ATS-12-448

OCD-ARTESIA

RECEIVED
MAY 17 2012
NMOCD ARTESIA

Split Estate

Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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. NMNM-114947
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone	6. If Indian, Allotee or Tribe Name
	7 If Unit or CA Agreement, Name and No
2 Name of Operator: Mack Energy Corporation	8. Lease Name and Well No. Knight Federal Com #1 <39233>
3a. Address: P.O. Box 960 Artesia, NM 88211-0960 — 3b. Phone No (include area code): (575)748-1288	9 API Well No. 30-015-40305
4. Location of Well (Report location clearly and in accordance with any State requirements*) At surface 330 FSL & 660 FWL; At proposed prod. zone 355 FNL & 660 FWL	10 Field and Pool, or Exploratory: ~~Wildcat; Yeso~~ Indian Basin; Yeso, So. <33690>
	11. Sec, T. R M. or Blk and Survey or Area: Sec. 3 T23S R23E
14 Distance in miles and direction from nearest town or post office*: 23 miles SW of Carlsbad, NM	12 County or Parish: Eddy — 13. State: NM

15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drlg unit line, if any)	16 No. of acres in lease	17 Spacing Unit dedicated to this well
330 ft	1520	160

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft	19. Proposed Depth	20. BLM/BIA Bond No on file
N/A	2297' TVD Pilot Hole 4000' 6705' MD	NMB000286

21 Elevations (Show whether DF, KDB, RT, GL, etc)	22 Approximate date work will start*	23 Estimated duration
4148' GR	5/12/2012	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
2. A Drilling Plan
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)
4 Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5 Operator certification
6. Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature: Jerry W. Sherrell	Name (Printed/Typed): Jerry W. Sherrell	Date: 4-24-2012
Title: Production Clerk		
Approved by (Signature): /s/ Don Peterson	Name (Printed/Typed)	Date: MAY 1 3 2012
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)

Carlsbad Controlled Water Basin

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-40305	33690	INDIAN BASIN; U/50 Wildcat; U/50

Property Code	Property Name	Well Number
39233	KNIGHT FEDERAL COM	1H

OGRID No.	Operator Name	Elevation
013837	MACK ENERGY CORPORATION	4148'

Surface Location

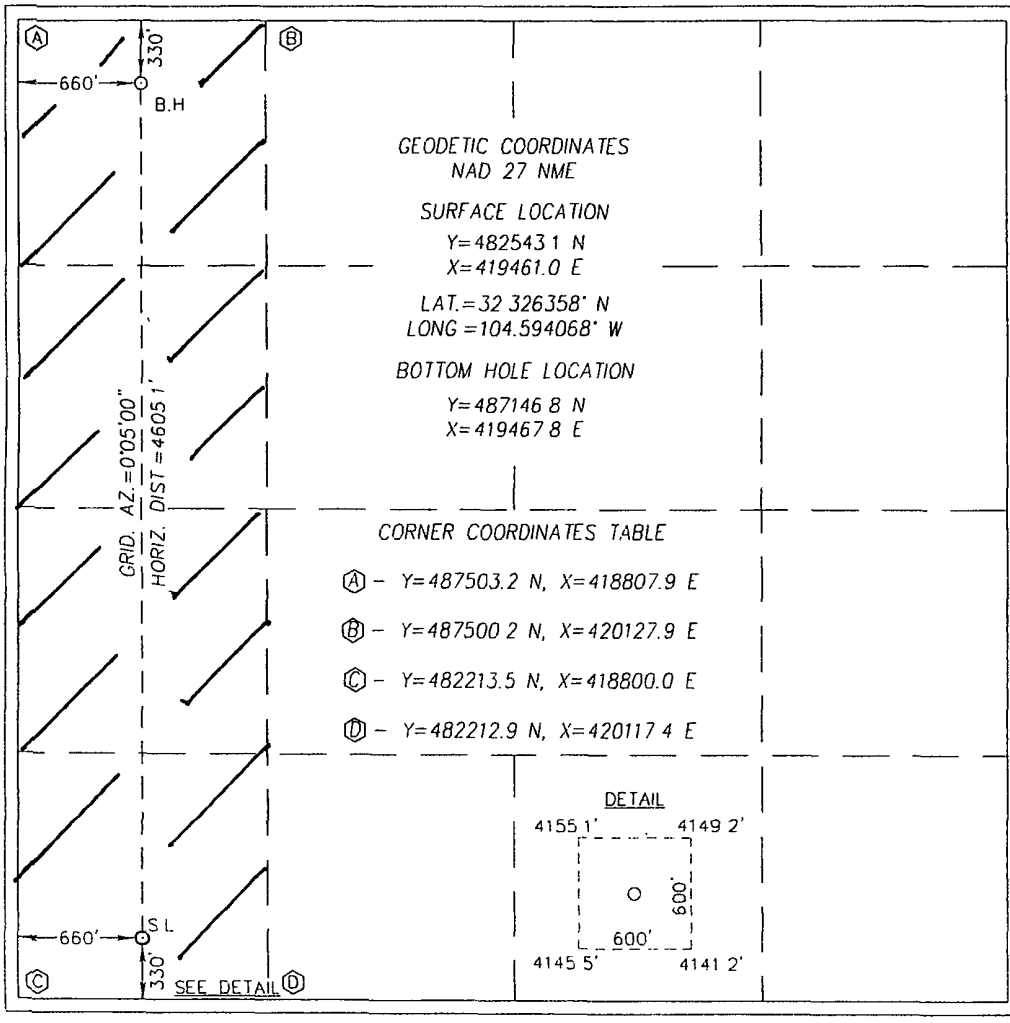
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	3	23-S	23-E		330	SOUTH	660	WEST	EDDY

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
D	3	23-S	23-E		355	NORTH	660	WEST	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



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.

Jerry W. Sherrell 4-9-2012
Signature Date

Jerry W. Sherrell
Printed Name

jerrys@mec.com
E-mail Address

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.

FEBRUARY 9, 2012

Date of Survey

Signature & Seal of Professional Surveyor:

RONALD J. EIDSON NEW MEXICO 3239 REGISTERED PROFESSIONAL SURVEYOR

Ronald J. Eidson 02/27/2012

Certificate Number Gary G. Eidson 12641
Ronald J. Eidson 3239

AF JWSC W.O.: 12 11.0162

Attached to Form 3160-3
Mack Energy Corporation
Knight Federal Com #1
SL 330 FSL & 660 FWL, Unit M, Sec. 3 T23S R23E
BL 355 FNL & 660 FWL, Unit D, Sec. 3 T23S R23E
Eddy County, NM

DRILLING PROGRAM

1. **Geologic Name of Surface Formation**

   Quaternary

2. **Estimated Tops of Important Geologic Markers:**

Grayburg:	Surface	Wolfcamp	7300'
San Andres:	650'		
Glorieta:	2100'		
Bone Spring	2950		

3. **Estimated Depths of Anticipated Fresh Water, Oil and Gas:**

Water Sand	150'	Fresh Water
San Andres	650'	Oil/Gas
Glorieta	2100'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 375' and circulating cement back to surface will protect the surface fresh water sand. Cave/Karst Section will be protected by setting 9 5/8" casing to ~~1400'~~ and zones above producing interval will be protected by setting 5 1/2" casing from 6705-surface MD and circulating cement back to surface.

