



An Operating Unit of Smith International, Inc.

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DIRECTIONAL SURVEY REPORT

MACK ENERGY

DITKA FEDERAL COM #1H LATERAL

EDDY COUNTY, NEW MEXICO

PREPARED BY: FRANCISCO SINISTERRA

MR

Pathfinder Energy Services, Inc.
6213 W. Interstate 20 • Midland, TX • 79706
(432) 681-6000

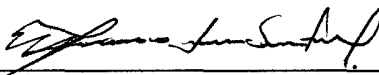
DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) MAGID IBRAHIM
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 11/25/09 TO 12/20/09
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: EDDY COUNTY, NM
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

MACK ENERGY
DITKA FEDERAL COM #1H LATERAL
EDDY COUNTY, NM
RIG: SILVEROAK # 2

9. SURVEY CERTIFIED FROM: 3219 TO 11050 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 4577.85 FEET ON A BEARING OF 93.66 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 11118 FEET, ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.



FRANCISCO SINISTERRA
M/LWD SERVICE COORDINATOR

PathFinder Energy Services, Inc.

BHL Report

Page 01/01
Tie-in Date: 11/25/2009
Date Completed: 12/20/2009

MACK ENERGY CORPORATION
DITKA FEDERAL COM #1H - LATERAL
EDDY COUNTY, NM
Rig: SILVER OAK #2
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers: MAGID IBRAHIM
MICHAEL ZAW
JUAN ALCOCER

Survey Horiz. Reference: WELLHEAD
Ref Coordinates: LAT: 32.53.51.3423 N LON: 104.8.12.2699 W
GRID Reference: NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 560341.3000 Y: 690312.9000
North Aligned To: GRID NORTH
Total Magnetic Correction: 7.97° EAST TO GRID
Vertical Section Plane: 93.83
Survey Vert. Reference: 17.50' Kelly Bushing To Ground
Altitude: 3590.00' Ground To MSL

Measured Depth	11118.00	(feet)
Inclination	89.60	(deg)
Azimuth	89.07	(deg)
True Vertical Depth	6851.12	(feet)
Vertical Section	4577.83	(feet)
Survey X cord	564909.79	(feet)
Survey Y cord	690020.40	(feet)
Survey Lat	32.89676680 N	(deg)
Survey Lon	104.12185951 W	(deg)
Rectangular Corr. N/S	292.50 S	(feet)
Rectangular Corr. E/W	4568.49 E	(feet)
Closure Distance	4577.85	(feet)
Direction of Closure	93.66	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
DITKA FEDERAL COM #1H - LATERAL
EDDY COUNTY, NM
Rig:SILVER OAK #2
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Survey Calculations by RX5 V6.02A using Minimum Curvature

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.53.51.3423 N LON:104.8.12.2699 W
Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 560341.3000 Y: 690312.9000
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Vertical Section Plane: 93.83
Survey Vert. Reference: 17.50' Kelly Bushing To Ground
Altitude:3590.00' Ground To MSL

