



PO Box 1370
Artesia, NM 88211-1370
(575) 748-1288

30-005-64222

NM OIL CONSERVATION
ARTESIA DISTRICT

OCT 20 2016

RECEIVED

August 18, 2016

Mack Energy Corporation
PO Box 960
Artesia, NM 88211-0960

RE: Prince Rupert Federal #1
1900' FSL & 330' FWL
Sec. 20, T15S, R29E
Chaves County, New Mexico

Dear Sir,

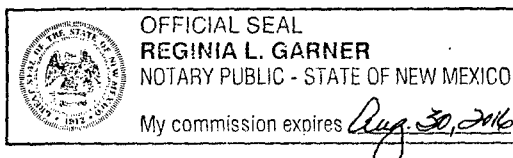
The attached is the Deviation Survey for the above captioned well.

Very truly yours,

Chris Graham
Drilling Superintendent

State of New Mexico }
County of Eddy }

The foregoing was acknowledged before me this 18th day of August, 2016.

Notary Public

PRINCE RUPERT FED #1

Date	Depth	Deviation	Direction
8/12/2016	120	0.40	0.00
8/13/2016	215	0.40	187.50
8/14/2016	246	0.50	259.90
8/14/2016	277	1.60	196.00
8/14/2016	307	3.30	188.50
8/14/2016	338	4.70	185.20
8/14/2016	369	4.80	181.80
8/14/2016	400	4.40	182.90
8/14/2016	430	5.30	175.60
8/14/2016	461	6.20	173.20
8/14/2016	492	6.30	172.90
8/14/2016	553	6.50	174.10
8/14/2016	645	6.40	175.30
8/14/2016	737	8.20	174.30
8/14/2016	830	8.00	174.60
8/14/2016	924	9.50	174.70
8/14/2016	1018	8.70	173.30
8/14/2016	1113	10.70	172.80
8/14/2016	1208	9.80	171.60
8/14/2016	1303	9.10	172.60
8/14/2016	1397	8.10	173.40
8/14/2016	1492	9.80	170.50
8/14/2016	1586	9.40	169.10
8/14/2016	1680	8.90	166.40
8/14/2016	1774	8.50	165.20
8/14/2016	1868	8.30	165.30
8/14/2016	1962	7.90	165.50
8/14/2016	2056	6.00	173.00
8/14/2016	2151	4.00	172.50
8/14/2016	2246	2.70	186.90
8/14/2016	2341	0.40	213.40
8/15/2016	2435	0.50	192.50
8/15/2016	2530	1.10	303.60
8/15/2016	2625	1.20	306.30
8/15/2016	2719	1.00	300.60
8/15/2016	2814	1.00	299.10
8/15/2016	2908	1.50	338.70
8/15/2016	3003	1.60	335.60
8/15/2016	3098	1.50	332.40
8/15/2016	3192	0.40	320.00
8/15/2016	3287	0.00	291.20
8/15/2016	3450	0.40	338.00

EOF



NM OIL CONSERVATION
ARTESIA DISTRICT

OCT 20 2016

RECEIVED

Mack Energy

Chavez County
Prince Rupert Federal #1
#1

Wellbore #1

Design: Wellbore #1

Survey Report - Geographic

16 August, 2016





Integrity Directional Services, LLC

Survey Report - Geographic



Company:	Mack Energy	Local Co-ordinate Reference:	Well #1
Project:	Chavez County	TVD Reference:	KB=17' @ 3766.70ft
Site:	Prince Rupert Federal #1	MD Reference:	KB=17' @ 3766.70ft
Well:	#1	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Project	Chavez County		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site		Prince Rupert Federal #1			
Site Position:		Northing:	727,428.14 usft	Latitude:	32° 59' 57.836 N
From:	Map	Easting:	625,702.92 usft	Longitude:	104° 3' 29.340 W
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.15 °

Well		#1				
Well Position	+N/-S	0.00 ft	Northing:	727,428.14 usf	Latitude:	32° 59' 57.836 N
	+E/-W	0.00 ft	Easting:	625,702.92 usf	Longitude:	104° 3' 29.340 W
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	3,749.70 ft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/3/2016	7.33	60.70	48,433

