



An Operating Unit of Smith International, Inc.

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DIRECTIONAL SURVEY REPORT HOBBSOCD

30-005-29141

MACK ENERGY

PEERY FEDERAL #12 (RE-ENTRY)

CHAVES COUNTY, NEW MEXICO

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APR 21 2011

NMOCD ARTESIA

PREPARED BY: FRANCISCO SINISTERRA

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

Pathfinder

6213 W. Interstate 20
Midland, Texas. 79706
Tel. 432.687.1647
Fax 432.687.1544



DIRECTIONAL SURVEY COMPANY REPORT:

1. NAME OF SURVEYING COMPANY: PATHFINDER ENERGY SERVICES
2. NAME OF PERSON(S) PERFORMING SURVEY:
A) RAFEAL DONARUMMA
3. POSITION OF SAID PERSON(S): (A-F) SURVEYORS (FIELD ENGINEERS)
4. DATE(S) ON WHICH SURVEY WAS PERFORMED: 01-16-11 TO 02-04-11
5. STATE IN WHICH SURVEY WAS PERFORMED: NEW MEXICO
6. LOCATION OF WELL: CHAVES COUNTY
7. TYPE OF SURVEY(S) PERFORMED: MWD
8. COMPLETE IDENTIFICATION OF WELL:

MACK ENERGY
PEERY FEDERAL #12 (RE-ENTRY)
CHAVES COUNTY, NM
RIG: SILVER OAK #2
9. SURVEY CERTIFIED FROM: 3163 TO 11300 FEET MEASURED DEPTH.

THIS IS TO VERIFY THAT ATTACHED DOCUMENTS SHOWING THE WELL TO BE DISPLACED AT 2972.61 FEET ON A BEARING OF 269.65 DEGREES FROM THE CENTER OF THE ROTARY TABLE AT A PROJECTED BIT DEPTH OF 11359 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: 08/10/2010
Date Completed: 02/04/2011

MACK ENERGY CORPORATION
PEERY FEDERAL #12
CHAVES COUNTY, NM
Rig:SILVER OAK 2
PathFinder Office Supervisor: FRANCISCO SINISTERRA
PathFinder Field Engineers:RAFAEL DONARUMMA
STEVE BIBB
KIRK DAVIS

Survey Horiz. Reference:WELLHEAD
Ref Coordinates: LAT:32.58.56.0851 N LON:103.56.40.9189 W
GRID Reference:NAD27 new mexico east Transverse Mercator
Ref GRID Coord: X: 619172.8000 Y: 721273.6000
North Aligned To:GRID NORTH
Total Magnetic Correction: 7.66° EAST TO GRID
Vertical Section Plane: 269.88
Survey Vert. Reference: 18.00' Kelly Bushing To Ground
Altitude:3961.00' Ground To MSL

Measured Depth	11359.00	(feet)
Inclination	91.68	(deg)
Azimuth	271.45	(deg)
True Vertical Depth	8560.60	(feet)
Vertical Section	2972.58	(feet)
Survey X cord	616200.25	(feet)
Survey Y cord	721255.40	(feet)
Survey Lat	32.98222562 N	(deg)
Survey Lon	103.95439350 W	(deg)
Rectangular Corr. N/S	18.20 S	(feet)
Rectangular Corr. E/W	2972.55 W	(feet)
Closure Distance	2972.61	(feet)
Direction of Closure	269.65	(deg)
Dogleg Severity	0.00	(deg/100ft)