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft)	Closure Dist Dir (ft) (deg)	DLS (dg/100ft)
ORIGIN OF WELL AT SURFACE.								
0.00	0.00	0.00	0.00	0.00	0.00	0.00 S 0.00 E	0.00@ 111.89	0.00
THE FOLLOWING ARE TELEDRIFT SURVEYS.								
429.00	1.00	334.00	428.98	429.00	-1.86	3.36 N 1.64 W	3.74@ 334.02	0.23
537.00	1.10	347.00	536.96	108.00	-2.63	5.22 N 2.29 W	5.70@ 336.36	0.24
683.00	1.00	328.00	682.94	146.00	-3.78	7.67 N 3.28 W	8.34@ 336.87	0.25
901.00	1.00	340.00	900.91	218.00	-5.66	11.07 N 4.93 W	12.12@ 335.97	0.10
1098.00	0.40	358.00	1097.89	197.00	-6.43	13.37 N 5.55 W	14.48@ 337.47	0.32
1257.00	1.30	345.00	1256.87	159.00	-7.07	15.67 N 6.03 W	16.79@ 338.94	0.57
1416.00	1.20	344.00	1415.83	159.00	-8.21	19.01 N 6.96 W	20.24@ 339.90	0.06
1578.00	0.50	355.00	1577.82	162.00	-8.90	21.34 N 7.49 W	22.62@ 340.67	0.44
1768.00	0.80	350.00	1767.80	190.00	-9.34	23.48 N 7.79 W	24.74@ 341.64	0.16
1958.00	1.00	342.00	1957.78	190.00	-10.27	26.36 N 8.53 W	27.71@ 342.06	0.12
2149.00	1.10	332.00	2148.75	191.00	-11.86	29.56 N 9.91 W	31.18@ 341.47	0.11
2339.00	2.00	308.00	2338.68	190.00	-15.57	33.22 N 13.38 W	35.81@ 338.06	0.57
2495.00	1.60	329.00	2494.60	156.00	-19.06	36.76 N 16.64 W	40.35@ 335.64	0.49
2685.00	1.60	339.00	2684.53	190.00	-21.69	41.51 N 18.96 W	45.63@ 335.45	0.15
2923.00	1.60	339.00	2922.44	238.00	-24.48	47.71 N 21.34 W	52.27@ 335.90	0.00
** TIED INTO TELEDRIFT SURVEY @ 3078'MD.								
3078.00	1.50	354.00	3077.38	155.00	-25.74	51.75 N 22.33 W	56.36@ 336.66	0.27
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.								
3219.00	1.32	356.59	3218.34	141.00	-26.26	55.21 N 22.62 W	59.66@ 337.72	0.14
3416.00	1.49	0.82	3415.28	197.00	-26.68	60.03 N 22.72 W	64.19@ 339.27	0.10
3606.00	1.14	339.29	3605.23	190.00	-27.59	64.27 N 23.35 W	68.38@ 340.03	0.32
3648.00	1.23	340.24	3647.22	42.00	-27.95	65.09 N 23.65 W	69.25@ 340.03	0.22
3680.00	0.70	353.74	3679.21	32.00	-28.12	65.60 N 23.79 W	69.78@ 340.07	1.79

