ATS-08-105
EA-08-273

OCD-ARTESIA

Form 3160 -3
(April 2004)

JAN 18 2008
OCD-ARTESIA

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5 Lease Serial No: NMNM-117122

6 If Indian, Allotee or Tribe Name:

Ia. Type of work- ☒ DRILL ☐ REENTER

7 If Unit or CA Agreement, Name and No:

Ib Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone

8, Lease Name and Well No: Brantley Federal #2

2 Name of Operator: Mack Energy Corporation

9 API Well No.: 30 · 015 · 36050

3a. Address: P.O. Box 960 Artesia, NM 88211-0960

3b PhoneNo *(include area code)*: (505)748-1288

10 Field and Pool, or Exploratory: Henshaw; Wolfcamp West

4. Location of Well *(Report location clearly and in accordance with any State requirements*)*

At surface: 330 FNL & 330 FEL

At proposed prod zone: 345 FNL & 1650 FWL

11 Sec., T R. M. or Blk and Survey or Area: Sec. 7 T17S R30E

14. Distance in miles and direction from nearest town or post office*: 3 miles northwest of Loco Hills, 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	240	120

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
660	TVD - 7565' per horizontal plan - WWT ~~10,750~~ 10560' MD	NMB000286

21. Elevations (Show whether DF, KDB, RT, GL, etc)	22 Approximate date work will start*	23 Estimated duration
3683' GR	11/30/07	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	Name *(Printed/Typed)*	Date
Jerry W. Sherrell	Jerry W. Sherrell	11/12/07

Title: Production Clerk

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
/s/ Don Peterson	/s/ Don Peterson	JAN 11 2008

Title	Office
FIELD MANAGER	CARLSBAD FIELD OFFICE

Application approval does not warrantor 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 APPROVAL

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240

DISTRICT II
1301 W. GRAND AVENUE, ARTESIA, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

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

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
	30635	Henshaw; Lo... Wolfcamp, West

Property Code	Property Name	Well Number
36781	BRANTLEY FEDERAL	2

OGRID No.	Operator Name	Elevation
013837	MACK ENERGY CORPORATION	3683'

Surface Location

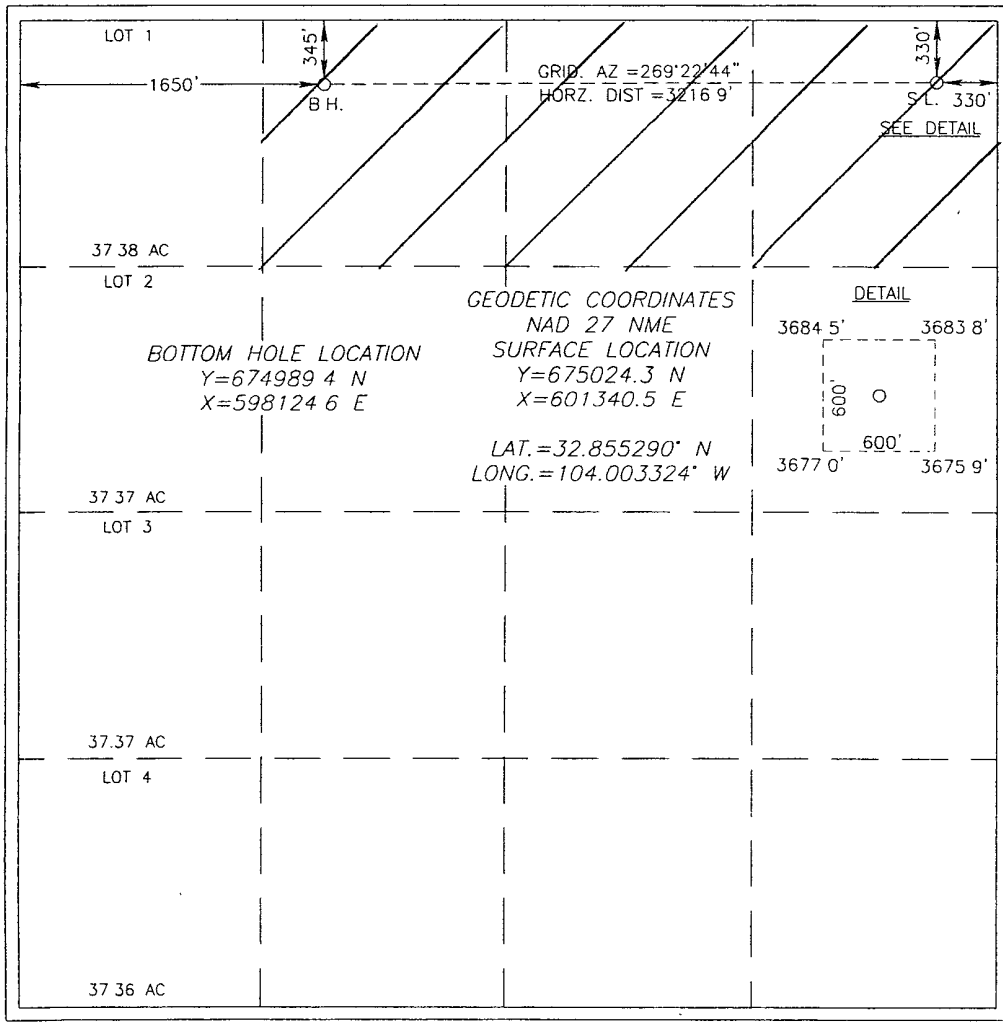
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	7	17-S	30-E		330	NORTH	330	EAST	EDDY

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
C	7	17-S	30-E		345	NORTH	1650	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
120			

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 11/12/07
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.