4. **Casing Program:**

Hole Size	Interval	OD Casing	Wt, Grade, Jt, cond, collapse/burst/tension
See COA 17 ½"	0-~~375~~'	13 3/8"	48#, H-40, ST&C, New, 4.21/3.33/3.46
12 1/4"	0-~~1400~~ 1500'	9 5/8"	36#, J-55, ST&C, New, 2.89/6.65/7.04
8 3/4"	0-6705'	5 1/2"	17#, HCP-110,LT&C, New, 5.88/3.26/3.44

5. **Cement Program:**

13 3/8" Surface Casing: 375sx Class C, 2% PF1, .125#sx PF130, 100% excess. yld - 1.33

See COA 9 5/8" Intermediate Casing: Lead 200sx Class C 4% PF20, .2% PF1, .125#/sx PF130, 100% excess 1.97yld, tail 425sx Class C 4% PF20, .2% PF1, .125#/sx PF130, excess 100% 1.33yld. Note: If lost circulation zone is encountered. A packer stage tool will be set 50' above lost zone and calculate cement with 100% excess to circulate to surface. use Tail for 1st stage and lead for 2nd stage (DV tool at approx. 5201') 3860 (140' min.)

See COA Pilot Hole: Drilled to 4,000' Cement set from 4000-~~3900~~' w/ 35sx Class H, excess 35%, ~~2.18~~ 1.18yld. KOP from 2880-2380' w/490sx Class H .4% PF65, .4% PF13, excess 35%, .96yld.

5 ½" Production Casing: Lead 375sx POZ/C + 5%PF44(BWOW) + 6%PF20 + 1.5% PF112 + .125#/Sk. PF130 + 2#/Sk.PF42 + 2%PF46 + .2%PF13, excess 35% 1.95yld, tail 1225sx PVL + .2%167 + .2% PF65 + .2%PF46 + .2%PF13, excess 35% 1.47yld

Per Jerry Sherrell 5/14/12 CRW.

6. Minimum Specifications for Pressure Control:

The blowout preventer equipment (BOP) shown in Exhibit #9 will consist of a double ram-type (3000 psi WP) minimum preventer with annular. This unit will be hydraulically operated and the ram type preventer will be equipped with blind rams on top of 4 1/2" drill pipe rams on bottom. The 13 3/8" inch BOP will be nippled up on the 13 3/8" surface casing and tested by a 3rd party to 2000 psi. All BOP's and accessory equipment will be tested to 2000 psi before drilling out of intermediate casing. Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment (Exhibit #10) will include a Kelly cock and floor safety valve and choke lines and choke manifold (Exhibit #11) with a minimum 3000 psi WP rating.

7. Types and Characteristics of the Proposed Mud System:

The well will be drilled to TD with a combination of brine and cut brine mud system. The applicable depths and properties of this system are as follows:

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-1400'/1500'	Fresh Water	8.5	28	N.C.
1400'-TD	Cut Brine	9.1	29	N.C.

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the well site at all times.

8. Auxiliary Well Control and Monitoring Equipment:

A. Kelly cock will be kept in the drill string at all times.
B. A full opening drill pipe-stabbing valve with proper drill pipe connections will be on the rig floor at all times.

9. Logging, Testing and Coring Program: See COA

A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log from Pilot hole T.D. to 9 5/8 casing shoe.
B. Drill Stem test is not anticipated.
C. No conventional coring is anticipated.
D. Further testing procedures will be determined at TD.

10. Abnormal Conditions, Pressures, Temperatures and Potential Hazards:

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 2250 psig. Low levels of Hydrogen sulfide have been monitors in producing wells in the area, so H2S may be present while drilling of the well; a plan is attached to the Drilling program. No major loss of circulation zones has been reported in offsetting wells. If H2S is encountered in quantities under 10ppm fans will be

place in the substructure, rig floor area of drilling rig to prevent accumulation of gas. If higher levels of H2S are detected the well will be shut in and a gas separator installed with a flare line.

11. Anticipated Starting Date and Duration of Operations:

Road and location work will not begin until approval has been received from the BLM. The anticipated spud date is May 13, 2012. Once commenced, the drilling operation should be finished in approximately 30 days. If the well is productive, an additional 30 days will be required for completion and testing before a decision is made to install permanent facilities.

1. Well Site Layout:

A. The drill pad layout, with elevations staked by John West Engineering, is shown in Exhibit #6. Dimensions of the pad are shown. Topsoil, if available, will be stockpiled per BLM specifications. Because the pad is almost level no major cuts will be required.

B. Diagram below shows the proposed orientation of the location. No permanent living facilities are planned, but a temporary foreman/toolpusher's trailer will be on location during the drilling operations.