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
DITKA FEDERAL COM #1H - LATERAL
EDDY COUNTY, NM
RIG:SILVER OAK #2

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
3712.00	0.00	226.07	3711.21	32.00	-28.15	65.80 N	23.81 W	69.97@	340.11	2.19
3743.00	0.97	178.30	3742.21	31.00	-28.13	65.54 N	23.80 W	69.72@	340.04	3.13
3775.00	1.58	173.05	3774.20	32.00	-28.02	64.83 N	23.74 W	69.04@	339.89	1.94
3807.00	2.37	175.25	3806.19	32.00	-27.84	63.73 N	23.63 W	67.97@	339.65	2.48
3839.00	3.08	174.92	3838.15	32.00	-27.60	62.21 N	23.50 W	66.50@	339.31	2.22
3870.00	3.61	173.71	3869.10	31.00	-27.30	60.41 N	23.32 W	64.76@	338.89	1.73
3902.00	4.48	175.47	3901.02	32.00	-26.95	58.17 N	23.11 W	62.59@	338.33	2.75
3933.00	5.19	177.78	3931.91	31.00	-26.62	55.56 N	22.96 W	60.12@	337.55	2.38
3965.00	5.72	178.79	3963.76	32.00	-26.33	52.52 N	22.87 W	57.28@	336.47	1.68
3997.00	6.42	180.36	3995.58	32.00	-26.08	49.13 N	22.85 W	54.19@	335.06	2.25
4029.00	6.68	179.24	4027.37	32.00	-25.82	45.48 N	22.84 W	50.90@	333.34	0.90
4060.00	6.95	177.66	4058.15	31.00	-25.48	41.81 N	22.74 W	47.59@	331.46	1.06
4092.00	7.56	174.42	4089.90	32.00	-24.93	37.78 N	22.45 W	43.95@	329.28	2.29
4124.00	8.62	172.72	4121.58	32.00	-24.12	33.30 N	21.94 W	39.88@	326.62	3.39
4155.00	9.76	170.78	4152.18	31.00	-23.08	28.41 N	21.23 W	35.46@	323.23	3.81
4219.00	11.87	171.50	4215.04	64.00	-20.45	16.54 N	19.39 W	25.48@	310.47	3.30
4282.00	12.40	173.12	4276.63	63.00	-17.81	3.42 N	17.62 W	17.95@	280.97	1.00
4378.00	11.96	173.73	4370.47	96.00	-14.15	16.70 S	15.30 W	22.65@	222.48	0.48
4473.00	11.70	173.69	4463.45	95.00	-10.72	36.06 S	13.16 W	38.39@	200.05	0.27
4568.00	11.08	173.85	4556.58	95.00	-7.45	54.71 S	11.13 W	55.83@	191.49	0.65
4664.00	11.70	176.69	4650.69	96.00	-4.64	73.60 S	9.58 W	74.22@	187.41	0.87
4759.00	11.43	177.31	4743.76	95.00	-2.37	92.62 S	8.58 W	93.02@	185.29	0.31
4854.00	11.17	174.67	4836.92	95.00	0.16	111.19 S	7.28 W	111.42@	183.75	0.61
4949.00	11.61	177.04	4930.05	95.00	2.76	129.90 S	5.93 W	130.03@	182.62	0.68
5045.00	10.99	179.58	5024.19	96.00	4.58	148.69 S	5.37 W	148.79@	182.07	0.83
5140.00	11.87	179.12	5117.30	95.00	6.05	167.52 S	5.15 W	167.60@	181.76	0.93
5203.00	12.31	175.67	5178.91	63.00	7.54	180.69 S	4.54 W	180.75@	181.44	1.34
5267.00	12.22	173.24	5241.45	64.00	9.75	194.22 S	3.23 W	194.25@	180.95	0.82

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Survey Report

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DITKA FEDERAL COM #1H - LATERAL
EDDY COUNTY, NM
RIG:SILVER OAK #2

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
5330.00	12.40	173.69	5303.00	63.00	12.17	207.57 S	1.70 W	207.57@	180.47	0.32
5394.00	11.52	175.22	5365.61	64.00	14.33	220.77 S	0.42 W	220.77@	180.11	1.46
5457.00	11.34	170.98	5427.36	63.00	16.65	233.15 S	1.08 E	233.15@	179.73	1.36
5520.00	11.52	165.92	5489.11	63.00	19.96	245.37 S	3.58 E	245.40@	179.16	1.62
5584.00	11.26	169.57	5551.85	64.00	23.47	257.72 S	6.27 E	257.79@	178.61	1.20
5615.00	10.46	172.67	5582.30	31.00	24.76	263.48 S	7.17 E	263.58@	178.44	3.19
5647.00	8.97	175.20	5613.84	32.00	25.69	268.85 S	7.75 E	268.96@	178.35	4.84
5679.00	8.09	178.39	5645.48	32.00	26.28	273.59 S	8.03 E	273.70@	178.32	3.12
5711.00	7.47	179.69	5677.19	32.00	26.65	277.92 S	8.10 E	278.04@	178.33	2.01
5742.00	7.39	179.42	5707.93	31.00	26.94	281.93 S	8.13 E	282.04@	178.35	0.28
5774.00	7.21	177.88	5739.67	32.00	27.31	285.99 S	8.23 E	286.11@	178.35	0.83
5806.00	7.03	176.25	5771.42	32.00	27.78	289.95 S	8.43 E	290.07@	178.33	0.85
5838.00	6.24	172.62	5803.21	32.00	28.37	293.63 S	8.78 E	293.76@	178.29	2.79
5869.00	5.28	171.47	5834.05	31.00	29.01	296.71 S	9.21 E	296.85@	178.22	3.12
5901.00	4.84	171.10	5865.93	32.00	29.62	299.50 S	9.64 E	299.66@	178.16	1.38
5933.00	4.04	173.17	5897.83	32.00	30.13	301.95 S	9.98 E	302.12@	178.11	2.55
5965.00	3.34	173.88	5929.76	32.00	30.50	304.00 S	10.21 E	304.17@	178.08	2.19
5996.00	2.37	167.43	5960.73	31.00	30.83	305.52 S	10.45 E	305.70@	178.04	3.29
6028.00	1.06	174.64	5992.71	32.00	31.07	306.47 S	10.62 E	306.65@	178.02	4.14
6060.00	0.09	81.43	6024.71	32.00	31.14	306.76 S	10.67 E	306.94@	178.01	3.34
6123.00	0.44	71.38	6087.71	63.00	31.41	306.67 S	10.95 E	306.87@	177.96	0.56
6187.00	0.53	74.95	6151.71	64.00	31.92	306.52 S	11.47 E	306.73@	177.86	0.15
6250.00	0.62	92.01	6214.70	63.00	32.53	306.45 S	12.09 E	306.69@	177.74	0.31
6292.00	3.43	87.42	6256.67	42.00	34.01	306.40 S	13.57 E	306.70@	177.46	6.70
6319.00	7.12	88.66	6283.55	27.00	36.48	306.33 S	16.05 E	306.75@	177.00	13.67
6351.00	10.46	90.77	6315.17	32.00	41.36	306.32 S	20.94 E	307.04@	176.09	10.48
6383.00	13.98	92.10	6346.44	32.00	48.12	306.50 S	27.71 E	307.75@	174.83	11.03
6414.00	17.06	92.37	6376.31	31.00	56.41	306.83 S	36.00 E	308.93@	173.31	9.94