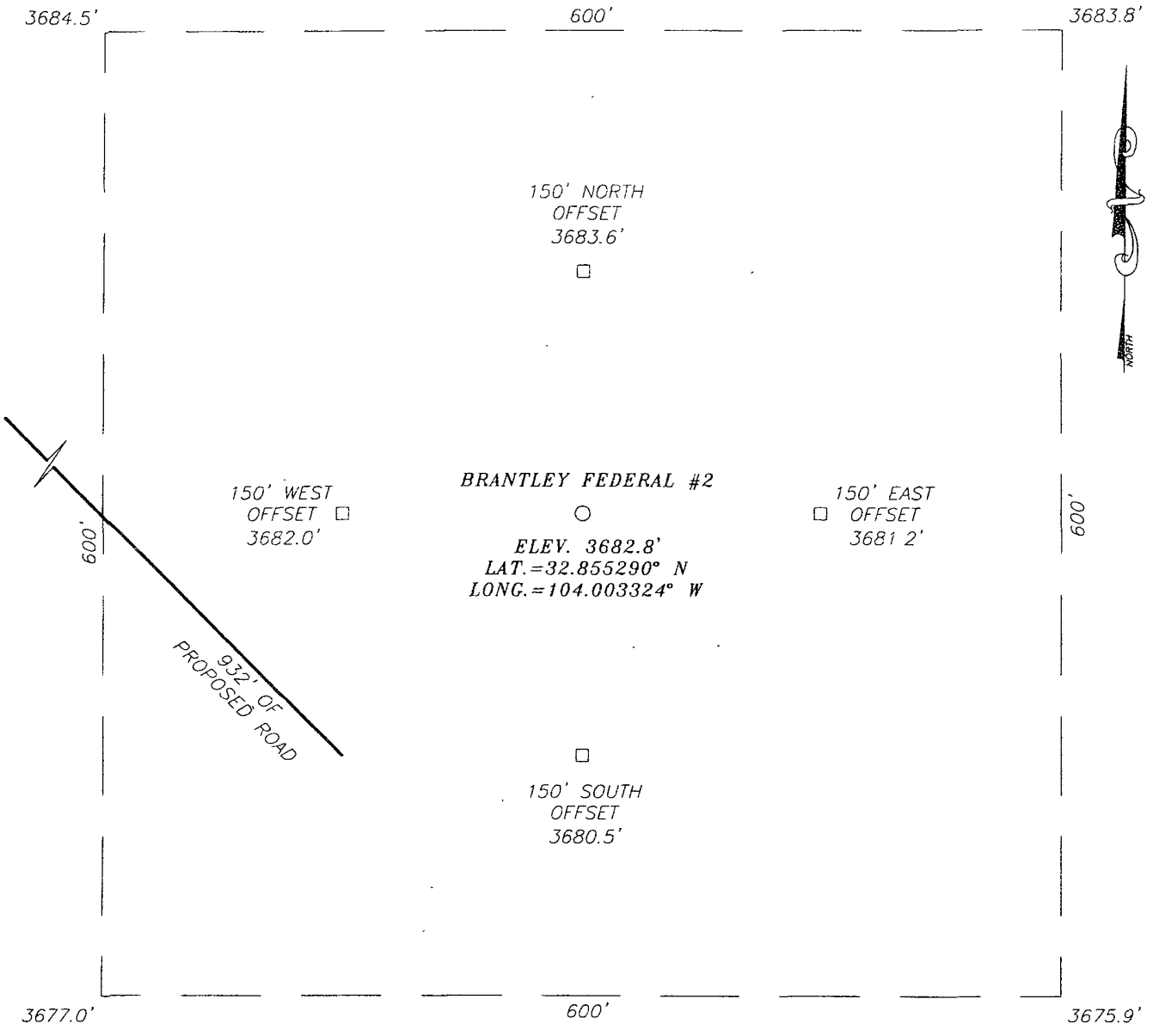
OCTOBER 4, 2007
Date Surveyed

Signature & Seal of Professional Surveyor

Certificate No. GARY EIDSON 12641
RONALD EIDSON 3239

SECTION 7, TOWNSHIP 17 SOUTH, RANGE 30 EAST, N.M.P.M.,

EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF U.S. HWY. #83 AND CO. RD. #215 (KEWANEE RD.), GO EAST ON HWY #83 APPROX 1.3 MILES. TURN LEFT AND GO NORTH APPROX. 1.6 MILES TURN RIGHT AND GO EAST APPROX. 0 8 MILES TURN LEFT AND GO NORTHWEST APPROX. 0 9 MILES THIS LOCATION IS EAST APPROX. 1150 FEET.

100 0 100 200 Feet

Scale: 1"=100'

