

Form 3160-5
(June 1990)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT



FORM APPROVED
Budget Bureau No. 1004-0135
Expires: March 31, 1993

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
Use "APPLICATION FOR PERMIT—" for such proposals

SUBMIT IN TRIPLICATE

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other

2. Name of Operator

COG Operating LLC

3. Address and Telephone No.

550 W. Texas, Suite 1300, Midland, TX 79701 (432)685-4372

4. Location of Well (Footage, Sec., T. R., M. or Survey Description)

Surface 1090 FNL & 330 FWL, Sec. 12 T17S R30E
BHL 990 FNL & 330 FWL, Sec. 12 T17S R30E

5. Lease Designation and Serial No.

LC-029338B

6. If Indian, Allottee or Tribe Name

7. If Unit or CA, Agreement Designation

8. Well Name and No.

Harvard Federal #7

9. API Well No.

30-015-35055

10. Field and Pool, or Exploratory Area

Loco Hills Paddock

11. County or Parish, State

Eddy, NM

12. CHECK APPROPRIATE BOX(s) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION

- ☒ Notice of Intent
☐ Subsequent Report
☐ Final Abandonment Notice

TYPE OF ACTION

- ☐ Abandonment
☐ Recompletion
☐ Plugging Back
☐ Casing Repair
☐ Altering Casing
☐ Other _____

- ☒ Change of Plans
☐ New Construction
☐ Non-Routine Fracturing
☐ Water Shut-Off
☐ Conversion to Injection
☐ Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13 Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work)*

Mack Energy is requesting approval to directionally drill this well 100' North to an orthodox location.

14. I hereby certify that the foregoing is true and correct

Signed

Jerry W. Shenell

Title

Production Clerk

Date

10/11/06

(This space for Federal or State office use)

Approved by

Title

Date

Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes 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.

•See Instruction on Reverse Side

DISTRICT I

1625 N. FRENCH DR., HOBBS, NM 80240

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

Submit

Form C-102

Revised October 12, 2005

Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-35055	Pool Code 96718	LOCO HILLS PADDOCK
Property Code 302440	Property Name HARVARD FEDERAL	Well Number 7
OGRID No. 229137	Operator Name COG OPERATING LLC	Elevation 3756'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	12	17-S	30-E		1090	NORTH	330	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	12	17S	30E		990	NORTH	330	WEST	EDDY
Dedicated Acres 40	Joint or Infill	Consolidation Code	Order No.						

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

	DETAIL	OPERATOR CERTIFICATION I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Jerry W. Sherrell</i> 10/11/06 Signature Date Jerry W. Sherrell Printed Name
GEODETIC COORDINATES NAD 27 NME Y=674328.6 N X=623125.0 E LAT.=32°51'11.42" N LONG.=103°55'56.62" W		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. JUNE 05, 2006 Date Surveyed MR Signature & Seal of Professional Surveyor <i>Gary A. Eidsen</i> 6/15/06 06.11.0910 Certificate No. GARY EIDSON 12641



Mack Energy Corp.

Eddy County, NM (NAD 27 NME)

Harvard Federal #7

Harvard Federal #7

OH

Plan: Plan #1

Standard Planning Report

10 October, 2006



Scientific Drilling

Scientific Drilling

Planning Report



Database: EDM 2003.14 Single User Db
Company: Mack Energy Corp.
Project: Eddy County, NM (NAD 27 NME)
Site: Harvard Federal #7
Well: Harvard Federal #7
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well Harvard Federal #7
TVD Reference: WELL @ 3770.0ft (KB Elev)
MD Reference: WELL @ 3770.0ft (KB Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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: Harvard Federal #7

Site Position:		Northing:	674,328.60 ft	Latitude:	32° 51' 11.416 N
From:	Map	Easting:	623,125.00 ft	Longitude:	103° 55' 56.617 W
Position Uncertainty:	0.0 ft	Slot Radius:	ft	Grid Convergence:	0.22 °

Well: Harvard Federal #7

Well Position	+N/-S	0.0 ft	Northing:	674,328.60 ft	Latitude:	32° 51' 11.416 N
	+E/-W	0.0 ft	Easting:	623,125.00 ft	Longitude:	103° 55' 56.617 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	3,770.0 ft	Ground Level:	0.0 ft

Wellbore: OH

Magnetics:	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2006-10-10	8.34	60.83	49,472

Design: Plan #1

Audit Notes:

Version: **Phase:** PLAN **Tie On Depth:** 0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	5.19