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Survey Report

MACK ENERGY CORPORATION
DITKA FEDERAL COM #1H - LATERAL
EDDY COUNTY, NM
RIG:SILVER OAK #2

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets (ft) (ft)		Closure Dist Dir (ft) (deg)		DLS (dg/100ft)
6446.00	19.96	91.04	6406.65	32.00	66.56	307.12 S	46.15 E	310.57@	171.45	9.16
6478.00	22.86	91.22	6436.44	32.00	78.23	307.35 S	57.83 E	312.74@	169.34	9.07
6510.00	26.03	92.10	6465.57	32.00	91.46	307.74 S	71.06 E	315.84@	167.00	9.97
6541.00	29.63	92.03	6492.98	31.00	105.92	308.26 S	85.52 E	319.91@	164.49	11.61
6573.00	33.33	92.68	6520.26	32.00	122.63	308.95 S	102.22 E	325.42@	161.69	11.61
6607.00	37.11	93.57	6548.03	34.00	142.23	310.03 S	121.79 E	333.09@	158.55	11.22
6639.00	40.63	93.42	6572.94	32.00	162.31	311.25 S	141.83 E	342.05@	155.50	11.00
6670.00	44.32	93.35	6595.81	31.00	183.24	312.49 S	162.73 E	352.32@	152.49	11.90
6701.00	47.92	93.03	6617.29	31.00	205.58	313.73 S	185.03 E	364.23@	149.47	11.64
6733.00	51.70	92.72	6637.94	32.00	230.01	314.95 S	209.44 E	378.24@	146.38	11.84
6765.00	55.84	92.63	6656.84	32.00	255.82	316.16 S	235.22 E	394.06@	143.35	12.94
6797.00	59.27	91.84	6674.01	32.00	282.81	317.21 S	262.20 E	411.55@	140.42	10.92
6828.00	63.05	91.61	6688.96	31.00	309.94	318.02 S	289.34 E	429.95@	137.70	12.21
6860.00	67.09	91.45	6702.45	32.00	338.93	318.80 S	318.34 E	450.53@	135.04	12.63
6892.00	72.11	92.06	6713.60	32.00	368.89	319.72 S	348.31 E	472.80@	132.55	15.79
6924.00	76.59	90.79	6722.23	32.00	399.67	320.48 S	379.11 E	496.42@	130.21	14.51
6955.00	81.34	88.63	6728.16	31.00	430.01	320.32 S	409.52 E	519.92@	128.03	16.78
6997.00	88.37	89.24	6731.92	42.00	471.66	319.55 S	451.32 E	552.99@	125.30	16.80
7029.00	92.24	88.63	6731.75	32.00	503.53	318.95 S	483.31 E	579.07@	123.42	12.24
7061.00	92.59	88.61	6730.41	32.00	535.37	318.18 S	515.27 E	605.59@	121.70	1.09
7093.00	92.33	88.76	6729.03	32.00	567.21	317.45 S	547.23 E	632.64@	120.12	0.94
7124.00	91.54	88.66	6727.99	31.00	598.07	316.75 S	578.21 E	659.28@	118.71	2.57
7156.00	91.28	88.95	6727.20	32.00	629.94	316.08 S	610.19 E	687.20@	117.38	1.22
7188.00	90.22	89.34	6726.78	32.00	661.83	315.61 S	642.18 E	715.55@	116.17	3.53
7251.00	88.64	89.74	6727.41	63.00	724.65	315.10 S	705.18 E	772.37@	114.08	2.59
7346.00	89.34	90.35	6729.08	95.00	819.43	315.17 S	800.16 E	859.99@	111.50	0.98
7442.00	88.72	90.17	6730.71	96.00	915.22	315.61 S	896.14 E	950.10@	109.40	0.67
7536.00	87.93	90.17	6733.45	94.00	1008.99	315.89 S	990.10 E	1039.27@	107.70	0.84