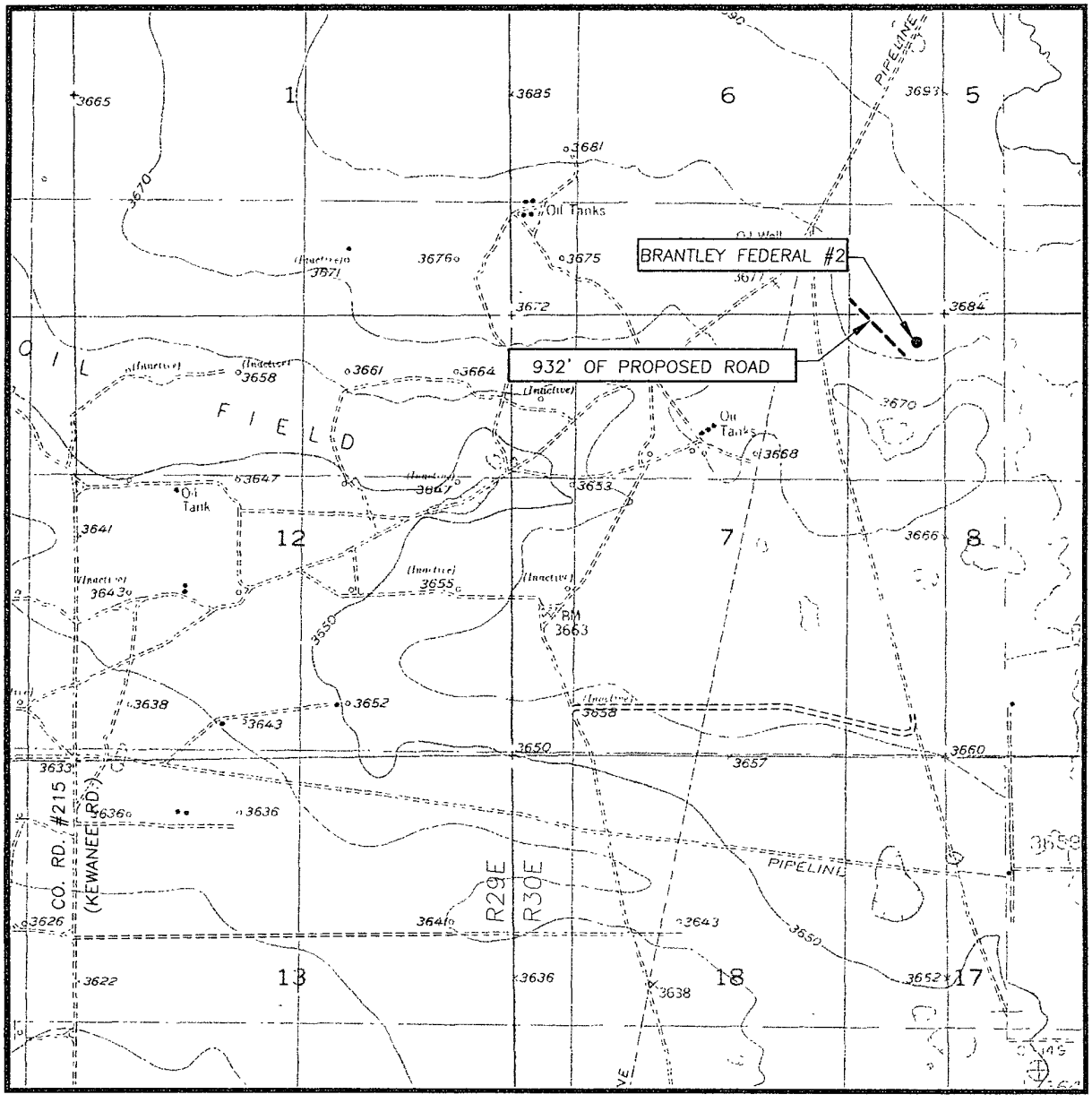
PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M 88240
(505) 393-3117

MACK ENERGY CORPORATION

BRANTLEY FEDERAL #2 WELL
LOCATED 330 FEET FROM THE NORTH LINE
AND 330 FEET FROM THE EAST LINE OF SECTION 7,
TOWNSHIP 17 SOUTH, RANGE 30 EAST, N M P.M.,
EDDY COUNTY, NEW MEXICO.

Survey Date. 10/4/07	Sheet 1 of 1 Sheets		
W O. Number. 07 11 1384	Dr By: LA	Rev 1:N/A	
Date: 10/13/07	Disk: CD#7	07111384	Scale 1"=100'

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
RED LAKE SE, N.M. – 10'
LOCO HILLS, N.M. – 10'

SEC. 7 TWP. 17-S RGE 30-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 330' FNL & 330' FEL

ELEVATION 3683'

OPERATOR MACK ENERGY CORPORATION

LEASE BRANTLEY FEDERAL

U.S.G.S. TOPOGRAPHIC MAP
RED LAKE SE, N.M.

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(505) 393-3117

Attached to Form 3160-3
Mack Energy Corporation
Brantley Federal #2
SHL 330 FNL & 330 FEL Unit A, Sec. 7 T17S R30E
BHL 345 FNL & 1650 FWL Unit C, Sec 7 T17S R30E
Eddy County, NM

DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Quaternary	Surface	Wolfcamp	7050'
San Andres	2220'		
Glorieta	3750'		
Tubb	4960'		
Abo	5730'		

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

Water Sand	150'	Fresh Water
San Andres	2220'	Oil/Gas
Abo	5730'	Oil/Gas
Wolfcamp	7050'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 425' and circulating cement back to surface will protect the surface fresh water sand. Salt Section will be protected by setting 8 5/8" casing to 1350' and circulating cement back to surface. Any shallower zones above TD, which contain commercial quantities of oil and/or gas, will have cement circulated across them by cementing 5 1/2" production casing, sufficient cement will be pumped to circulate back to surface.

4. Casing Program:

Hole Size	Interval	OD Casing	Wt, Grade, Jt, cond, burst/collapse/tension
17 ½"	0-425'	13 3/8"	48#, H-40, ST&C, New, 7.84/3.352/13.42
12 ¼"	0-1350'	8 5/8"	24#, J-55, ST&C, New, 3.28/3.044/7.27
7 7/8"	0-6200'	5 1/2"	17#, HCP-110, LT&C, New, 3.13/2.6/2.21
7 7/8"	6200-10,750'	5 1/2"	17#, HCL-80, Buttress, New, 2.27/2.521/4.14

5. Cement Program:

13 3/8" Surface Casing: Class C, 300sx, yield 1.32.