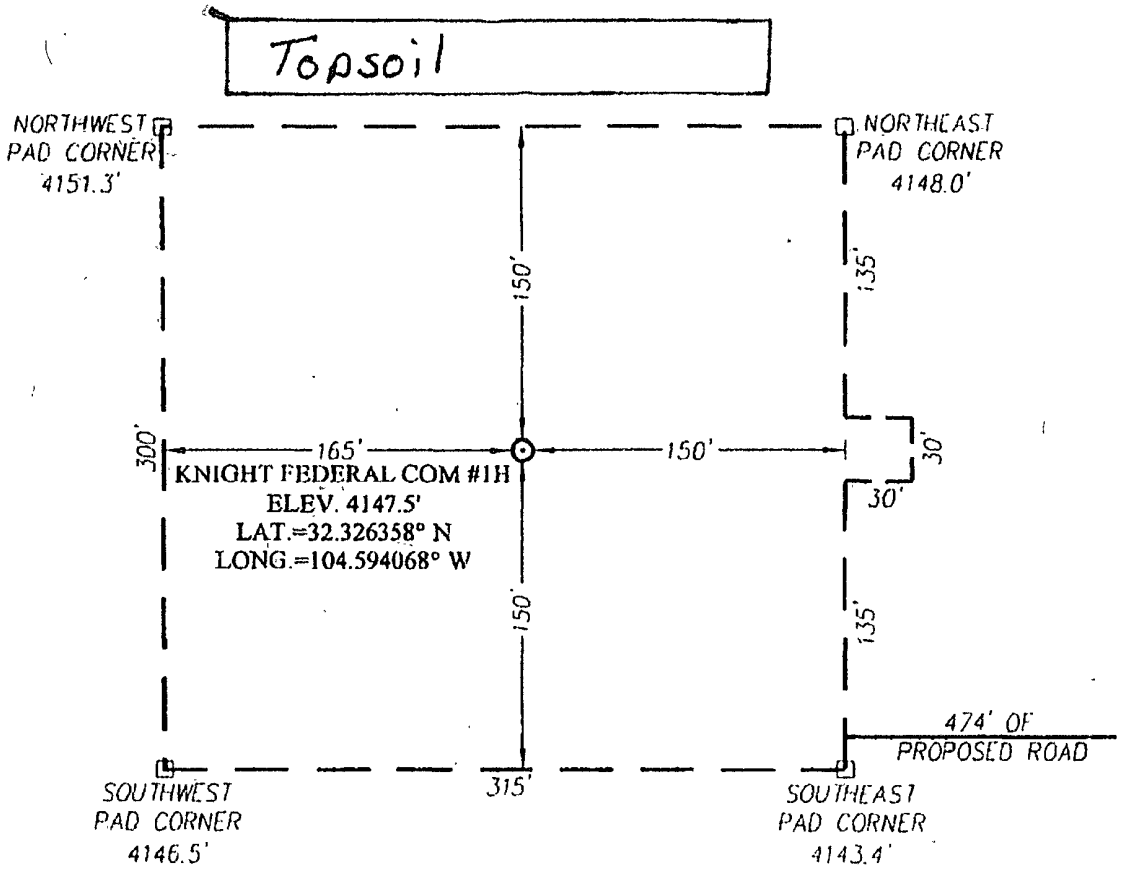
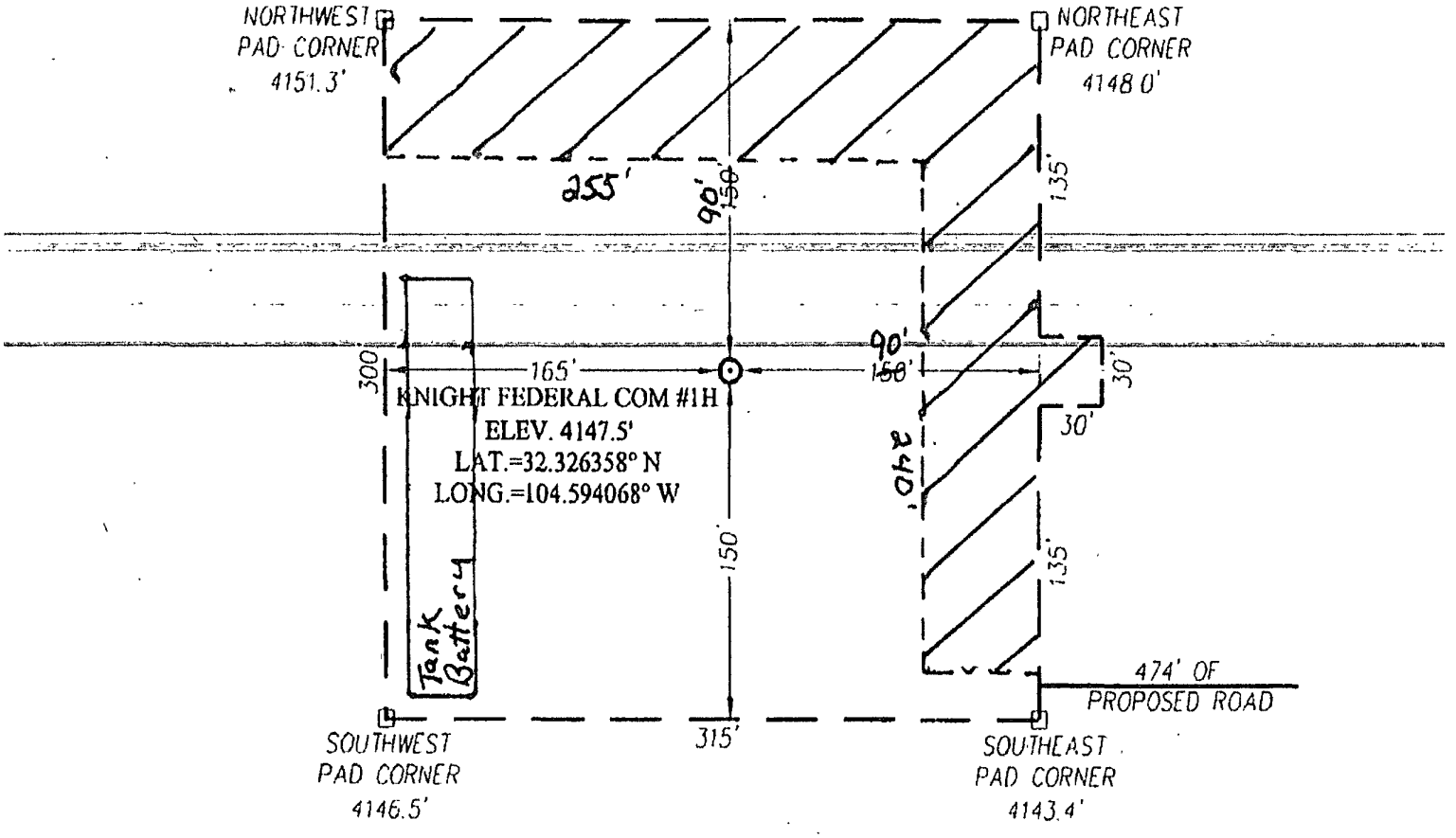


Exhibit #6

Attached to Form 3160-3
Mack Energy Corporation
Knight Federal Com #1
SL 330 FSL & 660 FWL, Unit M, Sec. 3 T23S R23E
BL 355 FNL & 660 FWL, Unit D, Sec. 3 T23S R23E
Eddy County, NM

C. Diagram below show the proposed downsized well site after Interim Reclamation. Dimensions are estimates on present conditions and are subject to change.



Mack Energy Corp

Eddy County
Knight Federal Com #1H
#1H
Federal Com #1

Plan: Plan #1

MEC Survey Report

05 April, 2012

MEC

MEC Survey Report

Company:	Mack Energy Corp	Local Co-ordinate Reference:	Site Knight Federal Com #1H
Project:	Eddy County	TVD Reference:	WELL @ 4165.5usft (Original Well Elev)
Site:	Knight Federal Com #1H	MD Reference:	WELL @ 4165.5usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	Federal Com #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Single User Db

Project Eddy County

Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site Knight Federal Com #1H

Site Position:		Northing:	482,543.10 usft	Latitude:	32° 19' 34.888 N
From:	Map	Easting:	419,461.00 usft	Longitude:	104° 35' 38.646 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.14 °

Well #1H

Well Position	+N/-S	0.0 usft	Northing:	482,543.10 usft	Latitude:	32° 19' 34.888 N
	+E/-W	0.0 usft	Easting:	419,461.00 usft	Longitude:	104° 35' 38.646 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	4,148.0 usft

Wellbore Federal Com #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	4/5/2012	7.95	60.11	48,518

Design Plan #1

Audit Notes:

Version:		Phase:	PROTOTYPE	Tie On Depth:	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	0.08

Survey Tool Program Date 4/5/2012

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	6,705.4	Plan #1 (Federal Com #1)		

Company:	Mack Energy Corp	Local Co-ordinate Reference:	Site Knight Federal Com #1H
Project:	Eddy County	TVD Reference:	WELL @ 4165.5usft (Original Well Elev)
Site:	Knight Federal Com #1H	MD Reference:	WELL @ 4165.5usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	Federal Com #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
1,300.0	0.00	0 00	1,300.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
1,850.0	0.00	0.00	1,850.0	0.0	0.0	0.0	0.00	482,543.10	419,461.00
1,875.0	3.25	0.08	1,875.0	0.7	0.0	0.7	13.00	482,543.81	419,461.00
1,900.0	6.50	0.08	1,899.9	2.8	0.0	2.8	13.00	482,545.93	419,461.00
1,925.0	9.75	0.08	1,924.6	6.4	0.0	6.4	13.00	482,549.47	419,461.01
1,950.0	13.00	0.08	1,949.1	11.3	0.0	11.3	13.00	482,554.40	419,461.02
1,975.0	16.25	0.08	1,973.3	17.6	0.0	17.6	13.00	482,560.71	419,461.02
2,000.0	19.50	0.08	1,997.1	25.3	0.0	25.3	13.00	482,568.38	419,461.04
2,025.0	22.75	0.08	2,020.4	34.3	0.0	34.3	13.00	482,577.39	419,461.05