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EDDY COUNTY, NM
RIG:SILVER OAK #2

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Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Closure Dist Dir		DLS
						(ft)	(ft)	(ft)	(deg)	(dg/100ft)
7632.00	87.14	88.90	6737.58	96.00	1104.63	315.11 S	1086.01 E	1130.80@	106.18	1.56
7727.00	87.05	87.98	6742.40	95.00	1199.09	312.53 S	1180.85 E	1221.51@	104.82	0.97
7822.00	89.25	88.43	6745.46	95.00	1293.58	309.55 S	1275.75 E	1312.77@	103.64	2.36
7917.00	88.72	88.24	6747.15	95.00	1388.12	306.79 S	1370.69 E	1404.61@	102.62	0.59
8012.00	89.16	88.91	6748.90	95.00	1482.71	304.43 S	1465.65 E	1496.93@	101.73	0.84
8107.00	88.81	90.00	6750.59	95.00	1577.42	303.53 S	1560.63 E	1589.87@	101.01	1.20
8203.00	87.32	89.95	6753.83	96.00	1673.14	303.49 S	1656.57 E	1684.14@	100.38	1.55
8298.00	87.05	89.86	6758.49	95.00	1767.80	303.33 S	1751.45 E	1777.53@	99.83	0.30
8393.00	89.69	91.28	6761.20	95.00	1862.60	304.27 S	1846.40 E	1871.30@	99.36	3.16
8489.00	89.43	90.84	6761.93	96.00	1958.49	306.05 S	1942.38 E	1966.34@	98.95	0.53
8585.00	89.43	91.75	6762.89	96.00	2054.39	308.22 S	2038.35 E	2061.52@	98.60	0.95
8679.00	87.85	92.34	6765.12	94.00	2148.31	311.57 S	2132.26 E	2154.90@	98.31	1.79
8775.00	86.97	93.17	6769.46	96.00	2244.19	316.18 S	2228.05 E	2250.37@	98.08	1.26
8838.00	87.67	93.75	6772.40	63.00	2307.12	319.98 S	2290.86 E	2313.10@	97.95	1.44
8902.00	86.79	91.59	6775.50	64.00	2371.03	322.96 S	2354.72 E	2376.76@	97.81	3.64
8933.00	87.05	90.59	6777.16	31.00	2401.95	323.55 S	2385.67 E	2407.51@	97.72	3.33
9029.00	89.08	90.08	6780.40	96.00	2497.71	324.11 S	2481.60 E	2502.68@	97.44	2.18
9124.00	88.99	89.28	6782.00	95.00	2592.45	323.58 S	2576.59 E	2596.83@	97.16	0.85
9219.00	88.64	89.27	6783.97	95.00	2687.13	322.38 S	2671.56 E	2690.94@	96.88	0.37
9282.00	86.97	88.30	6786.38	63.00	2749.83	321.04 S	2734.50 E	2753.28@	96.70	3.06
9346.00	86.88	88.48	6789.81	64.00	2813.45	319.25 S	2798.38 E	2816.53@	96.51	0.31
9410.00	87.23	88.66	6793.10	64.00	2877.10	317.65 S	2862.27 E	2879.85@	96.33	0.61
9473.00	87.93	88.35	6795.76	63.00	2939.77	316.01 S	2925.20 E	2942.22@	96.17	1.22
9537.00	88.90	88.31	6797.53	64.00	3003.45	314.14 S	2989.14 E	3005.61@	96.00	1.52
9600.00	88.29	88.37	6799.08	63.00	3066.14	312.32 S	3052.10 E	3068.04@	95.84	0.97
9664.00	86.09	88.47	6802.21	64.00	3129.78	310.56 S	3115.99 E	3131.43@	95.69	3.44
9727.00	85.82	88.78	6806.66	63.00	3192.36	309.05 S	3178.82 E	3193.81@	95.55	0.65
9822.00	86.97	89.02	6812.63	95.00	3286.82	307.23 S	3273.61 E	3288.00@	95.36	1.24