8 5/8 Intermiate Casing: Class C, 850sx, yield 1.32.

5 1/2" Production Casing: Class C, 2500sx, yield 1.32.

6. Minimum Specifications for Pressure Control:

The blowout preventer equipment (BOP) shown in Exhibit #9 will consist of a double ram-type (2000 psi WP) minimum preventer. 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 BOP will be nipped up on the 13 3/8" surface casing and tested to 1500 psi by a 3rd party. The BOP will then be nipped up on the 8 5/8" intermediate casing and tested by a 3rd party to 2000 psi and used continuously until TD is reached. 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 2000 psi WP rating.

7. Types and Characteristics of the Proposed Mud System:

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

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-425'	Fresh Water	8.5	28	N.C.
425-1350'	Brine	10	30	N.C.
1350'-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:

A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log and will be ran from T.D. to 8 5/8 casing shoe.

B. Drill Stem test is not anticipated.

C. No conventional coring is anticipated.

D. Further testing procedures will be determined after the 5 1/2" production casing has been cemented at TD based on drill shows and log evaluation.

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 3250 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.

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 November 30, 2007. 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.

Attachment to Exhibit #9
NOTES REGARDING THE BLOWOUT PREVENTERS
Brantley Federal #2
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.

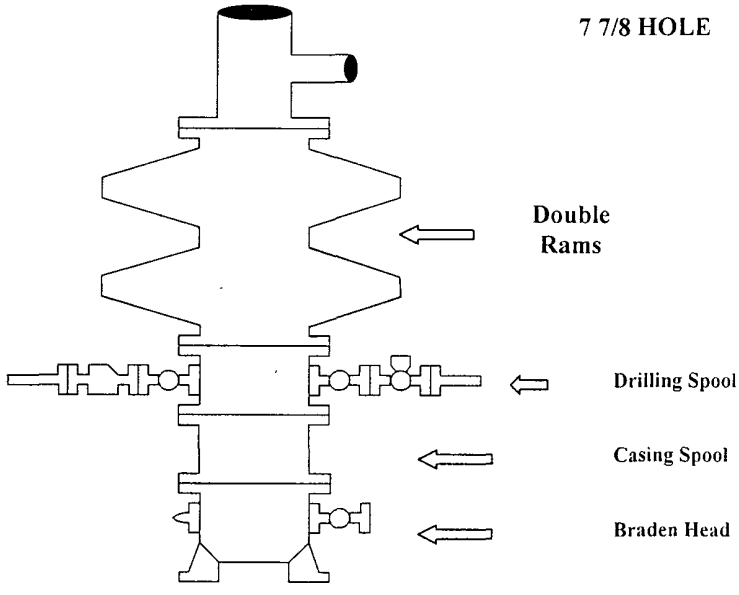
10. Blow out preventer control to be located as close to driller's position as feasible.

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.

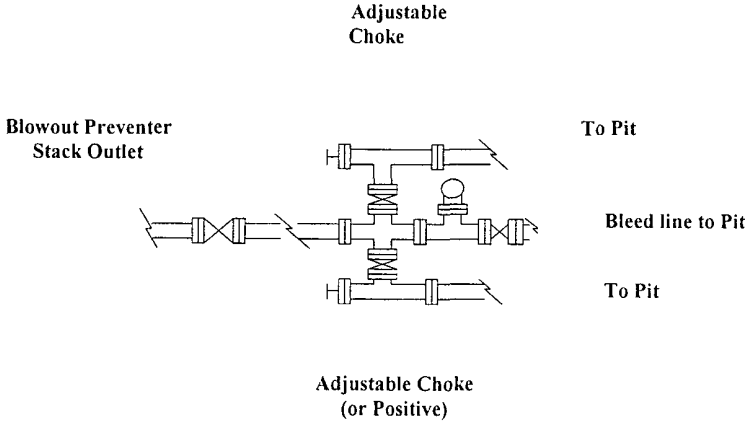
Mack Energy Corporation

Exhibit #9

BOPE Schematic



Choke Manifold Requirement (2000 psi WP minimum)
No Annular Required
See Exhibit #11 for Detail



Mack Energy Corporation

Minimum Blowout Preventer Requirements

2000 psi Working Pressure

2 MWP

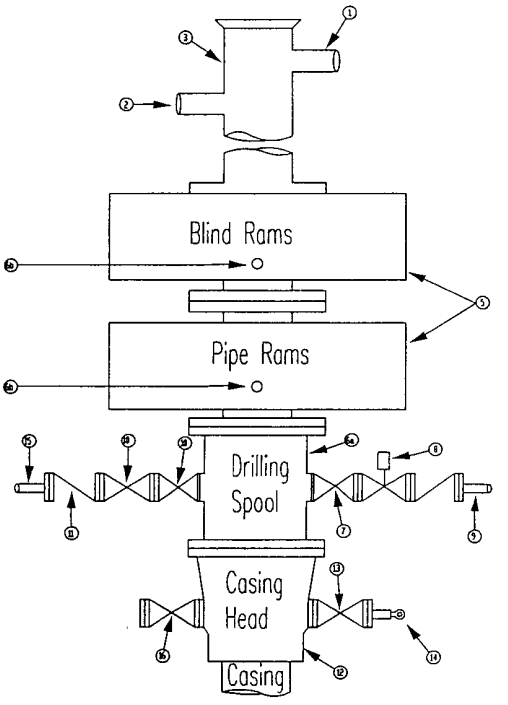
EXHIBIT #10

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 Plug	2 1/16	
11	Check valve	2 1/16	
12	Casing head		
13	Valve Gate Plug	1 13/16	
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 gallon, 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

MEC TO FURNISH.