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION

PEERY FEDERAL #12

CHAVES COUNTY, NM

Rig: SILVER OAK 2

PathFinder Office Supervisor: FRANCISCO SINISTERRA

PathFinder Field Engineers: RAFAEL DONARUMMA

STEVE BIBB

KIRK DAVIS

Survey Calculations by RX5 V6.03C using Minimum Curvature

Survey Horiz. Reference: WELLHEAD

Ref Coordinates: LAT: 32.58.56.0851 N LON: 103.56.40.9189 W

GRID Reference: NAD27 new mexico east Transverse Mercator

Ref GRID Coord: X: 619172.8000 Y: 721273.6000

North Aligned To: GRID NORTH

Total Magnetic Correction: 7.66° EAST TO GRID

Vertical Section Plane: 269.88

Survey Vert. Reference: 18.00' Kelly Bushing To Ground

Altitude: 3961.00' Ground To MSL

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)
THE FOLLOWING ARE SCIENTIFIC DRILLING GYROSCOPIC SURVEYS.										
100.00	0.36	69.66	100.00	0.00	-0.30	0.10 N	0.30 E	0.32@	72.05	0.00
200.00	0.49	72.76	200.00	100.00	-1.01	0.33 N	1.01 E	1.06@	71.63	0.13
300.00	0.46	71.04	300.00	100.00	-1.79	0.59 N	1.79 E	1.89@	71.76	0.03
400.00	0.32	50.08	400.00	100.00	-2.39	0.90 N	2.39 E	2.55@	69.33	0.20
500.00	0.19	22.22	499.99	100.00	-2.67	1.23 N	2.66 E	2.94@	65.16	0.18
600.00	0.21	18.27	599.99	100.00	-2.79	1.56 N	2.78 E	3.19@	60.73	0.02
700.00	0.26	51.27	699.99	100.00	-3.02	1.88 N	3.02 E	3.55@	58.13	0.14
800.00	0.42	70.90	799.99	100.00	-3.55	2.14 N	3.54 E	4.14@	58.88	0.20
900.00	0.47	73.51	899.99	100.00	-4.29	2.38 N	4.28 E	4.90@	60.98	0.05
1000.00	0.79	71.67	999.98	100.00	-5.34	2.71 N	5.33 E	5.98@	63.06	0.32
1100.00	1.22	71.02	1099.97	100.00	-7.00	3.27 N	6.99 E	7.72@	64.92	0.43
1200.00	1.35	72.71	1199.94	100.00	-9.13	3.97 N	9.12 E	9.95@	66.49	0.14
1300.00	1.51	78.90	1299.91	100.00	-11.55	4.57 N	11.54 E	12.41@	68.39	0.22
1400.00	1.65	82.86	1399.87	100.00	-14.27	5.00 N	14.26 E	15.11@	70.66	0.18
1500.00	1.37	83.22	1499.84	100.00	-16.89	5.32 N	16.88 E	17.70@	72.49	0.28
1600.00	1.19	78.15	1599.81	100.00	-19.09	5.68 N	19.08 E	19.91@	73.43	0.21
1700.00	1.08	73.28	1699.79	100.00	-21.01	6.16 N	21.00 E	21.88@	73.64	0.15
1800.00	1.04	73.34	1799.78	100.00	-22.78	6.69 N	22.77 E	23.73@	73.62	0.04
1900.00	1.00	67.17	1899.76	100.00	-24.46	7.29 N	24.44 E	25.51@	73.39	0.12
2000.00	1.21	60.97	1999.74	100.00	-26.19	8.14 N	26.17 E	27.41@	72.72	0.24
2100.00	1.38	53.42	2099.72	100.00	-28.08	9.37 N	28.06 E	29.59@	71.53	0.24
2200.00	1.55	49.37	2199.68	100.00	-30.08	10.97 N	30.06 E	32.00@	69.94	0.20
2300.00	1.76	44.04	2299.64	100.00	-32.18	12.96 N	32.15 E	34.66@	68.05	0.26
2400.00	1.90	48.89	2399.59	100.00	-34.50	15.15 N	34.47 E	37.65@	66.27	0.21

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
PEERY FEDERAL #12
CHAVES 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)
2500.00	1.96	49.67	2499.53	100.00	-37.05	17.35 N	37.02 E	40.88@	64.89	0.06
2600.00	2.27	49.30	2599.47	100.00	-39.87	19.75 N	39.82 E	44.45@	63.63	0.31
2700.00	2.62	46.42	2699.37	100.00	-43.03	22.61 N	42.98 E	48.57@	62.25	0.37
2800.00	3.05	44.76	2799.25	100.00	-46.56	26.08 N	46.51 E	53.32@	60.72	0.44
2900.00	3.40	45.80	2899.09	100.00	-50.57	30.03 N	50.51 E	58.76@	59.26	0.35
3000.00	3.28	45.88	2998.92	100.00	-54.76	34.09 N	54.69 E	64.45@	58.06	0.12
** TIED INTO SCIENTIFIC DRILLING GYROSCOPIC SURVEY AT 3100'MD.										
3100.00	2.63	46.62	3098.79	100.00	-58.49	37.66 N	58.41 E	69.50@	57.19	0.65
THE FOLLOWING ARE PATHFINDER MWD SURVEYS.										
3163.00	2.55	44.01	3161.73	63.00	-60.52	39.66 N	60.43 E	72.29@	56.72	0.23
3259.00	2.11	40.93	3257.65	96.00	-63.16	42.53 N	63.08 E	76.08@	56.01	0.48
3354.00	1.93	22.92	3352.59	95.00	-64.94	45.33 N	64.84 E	79.12@	55.05	0.69
3449.00	1.85	25.64	3447.54	95.00	-66.23	48.18 N	66.13 E	81.82@	53.92	0.13
3544.00	0.97	25.02	3542.51	95.00	-67.24	50.29 N	67.13 E	83.88@	53.16	0.93
3639.00	0.97	20.98	3637.49	95.00	-67.87	51.77 N	67.76 E	85.28@	52.62	0.07
3735.00	0.70	351.63	3733.48	96.00	-68.08	53.11 N	67.97 E	86.26@	52.00	0.52
3830.00	0.79	358.31	3828.48	95.00	-67.98	54.34 N	67.86 E	86.94@	51.31	0.13
3925.00	0.26	294.67	3923.47	95.00	-67.76	55.09 N	67.65 E	87.24@	50.84	0.75
4020.00	0.44	285.01	4018.47	95.00	-67.22	55.27 N	67.10 E	86.93@	50.52	0.20
4115.00	0.35	278.76	4113.47	95.00	-66.58	55.41 N	66.46 E	86.53@	50.18	0.10
4211.00	0.44	287.82	4209.47	96.00	-65.94	55.57 N	65.82 E	86.14@	49.83	0.11
4306.00	0.70	260.66	4304.46	95.00	-65.02	55.58 N	64.90 E	85.45@	49.42	0.39
4402.00	0.88	268.04	4400.45	96.00	-63.70	55.46 N	63.59 E	84.38@	48.90	0.21
4497.00	0.88	270.42	4495.44	95.00	-62.24	55.44 N	62.13 E	83.27@	48.25	0.04
4592.00	0.88	271.29	4590.43	95.00	-60.78	55.47 N	60.67 E	82.20@	47.57	0.01
4687.00	1.06	281.42	4685.42	95.00	-59.19	55.66 N	59.08 E	81.16@	46.71	0.26
4783.00	0.88	204.36	4781.40	96.00	-58.02	55.16 N	57.90 E	79.97@	46.39	1.27
4878.00	0.88	229.16	4876.39	95.00	-57.16	54.02 N	57.05 E	78.57@	46.56	0.40
4973.00	0.88	231.46	4971.38	95.00	-56.04	53.09 N	55.93 E	77.11@	46.49	0.04
5068.00	1.06	239.51	5066.37	95.00	-54.71	52.19 N	54.60 E	75.53@	46.30	0.24