Company:	Mack Energy Corp	**Local Co-ordinate Reference:**	Site Knight Federal Com #1H
Project:	Eddy County	**TVD Reference:**	WELL @ 4165.5usft (Original Well Elev)
Site:	Knight Federal Com #1H	**MD Reference:**	WELL @ 4165.5usft (Original Well Elev)
Well:	#1H	**North Reference:**	Grid
Wellbore:	Federal Com #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
2,050.0	26.00	0.08	2,043.2	44.6	0.1	44.6	13.00	482,587.71	419,461.06
2,075.0	29.25	0.08	2,065.4	56.2	0.1	56.2	13.00	482,599.30	419,461.08
2,100.0	32.50	0.08	2,086.8	69.0	0.1	69.0	13.00	482,612.12	419,461.10
2,125.0	35.75	0.08	2,107.5	83.0	0.1	83.0	13.00	482,626.15	419,461.12
2,150.0	39.00	0.08	2,127.4	98.2	0.1	98.2	13.00	482,641.32	419,461.14
2,175.0	42.25	0.08	2,146.3	114.5	0.2	114.5	13.00	482,657.60	419,461.16
2,200.0	45.50	0.08	2,164.4	131.8	0.2	131.8	13.00	482,674.92	419,461.18
2,225.0	48.75	0.08	2,181.4	150.1	0.2	150.1	13.00	482,693.24	419,461.21
2,250.0	52.00	0.08	2,197.3	169.4	0.2	169.4	13.00	482,712.49	419,461.24
2,275.0	55.25	0.08	2,212.1	189.5	0.3	189.5	13.00	482,732.62	419,461.26
2,300.0	58.50	0.08	2,225.8	210.5	0.3	210.5	13.00	482,753.55	419,461.29
2,325.0	61.75	0.08	2,238.2	232.1	0.3	232.1	13.00	482,775.23	419,461.32
2,350.0	65.00	0.08	2,249.4	254.5	0.4	254.5	13.00	482,797.57	419,461.36
2,375.0	68.25	0.08	2,259.4	277.4	0.4	277.4	13.00	482,820.52	419,461.39
2,400.0	71.50	0.08	2,268.0	300.9	0.4	300.9	13.00	482,843.99	419,461.42
2,425.0	74.75	0.08	2,275.2	324.8	0.5	324.8	13.00	482,867.91	419,461.45
2,450.0	78.00	0.08	2,281.1	349.1	0.5	349.1	13.00	482,892.20	419,461.49
2,475.0	81.25	0.08	2,285.6	373.7	0.5	373.7	13.00	482,916.79	419,461.52
2,500.0	84.50	0.08	2,288.7	398.5	0.6	398.5	13.00	482,941.59	419,461.56
2,525.0	87.75	0.08	2,290.4	423.4	0.6	423.4	13.00	482,966.53	419,461.59
2,530.9	88.52	0.08	2,290.6	429.3	0.6	429.3	13.00	482,972.45	419,461.60
2,600.0	88.52	0.08	2,292.4	498.4	0.7	498.4	0.00	483,041.51	419,461.70
2,701.6	88.52	0.08	2,295.0	600.0	0.8	600.0	0.00	483,143.10	419,461.84
2,800.0	89.19	0.08	2,297.0	698.4	1.0	698.4	0.68	483,241.45	419,461.98
2,900.0	89.88	0.08	2,297.8	798.3	1.1	798.3	0.68	483,341.45	419,462.12
2,962.0	90.30	0.09	2,297.7	860.4	1.2	860.4	0.68	483,403.46	419,462.21
3,000.0	90.30	0.09	2,297.5	898.3	1.3	898.3	0.00	483,441.45	419,462.27

Company:	Mack Energy Corp	**Local Co-ordinate Reference:**	Site Knight Federal Com #1H
Project:	Eddy County	**TVD Reference:**	WELL @ 4165.5usft (Original Well Elev)
Site:	Knight Federal Com #1H	**MD Reference:**	WELL @ 4165.5usft (Original Well Elev)
Well:	#1H	**North Reference:**	Grid
Wellbore:	Federal Com #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
3,100.0	90.30	0.09	2,297.0	998.3	1.4	998.3	0.00	483,541.45	419,462.42
3,200.0	90.30	0.09	2,296.4	1,098.3	1.6	1,098.3	0.00	483,641.44	419,462.57
3,300.0	90.30	0.09	2,295.9	1,198.3	1.7	1,198.3	0.00	483,741.44	419,462.72
3,400.0	90.30	0.09	2,295.4	1,298.3	1.9	1,298.3	0.00	483,841.44	419,462.87
3,500.0	90.30	0.09	2,294.9	1,398.3	2.0	1,398.3	0.00	483,941.44	419,463.02
3,600.0	90.30	0.09	2,294.3	1,498.3	2.2	1,498.3	0.00	484,041.44	419,463.17
3,700.0	90.30	0.09	2,293.8	1,598.3	2.3	1,598.3	0.00	484,141.44	419,463.32
3,800.0	90.30	0.09	2,293.3	1,698.3	2.5	1,698.3	0.00	484,241.44	419,463.46
3,900.0	90.30	0.09	2,292.7	1,798.3	2.6	1,798.3	0.00	484,341.43	419,463.61
4,000.0	90.30	0.09	2,292.2	1,898.3	2.8	1,898.3	0.00	484,441.43	419,463.76
4,100.0	90.30	0.09	2,291.7	1,998.3	2.9	1,998.3	0.00	484,541.43	419,463.91
4,200.0	90.30	0.09	2,291.2	2,098.3	3.1	2,098.3	0.00	484,641.43	419,464.06
4,300.0	90.30	0.09	2,290.6	2,198.3	3.2	2,198.3	0.00	484,741.43	419,464.21
4,400.0	90.30	0.09	2,290.1	2,298.3	3.4	2,298.3	0.00	484,841.43	419,464.36
4,500.0	90.30	0.09	2,289.6	2,398.3	3.5	2,398.3	0.00	484,941.43	419,464.51
4,600.0	90.30	0.09	2,289.1	2,498.3	3.7	2,498.3	0.00	485,041.42	419,464.66
4,700.0	90.30	0.09	2,288.5	2,598.3	3.8	2,598.3	0.00	485,141.42	419,464.81
4,800.0	90.30	0.09	2,288.0	2,698.3	4.0	2,698.3	0.00	485,241.42	419,464.96
4,900.0	90.30	0.09	2,287.5	2,798.3	4.1	2,798.3	0.00	485,341.42	419,465.11
5,000.0	90.30	0.09	2,287.0	2,898.3	4.3	2,898.3	0.00	485,441.42	419,465.26
5,100.0	90.30	0.09	2,286.4	2,998.3	4.4	2,998.3	0.00	485,541.42	419,465.40
5,200.0	90.30	0.09	2,285.9	3,098.3	4.6	3,098.3	0.00	485,641.41	419,465.55
5,300.0	90.30	0.09	2,285.4	3,198.3	4.7	3,198.3	0.00	485,741.41	419,465.70
5,400.0	90.30	0.09	2,284.9	3,298.3	4.9	3,298.3	0.00	485,841.41	419,465.85
5,500.0	90.30	0.09	2,284.3	3,398.3	5.0	3,398.3	0.00	485,941.41	419,466.00
5,600.0	90.30	0.09	2,283.8	3,498.3	5.2	3,498.3	0.00	486,041.41	419,466.15
5,700.0	90.30	0.09	2,283.3	3,598.3	5.3	3,598.3	0.00	486,141.41	419,466.30