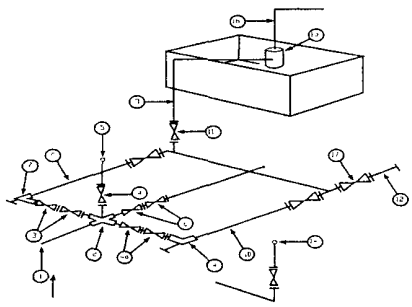
1 Bradenhead or casing head and side valves.
2 Wear bushing If required

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 Do 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" x 3" x 3" x 2"									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 Choke manifold pressure and standpipe pressure gauges shall be available at the choke manifold to assist in regulating chokes As an 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

MACK Energy Corporation

Mack Energy Corp.

Eddy County, NM (NAD 27 NME)
Brantley Fed #2
Brantley Fed #2
Wellbore #1

Plan: Plan #1

Standard Planning Report

10 December, 2007

Scientific Drilling
Directional Drilling Operations

Database:	EDM 2003 16 Single User Db	**Local Co-ordinate Reference:**	Well Brantley Fed #2
Company:	Mack Energy Corp	**TVD Reference:**	WELL @ 3701 00ft (KB Elev)
Project:	Eddy County, NM (NAD 27 NME)	**MD Reference:**	WELL @ 3701 00ft (KB Elev)
Site:	Brantley Fed #2	**North Reference:**	Grid
Well:	Brantley Fed #2	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Project Eddy County, NM (NAD 27 NME)

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 Brantley Fed #2

Site Position:		**Northing:**	675,024 30 ft	**Latitude:**	32° 51' 19 046 N
From:	Map	**Easting:**	601,340 50 ft	**Longitude:**	104° 0' 11 965 W
Position Uncertainty:	0 00 ft	**Slot Radius:**	ft	**Grid Convergence:**	0 18 °

Well Brantley Fed #2

Well Position	**+N/-S**	0 00 ft	**Northing:**	675,024 30 ft	**Latitude:**	32° 51' 19 046 N
	+E/-W	0 00 ft	**Easting:**	601,340 50 ft	**Longitude:**	104° 0' 11 965 W
Position Uncertainty		0 00 ft	**Wellhead Elevation:**	3,701 00 ft	**Ground Level:**	3,683 00 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/10/2007	8 24	60 79	49,320

Design Plan #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0 00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0 00	0 00	0 00	269 38

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	
7,050 00	0 00	0 00	7,050 00	0.00	0 00	0 00	0 00	0 00	0 00	
7,864 74	90 64	269 38	7,565 00	-5 65	-520 73	11 12	11 12	0 00	269 38	
10,560 23	90 64	269 38	7,535 00	-34 90	-3,215 90	0 00	0 00	0 00	0 00	PBHL-Brantley #2