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
PEERY FEDERAL #12
CHAVES 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)
5164.00	0.97	244.56	5162.35	96.00	-53.21	51.39 N	53.10 E	73.89@	45.94	0.13
5259.00	1.14	209.08	5257.34	95.00	-52.02	50.22 N	51.92 E	72.23@	45.95	0.70
5354.00	1.14	221.22	5352.32	95.00	-50.94	48.68 N	50.83 E	70.38@	46.24	0.25
5450.00	0.97	225.27	5448.30	96.00	-49.73	47.39 N	49.63 E	68.62@	46.32	0.19
5545.00	1.06	229.68	5543.29	95.00	-48.48	46.25 N	48.39 E	66.94@	46.29	0.13
5640.00	1.14	243.18	5638.27	95.00	-46.97	45.26 N	46.87 E	65.16@	46.00	0.28
5736.00	1.14	213.13	5734.25	96.00	-45.59	44.03 N	45.50 E	63.31@	45.94	0.62
5830.00	0.97	215.51	5828.24	94.00	-44.61	42.60 N	44.53 E	61.62@	46.27	0.19
5926.00	1.06	216.20	5924.22	96.00	-43.62	41.22 N	43.53 E	59.95@	46.56	0.09
6021.00	0.88	219.63	6019.21	95.00	-42.63	39.95 N	42.54 E	58.36@	46.80	0.20
6116.00	0.88	222.32	6114.20	95.00	-41.67	38.85 N	41.59 E	56.91@	46.95	0.04
6211.00	0.88	227.28	6209.19	95.00	-40.64	37.81 N	40.56 E	55.45@	47.01	0.08
6307.00	0.79	226.73	6305.18	96.00	-39.61	36.86 N	39.54 E	54.05@	47.01	0.09
6402.00	0.62	228.45	6400.17	95.00	-38.75	36.07 N	38.68 E	52.88@	47.00	0.18
6498.00	0.44	203.88	6496.16	96.00	-38.21	35.39 N	38.14 E	52.03@	47.14	0.30
6593.00	0.97	190.09	6591.16	95.00	-37.92	34.26 N	37.85 E	51.05@	47.85	0.58
6688.00	1.06	180.84	6686.14	95.00	-37.76	32.59 N	37.70 E	49.83@	49.15	0.20
6783.00	0.97	177.60	6781.13	95.00	-37.78	30.91 N	37.72 E	48.76@	50.66	0.11
6878.00	0.97	171.70	6876.11	95.00	-37.93	29.31 N	37.87 E	47.89@	52.26	0.10
6974.00	0.97	168.60	6972.10	96.00	-38.20	27.71 N	38.14 E	47.15@	54.00	0.05
7069.00	1.14	171.45	7067.08	95.00	-38.50	25.99 N	38.44 E	46.40@	55.94	0.19
7164.00	1.32	196.33	7162.06	95.00	-38.33	24.00 N	38.28 E	45.18@	57.91	0.59
7260.00	1.32	192.36	7258.04	96.00	-37.77	21.86 N	37.73 E	43.61@	59.91	0.10
7355.00	1.49	201.91	7353.01	95.00	-37.07	19.65 N	37.03 E	41.92@	62.05	0.30
7450.00	1.67	211.98	7447.97	95.00	-35.88	17.33 N	35.84 E	39.81@	64.20	0.35
7545.00	1.85	214.66	7542.93	95.00	-34.27	14.89 N	34.23 E	37.33@	66.49	0.21
7640.00	1.93	209.58	7637.88	95.00	-32.60	12.24 N	32.57 E	34.80@	69.41	0.20
7735.00	1.93	210.63	7732.82	95.00	-30.99	9.47 N	30.97 E	32.38@	72.99	0.04
7830.00	1.76	213.44	7827.77	95.00	-29.36	6.88 N	29.35 E	30.14@	76.81	0.20
7905.00	1.85	212.23	7902.74	75.00	-28.08	4.89 N	28.07 E	28.49@	80.11	0.13