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,722.4	6.45	5.19	1,721.8	18.1	1.6	2.00	2.00	0.00	5.19	
2,383.1	6.45	5.19	2,378.2	91.9	8.4	0.00	0.00	0.00	0.00	
2,705.5	0.00	0.00	2,700.0	110.0	10.0	2.00	-2.00	0.00	180.00	
6,305.5	0.00	0.00	6,300.0	110.0	10.0	0.00	0.00	0.00	0.00	PBHL-HF #7

Scientific Drilling Planning Report



Database: EDM 2003.14 Single User Db
Company: Mack Energy Corp.
Project: Eddy County, NM (NAD 27 NME)
Site: Harvard Federal #7
Well: Harvard Federal #7
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well Harvard Federal #7
WELL @ 3770.0ft (KB Elev)
WELL @ 3770.0ft (KB Elev)
Grid
Minimum Curvature

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8" Casing									
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - build 2.0°/100'									
1,500.0	2.00	5.19	1,500.0	1.7	0.2	1.7	2.00	2.00	0.00
1,600.0	4.00	5.19	1,599.8	6.9	0.6	7.0	2.00	2.00	0.00
1,700.0	6.00	5.19	1,699.5	15.6	1.4	15.7	2.00	2.00	0.00
1,722.4	6.45	5.19	1,721.8	18.1	1.6	18.1	2.00	2.00	0.00
EOC - hold 6.45°									
1,800.0	6.45	5.19	1,798.8	26.7	2.4	26.8	0.00	0.00	0.00
1,900.0	6.45	5.19	1,898.2	37.9	3.4	38.1	0.00	0.00	0.00
2,000.0	6.45	5.19	1,997.6	49.1	4.5	49.3	0.00	0.00	0.00
2,100.0	6.45	5.19	2,096.9	60.3	5.5	60.5	0.00	0.00	0.00
2,200.0	6.45	5.19	2,196.3	71.5	6.5	71.8	0.00	0.00	0.00
2,300.0	6.45	5.19	2,295.7	82.7	7.5	83.0	0.00	0.00	0.00
2,383.1	6.45	5.19	2,373.2	91.9	8.4	92.3	0.00	0.00	0.00
KOP - drop 2.0°/100'									
2,400.0	6.11	5.19	2,395.0	93.8	8.5	94.2	2.00	-2.00	0.00
2,500.0	4.11	5.19	2,494.6	102.7	9.3	103.1	2.00	-2.00	0.00
2,600.0	2.11	5.19	2,594.5	108.1	9.8	108.5	2.00	-2.00	0.00
2,700.0	0.11	5.19	2,694.5	110.0	10.0	110.4	2.00	-2.00	0.00
2,705.5	0.00	0.00	2,700.0	110.0	10.0	110.5	2.00	-2.00	0.00
KOP - hold 0.0°									
2,800.0	0.00	0.00	2,794.5	110.0	10.0	110.5	0.00	0.00	0.00
2,900.0	0.00	0.00	2,894.5	110.0	10.0	110.5	0.00	0.00	0.00
3,000.0	0.00	0.00	2,994.5	110.0	10.0	110.5	0.00	0.00	0.00
3,100.0	0.00	0.00	3,094.5	110.0	10.0	110.5	0.00	0.00	0.00
3,200.0	0.00	0.00	3,194.5	110.0	10.0	110.5	0.00	0.00	0.00
3,300.0	0.00	0.00	3,294.5	110.0	10.0	110.5	0.00	0.00	0.00
3,400.0	0.00	0.00	3,394.5	110.0	10.0	110.5	0.00	0.00	0.00
3,500.0	0.00	0.00	3,494.5	110.0	10.0	110.5	0.00	0.00	0.00
3,600.0	0.00	0.00	3,594.5	110.0	10.0	110.5	0.00	0.00	0.00
3,700.0	0.00	0.00	3,694.5	110.0	10.0	110.5	0.00	0.00	0.00
3,800.0	0.00	0.00	3,794.5	110.0	10.0	110.5	0.00	0.00	0.00
3,900.0	0.00	0.00	3,894.5	110.0	10.0	110.5	0.00	0.00	0.00
4,000.0	0.00	0.00	3,994.5	110.0	10.0	110.5	0.00	0.00	0.00
4,100.0	0.00	0.00	4,094.5	110.0	10.0	110.5	0.00	0.00	0.00
4,200.0	0.00	0.00	4,194.5	110.0	10.0	110.5	0.00	0.00	0.00
4,300.0	0.00	0.00	4,294.5	110.0	10.0	110.5	0.00	0.00	0.00
4,400.0	0.00	0.00	4,394.5	110.0	10.0	110.5	0.00	0.00	0.00

