47	448.59	316.10	40°08'35.536"N	104°51'33.341"W	0.00	
5517.00†	15.710	35.171	5442.51	460.10	470.72	331.70	40°08'35.755"N	104°51'33.140"W	0.00	
5617.00†	15.710	35.171	5538.78	481.74	492.86	347.29	40°08'35.973"N	104°51'32.939"W	0.00	
5717.00†	15.710	35.171	5635.04	503.37	514.99	362.89	40°08'36.192"N	104°51'32.738"W	0.00	
5817.00†	15.710	35.171	5731.31	525.01	537.13	378.49	40°08'36.411"N	104°51'32.537"W	0.00	
5917.00†	15.710	35.170	5827.57	546.64	559.26	394.08	40°08'36.630"N	104°51'32.337"W	0.00	
6017.00†	15.710	35.171	5923.84	568.28	581.39	409.68	40°08'36.848"N	104°51'32.136"W	0.00	
6117.00†	15.710	35.171	6020.10	589.91	603.53	425.28	40°08'37.067"N	104°51'31.935"W	0.00	
6217.00†	15.710	35.170	6116.36	611.54	625.66	440.87	40°08'37.286"N	104°51'31.734"W	0.00	
6317.00†	15.710	35.170	6212.63	633.18	647.79	456.47	40°08'37.505"N	104°51'31.533"W	0.00	
6417.00†	15.710	35.170	6308.89	654.81	669.93	472.07	40°08'37.723"N	104°51'31.332"W	0.00	
6505.00†	15.710	35.170	6393.61	673.85	689.41	485.79	40°08'37.916"N	104°51'31.156"W	0.00	4 1/2" LINER TOP
6517.00†	15.710	35.170	6405.16	676.45	692.06	487.66	40°08'37.942"N	104°51'31.132"W	0.00	
6617.00†	15.710	35.171	6501.42	698.08	714.20	503.26	40°08'38.161"N	104°51'30.931"W	0.00	
6717.00†	15.710	35.170	6597.69	719.72	736.33	518.86	40°08'38.379"N	104°51'30.730"W	0.00	
6817.00†	15.710	35.170	6693.95	741.35	758.46	534.45	40°08'38.598"N	104°51'30.529"W	0.00	
6917.00†	15.710	35.171	6790.22	762.98	780.60	550.05	40°08'38.817"N	104°51'30.328"W	0.00	
7017.00†	15.710	35.170	6886.48	784.62	802.73	565.65	40°08'39.036"N	104°51'30.127"W	0.00	
7021.06	15.710	35.170	6890.39	785.50	803.63	566.28	40°08'39.044"N	104°51'30.119"W	0.00	KOP, BUILD @ 10°/100'
7117.00†	23.993	20.570	6980.60	813.98	832.58	580.65	40°08'39.331"N	104°51'29.934"W	10.00	
7217.00†	33.353	13.139	7068.27	859.46	878.50	594.07	40°08'39.784"N	104°51'29.761"W	10.00	
7278.74†	39.276	10.189	7118.00	895.01	914.29	601.40	40°08'40.138"N	104°51'29.667"W	10.00	SSPG
7317.00†	42.977	8.714	7146.82	919.69	939.11	605.51	40°08'40.383"N	104°51'29.614"W	10.00	
7399.43†	51.002	6.131	7203.00	979.14	998.83	613.21	40°08'40.973"N	104°51'29.515"W	10.00	NBRR
7417.00†	52.720	5.658	7213.85	992.83	1012.58	614.62	40°08'41.109"N	104°51'29.497"W	10.00	
7477.60†	58.655	4.176	7248.00	1042.52	1062.43	618.89	40°08'41.602"N	104°51'29.442"W	10.00	N470_B_CK
7517.00†	62.522	3.310	7267.34	1076.68	1096.67	621.12	40°08'41.940"N	104°51'29.413"W	10.00	
7617.00†	72.358	1.350	7305.67	1168.67	1188.83	624.82	40°08'42.851"N	104°51'29.365"W	10.00	
7663.62†	76.949	0.515	7318.00	1213.56	1233.76	625.55	40°08'43.295"N	104°51'29.356"W	10.00	N700_C_CK

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 VOLLMAR 28N-11HZ (1219'FNL &1922'FWL, SEC.14)
Area	COLORADO	Well	VOLLMAR 28N-11HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	VOLLMAR 28N-11HZ PWB
Facility	SEC.14-T2N-R67W		

