District I
1625 N French Dr , Hobbs, NM 88240
District H
1301 W Grand Avenue, Artesia, NM 88210
District III
1 000 Rio Brazos Road, Aztec, NM 8741 0
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, NM 87505

Form C-144 CLEZ
July 21, 2008

**For closed-loop systems that only use *above* ground steel tanks or *haul-off bins* and propose to *implement waste* removal./or closure, submit** to the appropriate NMOCD District Office

# Closed-Loop System Permit or Closure Plan Application

*(that only above ground steel tanks or haul-off bins and propose to implement waste removal for closure)*

Type of action: ☒ Permit ☐ Closure

**Instructions:** ***Please submit*** **one application (Form C-144 CLEZ) per individual closed-loop system request. For any application request other than for a** ***closed-loop*** **system that only** ***use above ground*** **steel tanks or haul-off bins and propose to implement waste removal for closure,** ***please*** **submit** ***a Form, C-144.***

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances

1

Operator: Mack Energy Corporation OGRID #: 013837

Address: P.O. Box 960 Artesia, NM 88210-0960

Facility or well name: Bishop State Com #1

API Number: 30-015-40831 OCD Permit Number: 213618

U/L or Qtr/Qtr A Section 3 Township 23S Range 23E County Eddy

Center of Proposed Design: Latitude _____ Longitude _____ NAD ☐1927 ☐ 1983

Surface Owner. ☐Federal ☒ State ☐ Private ☐ Tribal Trust or Indian Allotment

2

☒ **Closed-loop System:** Subsection H of 19.15.17.11 NAIAC

Operation: ☒ Drilling a new well ☐ Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent) ☐ P&A

☒ Above Ground Steel Tanks or ☐ Haul-off Bins

3

**Sign:** Subsection C of 19.15.17.11 NMAC

☐ 12" x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

☐ Signed in compliance with 19.15.3.103 NMAC

RECEIVED
NOV 07 2012
NMOCD ARTESIA

4

**Closed-loop Systems Permit Application Attachment Checklist:** Subsection B of 19.15.17.9 NMAC

***Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached***

☒ Design Plan -based upon the appropriate requirements of 19.15.17.11 NMAC
☒ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☒ Closure Plan (Please complete Box 5) - based upon the appropriate requirements of Subsection C of 19 15.17.9 NMAC and 19.15 17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____

☐ Previously Approved Operating and Maintenance Plan API Number:

5

**Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:** (19.15 17.13 D NMAC)

***Instructions: Please indentify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.***

Disposal Facility Name: Controlled Recovery Inc Disposal Facility Permit Number: NM-01-0006

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Will any of the proposed closed-loop system operations and associated activities occur on or in areas that will not be used for future service and operations?

☐ Yes (If yes, please provide the information below) ☒ No

*Required for impacted areas which will not he used for future service and operations.*

☐ Soil Backfill and Cover Design Specifications -- based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19 15.17.13 NMAC

6

**Operator Application Certification:**

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief

Name (Print): Jerry W. Sherrell Title: Production Clerk

Signature: Jerry W. Sherrell Date: 11/6/12

e-mail address: jerrys@mec.com Telephone: 575-748-1288

7
**OCD Approval:** ☒ *Permit Applies on (including closure plan)* ☐ *Closure Plan (only)*

**OCD Representative Signature:** RRDade **Approval Date:** 11/9/12

**Title:** Dist II Supervisor **OCD Permit Number:** 213618

8
**Closure Report (required within 60 days of closure completion):** Subsection K of 19.15.17.13 NMAC

***Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.***

☐ **Closure Completion Date:** _____

9
**Closure Reports Regarding Waste Removal Closure for Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:**

***Instructions: Please indentify the facility or facilities for where the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities were utilized***

Disposal Facility Name: Controlled Recovery Inc Disposal Facility Permit Number: NM-01-0006

Disposal Facility Name: _____ Disposal Facility Permit Number: _____

Were the closed-loop system operations and associated activities performed on or in areas that will not be used for future service and operations?