Scientific Drilling

Planning Report



Database: EDM 2003.14 Single User Db
 Company: Mack Energy Corp.
 Project: Eddy County, NM (NAD 27 NME)
 Site: Harvard Federal #7
 Well: Harvard Federal #7
 Wellbore: OH
 Design: Plan #1

Local Co-ordinate Reference: Well Harvard Federal #7
 TVD Reference: WELL @ 3770.0ft (KB Elev)
 MD Reference: WELL @ 3770.0ft (KB Elev)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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)
4,500.0	0.00	0.00	4,494.5	110.0	10.0	110.5	0.00	0.00	0.00
4,600.0	0.00	0.00	4,594.5	110.0	10.0	110.5	0.00	0.00	0.00
4,700.0	0.00	0.00	4,694.5	110.0	10.0	110.5	0.00	0.00	0.00
4,800.0	0.00	0.00	4,794.5	110.0	10.0	110.5	0.00	0.00	0.00
4,900.0	0.00	0.00	4,894.5	110.0	10.0	110.5	0.00	0.00	0.00
5,000.0	0.00	0.00	4,994.5	110.0	10.0	110.5	0.00	0.00	0.00
5,100.0	0.00	0.00	5,094.5	110.0	10.0	110.5	0.00	0.00	0.00
5,200.0	0.00	0.00	5,194.5	110.0	10.0	110.5	0.00	0.00	0.00
5,300.0	0.00	0.00	5,294.5	110.0	10.0	110.5	0.00	0.00	0.00
5,400.0	0.00	0.00	5,394.5	110.0	10.0	110.5	0.00	0.00	0.00
5,500.0	0.00	0.00	5,494.5	110.0	10.0	110.5	0.00	0.00	0.00
5,600.0	0.00	0.00	5,594.5	110.0	10.0	110.5	0.00	0.00	0.00
5,700.0	0.00	0.00	5,694.5	110.0	10.0	110.5	0.00	0.00	0.00
5,800.0	0.00	0.00	5,794.5	110.0	10.0	110.5	0.00	0.00	0.00
5,900.0	0.00	0.00	5,894.5	110.0	10.0	110.5	0.00	0.00	0.00
6,000.0	0.00	0.00	5,994.5	110.0	10.0	110.5	0.00	0.00	0.00
6,100.0	0.00	0.00	6,094.5	110.0	10.0	110.5	0.00	0.00	0.00
6,200.0	0.00	0.00	6,194.5	110.0	10.0	110.5	0.00	0.00	0.00
6,300.0	0.00	0.00	6,294.5	110.0	10.0	110.5	0.00	0.00	0.00
6,305.5	0.00	0.00	6,300.0	110.0	10.0	110.5	0.00	0.00	0.00

NHardline-HF #7 - PBHL-HF #7 - WHardline-HF #7

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
WHardline-HF #7	0.00	0.00	6,300.0	100.0	0.0	674,428.60	623,125.00	32° 51' 12.405 N	103° 55' 56.613 W
- plan misses by 14.1ft at 6305.5ft MD (6300.0 TVD, 110.0 N, 10.0 E)									
- Rectangle (sides W50.0 H0.0 D0.0)									
PBHL-HF #7	0.00	0.00	6,300.0	110.0	10.0	674,438.60	623,135.00	32° 51' 12.504 N	103° 55' 56.495 W
- plan hits target									
- Circle (radius 10.0)									
NHardline-HF #7	0.00	0.00	6,300.0	100.0	0.0	674,428.60	623,125.00	32° 51' 12.405 N	103° 55' 56.613 W
- plan misses by 14.1ft at 6305.5ft MD (6300.0 TVD, 110.0 N, 10.0 E)									
- Rectangle (sides W0.0 H50.0 D0.0)									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (ft)	Hole Diameter (ft)
1,300.0	1,300.0	8 5/8" Casing	8.62500	0.00000

Scientific Drilling

Planning Report



Database: EDM 2003.14 Single User Db
Company: Mack Energy Corp.
Project: Eddy County, NM (NAD 27 NME)
Site: Harvard Federal #7
Well: Harvard Federal #7
Wellbore: OH
Design: Plan #1