Database:	EDM 2003 16 Single User Db	Local Co-ordinate Reference:	Well Brantley Fed #2
Company:	Mack Energy Corp	TVD Reference:	WELL @ 3701 00ft (KB Elev)
Project:	Eddy County NM (NAD 27 NME)	MD Reference:	WELL @ 3701 00ft (KB Elev)
Site:	Brantley Fed #2	North Reference:	Grid
Well:	Brantley Fed #2	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
NHL Brantley #2 - WHL Brantley #2									
7,050 00	0 00	0 00	7,050 00	0 00	0 00	0 00	0 00	0 00	0 00
KOP Start 11 12°/100'									
7,100 00	5 56	269 38	7,099 92	-0 03	-2 42	2 43	11 12	11 12	0 00
7,200 00	16 69	269 38	7,197 89	-0 24	-21 69	21 69	11 12	11 12	0 00
7,300 00	27 81	269 38	7,290 30	-0 65	-59 49	59 49	11 12	11 12	0 00
7,400 00	38 94	269 38	7,373 68	-1 24	-114 41	114 42	11 12	11 12	0 00
7,500 00	50 06	269 38	7,444 89	-2 00	-184 39	184 40	11 12	11 12	0 00
7,600 00	61.19	269 38	7,501 26	-2 90	-266 79	266 80	11 12	11 12	0 00
7,700 00	72 31	269 38	7,540 68	-3 89	-358 52	358.54	11 12	11 12	0 00
7,720 20	74 56	269 38	7,546 44	-4.10	-377 87	377 90	11 12	11.12	0 00
Top Pay									
7,800 00	83 44	269 38	7,561 65	-4 95	-456 12	456 15	11 12	11 12	0 00
7,864 74	90 64	269 38	7,565 00	-5 65	-520 73	520 76	11 12	11 12	0 00
EOC hold 90.64°									
7,900.00	90 64	269 38	7,564 61	-6 03	-555 99	556 02	0 00	0 00	0 00
8,000 00	90 64	269 38	7,563 49	-7 12	-655 97	656 01	0 00	0 00	0 00
8,100 00	90 64	269 38	7,562 38	-8 20	-755 96	756 01	0 00	0 00	0 00
8,200 00	90 64	269 38	7,561 27	-9 29	-855 95	856 00	0 00	0 00	0 00
8,300 00	90 64	269 38	7,560 15	-10 37	-955 94	955 99	0 00	0 00	0 00
8,400 00	90 64	269 38	7,559 04	-11 46	-1,055 93	1,055 99	0 00	0 00	0 00
8,500 00	90 64	269 38	7,557 93	-12.54	-1,155 91	1,155 98	0 00	0 00	0 00
8,600 00	90 64	269 38	7,556 82	-13 63	-1,255 90	1,255 98	0 00	0 00	0 00
8,700 00	90 64	269 38	7,555 70	-14 71	-1,355 89	1,355 97	0 00	0 00	0 00
8,800 00	90 64	269 38	7,554 59	-15 80	-1,455 88	1,455 96	0 00	0 00	0 00
8,900 00	90 64	269 38	7,553 48	-16 88	-1,555 87	1,555 96	0 00	0 00	0 00
9,000.00	90 64	269 38	7,552 36	-17 97	-1,655 85	1,655 95	0 00	0 00	0 00
9,100 00	90 64	269 38	7,551 25	-19 05	-1,755 84	1,755 95	0 00	0 00	0 00
9,200 00	90 64	269 38	7,550 14	-20 14	-1,855 83	1,855 94	0 00	0 00	0 00
9,300 00	90 64	269 38	7,549 03	-21 23	-1,955 82	1,955 93	0 00	0 00	0 00
9,400 00	90 64	269 38	7,547 91	-22 31	-2,055 81	2,055 93	0 00	0 00	0 00
9,500 00	90 64	269 38	7,546 80	-23 40	-2,155 79	2,155 92	0 00	0 00	0 00
9,600 00	90 64	269 38	7,545 69	-24 48	-2,255 78	2,255 91	0 00	0 00	0 00
9,700 00	90 64	269 38	7,544 57	-25 57	-2,355 77	2,355 91	0 00	0 00	0 00
9,800 00	90 64	269 38	7,543 46	-26 65	-2,455 76	2,455 90	0 00	0 00	0 00
9,900 00	90 64	269 38	7,542 35	-27 74	-2,555 75	2,555 90	0 00	0 00	0 00
10,000 00	90 64	269 38	7,541 24	-28 82	-2,655.73	2,655 89	0 00	0 00	0 00
10,100 00	90 64	269 38	7,540 12	-29 91	-2,755 72	2,755 88	0 00	0 00	0 00
10,200 00	90 64	269 38	7,539 01	-30 99	-2,855 71	2,855 88	0 00	0 00	0 00
10,300 00	90 64	269 38	7,537 90	-32 08	-2,955 70	2,955 87	0 00	0.00	0 00
10,400 00	90 64	269 38	7,536 78	-33 16	-3,055 68	3,055 86	0 00	0 00	0 00
10,500 00	90 64	269 38	7,535 67	-34 25	-3,155 67	3,155 86	0 00	0 00	0 00
10,560 23	90 64	269 38	7,535.00	-34 90	-3,215 90	3,216 09	0 00	0 00	0 00
PBHL Brantley #2									

Database:	EDM 2003 16 Single User Db	**Local Co-ordinate Reference:**	Well Brantley Fed #2
Company:	Mack Energy Corp	**TVD Reference:**	WELL @ 3701 00ft (KB Elev)
Project:	Eddy County, NM (NAD 27 NME)	**MD Reference:**	WELL @ 3701 00ft (KB Elev)
Site:	Brantley Fed #2	**North Reference:**	Grid
Well:	Brantley Fed #2	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PBHL-Brantley #2 - plan hits target - Circle (radius 10.00)	0 00	0 00	7,535 00	-34 90	-3,215 90	674,989 40	598,124 60	32° 51' 18 798 N	104° 0' 49 667 W
WHL-Brantley #2 - plan misses by 3215 96ft at 0 00ft MD (0 00 TVD, 0 00 N, 0 00 E) - Rectangle (sides W500 00 H0 00 D0 00)	0 00	0 00	0 00	-19 90	-3,215 90	675,004 40	598,124 60	32° 51' 18 947 N	104° 0' 49 666 W
NHL-Brantley #2 - plan misses by 3215 96ft at 0 00ft MD (0 00 TVD, 0 00 N, 0 00 E) - Rectangle (sides W0 00 H1,000 00 D0 00)	0 00	0 00	0 00	-19 90	-3,215 90	675,004 40	598,124 60	32° 51' 18 947 N	104° 0' 49 666 W

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,720 20	7,550 00	Top Pay		-0 54	269 38
	7,590 00	Base Pay		-0 54	269 38

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
7,050 00	7,050 00	0 00	0 00	KOP Start 11 12°/100'
7,864 74	7,564 99	-5 65	-520 73	EOC hold 90 64°

MACK Energy Corporation

Scientific Drilling for Mack Energy Corp.
Site. Eddy County, NM (NAD 27 NME)
Well: Brantley Fed #2
Wellbore: Wellbore #1
Design: Plan #1

Scientific Drilling
Directional Drilling Operations

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0.00	0 00	
2	7050 00	0 00	0 00	7050 00	0 00	0.00	0 00	0 00	0 00	
3	7864 74	90 64	269 38	7565 00	-5 65	-520 73	11 12	269.38	520 76	
4	10560 23	90 64	269 38	7535 00	-34 90	-3215 90	0 00	0 00	3216 09	PBHL-Brantley #2