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
PEERY FEDERAL #12
CHAVES 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)
7968.00	1.93	224.01	7965.70	63.00	-26.80	3.27 N	26.79 E	26.99@	83.04	0.63
8000.00	1.85	219.44	7997.69	32.00	-26.09	2.48 N	26.09 E	26.20@	84.56	0.53
8032.00	3.43	239.92	8029.65	32.00	-24.93	1.60 N	24.93 E	24.98@	86.32	5.68
8064.00	7.91	252.84	8061.49	32.00	-22.00	0.47 N	22.00 E	22.00@	88.77	14.47
8095.00	13.01	258.11	8091.96	31.00	-16.54	0.88 S	16.54 E	16.56@	93.03	16.72
8127.00	17.50	260.31	8122.83	32.00	-8.26	2.43 S	8.27 E	8.62@	106.37	14.15
8159.00	19.87	262.07	8153.14	32.00	1.87	3.99 S	1.86 W	4.40@	205.02	7.61
8191.00	20.84	262.51	8183.14	32.00	12.90	5.48 S	12.89 W	14.01@	246.97	3.07
8222.00	22.60	261.80	8211.94	31.00	24.27	7.05 S	24.26 W	25.26@	253.79	5.74
8254.00	24.71	263.56	8241.25	32.00	37.01	8.68 S	36.99 W	37.99@	256.80	6.95
8286.00	25.94	263.91	8270.17	32.00	50.62	10.17 S	50.60 W	51.61@	258.63	3.87
8318.00	27.96	264.79	8298.70	32.00	65.05	11.59 S	65.03 W	66.05@	259.89	6.43
8349.00	30.78	267.08	8325.71	31.00	80.22	12.66 S	80.19 W	81.18@	261.03	9.79
8381.00	33.85	269.10	8352.75	32.00	97.31	13.22 S	97.28 W	98.18@	262.26	10.17
8413.00	36.67	269.45	8378.88	32.00	115.78	13.45 S	115.75 W	116.53@	263.37	8.83
8541.00	48.54	270.29	8472.92	128.00	202.27	13.57 S	202.24 W	202.70@	266.16	9.28
8573.00	50.30	270.33	8493.74	32.00	226.57	13.44 S	226.55 W	226.95@	266.60	5.50
8605.00	52.76	269.90	8513.64	32.00	251.63	13.39 S	251.60 W	251.95@	266.95	7.76
8637.00	56.01	269.99	8532.28	32.00	277.64	13.42 S	277.61 W	277.93@	267.23	10.16
8669.00	59.97	270.06	8549.24	32.00	304.77	13.40 S	304.74 W	305.03@	267.48	12.38
8701.00	63.14	269.42	8564.48	32.00	332.90	13.53 S	332.87 W	333.15@	267.67	10.06
8733.00	65.25	269.01	8578.40	32.00	361.70	13.93 S	361.68 W	361.94@	267.79	6.69
8765.00	66.83	268.86	8591.40	32.00	390.94	14.47 S	390.91 W	391.18@	267.88	4.96
8797.00	68.24	267.84	8603.63	32.00	420.50	15.33 S	420.47 W	420.75@	267.91	5.30
8814.00	69.20	267.61	8609.80	17.00	436.33	15.95 S	436.30 W	436.59@	267.91	5.79
8843.00	70.67	266.03	8619.75	29.00	463.53	17.47 S	463.50 W	463.82@	267.84	7.20
8884.00	73.86	266.22	8632.24	41.00	502.49	20.11 S	502.45 W	502.85@	267.71	7.79
8916.00	77.82	267.93	8640.06	32.00	533.48	21.68 S	533.43 W	533.87@	267.67	13.42
8948.00	82.39	268.14	8645.56	32.00	564.98	22.76 S	564.93 W	565.39@	267.69	14.30
8980.00	87.23	268.06	8648.45	32.00	596.82	23.82 S	596.77 W	597.25@	267.71	15.13