☐ Yes (If yes, please demonstrate compliance to the items below) ☐ NO

*Required for impacted areas which will not be used for future service and operations:*

☐ Site Reclamation (Photo Documentation)
☐ Soil Backfilling and Cover Installation
☐ Re-vegetation Application Rates and Seeding Technique

10
**Operator Closure Certification:**

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan

Name (Print): _____ Title: _____

Signature: _____ Date: _____

e-mail address: _____ Telephone: _____

## Mack Energy Closed Loop System Design Plan

Equipment list,
2- 414 Swaco Centrifuges
2- 4 screen Mongoose shale shakers
2- CRI Bins with track system
2- 500 BBL frac tanks for fresh water
2- 500 BBL frac tanks for brine water

## Operations and Maintenance

Closed Loop equipment will be inspected daily by each tour and any necessary maintenance performed.
Any leak in system will be repaired and /or contained immediately.
OCD notified within 48 hours.
Remediation process started.

## Closure Plan

During drilling operations all liquids, drilling fluids and cuttings will be hauled off by CRI(Controlled Recovery Inc. Permit NM-01-0006).

# Mack Energy Corp

Eddy County
Bishop State #1H
State #1H
#1H

Plan: Plan #1

# MEC Survey Report

29 October, 2012

# MEC

MEC Survey Report

| | | | |
|---|---|---|---|
| **Company:** | Mack Energy Corp | **Local Co-ordinate Reference:** | Site Bishop State #1H |
| **Project:** | Eddy County | **TVD Reference:** | WELL @ 4283.0usft (Original Well Elev) |
| **Site:** | Bishop State #1H | **MD Reference:** | WELL @ 4283.0usft (Original Well Elev) |
| **Well:** | State #1H | **North Reference:** | Grid |
| **Wellbore:** | #1H | **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** Bishop State #1H

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 487,162.20 usft | **Latitude:** | 32° 20' 20.699 N |
| **From:** | Map | **Easting:** | 423,732.70 usft | **Longitude:** | 104° 34' 48 986 W |
| **Position Uncertainty:** | 0.0 usft | **Slot Radius:** | 13-3/16 " | **Grid Convergence:** | -0.13 ° |

**Well** State #1H

| | | | | | | |
|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 0.0 usft | **Northing:** | 487,162.20 usft | **Latitude:** | 32° 20' 20.699 N |
| | **+E/-W** | 0.0 usft | **Easting:** | 423,732.70 usft | **Longitude:** | 104° 34' 48.986 W |
| **Position Uncertainty** | | 0.0 usft | **Wellhead Elevation:** | usft | **Ground Level:** | 4,266 0 usft |

**Wellbore** #1H

| **Magnetics** | **Model Name** | **Sample Date** | **Declination (°)** | **Dip Angle (°)** | **Field Strength (nT)** |
|---|---|---|---|---|---|
| | IGRF200510 | 10/29/2012 | 7 88 | 60.11 | 48,473 |

**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 | 180 10 |

**Survey Tool Program** **Date** 10/29/2012

| **From (usft)** | **To (usft)** | **Survey (Wellbore)** | **Tool Name** | **Description** |
|---|---|---|---|---|
| 0.0 | 6,671.5 | Plan #1 (#1H) | | |