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
DITKA FEDERAL COM #1H - LATERAL
EDDY COUNTY, NM
RIG:SILVER OAK #2

Page 06/06

Measured Depth (ft)	Incl (deg)	Drift Dir. (deg)	TVD (ft)	Course Length (ft)	Vertical Section (ft)	TOTAL Rectangular Offsets		Closure Dist Dir		DLS (dg/100ft)
(ft)	(deg)	(deg)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(deg)	(dg/100ft)
9918.00	88.11	89.25	6816.75	96.00	3382.41	305.78 S	3369.51 E	3383.36@	95.19	1.21
9981.00	88.02	89.04	6818.88	63.00	3445.16	304.84 S	3432.47 E	3445.98@	95.08	0.36
10044.00	87.14	88.52	6821.54	63.00	3507.86	303.50 S	3495.40 E	3508.55@	94.96	1.62
10108.00	86.00	88.17	6825.37	64.00	3571.45	301.66 S	3559.25 E	3572.01@	94.84	1.86
10171.00	86.26	88.60	6829.62	63.00	3634.03	299.89 S	3622.08 E	3634.48@	94.73	0.80
10267.00	86.35	90.19	6835.81	96.00	3729.54	298.87 S	3717.88 E	3729.87@	94.60	1.66
10362.00	88.81	89.33	6839.82	95.00	3824.20	298.48 S	3812.78 E	3824.45@	94.48	2.74
10457.00	90.40	89.50	6840.47	95.00	3918.92	297.51 S	3907.77 E	3919.08@	94.35	1.68
10522.00	91.63	90.02	6839.32	65.00	3983.74	297.23 S	3972.76 E	3983.86@	94.28	2.05
10584.00	90.57	90.05	6838.13	62.00	4045.59	297.27 S	4034.75 E	4045.68@	94.21	1.71
10648.00	89.43	89.86	6838.13	64.00	4109.45	297.22 S	4098.75 E	4109.51@	94.15	1.81
10743.00	86.79	89.83	6841.27	95.00	4204.16	296.96 S	4193.69 E	4204.19@	94.05	2.78
10838.00	88.29	89.58	6845.34	95.00	4298.82	296.48 S	4288.59 E	4298.83@	93.95	1.60
10933.00	88.11	89.14	6848.33	95.00	4393.48	295.41 S	4383.54 E	4393.48@	93.86	0.50
11028.00	89.34	89.10	6850.44	95.00	4488.14	293.96 S	4478.51 E	4488.14@	93.76	1.30
11050.00	89.60	89.07	6850.64	22.00	4510.06	293.61 S	4500.50 E	4510.07@	93.73	1.19
STRAIGHT LINE PROJECTION TO BIT AT 11118' MD.										
11118.00	89.60	89.07	6851.12	68.00	4577.83	292.50 S	4568.49 E	4577.85@	93.66	0.00