WELLPATH DATA (145 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
7717.00†	82.211	359.595	7327.65	1266.02	1286.25	625.59	40°08'43.814"N	104°51'29.355"W	10.00	
7800.01	90.395	358.205	7333.00	1348.78	1369.00	624.00	40°08'44.631"N	104°51'29.376"W	10.00	LANDING POINT
7817.00†	90.395	358.205	7332.88	1365.77	1385.98	623.47	40°08'44.799"N	104°51'29.383"W	0.00	
7917.00†	90.395	358.205	7332.19	1465.77	1485.93	620.34	40°08'45.787"N	104°51'29.423"W	0.00	
8017.00†	90.395	358.205	7331.50	1565.76	1585.87	617.20	40°08'46.775"N	104°51'29.463"W	0.00	
8117.00†	90.395	358.205	7330.81	1665.76	1685.82	614.07	40°08'47.762"N	104°51'29.503"W	0.00	
8217.00†	90.395	358.205	7330.12	1765.76	1785.77	610.94	40°08'48.750"N	104°51'29.544"W	0.00	
8317.00†	90.395	358.205	7329.43	1865.76	1885.72	607.81	40°08'49.738"N	104°51'29.584"W	0.00	
8417.00†	90.395	358.205	7328.74	1965.75	1985.67	604.67	40°08'50.725"N	104°51'29.624"W	0.00	
8517.00†	90.395	358.205	7328.05	2065.75	2085.62	601.54	40°08'51.713"N	104°51'29.665"W	0.00	
8617.00†	90.395	358.205	7327.36	2165.75	2185.57	598.41	40°08'52.701"N	104°51'29.705"W	0.00	
8717.00†	90.395	358.205	7326.67	2265.75	2285.51	595.28	40°08'53.689"N	104°51'29.745"W	0.00	
8817.00†	90.395	358.205	7325.98	2365.74	2385.46	592.14	40°08'54.676"N	104°51'29.786"W	0.00	
8917.00†	90.395	358.205	7325.30	2465.74	2485.41	589.01	40°08'55.664"N	104°51'29.826"W	0.00	
9017.00†	90.395	358.205	7324.61	2565.74	2585.36	585.88	40°08'56.652"N	104°51'29.866"W	0.00	
9117.00†	90.395	358.205	7323.92	2665.74	2685.31	582.75	40°08'57.639"N	104°51'29.907"W	0.00	
9217.00†	90.395	358.205	7323.23	2765.74	2785.26	579.61	40°08'58.627"N	104°51'29.947"W	0.00	
9317.00†	90.395	358.205	7322.54	2865.73	2885.21	576.48	40°08'59.615"N	104°51'29.987"W	0.00	
9417.00†	90.395	358.205	7321.85	2965.73	2985.15	573.35	40°09'00.602"N	104°51'30.027"W	0.00	
9517.00†	90.395	358.205	7321.16	3065.73	3085.10	570.22	40°09'01.590"N	104°51'30.068"W	0.00	
9617.00†	90.395	358.205	7320.47	3165.73	3185.05	567.09	40°09'02.578"N	104°51'30.108"W	0.00	
9717.00†	90.395	358.205	7319.78	3265.72	3285.00	563.95	40°09'03.566"N	104°51'30.148"W	0.00	
9817.00†	90.395	358.205	7319.09	3365.72	3384.95	560.82	40°09'04.553"N	104°51'30.189"W	0.00	
9917.00†	90.395	358.205	7318.40	3465.72	3484.90	557.69	40°09'05.541"N	104°51'30.229"W	0.00	
9974.49†	90.395	358.205	7318.00	3523.20	3542.35	555.89	40°09'06.109"N	104°51'30.252"W	0.00	N700_C_CK
10017.00†	90.395	358.205	7317.71	3565.72	3584.85	554.56	40°09'06.529"N	104°51'30.269"W	0.00	
10117.00†	90.395	358.205	7317.02	3665.71	3684.79	551.42	40°09'07.516"N	104°51'30.310"W	0.00	
10217.00†	90.395	358.205	7316.33	3765.71	3784.74	548.29	40°09'08.504"N	104°51'30.350"W	0.00	
10317.00†	90.395	358.205	7315.64	3865.71	3884.69	545.16	40°09'09.492"N	104°51'30.390"W	0.00	
10417.00†	90.395	358.205	7314.95	3965.71	3984.64	542.03	40°09'10.479"N	104°51'30.431"W	0.00	
10517.00†	90.395	358.205	7314.26	4065.70	4084.59	538.89	40°09'11.467"N	104°51'30.471"W	0.00	
10617.00†	90.395	358.205	7313.57	4165.70	4184.54	535.76	40°09'12.455"N	104°51'30.511"W	0.00	
10717.00†	90.395	358.205	7312.88	4265.70	4284.49	532.63	40°09'13.443"N	104°51'30.552"W	0.00	
10817.00†	90.395	358.205	7312.19	4365.70	4384.43	529.50	40°09'14.430"N	104°51'30.592"W	0.00	
10917.00†	90.395	358.205	7311.50	4465.69	4484.38	526.36	40°09'15.418"N	104°51'30.632"W	0.00	
11017.00†	90.395	358.205	7310.81	4565.69	4584.33	523.23	40°09'16.406"N	104°51'30.672"W	0.00	
11117.00†	90.395	358.205	7310.12	4665.69	4684.28	520.10	40°09'17.393"N	104°51'30.713"W	0.00	
11217.00†	90.395	358.205	7309.43	4765.69	4784.23	516.97	40°09'18.381"N	104°51'30.753"W	0.00	
11317.00†	90.395	358.205	7308.74	4865.69	4884.18	513.83	40°09'19.369"N	104°51'30.793"W	0.00	
11417.00†	90.395	358.205	7308.05	4965.68	4984.13	510.70	40°09'20.356"N	104°51'30.834"W	0.00	
11517.00†	90.395	358.205	7307.36	5065.68	5084.07	507.57	40°09'21.344"N	104°51'30.874"W	0.00	
11617.00†	90.395	358.205	7306.67	5165.68	5184.02	504.44	40°09'22.332"N	104°51'30.914"W	0.00	
11717.00†	90.395	358.205	7305.98	5265.68	5283.97	501.31	40°09'23.320"N	104°51'30.955"W	0.00	
11817.00†	90.395	358.205	7305.29	5365.67	5383.92	498.17	40°09'24.307"N	104°51'30.995"W	0.00	
11917.00†	90.395	358.205	7304.60	5465.67	5483.87	495.04	40°09'25.295"N	104°51'31.035"W	0.00	

REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 VOLLMAR 28N-11HZ (1219'FNL &1922'FWL, SEC.14)
Area	COLORADO	Well	VOLLMAR 28N-11HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	VOLLMAR 28N-11HZ PWB
Facility	SEC.14-T2N-R67W		

WELLPATH DATA (145 stations) † = interpolated/extrapolated station										
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12017.00†	90.395	358.205	7303.91	5565.67	5583.82	491.91	40°09'26.283"N	104°51'31.076"W	0.00	
12117.00†	90.395	358.205	7303.22	5665.67	5683.77	488.78	40°09'27.270"N	104°51'31.116"W	0.00	
12217.00†	90.395	358.205	7302.53	5765.66	5783.71	485.64	40°09'28.258"N	104°51'31.156"W	0.00	
12317.00†	90.395	358.205	7301.84	5865.66	5883.66	482.51	40°09'29.246"N	104°51'31.197"W	0.00	
12417.00†	90.395	358.205	7301.15	5965.66	5983.61	479.38	40°09'30.233"N	104°51'31.237"W	0.00	
12517.00†	90.395	358.205	7300.46	6065.66	6083.56	476.25	40°09'31.221"N	104°51'31.277"W	0.00	
12617.00†	90.395	358.205	7299.77	6165.65	6183.51	473.11	40°09'32.209"N	104°51'31.318"W	0.00	
12717.00†	90.395	358.205	7299.08	6265.65	6283.46	469.98	40°09'33.196"N	104°51'31.358"W	0.00	
12817.00†	90.395	358.205	7298.39	6365.65	6383.41	466.85	40°09'34.184"N	104°51'31.398"W	0.00	
12873.68	90.395	358.205	7298.00 <sup>1</sup>	6422.33	6440.05	465.07	40°09'34.744"N	104°51'31.421"W	0.00	TOTAL DEPTH