| | | | |
|---|---|---|---|
| **Company:** | Mack Energy Corp | **Local Co-ordinate Reference:** | Site Bishop State #1H |
| **Project:** | Eddy County | **TVD Reference:** | WELL @ 4283.0usft (Original Well Elev) |
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| **Well:** | State #1H | **North Reference:** | Grid |
| **Wellbore:** | #1H | **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 | 487,162.20 | 423,732 70 |
| 100.0 | 0 00 | 0.00 | 100 0 | 0.0 | 0 0 | 0.0 | 0.00 | 487,162.20 | 423,732 70 |
| 200.0 | 0 00 | 0 00 | 200.0 | 0.0 | 0.0 | 0.0 | 0.00 | 487,162.20 | 423,732.70 |
| 300.0 | 0.00 | 0.00 | 300 0 | 0.0 | 0.0 | 0 0 | 0.00 | 487,162 20 | 423,732.70 |
| 400.0 | 0.00 | 0 00 | 400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 487,162.20 | 423,732.70 |
| 500.0 | 0.00 | 0 00 | 500 0 | 0.0 | 0.0 | 0 0 | 0.00 | 487,162 20 | 423,732.70 |
| 600 0 | 0.00 | 0 00 | 600 0 | 0.0 | 0.0 | 0 0 | 0.00 | 487,162.20 | 423,732.70 |
| 700.0 | 0.00 | 0.00 | 700 0 | 0.0 | 0.0 | 0 0 | 0.00 | 487,162.20 | 423,732 70 |
| 800 0 | 0 00 | 0.00 | 800.0 | 0.0 | 0.0 | 0.0 | 0.00 | 487,162 20 | 423,732.70 |
| 900.0 | 0.00 | 0 00 | 900 0 | 0.0 | 0.0 | 0.0 | 0 00 | 487,162.20 | 423,732 70 |
| 1,000.0 | 0 00 | 0 00 | 1,000.0 | 0.0 | 0.0 | 0.0 | 0.00 | 487,162 20 | 423,732.70 |
| 1,100.0 | 0 00 | 0 00 | 1,100.0 | 0.0 | 0.0 | 0 0 | 0 00 | 487,162 20 | 423,732.70 |
| 1,200.0 | 0 00 | 0.00 | 1,200.0 | 0.0 | 0.0 | 0.0 | 0 00 | 487,162 20 | 423,732.70 |
| 1,300 0 | 0 00 | 0.00 | 1,300.0 | 0.0 | 0.0 | 0.0 | 0 00 | 487,162 20 | 423,732.70 |
| 1,400.0 | 0 00 | 0.00 | 1,400.0 | 0.0 | 0.0 | 0.0 | 0.00 | 487,162 20 | 423,732.70 |
| 1,500.0 | 0.00 | 0.00 | 1,500.0 | 0 0 | 0.0 | 0.0 | 0.00 | 487,162.20 | 423,732.70 |
| 1,600.0 | 0.00 | 0.00 | 1,600.0 | 0 0 | 0.0 | 0.0 | 0.00 | 487,162.20 | 423,732.70 |
| 1,700.0 | 0.00 | 0 00 | 1,700 0 | 0.0 | 0.0 | 0.0 | 0 00 | 487,162.20 | 423,732.70 |
| 1,750 0 | 0.00 | 0.00 | 1,750 0 | 0 0 | 0 0 | 0.0 | 0.00 | 487,162.20 | 423,732.70 |
| 1,800.0 | 5.00 | 180.10 | 1,799 9 | -2.2 | 0 0 | 2.2 | 10 00 | 487,160.02 | 423,732.70 |
| 1,850.0 | 10.00 | 180 10 | 1,849.5 | -8.7 | 0.0 | 8 7 | 10 00 | 487,153 50 | 423,732.68 |
| 1,900.0 | 15 00 | 180 10 | 1,898.3 | -19.5 | 0.0 | 19.5 | 10.00 | 487,142.68 | 423,732 67 |
| 1,950.0 | 20 00 | 180 10 | 1,946.0 | -34.6 | -0.1 | 34.6 | 10.00 | 487,127.65 | 423,732 64 |
| 2,000.0 | 25 00 | 180.10 | 1,992.1 | -53.7 | -0.1 | 53.7 | 10.00 | 487,108 52 | 423,732.61 |
| 2,050.0 | 30.00 | 180.10 | 2,036.5 | -76.8 | -0.1 | 76.8 | 10.00 | 487,085 44 | 423,732.57 |
| 2,100.0 | 35 00 | 180.10 | 2,078.6 | -103.6 | -0 2 | 103.6 | 10.00 | 487,058 58 | 423,732 52 |
| 2,150 0 | 40.00 | 180.10 | 2,118 3 | -134.0 | -0.2 | 134.0 | 10.00 | 487,028 15 | 423,732 47 |