** The survey data at tie-in point was furnished by a recognized survey company and entered as submitted. Survey stations above the tie-in point represent recalculated data by PathFinder Energy Services, Inc. and may reflect minor changes due to rounding differences between survey programs. Only survey stations taken by qualified PathFinder personnel are subject to certification.

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	Mack Energy Corporation		
LEASE / WELL No.:	Dikta Federal Com	#1H	
WELL LOCATION:	Pavo Mesa Abo		
COUNTY / STATE / COUNTRY:	Eddy	NM	USA
RIG:	Silver Oak #2		
API WELL No:	30-015-37384		
JOB No:	101009312-WT-WT		
P.O. / AFE No.	N/A		
DIRECTIONAL COMPANY:	PES		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.98°	LWD Calculated:	7.97°
		Agreed Upon:	7.97°
X =	560341.300000	Feet	Y = 690312.900000
			Feet
SITE LATITUDE:	32° 53' 51.3423" N	SITE LONGITUDE:	104° 08' 12.2699" W
GRID SYSTEM:	TRUE ☐ UTM ☐ LAMBERT ☐	ZONE:	New Mexico East
PROPOSED DRIFT DIRECTION:	89.61°		
KELLY BUSHING ELEVATION:	18'		
ALTITUDE:	3590	Feet	WATER DEPTH:
			N/A
			Feet

TIE-IN SURVEY

MEASURED DEPTH:	3078.00'		
DRIFT ANGLE:	1.50°		
DRIFT DIRECTION:	354.00°		
TRUE VERTICAL DEPTH:	3077.38'		
VERTICAL SECTION:	-22.68'		
RECTANGULAR COORDINATE (N / S) :	51.75'		
RECTANGULAR COORDINATE (E / W) :	-22.33'		
CLOSURE DISTANCE / DIRECTION:	56.36'	336.66°	
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	TeleDrift		
COPY OF TIE-IN SURVEY REPORT	☒ YES ☐ NO		

WELL PLAN

KICKOFF DEPTH:	3675'	TOTAL DEPTH:	11118'
KICKOFF ANGLE:	0°	MAX ANGLE:	92.59°

PES Engineers: MIKE ZAW

**Signature of both field engineers required if applicable

Directional Driller: MONNIE PRATER

DATE: 20-Dec-2009

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MACK ENERGY CORPORATION
DITKA FEDERAL COM #1H
EDDY COUNTY, NEW MEXICO
Rig:SILVER OAK 2

Fri Nov 20 09:59:27 2009

Coordinates

Latitude: 32.897595 N (32 deg. 53 min. 51.3423 sec.)
Longitude: 104.136742 W (-104 deg. 8 min. 12.2699 sec.)
Elevation: 3608.00 feet.
Calculation Date: Nov/20/2009

Magnetic Calculations

Model: IGRF2005
Dip Angle: 60.7675 degrees
Total Magnetic Field: 0.49144 gauss
Magnetic Declination: 8.073419 degrees
Horizontal Intensity: 0.339998 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 8.073419 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 560341.3000 feet
Y: 690312.9000 feet
True to Grid: (convergence) -0.106777 degrees
Magnetic to Grid: 7.966642 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.966642 Degr.