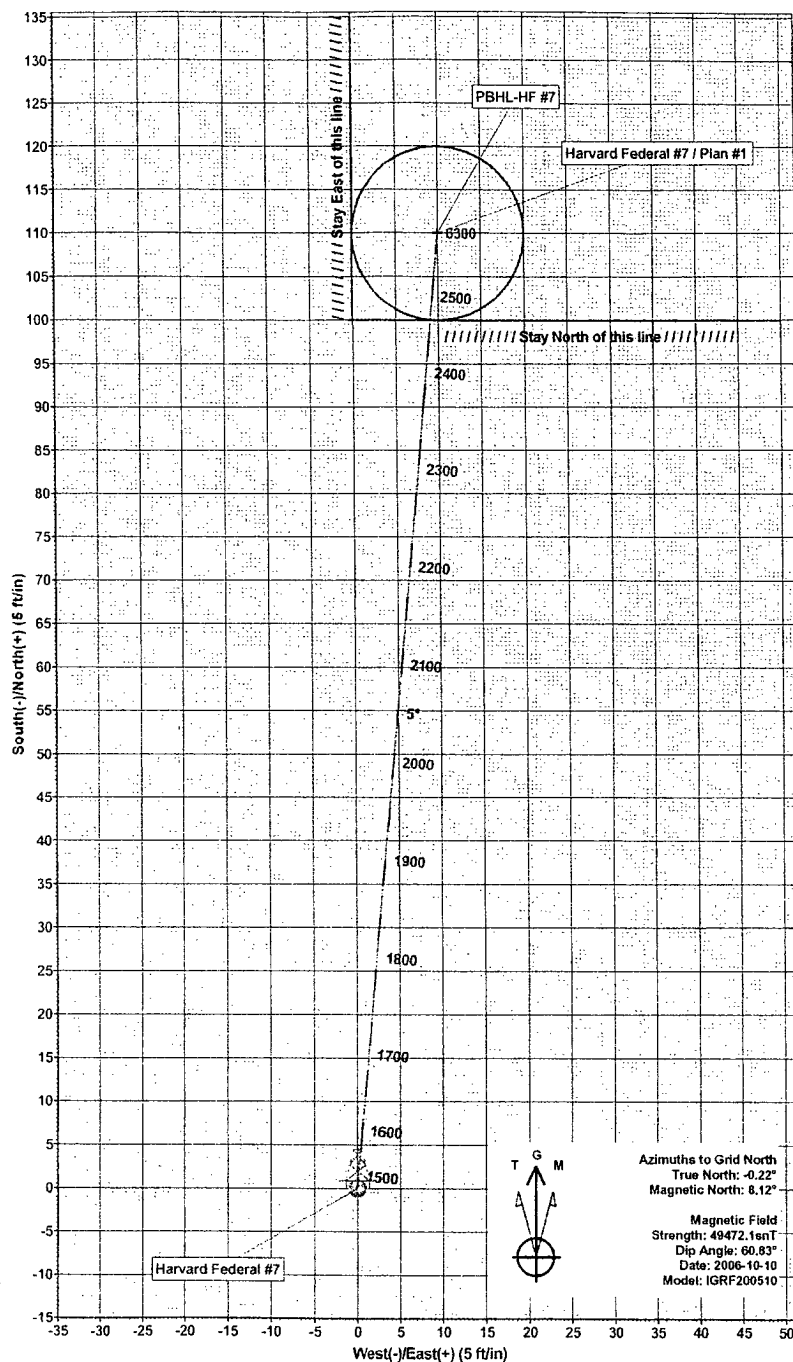
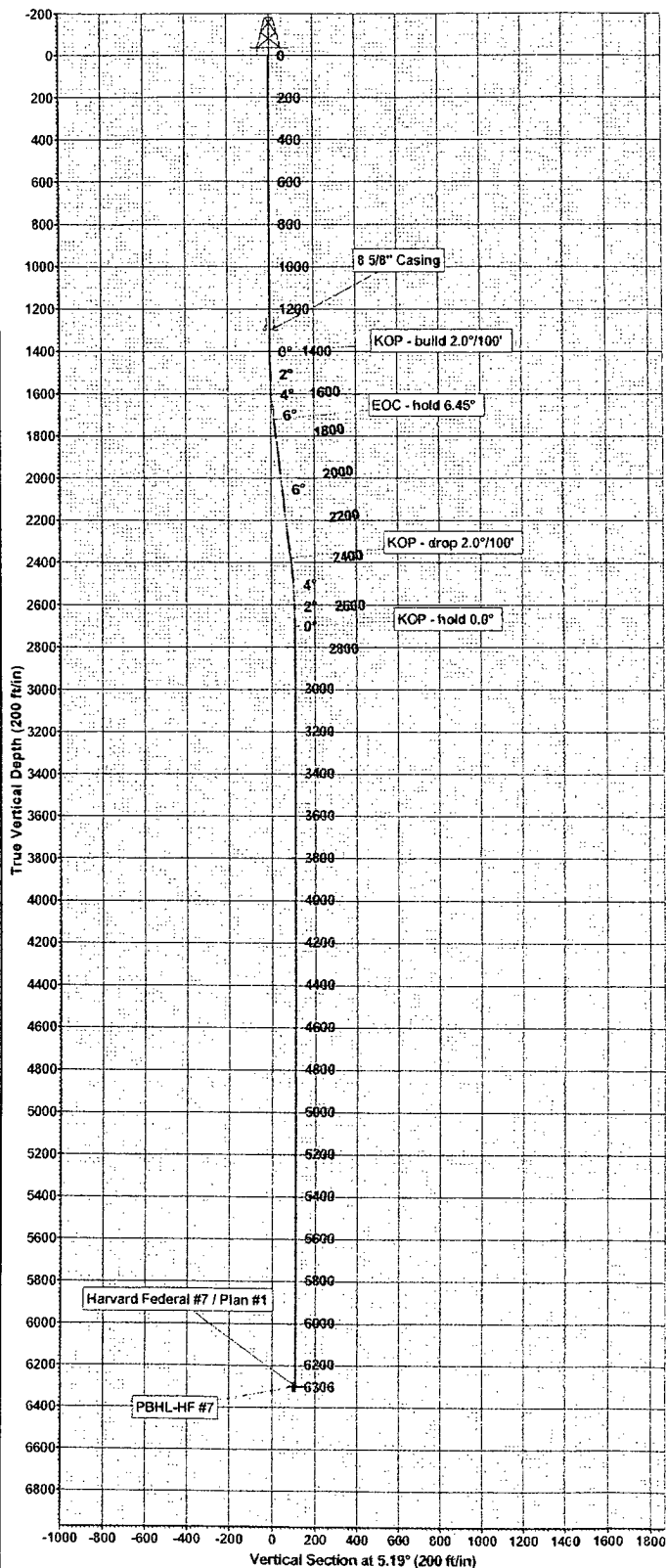
Local Co-ordinate Reference: Well Harvard Federal #7
TVD Reference: WELL @ 3770.0ft (KB Elev)
MD Reference: WELL @ 3770.0ft (KB Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,400.0	1,400.0	0.0	0.0	KOP - build 2.0°/100'
1,722.4	1,721.8	18.1	1.6	EOC - hold 6.45°
2,383.1	2,378.2	91.9	8.4	KOP - drop 2.0°/100'
2,705.5	2,700.0	110.0	10.0	KOP - hold 0.0°