| | | | |
|---|---|---|---|
| **Company:** | Mack Energy Corp | **Local Co-ordinate Reference:** | Site Bishop State #1H |
| **Project:** | Eddy County | **TVD Reference:** | WELL @ 4283.0usft (Original Well Elev) |
| **Site:** | Bishop State #1H | **MD Reference:** | WELL @ 4283 0usft (Original Well Elev) |
| **Well:** | State #1H | **North Reference:** | Grid |
| **Wellbore:** | #1H | **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) |
|---|---|---|---|---|---|---|---|---|---|
| 2,200.0 | 45.00 | 180.10 | 2,155.1 | -167.8 | -0.3 | 167.8 | 10.00 | 486,994.38 | 423,732.41 |
| 2,250.0 | 50 00 | 180 10 | 2,188 9 | -204 7 | -0 4 | 204.7 | 10 00 | 486,957.53 | 423,732.34 |
| 2,300.0 | 55.00 | 180 10 | 2,219.3 | -244 3 | -0 4 | 244.3 | 10 00 | 486,917.88 | 423,732.27 |
| 2,350 0 | 60.00 | 180.10 | 2,246.2 | -286 5 | -0.5 | 286 5 | 10.00 | 486,875.72 | 423,732.20 |
| 2,400.0 | 65.00 | 180.10 | 2,269.3 | -330 8 | -0.6 | 330.8 | 10.00 | 486,831 39 | 423,732 12 |
| 2,450 0 | 70.00 | 180.10 | 2,288 4 | -377.0 | -0.7 | 377 0 | 10.00 | 486,785 21 | 423,732 04 |
| 2,500 0 | 75.00 | 180.10 | 2,303.4 | -424.7 | -0 7 | 424.7 | 10 00 | 486,737.54 | 423,731.96 |
| 2,550.0 | 80.00 | 180.10 | 2,314.3 | -473.5 | -0.8 | 473.5 | 10 00 | 486,688.74 | 423,731.87 |
| 2,600.0 | 85.00 | 180.10 | 2,320.8 | -523.0 | -0.9 | 523.0 | 10 00 | 486,639.18 | 423,731.79 |
| 2,649.1 | 89 91 | 180 10 | 2,323 0 | -572.1 | -1 0 | 572.1 | 10.00 | 486,590.12 | 423,731.70 |
| 2,677.0 | 89 91 | 180 10 | 2,323 0 | -600 0 | -1 0 | 600.0 | 0.00 | 486,562.20 | 423,731.65 |
| 2,688.1 | 89 86 | 180 10 | 2,323.0 | -611.1 | -1.1 | 611.1 | 0 50 | 486,551.10 | 423,731.63 |
| 2,700.0 | 89.86 | 180 10 | 2,323.1 | -623 0 | -1 1 | 623.0 | 0.00 | 486,539.24 | 423,731.61 |
| 2,800.0 | 89.86 | 180.10 | 2,323.3 | -723.0 | -1.3 | 723 0 | 0.00 | 486,439.24 | 423,731.44 |
| 2,900 0 | 89.86 | 180.10 | 2,323.6 | -823.0 | -1.4 | 823.0 | 0.00 | 486,339.24 | 423,731.26 |
| 3,000.0 | 89.86 | 180.10 | 2,323 8 | -923.0 | -1.6 | 923.0 | 0.00 | 486,239.24 | 423,731.09 |
| 3,100.0 | 89.86 | 180 10 | 2,324 1 | -1,023.0 | -1.8 | 1,023.0 | 0.00 | 486,139 25 | 423,730.92 |
| 3,200 0 | 89 86 | 180 10 | 2,324.3 | -1,123.0 | -2.0 | 1,123.0 | 0.00 | 486,039.25 | 423,730.74 |
| 3,300.0 | 89 86 | 180.10 | 2,324.6 | -1,223.0 | -2 1 | 1,223.0 | 0 00 | 485,939.25 | 423,730 57 |
| 3,400 0 | 89.86 | 180.10 | 2,324.8 | -1,323 0 | -2 3 | 1,323.0 | 0 00 | 485,839.25 | 423,730 39 |
| 3,500.0 | 89.86 | 180.10 | 2,325.1 | -1,423.0 | -2.5 | 1,423.0 | 0.00 | 485,739.25 | 423,730.22 |
| 3,600 0 | 89 86 | 180.10 | 2,325 3 | -1,523.0 | -2.7 | 1,523 0 | 0.00 | 485,639 25 | 423,730.05 |
| 3,700.0 | 89 86 | 180.10 | 2,325 6 | -1,623.0 | -2 8 | 1,623 0 | 0.00 | 485,539.25 | 423,729.87 |
| 3,800.0 | 89.86 | 180.10 | 2,325.8 | -1,723.0 | -3.0 | 1,723.0 | 0 00 | 485,439.25 | 423,729 70 |
| 3,900.0 | 89.86 | 180.10 | 2,326.1 | -1,823 0 | -3.2 | 1,823.0 | 0.00 | 485,339.25 | 423,729.52 |
| 4,000 0 | 89 86 | 180.10 | 2,326.3 | -1,923.0 | -3.3 | 1,923.0 | 0 00 | 485,239.25 | 423,729.35 |
| 4,100.0 | 89 86 | 180.10 | 2,326 6 | -2,023.0 | -3.5 | 2,023 0 | 0.00 | 485,139.25 | 423,729.18 |

| | | | |
|---|---|---|---|
| **Company:** | Mack Energy Corp | **Local Co-ordinate Reference:** | Site Bishop State #1H |
| **Project:** | Eddy County | **TVD Reference:** | WELL @ 4283.0usft (Original Well Elev) |
| **Site:** | Bishop State #1H | **MD Reference:** | WELL @ 4283.0usft (Original Well Elev) |
| **Well:** | State #1H | **North Reference:** | Grid |
| **Wellbore:** | #1H | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | Plan #1 | **Database:** | EDM 5000 1 Single User Db |