OCD-ARTESIA

ATS-09-507

RM

Form 3160-3
(April 2004)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

NOV - 9 2009

NMOC D ARTESIA

FORM APPROVED
OMB No. 1004-0137
Expires March 31 2007

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a Type of work - ☒ DRILL ☐ REENTER		5 Lease Serial No <u>B4L</u> NMNM-061579 <u>05855</u>	
1b Type of Well ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone		6 If Indian, Allottee or Tribe Name	
2 Name of Operator Mack Energy Corporation		7 If Unit or CA Agreement, Name and No	
3a Address P.O. Box 960 Artesia, NM 88211-0960		8, Lease Name and Well No Ditka Federal Com #1	
3b Phone No (include area code) (575) 748-1288		9 API Well No 30 015 37384	
4 Location of Well (Report location clearly and macroinounce with any State requirements *) At surface 1375 FNL & 330 FWL At proposed prod zone 1675 FNL & 330 FEL		10 Field and Pool, or Exploratory Pavo Mesa; Abo	
14 Distance in miles and direction from nearest town or post office* 10 miles northwest of Loco Hills, NM		11 Sec, T, R, M or Blk and Survey or Area Sec. 25 T16S R28E	
15 Distance from proposed location* to nearest property or lease line, ft (Also to nearest drlg unit line, if any) 330		12 County or Parish Eddy	
16 No. of acres in lease 40		13 State NM	
17 Spacing Unit dedicated to this well 160		18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 1320	
19 Proposed Depth <u>Pilot Hole</u> 6,934' TVD 11,152' MD		20 BLM/BIA Bond No on file 7400 TVD NMB000286	
21 Elevations (Show whether DF, KDB, RT, GL, etc) 3590' GR		22 Approximate date work will start* 10/30/09	
23 Estimated duration 30 days			

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form

- | | |
|---|--|
| 1 Well plat certified by a registered surveyor | 4 Bond to cover the operations unless covered by an existing bond on file (see Item 20 above), |
| 2 A Drilling Plan | 5 Operator certification |
| 3 A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office) | 6 Such other site specific information and/or plans as may be required by the authorized officer |

25 Signature <u>Jerry W. Sherrell</u>	Name (Printed/Typed) Jerry W. Sherrell	Date 10/1/09
Title Production Clerk		
Approved by (Signature) <u>/s/ Don Peterson</u>	Name (Printed/Typed) <u>/s/ Don Peterson</u>	Date NOV 04 2009
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon
Conditions of approval, if any, are attached

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction

*(Instructions on page 2)

Roswell Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVALApproval Subject to General Requirements
& Special stipulations Attached

DISTRICT I

1625 N. FRENCH DR., HOBBBS, NM 88240

State of New Mexico

Energy, Minerals and Natural Resources Department

Form C-102

Revised October 12, 2005

DISTRICT II

1301 W. GRAND AVENUE, ARTESIA, NM 88210

OIL CONSERVATION DIVISION

Submit to Appropriate District Office

1220 SOUTH ST. FRANCIS DR.

State Lease - 4 Copies

Fee Lease - 3 Copies

Santa Fe, New Mexico 87505

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV

1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30 015 37384		Pool Code 97575 97691	Pool Name Crow Flats; Pavo Mesa; Abo
Property Code 37907	Property Name DITKA FEDERAL COM		Well Number 111
OGRID No. 013837	Operator Name MACK ENERGY CORPORATION		Elevation 3590'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	25	16-S	28-E		1375	NORTH	330	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	25	16-S	28-E		1675	NORTH	330	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

DETAIL 3595.3' 3587.3' 600' 600' 3592.7' 3593.9' SL 330' SEE DETAIL GRID AZ = 94°08'46" HORIZ DIST = 4586'2" B.H. 330' GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=690312.9 N X=560341.3 E LAT.=32.897595° N LONG.=104 136742° W BOTTOM HOLE LOCATION Y=689981.4 N X=564914.3 E	OPERATOR CERTIFICATION I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Jerry W. Sherrell</i> 9/30/09 Signature Date Jerry W. Sherrell Printed Name SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. SEPTEMBER 24 2009 Date Surveyed: 9/29/09 Signature & Seal of Professional Surveyor <i>Ronald J. Eidson</i> Certificate No. GARY EIDSON 12641 RONALD J. EIDSON 3239
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