Design		Wellbore #1			
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.00	0.00	0.00	173.35	

Survey Program		Date	8/16/2016	
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
120.00	3,497.00	IDS MWD Surveys (Wellbore #1)		

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
0.00	0.00	0.00	0.00	0.00	0.00	727,428.14	625,702.92	32° 59' 57.836 N	104° 3' 29.340 W	
120.00	0.40	0.00	120.00	0.42	0.00	727,428.56	625,702.92	32° 59' 57.840 N	104° 3' 29.340 W	
First IDS MWD Survey										
215.00	0.40	187.50	215.00	0.42	-0.04	727,428.56	625,702.88	32° 59' 57.840 N	104° 3' 29.341 W	
246.00	0.50	260.00	246.00	0.29	-0.19	727,428.43	625,702.73	32° 59' 57.839 N	104° 3' 29.343 W	
277.00	1.60	196.00	276.99	-0.15	-0.44	727,427.99	625,702.48	32° 59' 57.835 N	104° 3' 29.346 W	
307.00	3.30	188.50	306.96	-1.41	-0.69	727,426.73	625,702.24	32° 59' 57.822 N	104° 3' 29.349 W	
338.00	4.70	185.20	337.89	-3.55	-0.93	727,424.58	625,701.99	32° 59' 57.801 N	104° 3' 29.352 W	
369.00	4.80	181.80	368.78	-6.11	-1.09	727,422.02	625,701.83	32° 59' 57.776 N	104° 3' 29.353 W	
400.00	4.40	182.90	399.68	-8.60	-1.19	727,419.54	625,701.73	32° 59' 57.751 N	104° 3' 29.355 W	
430.00	5.30	175.60	429.57	-11.13	-1.14	727,417.01	625,701.78	32° 59' 57.726 N	104° 3' 29.354 W	
461.00	6.20	173.20	460.42	-14.22	-0.83	727,413.92	625,702.09	32° 59' 57.696 N	104° 3' 29.351 W	