Company:	Mack Energy Corp	**Local Co-ordinate Reference:**	Site Knight Federal Com #1H
Project:	Eddy County	**TVD Reference:**	WELL @ 4165.5usft (Original Well Elev)
Site:	Knight Federal Com #1H	**MD Reference:**	WELL @ 4165.5usft (Original Well Elev)
Well:	#1H	**North Reference:**	Grid
Wellbore:	Federal Com #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	EDM 5000.1 Single User Db

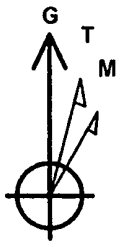
Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
5,800.0	90.30	0.09	2,282.8	3,698.3	5.4	3,698.3	0.00	486,241.41	419,466.45
5,900.0	90.30	0.09	2,282.2	3,798.3	5.6	3,798.3	0.00	486,341.40	419,466.60
6,000.0	90.30	0.09	2,281.7	3,898.3	5.7	3,898.3	0.00	486,441.40	419,466.75
6,100.0	90.30	0.09	2,281.2	3,998.3	5.9	3,998.3	0.00	486,541.40	419,466.90
6,200.0	90.30	0.09	2,280.7	4,098.3	6.0	4,098.3	0.00	486,641.40	419,467.05
6,300.0	90.30	0.09	2,280.1	4,198.3	6.2	4,198.3	0.00	486,741.40	419,467.20
6,400.0	90.30	0.09	2,279.6	4,298.3	6.3	4,298.3	0.00	486,841.40	419,467.34
6,500.0	90.30	0.09	2,279.1	4,398.3	6.5	4,398.3	0.00	486,941.40	419,467.49
6,600.0	90.30	0.09	2,278.6	4,498.3	6.6	4,498.3	0.00	487,041.39	419,467.64
6,705.4	90.30	0.09	2,278.0	4,603.7	6.8	4,603.7	0.00	487,146.80	419,467.80

Checked By: _____ Approved By: _____ Date: _____

MACK Energy Corporation

SITE DETAILS: Knight Federal Com #1H	
Site Centre Northing:	482543.10
Easting:	419461.00
Positional Uncertainity:	0.0
Convergence:	-0.14
Local North:	Grid



Azimuths to Grid No
True North: 0.14
Magnetic North: 8.09°

Magnetic Field
Strength: 48518.2snT
Dip Angle: 60.11°
Date: 4/5/2012
Model: IGRF200510

SECTION DETAILS

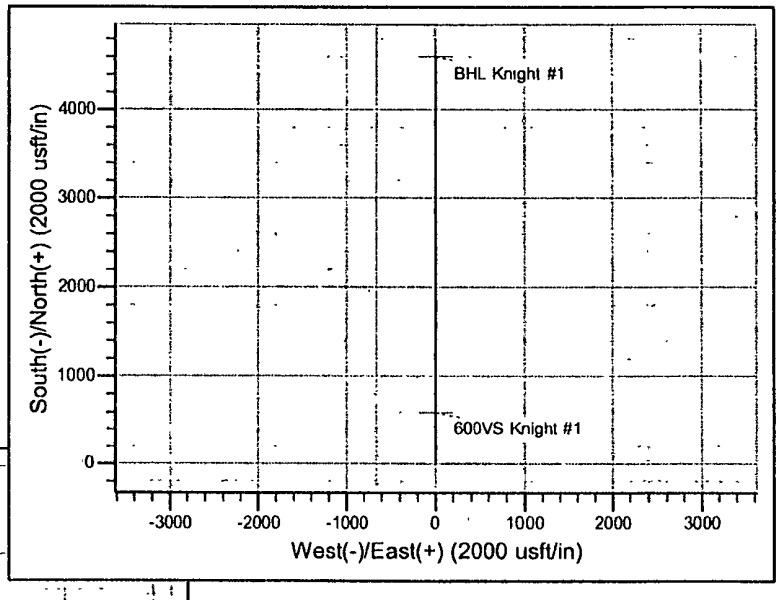
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1850.0	0.00	0.00	1850.0	0.0	0.0	0.00	0.00	0.0	
3	2530.9	88.52	0.08	2290.6	429.3	0.6	13.00	0.08	429.3	
4	2701.6	88.52	0.08	2295.0	600.0	0.8	0.00	0.00	600.0	600VS Knight #1
5	2962.0	90.30	0.09	2297.7	860.4	1.2	0.68	0.18	860.4	
6	6705.4	90.30	0.09	2278.0	4603.7	6.8	0.00	0.00	4603.7	BHL Knight #1

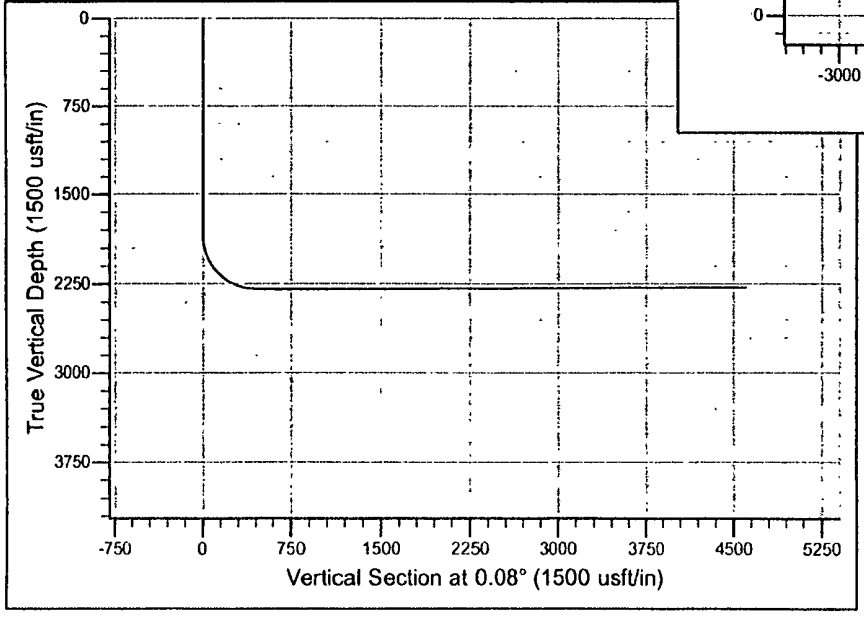
PROJECT DETAILS: Eddy County

Geodetic System:	US State Plane 1927 (Exac
Datum:	NAD 1927 (NADCON CON
Ellipsoid:	Clarke 1866
Zone:	New Mexico East 3001
System Datum:	Mean Sea Level