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
PEERY FEDERAL #12
CHAVES COUNTY, NM
RIG: SILVER OAK 2

Page 05/07

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)
9012.00	90.31	268.29	8649.14	32.00	628.79	24.84 S	628.74 W	629.23@	267.74	9.65
9044.00	90.66	268.07	8648.87	32.00	660.78	25.86 S	660.73 W	661.23@	267.76	1.29
9076.00	90.84	268.03	8648.45	32.00	692.76	26.94 S	692.70 W	693.23@	267.77	0.58
9108.00	90.75	268.61	8648.01	32.00	724.74	27.88 S	724.69 W	725.22@	267.80	1.83
9140.00	90.57	268.57	8647.64	32.00	756.73	28.67 S	756.68 W	757.22@	267.83	0.58
9165.00	90.22	267.88	8647.47	25.00	781.72	29.44 S	781.66 W	782.22@	267.84	3.09
9197.00	89.83	267.53	8647.45	32.00	813.70	30.73 S	813.64 W	814.22@	267.84	1.64
9229.00	90.62	266.77	8647.33	32.00	845.66	32.32 S	845.60 W	846.21@	267.81	3.43
9261.00	91.12	267.60	8646.84	32.00	877.62	33.89 S	877.55 W	878.21@	267.79	3.03
9293.00	91.40	267.72	8646.14	32.00	909.59	35.19 S	909.52 W	910.20@	267.78	0.95
9325.00	91.74	268.36	8645.26	32.00	941.56	36.29 S	941.49 W	942.19@	267.79	2.26
9357.00	91.79	268.58	8644.27	32.00	973.54	37.14 S	973.46 W	974.17@	267.81	0.71
9389.00	91.57	269.22	8643.34	32.00	1005.52	37.76 S	1005.44 W	1006.15@	267.85	2.11
9420.00	92.30	270.98	8642.29	31.00	1036.50	37.70 S	1036.42 W	1037.11@	267.92	6.14
9452.00	92.91	272.11	8640.83	32.00	1068.45	36.84 S	1068.38 W	1069.01@	268.03	4.01
9485.00	92.69	272.19	8639.22	33.00	1101.39	35.60 S	1101.32 W	1101.89@	268.15	0.71
9516.00	92.30	271.95	8637.87	31.00	1132.34	34.49 S	1132.27 W	1132.79@	268.26	1.48
9549.00	92.35	271.68	8636.53	33.00	1165.29	33.44 S	1165.22 W	1165.70@	268.36	0.83
9581.00	92.07	271.65	8635.30	32.00	1197.25	32.51 S	1197.19 W	1197.63@	268.44	0.88
9613.00	91.90	271.45	8634.19	32.00	1229.22	31.65 S	1229.15 W	1229.56@	268.53	0.82
9645.00	91.68	272.04	8633.19	32.00	1261.18	30.67 S	1261.12 W	1261.50@	268.61	1.97
9677.00	91.40	272.12	8632.33	32.00	1293.15	29.51 S	1293.09 W	1293.43@	268.69	0.91
9736.00	91.29	272.21	8630.95	59.00	1352.09	27.28 S	1352.03 W	1352.31@	268.84	0.24
9767.00	91.29	272.10	8630.25	31.00	1383.05	26.12 S	1383.00 W	1383.25@	268.92	0.35
9799.00	91.17	271.45	8629.56	32.00	1415.03	25.13 S	1414.98 W	1415.20@	268.98	2.06
9831.00	91.68	271.44	8628.77	32.00	1447.01	24.32 S	1446.96 W	1447.16@	269.04	1.59
9863.00	90.00	270.18	8628.30	32.00	1479.00	23.87 S	1478.95 W	1479.14@	269.08	6.56
9895.00	90.50	270.10	8628.16	32.00	1511.00	23.79 S	1510.95 W	1511.14@	269.10	1.58
9927.00	90.00	269.54	8628.02	32.00	1543.00	23.89 S	1542.95 W	1543.13@	269.11	2.35
9959.00	87.93	268.93	8628.60	32.00	1574.99	24.32 S	1574.94 W	1575.13@	269.12	6.74