Integrity Directional Services, LLC

Survey Report - Geographic



Company:	Mack Energy	Local Co-ordinate Reference:	Well #1
Project:	Chavez County	TVD Reference:	KB=17' @ 3766.70ft
Site:	Prince Rupert Federal #1	MD Reference:	KB=17' @ 3766.70ft
Well:	#1	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
492.00	6.30	172.90	491.23	-17.57	-0.43	727,410.57	625,702.50	32° 59' 57.662 N	104° 3' 29.346 W
553.00	6.50	174.10	551.85	-24.32	0.34	727,403.81	625,703.27	32° 59' 57.596 N	104° 3' 29.337 W
645.00	6.40	175.30	643.27	-34.61	1.30	727,393.52	625,704.22	32° 59' 57.494 N	104° 3' 29.326 W
737.00	8.20	174.30	734.52	-46.25	2.37	727,381.88	625,705.29	32° 59' 57.379 N	104° 3' 29.314 W
830.00	8.00	174.60	826.59	-59.30	3.64	727,368.84	625,706.56	32° 59' 57.250 N	104° 3' 29.300 W
924.00	9.50	172.70	919.50	-73.50	5.24	727,354.63	625,708.16	32° 59' 57.109 N	104° 3' 29.281 W
1,018.00	8.70	173.30	1,012.31	-88.26	7.05	727,339.88	625,709.98	32° 59' 56.963 N	104° 3' 29.260 W
1,113.00	10.70	172.80	1,105.95	-104.15	9.00	727,323.99	625,711.92	32° 59' 56.806 N	104° 3' 29.238 W
1,208.00	9.80	171.60	1,199.43	-120.89	11.28	727,307.24	625,714.21	32° 59' 56.640 N	104° 3' 29.212 W
1,303.00	9.10	172.60	1,293.14	-136.34	13.43	727,291.79	625,716.36	32° 59' 56.487 N	104° 3' 29.187 W
1,397.00	8.10	173.40	1,386.09	-150.29	15.15	727,277.84	625,718.08	32° 59' 56.349 N	104° 3' 29.167 W
1,492.00	9.80	170.50	1,479.93	-164.92	17.26	727,263.22	625,720.18	32° 59' 56.204 N	104° 3' 29.143 W
1,586.00	9.40	169.10	1,572.61	-180.34	20.03	727,247.79	625,722.95	32° 59' 56.051 N	104° 3' 29.111 W
1,680.00	8.90	166.30	1,665.41	-194.95	23.20	727,233.19	625,726.13	32° 59' 55.907 N	104° 3' 29.074 W
1,774.00	8.50	165.20	1,758.33	-208.73	26.70	727,219.41	625,729.62	32° 59' 55.770 N	104° 3' 29.033 W
1,868.00	8.30	165.30	1,851.32	-222.01	30.19	727,206.13	625,733.12	32° 59' 55.639 N	104° 3' 28.993 W
1,962.00	7.90	165.50	1,944.39	-234.82	33.53	727,193.31	625,736.46	32° 59' 55.512 N	104° 3' 28.954 W
2,056.00	6.00	173.00	2,037.69	-245.96	35.75	727,182.18	625,738.67	32° 59' 55.402 N	104° 3' 28.928 W
2,151.00	4.00	172.50	2,132.33	-254.17	36.79	727,173.97	625,739.71	32° 59' 55.320 N	104° 3' 28.916 W
2,246.00	2.70	186.90	2,227.16	-259.68	36.95	727,168.46	625,739.88	32° 59' 55.266 N	104° 3' 28.915 W
2,341.00	0.40	213.40	2,322.12	-262.18	36.50	727,165.96	625,739.42	32° 59' 55.241 N	104° 3' 28.920 W
2,435.00	0.50	192.50	2,416.12	-262.85	36.23	727,165.29	625,739.15	32° 59' 55.235 N	104° 3' 28.923 W
2,530.00	1.10	303.60	2,511.11	-262.75	35.38	727,165.39	625,738.31	32° 59' 55.236 N	104° 3' 28.933 W
2,625.00	1.20	306.30	2,606.10	-261.66	33.82	727,166.48	625,736.74	32° 59' 55.246 N	104° 3' 28.951 W
2,719.00	1.00	300.60	2,700.08	-260.66	32.32	727,167.48	625,735.24	32° 59' 55.256 N	104° 3' 28.969 W
2,814.00	1.00	299.10	2,795.06	-259.83	30.88	727,168.31	625,733.81	32° 59' 55.265 N	104° 3' 28.986 W
2,908.00	1.50	338.70	2,889.04	-258.29	29.72	727,169.85	625,732.64	32° 59' 55.280 N	104° 3' 28.999 W
3,003.00	1.60	335.60	2,984.01	-255.92	28.72	727,172.22	625,731.64	32° 59' 55.303 N	104° 3' 29.011 W
3,098.00	1.50	332.40	3,078.97	-253.61	27.60	727,174.53	625,730.52	32° 59' 55.326 N	104° 3' 29.024 W
3,192.00	0.40	320.00	3,172.96	-252.27	26.82	727,175.87	625,729.74	32° 59' 55.340 N	104° 3' 29.033 W
3,287.00	0.00	291.20	3,267.96	-252.01	26.60	727,176.12	625,729.53	32° 59' 55.342 N	104° 3' 29.036 W
3,381.00	0.10	349.30	3,361.96	-251.93	26.59	727,176.20	625,729.51	32° 59' 55.343 N	104° 3' 29.036 W
3,450.00	0.40	338.00	3,430.96	-251.65	26.49	727,176.49	625,729.41	32° 59' 55.346 N	104° 3' 29.037 W
Final IDS MWD Survey									
3,497.00	0.40	338.00	3,477.96	-251.35	26.36	727,176.79	625,729.29	32° 59' 55.349 N	104° 3' 29.039 W
Projection to TD									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
120.00	120.00	0.42	0.00	First IDS MWD Survey
3,450.00	3,430.96	-251.65	26.49	Final IDS MWD Survey
3,497.00	3,477.96	-251.35	26.36	Projection to TD

Checked By: _____ Approved By: _____ Date: _____