Mack Energy Corp.

Project: Eddy County, NM (NAD 27 NME)
 Site: Harvard Federal #7
 Well: Harvard Federal #7
 Wellbore: OH
 Design: Plan #1



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1400.0	0.00	0.00	1400.0	0.0	0.0	0.00	0.00	0.0	
3	1722.4	6.45	5.19	1721.8	18.1	1.6	2.00	5.19	18.1	
4	2383.1	6.45	5.19	2378.2	91.9	8.4	0.00	0.00	92.3	
5	2705.5	0.00	0.00	2700.0	110.0	10.0	2.00	180.00	110.5	
6	6305.5	0.00	0.00	6300.0	110.0	10.0	0.00	0.00	110.5	PBHL-HF #7

WELL DETAILS: Harvard Federal #7

+N/-S	+E/-W	Northing	Ground Level:	Latitude	Longitude	Slot
0.0	0.0	674328.60	0.0	32° 51' 11.416 N	103° 55' 56.617 W	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
NHardline-HF #7	6300.0	100.0	0.0	674428.60	623125.00	Rectangle (Sides: L0.0 W50.0)
PBHL-HF #7	6300.0	110.0	10.0	674438.60	623135.00	Circle (Radius: 10.0)
WHardline-HF #7	6300.0	100.0	0.0	674428.60	623125.00	Rectangle (Sides: L50.0 W0.0)

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

Plan: Plan #1 (Harvard Federal #7/OH)

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

Created By: Julio Pina Date: 10-Oct-06

Checked: _____ Date: _____

Reviewed: _____ Date: _____

System Datum: Mean Sea Level