**Planned Survey**

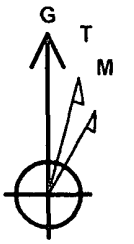
| MD (usft) | Inc (°) | Azi (azimuth) (°) | TVD (usft) | N/S (usft) | E/W (usft) | V. Sec (usft) | DLeg (°/100usft) | Northing (usft) | Easting (usft) |
|---|---|---|---|---|---|---|---|---|---|
| 4,200 0 | 89 86 | 180 10 | 2,326.8 | -2,122.9 | -3.7 | 2,123 0 | 0 00 | 485,039.25 | 423,729.00 |
| 4,300 0 | 89 86 | 180.10 | 2,327.1 | -2,222.9 | -3.9 | 2,223.0 | 0 00 | 484,939.25 | 423,728.83 |
| 4,400 0 | 89.86 | 180 10 | 2,327 3 | -2,322 9 | -4 0 | 2,323.0 | 0 00 | 484,839.25 | 423,728.65 |
| 4,500.0 | 89.86 | 180 10 | 2,327 6 | -2,422 9 | -4.2 | 2,423 0 | 0 00 | 484,739.25 | 423,728.48 |
| 4,600.0 | 89.86 | 180.10 | 2,327.8 | -2,522.9 | -4.4 | 2,523.0 | 0 00 | 484,639.25 | 423,728.31 |
| 4,700.0 | 89 86 | 180.10 | 2,328.1 | -2,622.9 | -4.6 | 2,623 0 | 0 00 | 484,539.25 | 423,728 13 |
| 4,800 0 | 89 86 | 180.10 | 2,328 3 | -2,722 9 | -4 7 | 2,723 0 | 0.00 | 484,439.25 | 423,727.96 |
| 4,900.0 | 89 86 | 180 10 | 2,328.6 | -2,822.9 | -4.9 | 2,823.0 | 0.00 | 484,339.25 | 423,727.78 |
| 5,000.0 | 89 86 | 180 10 | 2,328 8 | -2,922 9 | -5.1 | 2,923 0 | 0 00 | 484,239.25 | 423,727.61 |
| 5,100.0 | 89.86 | 180.10 | 2,329.1 | -3,022 9 | -5.3 | 3,023.0 | 0 00 | 484,139 25 | 423,727.44 |
| 5,200.0 | 89 86 | 180.10 | 2,329.3 | -3,122.9 | -5.4 | 3,122.9 | 0.00 | 484,039 25 | 423,727 26 |
| 5,300 0 | 89 86 | 180.10 | 2,329 6 | -3,222.9 | -5.6 | 3,222 9 | 0.00 | 483,939.26 | 423,727.09 |
| 5,400.0 | 89 86 | 180 10 | 2,329.8 | -3,322.9 | -5.8 | 3,322.9 | 0 00 | 483,839.26 | 423,726.91 |
| 5,500 0 | 89 86 | 180 10 | 2,330.1 | -3,422.9 | -6.0 | 3,422.9 | 0 00 | 483,739 26 | 423,726.74 |
| 5,600.0 | 89.86 | 180 10 | 2,330 3 | -3,522.9 | -6.1 | 3,522.9 | 0 00 | 483,639.26 | 423,726 57 |
| 5,700.0 | 89.86 | 180 10 | 2,330.6 | -3,622.9 | -6.3 | 3,622.9 | 0.00 | 483,539.26 | 423,726.39 |
| 5,800.0 | 89.86 | 180.10 | 2,330.8 | -3,722.9 | -6 5 | 3,722.9 | 0.00 | 483,439 26 | 423,726 22 |
| 5,900.0 | 89.86 | 180.10 | 2,331.1 | -3,822 9 | -6 7 | 3,822 9 | 0.00 | 483,339.26 | 423,726 04 |
| 6,000.0 | 89 86 | 180.10 | 2,331.3 | -3,922.9 | -6 8 | 3,922.9 | 0.00 | 483,239.26 | 423,725.87 |
| 6,100 0 | 89.86 | 180.10 | 2,331 6 | -4,022 9 | -7 0 | 4,022 9 | 0 00 | 483,139.26 | 423,725.69 |
| 6,200.0 | 89 86 | 180.10 | 2,331.8 | -4,122.9 | -7.2 | 4,122 9 | 0.00 | 483,039.26 | 423,725.52 |
| 6,300 0 | 89 86 | 180 10 | 2,332.1 | -4,222.9 | -7.4 | 4,222.9 | 0.00 | 482,939 26 | 423,725 35 |
| 6,400.0 | 89 86 | 180.10 | 2,332 3 | -4,322.9 | -7 5 | 4,322 9 | 0 00 | 482,839.26 | 423,725 17 |
| 6,500.0 | 89.86 | 180 10 | 2,332 6 | -4,422.9 | -7.7 | 4,422.9 | 0 00 | 482,739 26 | 423,725 00 |
| 6 600 0 | 89.86 | 180 10 | 2,332 8 | -4,522.9 | -7.9 | 4,522.9 | 0 00 | 482,639 26 | 423,724.82 |
| 6,671 5 | 89.86 | 180 10 | 2,333 0 | -4,594 4 | -8.0 | 4,594.4 | 0.00 | 482,567.80 | 423,724.70 |