WELL DETAILS. Brantley Fed #2

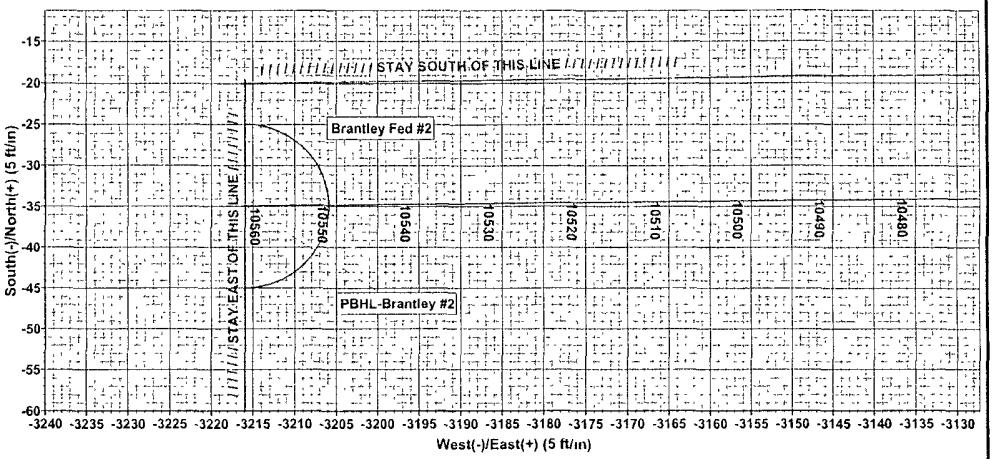
Ground Level. 3683 00

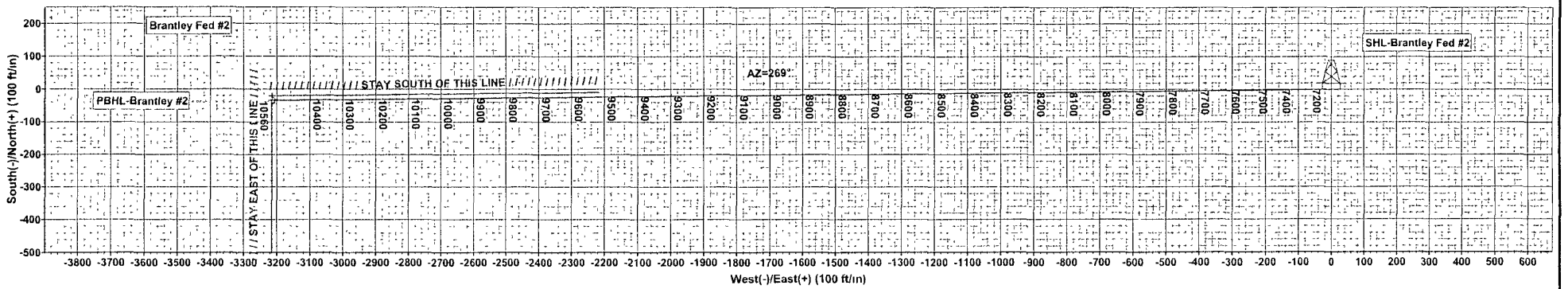
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0 00	0 00	675024 30	601340 50	32°51' 19 046 N	104°0' 1 1 965 W	

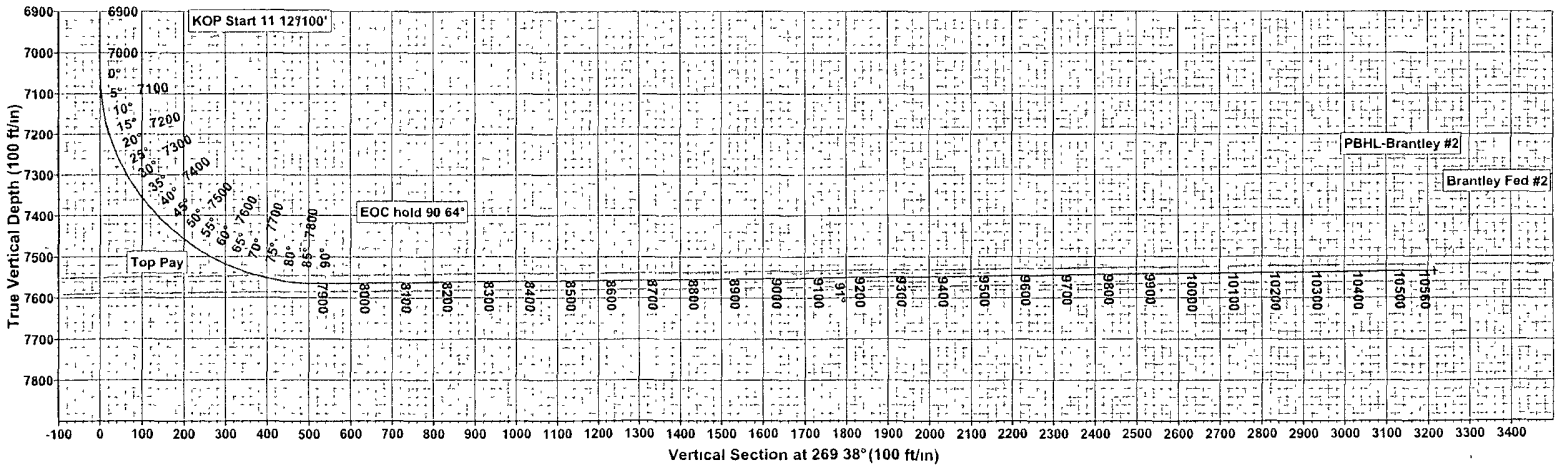
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
NHL-Brantley #2	0.00	-19 90	-3215 90	675004 40	598124 60	32°51' 18 947 N	104°0' 49 666 W	Rectangle (Sides. L 0 00 W1000 00)
WHL-Brantley #2	0.00	-19 90	-3215 90	675004 40	598124 60	32°51' 18 947 N	104°0' 49 666 W	Rectangle (Sides L 500.00 W0 00)
PBHL-Brantley #2	7535.00	-34 90	-3215 90	674989 40	598124 60	32°51' 18 798 N	104°0' 49 667 W	Circle (Radius 10 00)