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
PEERY FEDERAL #12
CHAVES 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)
9990.00	88.27	268.53	8629.62	31.00	1605.96	25.01 S	1605.91 W	1606.11@	269.11	1.69
10022.00	88.49	268.45	8630.53	32.00	1637.94	25.85 S	1637.89 W	1638.10@	269.10	0.73
10054.00	90.45	268.38	8630.82	32.00	1669.93	26.73 S	1669.88 W	1670.09@	269.08	6.13
10086.00	93.14	268.41	8629.82	32.00	1701.90	27.63 S	1701.85 W	1702.07@	269.07	8.41
10118.00	93.58	267.72	8627.95	32.00	1733.83	28.71 S	1733.77 W	1734.01@	269.05	2.55
10150.00	93.36	267.91	8626.01	32.00	1765.75	29.93 S	1765.69 W	1765.94@	269.03	0.91
10182.00	92.97	269.19	8624.24	32.00	1797.69	30.73 S	1797.63 W	1797.89@	269.02	4.18
10214.00	92.30	269.60	8622.77	32.00	1829.66	31.07 S	1829.59 W	1829.86@	269.03	2.45
10246.00	92.47	269.78	8621.44	32.00	1861.63	31.24 S	1861.57 W	1861.83@	269.04	0.77
10278.00	92.24	269.59	8620.13	32.00	1893.60	31.42 S	1893.54 W	1893.80@	269.05	0.93
10310.00	91.91	269.49	8618.97	32.00	1925.58	31.68 S	1925.52 W	1925.78@	269.06	1.08
10342.00	92.13	269.52	8617.84	32.00	1957.56	31.95 S	1957.49 W	1957.76@	269.06	0.69
10374.00	91.62	269.51	8616.79	32.00	1989.54	32.22 S	1989.48 W	1989.74@	269.07	1.59
10406.00	91.79	269.47	8615.84	32.00	2021.52	32.51 S	2021.46 W	2021.72@	269.08	0.54
10438.00	92.41	269.27	8614.67	32.00	2053.50	32.86 S	2053.44 W	2053.70@	269.08	2.04
10470.00	92.69	269.79	8613.24	32.00	2085.47	33.12 S	2085.40 W	2085.67@	269.09	1.84
10501.00	93.47	269.42	8611.58	31.00	2116.42	33.34 S	2116.36 W	2116.62@	269.10	2.78
10533.00	94.14	269.63	8609.45	32.00	2148.35	33.60 S	2148.29 W	2148.55@	269.10	2.19
10565.00	93.98	269.34	8607.19	32.00	2180.27	33.89 S	2180.21 W	2180.47@	269.11	1.03
10597.00	93.86	268.82	8605.00	32.00	2212.19	34.40 S	2212.13 W	2212.39@	269.11	1.66
10629.00	93.81	269.26	8602.86	32.00	2244.12	34.93 S	2244.05 W	2244.32@	269.11	1.38
10661.00	93.08	269.69	8600.94	32.00	2276.06	35.23 S	2275.99 W	2276.26@	269.11	2.65
10693.00	92.69	270.89	8599.33	32.00	2308.02	35.07 S	2307.95 W	2308.21@	269.13	3.94
10725.00	92.97	271.04	8597.75	32.00	2339.97	34.53 S	2339.91 W	2340.16@	269.15	0.99
10757.00	93.86	270.70	8595.84	32.00	2371.91	34.04 S	2371.84 W	2372.09@	269.18	2.98
10789.00	93.75	270.82	8593.72	32.00	2403.84	33.62 S	2403.77 W	2404.01@	269.20	0.51
10821.00	93.47	270.77	8591.70	32.00	2435.77	33.18 S	2435.70 W	2435.93@	269.22	0.89
10853.00	93.64	271.26	8589.72	32.00	2467.70	32.61 S	2467.64 W	2467.85@	269.24	1.62
10886.00	93.30	271.77	8587.72	33.00	2500.63	31.74 S	2500.57 W	2500.77@	269.27	1.85
10917.00	93.13	271.28	8585.98	31.00	2531.56	30.92 S	2531.51 W	2531.69@	269.30	1.67

PathFinder Energy Services, Inc.

Survey Report

MACK ENERGY CORPORATION
PEERY FEDERAL #12
CHAVES 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)
10949.00	93.13	272.05	8584.24	32.00	2563.50	29.99 S	2563.44 W	2563.62@	269.33	2.40
10981.00	93.53	271.79	8582.38	32.00	2595.43	28.92 S	2595.37 W	2595.53@	269.36	1.49
11013.00	94.04	271.78	8580.26	32.00	2627.34	27.92 S	2627.29 W	2627.44@	269.39	1.59
11045.00	93.70	271.77	8578.10	32.00	2659.25	26.93 S	2659.20 W	2659.33@	269.42	1.06
11077.00	93.36	271.51	8576.13	32.00	2691.17	26.02 S	2691.12 W	2691.25@	269.45	1.34
11108.00	93.92	271.33	8574.17	31.00	2722.10	25.25 S	2722.05 W	2722.17@	269.47	1.90
11140.00	93.58	271.33	8572.07	32.00	2754.02	24.51 S	2753.98 W	2754.08@	269.49	1.06
11172.00	93.36	271.75	8570.14	32.00	2785.95	23.65 S	2785.90 W	2786.01@	269.51	1.48
11205.00	94.20	271.55	8567.96	33.00	2818.86	22.70 S	2818.82 W	2818.91@	269.54	2.62
11236.00	93.98	272.15	8565.75	31.00	2849.76	21.71 S	2849.72 W	2849.81@	269.56	2.06
11265.00	93.41	271.84	8563.88	29.00	2878.68	20.70 S	2878.65 W	2878.72@	269.59	2.24
11300.00	91.68	271.45	8562.33	35.00	2913.63	19.70 S	2913.60 W	2913.66@	269.61	5.07
STRAIGHT LINE PROJECTION TO BIT DEPTH AT 11359'MD.										
11359.00	91.68	271.45	8560.60	59.00	2972.58	18.20 S	2972.55 W	2972.61@	269.65	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.