HOLE & CASING SECTIONS -									
Ref Wellbore: VOLLMAR 28N-11HZ PWB				Ref Wellpath: VOLLMAR 28N-11HZ (PERMIT REV-1) 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]
13.5in Open Hole	17.00	1129.00	1112.00	17.00	1129.00	0.00	0.00	0.00	0.00
9.625in Casing Surface	17.00	1129.00	1112.00	17.00	1129.00	0.00	0.00	0.00	0.00
8.75in Open Hole	1129.00	7800.01	6671.01	1129.00	7333.00	0.00	0.00	1369.00	624.00
7in Casing Intermediate	17.00	7800.01	7783.01	17.00	7333.00	0.00	0.00	1369.00	624.00
6.125in Open Hole	7800.01	12873.68	5073.67	7333.00	7298.00	1369.00	624.00	6440.05	465.07
4.2in Casing Production	17.00	12873.68	12856.68	17.00	7298.00	0.00	0.00	6440.05	465.07



REFERENCE WELLPATH IDENTIFICATION			
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 VOLLMAR 28N-11HZ (1219'FNL &1922'FWL, SEC.14)
Area	COLORADO	Well	VOLLMAR 28N-11HZ
Field	WELD COUNTY (KERR MCGEE)	Wellbore	VOLLMAR 28N-11HZ PWB
Facility	SEC.14-T2N-R67W		

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
VOLLMAR SEC.11 SECTION LINES		0.00	-11.64	-89.23	3178724.76	1295196.93	40°08'30.988"N	104°51'38.560"W	polygon
VOLLMAR SEC.14 SECTION LINES		0.00	-11.64	-89.23	3178724.76	1295196.93	40°08'30.988"N	104°51'38.560"W	polygon
1) VOLLMAR 28N-11HZ BHL ON PLAT (50'FNL & 2346'FWL, SEC.11) REV-1	12873.68	7298.00	6440.05	465.07	3179232.50	1301652.17	40°09'34.744"N	104°51'31.421"W	point
VOLLMAR 28N-11HZ LAND BOX		7298.00	0.00	0.00	3178813.91	1295209.21	40°08'31.103"N	104°51'37.411"W	polygon
VOLLMAR SEC.11 HARDLINES (460' SETBACKS)		7313.00	-11.64	-89.23	3178724.76	1295196.93	40°08'30.988"N	104°51'38.560"W	polygon
VOLLMAR SEC.14 HARDLINES (460' SETBACKS)		7313.00	-11.64	-89.23	3178724.76	1295196.93	40°08'30.988"N	104°51'38.560"W	polygon

SURVEY PROGRAM - Ref Wellbore: VOLLMAR 28N-11HZ PWB				Ref Wellpath: VOLLMAR 28N-11HZ (PERMIT REV-1) PWP	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model		Log Name/Comment	Wellbore
17.00	1129.00	Generic gyro - continuous (Standard)			VOLLMAR 28N-11HZ PWB
1129.00	7800.01	NaviTrak (MAGCORR,IFR)			VOLLMAR 28N-11HZ PWB
7800.01	12873.68	NaviTrak (MAGCORR,IFR)			VOLLMAR 28N-11HZ PWB

REFERENCE WELLPATH IDENTIFICATION				
Operator	KERR-MCGEE OIL & GAS ONSHORE LP	Slot	SLOT#14 VOLLMAR 28N-11HZ (1219'FNL &1922'FWL, SEC.14)	
Area	COLORADO	Well	VOLLMAR 28N-11HZ	
Field	WELD COUNTY (KERR MCGEE)	Wellbore	VOLLMAR 28N-11HZ PWB	
Facility	SEC.14-T2N-R67W			

WELLPATH COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
801.00	0.000	35.170	801.00	BASE FOX HILLS
1129.00	0.000	35.170	1129.00	SURFACE CSG SETTING DEPTH
4063.18	15.710	35.170	4043.00	PARKMAN
4500.52	15.710	35.170	4464.00	SUSSEX
6505.00	15.710	35.170	6393.61	4 1/2" LINER TOP
7278.74	39.276	10.189	7118.00	SSPG
7399.43	51.002	6.131	7203.00	NBRR
7477.60	58.655	4.176	7248.00	N470_B_CK
7663.62	76.949	0.515	7318.00	N700_C_CK
9974.49	90.395	358.205	7318.00	N700_C_CK

DESIGN COMMENTS				
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
17.00	0.000	35.170	17.00	TIE-ON
3000.00	0.000	35.170	3000.00	BEGIN NUDGE
3785.50	15.710	35.170	3775.69	END NUDGE
7021.06	15.710	35.170	6890.39	KOP, BUILD @ 10°/100'
7800.01	90.395	358.205	7333.00	LANDING POINT
12873.68	90.395	358.205	7298.00	TOTAL DEPTH