AZIMUTH CORRECTIONS
ALL AZIMUTHS MUST BE CORRECTED TO GRID
GRID CORRECTIONS MUST BE APPLIED BEFORE PLOTTING
To convert a Magnetic Direction to a Grid Direction, Add 8 06°
To convert a True Direction to a Grid Direction, Subtract 0 18°







Azimuths to Grid North
True North. -0 18°
Magnetic North. 8 06°

Magnetic Field
Strength. 49320.1snT
Dip Angle 60 79°
Date 12/10/2007
Model IGRF200510

PROJECT DETAILS. Eddy County, NM (NAD 27 NME)

Geodetic System. US State Plane 1927 (Exact solution)
Datum. NAD 1927 (NADCON CONUS)
Ellipsoid. Clarke 1866
Zone New Mexico East 3001
System Datum Mean Sea Level

Plan. Plan #1 (Brantley Fed #2/Wellbore #1)

Created By: Julio Pina Date 10-Dec-07

Checked. _____ Date _____

Reviewed. _____ Date _____

Approved _____ Date. _____

Mack Energy Corporation

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:**

   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

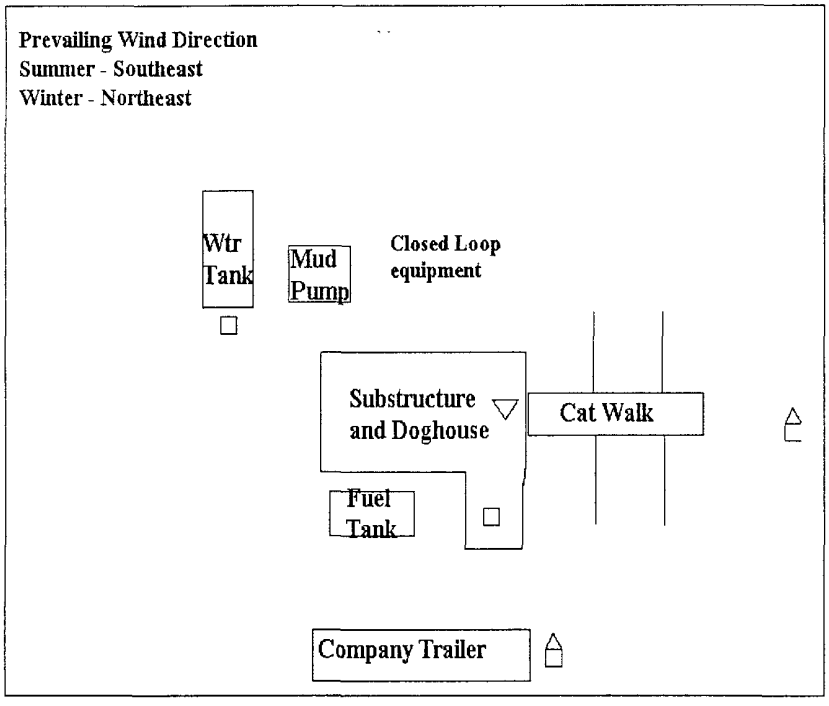
AUTHORIZED PERSONNEL ONLY

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

1-505-748-1288

DRILLING LOCATION H2S SAFTY EQUIPMENT
Exhibit # 8



▽ H2S Monitors with alarms at the bell nipple

□ Wind Direction Indicators

△ Safe Briefing areas with caution signs and breathing equipment min 150 feet from

VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

a. Spudding well
b. Setting and/or Cementing of all casing strings
c. BOPE tests

☒ **Eddy County**
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

1. A Hydrogen Sulfide (H2S) Drilling Plan should be activated 500 feet prior to drilling into the **Yates** formation. **H2S has been measured in gas streams at 1600-10000 ppm and in STVs at 20-4000 ppm.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

B. CASING

1. The **13-3/8** inch surface casing shall be set **a minimum of 25 feet into the Rustler Anhydrite and above the salt at approximately 425** feet and cemented to the surface.

   a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.

   b. Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement). **Please provide WOC times to inspector for cement slurries.**

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial action will be done prior to drilling out that string.

Possible lost circulation in the Grayburg and San Andres formations.
Possible water flows in the Salado and Artesia Groups.
Possible high pressure gas bursts within the Wolfcamp formation

2. The minimum required fill of cement behind the **8-5/8** inch intermediate casing is:

   ☒ Cement to surface. If cement does not circulate see B.1.a-d above. **Please provide WOC times to inspector for cement slurries.**

~~**Formation below the 8-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i.**~~

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

   ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Please provide WOC times to inspector for cement slurries.**

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **8-5/8"** intermediate casing shoe shall be **3000 (3M)** psi. **3M system based on pressures expected by BLM geologist in the Wolfcamp formation.**

4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. The tests shall be done by an independent service company.

    b. The results of the test shall be reported to the appropriate BLM office.

    c. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

    d. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

    e. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation **if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days.** This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

    f. A variance to test the surface casing and BOP/BOPE to the reduced pressure of **1500** psi with the rig pumps is approved.

D. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **Wolfcamp** formation, and shall be used until production casing is run and cemented.

Engineer on call phone (after hours): **Carlsbad: (575) 706-2779**

WWI 010908