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
BHL Knight #1 - plan hits target center	2278.0	4603.7	6.8	487146.80	419467.80	32° 20' 20.447 N	104° 35' 38.697 W	Point
600VS Knight #1 - plan hits target center	2295.0	600.0	0.8	483143.10	419461.80	32° 19' 40.825 N	104° 35' 38.653 W	Point





Plan: Plan #1 (#1H/Federal Com #1)

Created By: MEC Date: 14:59, April 05

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____

Attached to Form 3160-3
Mack Energy Corporation
Knight Federal Com #1
SL 330 FSL & 660 FWL, Unit M, Sec. 3 T23S R23E
BL 355 FNL & 660 FWL, Unit D, Sec. 3 T23S R23E
Eddy County, NM

Attachment to Exhibit #9
NOTES REGARDING THE BLOWOUT PREVENTERS
Knight Federal Com #1
Eddy County, New Mexico

1. Drilling nipple to be so constructed that it can be removed without use of a welder through rotary table opening, with minimum I.D. equal to preventer bore.

2. Wear ring to be properly installed in head.

3. Blow out preventer and all fittings must be in good condition, 2000 psi WP minimum.

4. All fittings to be flanged.

5. Safety valve must be available on rig floor at all times with proper connections, valve to be full 2000 psi WP minimum.

6. All choke and fill lines to be securely anchored especially ends of choke lines.

7. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.

8. Kelly cock on Kelly.

9. Extension wrenches and hands wheels to be properly installed.

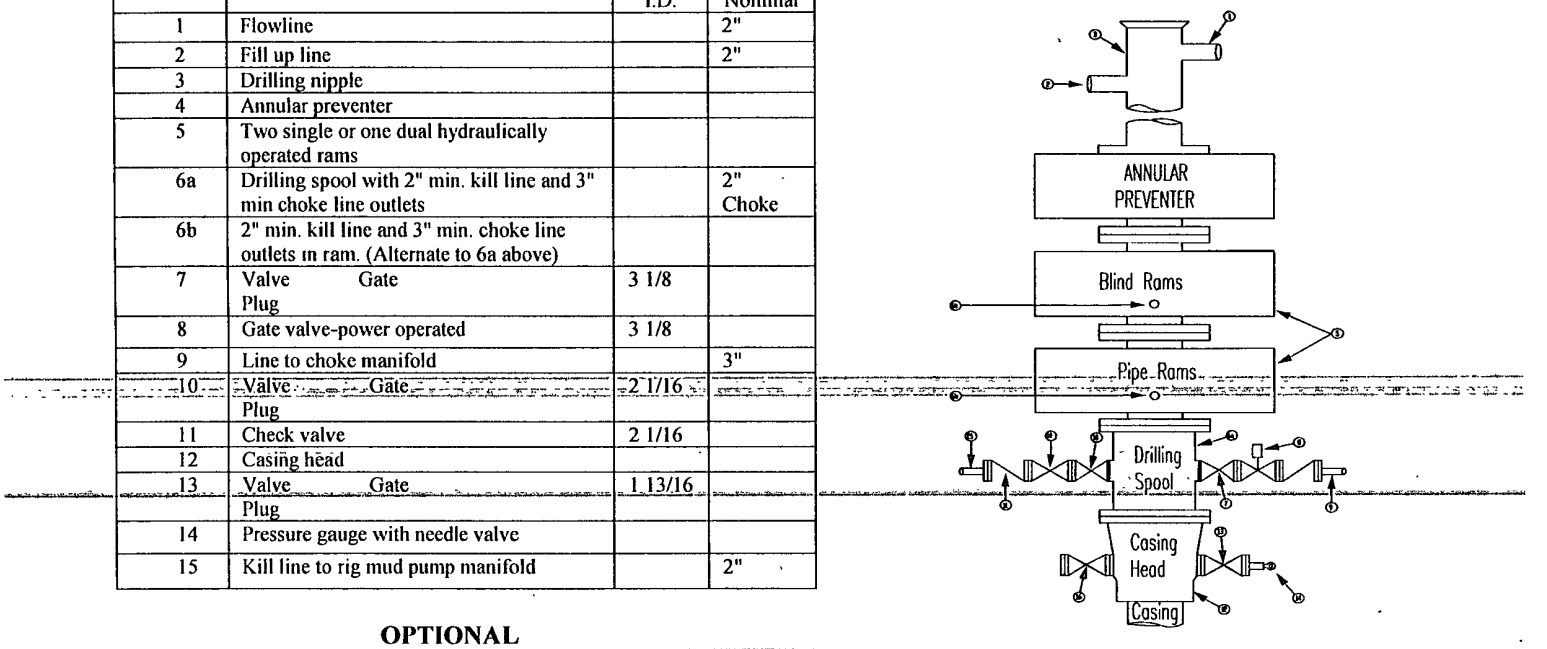
10. Blow out preventer control to be located as close to driller's position as feasible.

11. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation all API specifications.

Mack Energy Corporation
Minimum Blowout Preventer Requirements
3000 psi Working Pressure
11 Inch-3 MWP
EXHIBIT #10

Stack Requirements

NO.	Items	Min. I.D.	Min. Nominal
1	Flowline		2"
2	Fill up line		2"
3	Drilling nipple		
4	Annular preventer		
5	Two single or one dual hydraulically operated rams		
6a	Drilling spool with 2" min. kill line and 3" min choke line outlets		2" Choke
6b	2" min. kill line and 3" min. choke line outlets in ram. (Alternate to 6a above)		
7	Valve Gate Plug	3 1/8	
8	Gate valve-power operated	3 1/8	
9	Line to choke manifold		3"
10	Valve Gate	2 1/16	
	Plug		
11	Check valve	2 1/16	
12	Casing head		
13	Valve Gate	1 13/16	
	Plug		
14	Pressure gauge with needle valve		
15	Kill line to rig mud pump manifold		2"



OPTIONAL

16	Flanged Valve	1 13/16	

CONTRACTOR'S OPTION TO FURNISH:

1. All equipment and connections above bradenhead or casinghead. Working pressure of preventers to be 2000 psi minimum.
2. Automatic accumulator (80 gallons, minimum) capable of closing BOP in 30 seconds or less and, holding them closed against full rated working pressure.
3. BOP controls, to be located near drillers' position.
4. Kelly equipped with Kelly cock
5. Inside blowout preventer or its equivalent on derrick floor at all times with proper threads to fit pipe being used.
6. Kelly saver-sub equipped with rubber casing protector at all times.
7. Plug type blowout preventer tester.
8. Extra set pipe rams to fit drill pipe in use on location at all times
9. Type RX ring gaskets in place of Type R
10. ME

MEC TO FURNISH:

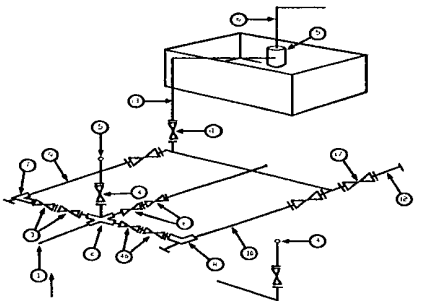
1. Bradenhead or casing head and side valves
2. Wear bushing. If required.