A Schlumberger Company

TIE-IN SURVEY INFORMATION SHEET

CLIENT INFORMATION

CLIENT:	MACK ENERGY CORPORATION		
LEASE / WELL No.:	PEERY FEDERAL (RE-ENTRY)	12	
WELL LOCATION:	CHAVES COUNTY, NEW MEXICO		
COUNTY / STATE / COUNTRY:	CHAVES	NM	USA
RIG:	SILVER OAK #2		
API WELL No:	30-005-29141		
JOB No:	700001290-GC-WT		
P.O. / AFE No.	(not provided by Mack Energy Corporation)		
DIRECTIONAL COMPANY:	PES		

WELL SITE INFORMATION

TOTAL MAGNETIC CORRECTION (TMC):			
On Wall Plat:	7.658 ⁰	LWD Calculated:	7.66 ⁰
X = 619172.800000 Feet		Y = 721273.600000 Feet	
SITE LATITUDE:	32.982246 N	SITE LONGITUDE:	103.944700 W
GRID SYSTEM:	TRUE ☐ UTM ☒ LAMBERT ☐	ZONE:	NEW MEXICO EAST
PROPOSED DRIFT DIRECTION:	269.88 ⁰		
KELLY BUSHING ELEVATION:	18'		
ALTITUDE:	3961 Feet	WATER DEPTH:	N/A Feet

TIE-IN SURVEY

MEASURED DEPTH:	3100'		
DRIFT ANGLE:	2.63		
DRIFT DIRECTION:	46.62 ⁰		
TRUE VERTICAL DEPTH:	3098.79'		
VERTICAL SECTION:	-58.49		
RECTANGULAR COORDINATE (N / S) :	37.66'		
RECTANGULAR COORDINATE (E / W) :	58.41'		
CLOSURE DISTANCE / DIRECTION:	69.5 ⁰	57.19 ⁰	
SURVEY CALCULATION METHOD:	AA ☐	MC ☒	RC ☐ BT ☐
SOURCE OF TIE-IN DATA (COMPANY):	SCIENTIFIC DRILLING GYRO SURVEY		
COPY OF TIE-IN SURVEY REPORT	☒ YES ☐ NO		

WELL PLAN

KICKOFF DEPTH:	8049'	TOTAL DEPTH:	11384.19'
KICKOFF ANGLE:	1.76 ⁰	MAX ANGLE:	90.55 ⁰

PES Engineers:

R.DONARUMMA / S.BIBB
K. DAVIS

**Signature of both field engineers required if applicable

Directional Driller:

W. TEETER / B. TYLER

DATE: 14-Jan-2011



Scientific Drilling

Gyroscopic Survey Report
for
MACK ENERGY

Well Location	CHAVES COUNTY, NEW MEXICO
Well Name	PEERY FEDERAL NO.12
Rig Name	SILVER OAK NO.2
Survey Date	8/21/2010
Latitude	32.98 deg
North Reference	Grid North
Grid Correction	-0.21 deg
Depth Reference	RKB
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 269.88Azim (deg)
Definitive Survey	FINAL GYRO SURVEY
Operator	ANGEL GUEBARA