| | | | |
|---|---|---|---|
| **Company:** | Mack Energy Corp | **Local Co-ordinate Reference:** | Site Bishop State #1H |
| **Project:** | Eddy County | **TVD Reference:** | WELL @ 4283.0usft (Original Well Elev) |
| **Site:** | Bishop State #1H | **MD Reference:** | WELL @ 4283.0usft (Original Well Elev) |
| **Well:** | State #1H | **North Reference:** | Grid |
| **Wellbore:** | #1H | **Survey Calculation Method:** | Minimum Curvature |
| **Design:** | Plan #1 | **Database:** | EDM 5000.1 Single User Db |

Checked By: _____ Approved By: _____ Date: _____

MACK Energy Corporation

| SITE DETAILS: Bishop State #1H | |
|---|---|
| Site Centre Northing: | 487162.20 |
| Easting: | 423732.70 |
| Positional Uncertainity: | 0.0 |
| Convergence: | -0.13 |
| Local North: | Grid |




Azimuths to Grid North
True North: 0.13°
Magnetic North: 8.01°

Magnetic Field
Strength: 48473.1snT
Dip Angle: 60.11°
Date: 10/29/2012
Model: IGRF200510

SECTION DETAILS

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | DIeg | TFace | VSect | Target |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | |
| 2 | 1750.0 | 0.00 | 0.00 | 1750.0 | 0.0 | 0.0 | 0.00 | 0.00 | 0.0 | |
| 3 | 2649.1 | 89.91 | 180.10 | 2323.0 | -572.1 | -1.0 | 10.00 | 180.10 | 572.1 | |
| 4 | 2677.0 | 89.91 | 180.10 | 2323.0 | -600.0 | -1.0 | 0.00 | 0.00 | 600.0 | 600VS Bishop #1 |
| 5 | 2688.1 | 89.86 | 180.10 | 2323.0 | -611.1 | -1.1 | 0.50 | -179.72 | 611.1 | |
| 6 | 6671.5 | 89.86 | 180.10 | 2333.0 | -4594.4 | -8.0 | 0.00 | 0.00 | 4594.4 | BHL Bishop #1 |

DESIGN TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Shape |
|---|---|---|---|---|---|---|---|---|
| 600VS Bishop #1 - plan hits target center | 2323.0 | -600.0 | -1.0 | 486562.20 | 423731.6[illegible] | 32° 20' 14.761[illegible] | 104° 34' 48.982 W | Point |
| BHL Bishop #1 - plan hits target center | 2333.0 | -4594.4 | -8.0 | 482567.80 | 423724.7[illegible] | 32° 19' 35.231[illegible] | 104° 34' 48.956 W | Point |

330 FSL and 330 FEL are Hard Lines. We can be north, west, or northwest, but not south, east, or southeast. From BHL the well is 25' north or the South hard line and 25' west of the east hard line.