GENERAL NOTES:

1. Deviations from this drawing may be made only with the express permission of MEC's Drilling Manager.
2. All connections, valves, fittings, piping, etc., subject to well or pump pressure must be flanged (suitable clamp connections acceptable) and have minimum working pressure equal to rated working pressure of preventers up through choke valves must be full opening and suitable for high pressure mud service
3. Controls to be of standard design and each marked, showing opening and closing position
4. Chokes will be positioned so as not to hamper or delay changing of choke beans. Replaceable parts for adjustable choke, or bean sizes, retainers, and choke wrenches to be conveniently located for immediate use.
5. All valves to be equipped with hand-wheels or handles ready for immediate use.
6. Choke lines must be suitably anchored.
7. Handwheels and extensions to be connected and ready for use.
8. Valves adjacent to drilling spool to be kept open Use outside valves except for emergency.
9. All seamless steel control piping (2000 psi working pressure) to have flexible joints to avoid stress. Hoses will be permitted.
10. Casinghead connections shall not be used except in case of emergency.
11. Does not use kill line for routine fill up operations.

Mack Energy Corporation

Exhibit #11
MIMIMUM CHOKE MANIFOLD
3,000, 5,000, and 10,000 PSI Working Pressure
3M will be used
3 MWP - 5 MWP - 10 MWP



Mud Pit

Reserve Pit

*** Location of separator optional**

Below Substructure

Mimimum requirements

		3,000 MWP			5,000 MWP			10,000 MWP		
No.		I.D.	Nominal	Rating	I.D.	Nominal	Rating	I.D.	Nominal	Rating
1	Line from drilling Spool		3"	3,000		3"	5,000		3"	10,000
2	Cross 3" x 3" x 3" x 2"			3,000			5,000			
2	"Cross 3"x3"x3"x2"									10,000
3	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
4	Valve Gate Plug	1 13/16		3,000	1 13/16		5,000	1 13/16		10,000
4a	Valves (1)	2 1/16		3,000	2 1/16		5,000	2 1/16		10,000
5	Pressure Gauge			3,000			5,000			10,000
6	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
7	Adjustable Choke (3)	2"		3,000	2"		5,000	2"		10,000
8	Adjustable Choke	1"		3,000	1"		5,000	2"		10,000
9	Line		3"	3,000		3"	5,000		3"	10,000
10	Line		2"	3,000		2"	5,000		2"	10,000
11	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
12	Line		3"	1,000		3"	1,000		3"	2,000
13	Line		3"	1,000		3"	1,000		3"	2,000
14	Remote reading compound Standpipe pressure quage			3,000			5,000			10,000
15	Gas Separator		2' x5'			2' x5'			2' x5'	
16	Line		4"	1,000		4"	1,000		4"	2,000
17	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000

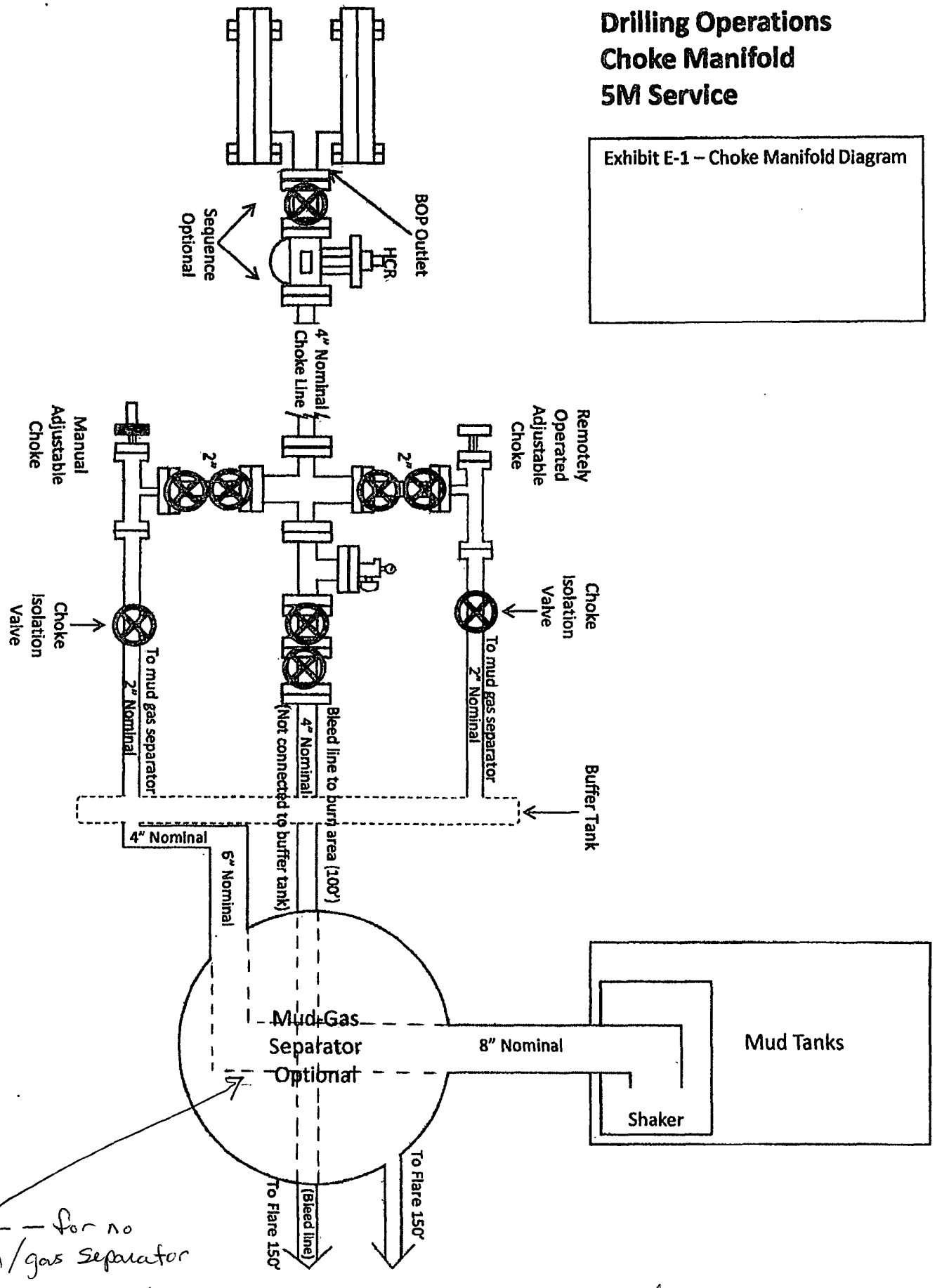
(1) Only one required in Class 3M
(2) Gate valves only shall be used for Class 10 M
(3) Remote operated hydraulic choke required on 5,000 psi and 10,000 psi for drilling.

EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTION

1. All connections in choke manifold shall be welded, studded, flanged or Cameron clamp of comparable rating
2. All flanges shall be API 6B or 6BX and ring gaskets shall be API RX or BX. Use only BX for 10 MWP.
3. All lines shall be securely anchored
4. Chokes shall be equipped with tungsten carbide seats and needles, and replacements shall be available.
5 alternate with automatic chokes, a choke manifold pressure gauge shall be located on the rig floor in conjunction with the standpipe pressure gauge.
6 Line from drilling spool to choke manifold should bee as straight as possible. Lines downstream from chokes shall make turns by large bends or 90 degree bends using bull plugged tees

Drilling Operations
Choke Manifold
5M Service

Exhibit E-1 – Choke Manifold Diagram



Chokes cannot be used if gas kick encountered - operator limited to panic line.

Attached to Form 3160-3
Mack Energy Corporation
Knight Federal Com #1
SL 330 FSL & 660 FWL, Unit M, Sec. 3 T23S R23E
BL 355 FNL & 660 FWL, Unit D, Sec. 3 T23S R23E
Eddy County, NM

Mack Energy Corporation
Onshore Order #6
Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards an characteristics of hydrogen sulfide (H2S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H2S detectors alarms warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H2S on metal components. If high tensile tubular are to be used, personnel well be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H2S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan and the Public Protection Plan. **The concentrations of H2S of wells in this area from surface to TD are low enough that a contingency plan is not required.**

II. H2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonable expected to contain H2S.

1. **Well Control Equipment:**

   A. Flare line.
   B. Choke manifold.
   C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
   D. Auxiliary equipment may include if applicable: annular preventer & rotating head.

2. **Protective equipment for essential personnel:**

   A. Mark II Survive air 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

3. **H2S detection and monitoring equipment:**

   A. 1 portable H2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 PPM are reached.

4. **Visual warning systems:**

   A. Wind direction indicators as shown on well site diagram (Exhibit #8).
   B. Caution/Danger signs (Exhibit #7) shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

5. **Mud program:**

   A. The mud program has been designed to minimize the volume of H2S circulated to surface. Proper mud weight, safe drilling practices and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.

6. **Metallurgy:**

   A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.
   B. All elastomers used for packing and seals shall be H2S trim.

7. **Communication:**

   A. Radio communications in company vehicles including cellular telephone and 2-way radio.
   B. Land line (telephone) communication at Office.

8. **Well testing:**

Attached to Form 3160-3
Mack Energy Corporation
Knight Federal Com #1
SL 330 FSL & 660 FWL, Unit M, Sec. 3 T23S R23E
BL 355 FNL & 660 FWL, Unit D, Sec. 3 T23S R23E
Eddy County, NM

A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safely and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H2S environment will use the closed chamber method of testing.

B. There will be no drill stem testing.

EXHIBIT #7

WARNING

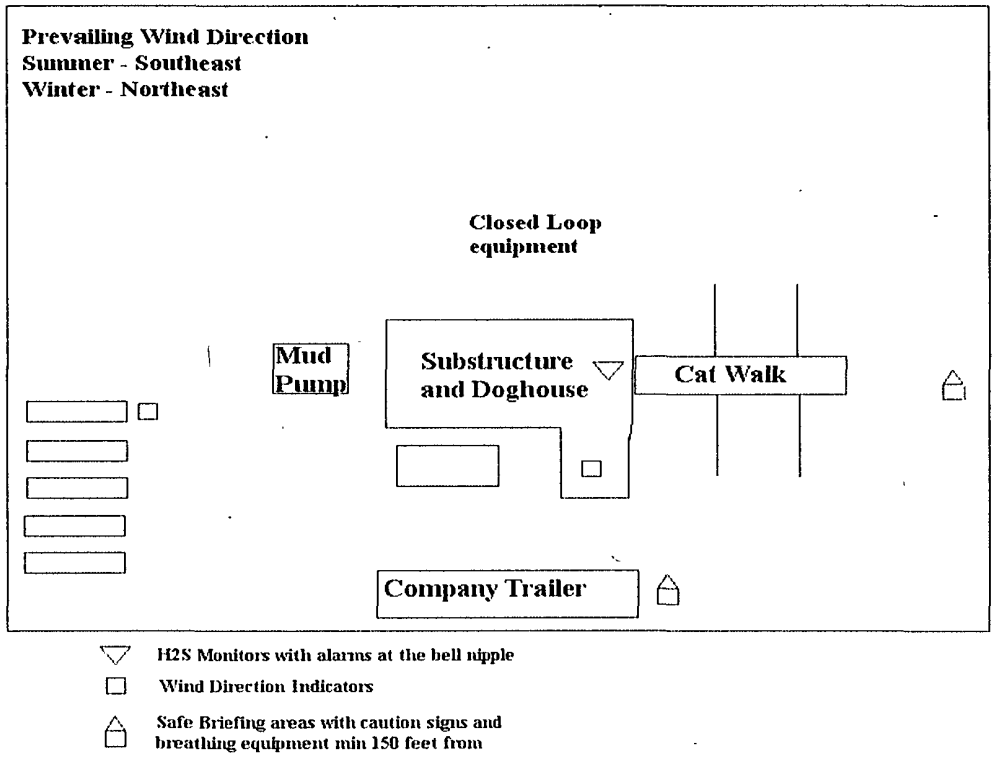
YOU ARE ENTERING AN H2S

AUTHORIZED PERSONNEL ONLY

1. BEARDS OR CONTACT LENSES NOT ALLOWED
2. HARD HATS REQUIRED
3. SMOKING IN DESIGNATED AREAS ONLY
4. BE WIND CONSCIOUS AT ALL TIMES
5. CHECK WITH MACK ENERGY FOREMAN AT OFFICE

MACK ENERGY CORPORATION

1-575-748-1288



Mack Energy Corporation Call List, Eddy County

Artesia (575)	Cellular	Office	Home
Jim Krogman	746-5515	748-1288	746-2674
Lonnie Archer	746-7889	748-1288	365-2998
Donald Archer	748-7875	748-1288	748-2287
Chris Davis	746-7132	748-1288	
Kevin Garrett	746-7423	748-1288	

Agency Call List (575)

Artesia

State Police	746-2703
City Police	746-2703
Sheriff's Office	746-9888
Ambulance	911
Fire Department	746-2701
LEPC (Local Emergency Planning Committee	746-2122
NMOCD	748-1283

Carlsbad

State Police	885-3137
City Police	885-2111
Sheriff's Office	887-7551
Ambulance	911
Fire Department	885-2111
LEPC (Local Emergency Planning Committee	887-3798
Bureau of Land Management	887-6544
New Mexico Emergency Response Commission	(505)476-9690
24 Hour	(505)827-9126
Natonal Emergency Response Center (Washington)	(800)424-8802

Emergency Services

Boots & Coots IWC	1-800-256-9688 or (281)931-8884
Cudd pressure Control	(915)699-0139 or (915)563-3356
Halliburton	746-2757
B. J. Services	746-3569
Flight For Life-Lubbock, TX	(806)743-9911
Aerocare-Lubbock, TX	(806)747-8923
Med Flight Air Amb-Albuquerque, NM	(505)842-4433
Lifeguard Air Med Svc. Albuquerque, NM	(505)272-3115

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Mack Energy Corp
LEASE NO.:	NM114947
WELL NAME & NO.:	1 Knight Federal Com
SURFACE HOLE FOOTAGE:	330' FSL & 660' FWL
BOTTOM HOLE FOOTAGE	355' FNL & 660' FWL
LOCATION:	Section 3, T.23 S., R.23 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.