Comments

18 FOOT KB



Survey Report

Well Name:		PEERY FEDERAL NO.12							
Survey:		FINAL GYRO SURVEY							
Survey Date:		8/21/2010							
MD	Inc	Azim	TVD	VS	Northing	Easting	DLS	Closure Distance	Closure Angle
ft	deg	deg	ft	ft	ft	ft	deg/100ft	ft	deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
100.00	0.36	69.66	100.00	-0.30	0.11	0.30	0.36	0.32	69.66
200.00	0.49	72.76	200.00	-1.00	0.35	1.00	0.12	1.06	70.90
300.00	0.46	71.04	299.99	-1.79	0.60	1.79	0.03	1.89	71.35
400.00	0.32	50.08	399.99	-2.38	0.91	2.38	0.20	2.55	69.02
500.00	0.19	22.22	499.99	-2.66	1.25	2.66	0.18	2.94	64.88
600.00	0.21	18.27	599.99	-2.78	1.57	2.78	0.02	3.19	60.48
700.00	0.26	51.27	699.99	-3.02	1.89	3.01	0.14	3.56	57.92
800.00	0.42	70.90	799.99	-3.54	2.15	3.54	0.20	4.14	58.70
900.00	0.47	73.51	899.98	-4.28	2.39	4.28	0.05	4.90	60.83
1000.00	0.79	71.67	999.98	-5.33	2.72	5.33	0.32	5.98	62.93
1100.00	1.22	71.02	1099.96	-6.99	3.28	6.99	0.43	7.72	64.82
1200.00	1.35	72.71	1199.94	-9.13	3.98	9.12	0.14	9.95	66.42
1300.00	1.51	78.90	1299.91	-11.55	4.59	11.54	0.22	12.42	68.33
1400.00	1.65	82.86	1399.87	-14.28	5.02	14.27	0.18	15.13	70.62
1500.00	1.37	83.22	1499.83	-16.90	5.34	16.89	0.28	17.71	72.45
1600.00	1.19	78.15	1599.81	-19.11	5.70	19.09	0.21	19.93	73.39
1700.00	1.08	73.28	1699.79	-21.03	6.18	21.02	0.14	21.91	73.61
1800.00	1.04	73.34	1799.77	-22.81	6.71	22.79	0.04	23.76	73.59
1900.00	1.00	67.17	1899.75	-24.48	7.31	24.47	0.12	25.54	73.36
2000.00	1.21	60.97	1999.74	-26.22	8.17	26.20	0.24	27.44	72.69
2100.00	1.38	53.42	2099.71	-28.11	9.40	28.09	0.24	29.62	71.50
2200.00	1.55	49.37	2199.68	-30.11	11.00	30.09	0.20	32.04	69.92
2300.00	1.76	44.04	2299.64	-32.21	12.98	32.18	0.25	34.70	68.03
2400.00	1.90	48.89	2399.59	-34.53	15.17	34.50	0.21	37.69	66.26
2500.00	1.96	49.67	2499.53	-37.08	17.37	37.05	0.06	40.92	64.88
2600.00	2.27	49.30	2599.46	-39.89	19.76	39.85	0.31	44.48	63.62
2700.00	2.62	46.42	2699.37	-43.05	22.63	43.00	0.37	48.59	62.25
2800.00	3.05	44.76	2799.25	-46.58	26.09	46.53	0.44	53.34	60.72
2900.00	3.40	45.80	2899.09	-50.58	30.04	50.52	0.35	58.78	59.27
3000.00	3.28	45.88	2998.92	-54.77	34.09	54.69	0.12	64.45	58.06
3100.00	2.63	46.62	3098.79	-58.49	37.66	58.41	0.65	69.50	57.19



A Schlumberger Company **PathFinder Energy Services, Inc.**

Magnetic & Grid Calculations

MACK ENERGY
PEERY FEDERAL #12
CHAVES COUNTY, NM
Rig: SILVER OAK #2

Fri Jan 07 13:42:18 2011

Coordinates

Latitude: 32.982246 N (32 deg. 58 min. 56.0851 sec.)
Longitude: 103.944700 W (-103 deg. 56 min. 40.9189 sec.)
Elevation: 3978.50 feet.
Calculation Date: Jan/07/2011

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.8334 degrees
Total Magnetic Field: 0.49071 gauss
Magnetic Declination: 7.869699 degrees
Horizontal Intensity: 0.239149 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.869699 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 619172.8000 feet
Y: 721273.6000 feet
True to Grid: (convergence) -0.211566 degrees
Magnetic to Grid: 7.658133 degrees

To Convert a Magnetic Dir. to a GRID dir. Add 7.658133 Degr.

PathFinder Energy Services, Inc.

Magnetic & Grid Calculations

MACK ENERGY CORP.
PEERY FEDERAL #12
LITTLE LUCKY LAKE; WOLFCAMP

Mon Jan 17 18:09:03 2011

Coordinates

Latitude: 32.982246 N (32 deg. 58 min. 56.0851 sec.)
Longitude: 103.944700 W (-103 deg. 56 min. 40.9189 sec.)
Elevation: 3979.00 feet.
Calculation Date: Jan/17/2011

Magnetic Calculations

Model: IGRF2010
Dip Angle: 60.8327 degrees
Total Magnetic Field: 0.49068 gauss
Magnetic Declination: 7.866335 degrees
Horizontal Intensity: 0.239140 gauss
To Convert a Magnetic Dir. to a TRUE North Dir. Add 7.866335 Degr

Transverse Mercator Grid Calculations NAD27

Grid System: Transverse Mercator: new mexico east
Ellipsoid: Clarke 1866
X: 619172.8000 feet
Y: 721273.6000 feet
True to Grid: (convergence) -0.211566 degrees
Magnetic to Grid: 7.654769 degrees
To Convert a Magnetic Dir. to a GRID dir. Add 7.654769 Degr.

Field Calculation