

S

OCD-ARTESIA

Secretary's Potash

SEP 12 2008

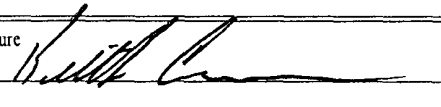
OCD-ARTESIA

FORM APPROVED  
OMB No. 1004-0137  
Expires July 31, 2010UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
APPLICATION FOR PERMIT TO DRILL OR REENTER

|  |  |  |  |
|--|--|--|--|
| 1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER   |  | 5. Lease Serial No.<br>NMNM-26385                                  |  |
| 1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone |  | 6. If Indian, Allottee or Tribe Name                               |  |
| 2. Name of Operator NADEL AND GUSSMAN HEYCO, LLC   |  | 7. If Unit or CA Agreement, Name and No                            |  |
| 3a. Address P.O. BOX 1936<br>ROSWELL N.M 88202   |  | 8. Lease Name and Well No. 305041<br>LOCO SAND HILLS 9 FEDERAL 2H  |  |
| 3b. Phone No. (include area code)<br>(575) 623-6601  |  | 9. API Well No.<br>30-015-36643                                    |  |
| 4. Location of Well (Report location clearly and in accordance with any State requirements.)<br>At surface 890' FSL & 490' FWL - M<br>At proposed prod. zone 1650' FNL & 410' FWL - Capitán Controlled Water Basin     |  | 10. Field and Pool, or Exploratory<br>LOCO HILLS; BONE SPRING EAST |  |
| 14. Distance in miles and direction from nearest town or post office*<br>5 MILES SOUTH OF LOCO HILLS N.M.  |  | 11. Sec., T. R. M. or Blk. and Survey or Area<br>SEC 9, T18S, R30E |  |
| 15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any)<br>490'   |  | 12. County or Parish<br>EDDY                                       |  |
| 16. No. of acres in lease<br>440.00  |  | 13. State<br>N.  |  |
| 17. Spacing Unit dedicated to this well<br>120 Acre  |  |  |  |
| 18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 4100'   |  | 20. BLM/BIA Bond No. on file<br>NMB00520                           |  |
| 19. Proposed Depth<br>TVD 8085<br>MD 10608.6   |  |  |  |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc.)<br>3511.1  |  | 22. Approximate date work will start*<br>08/15/2008                |  |
| 23. Estimated duration<br>40 DAYS  |  |  |  |
| 24. Attachments  |  |  |  |

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No 1, must be attached to this form:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- Such other site specific information and/or plans as may be required by the BLM.

|  |   |                     |
|--|---|---------------------|
| 25. Signature<br> | Name (Printed Typed)<br>Keith Cannon        | Date<br>06/12/2008  |
| Title<br>Drilling superintendent   |   |                     |
| Approved by (Signature)<br>/s/ Linda S. C. Rundell   | Name (Printed Typed)<br>Linda S. C. Rundell | Date<br>SEP 09 2008 |
| Title<br>STATE DIRECTOR NM STATE 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.

(Continued on page 2)

\*(Instructions on page 2)

SEE ATTACHED FOR  
CONDITIONS OF APPROVALAPPROVAL SUBJECT TO  
GENERAL REQUIREMENTS  
AND SPECIAL STIPULATIONS  
ATTACHED

**United States Department of the Interior**

**BUREAU OF LAND MANAGEMENT  
Roswell Resource Area  
P.O. Drawer 1857  
Roswell, New Mexico 88202-1857**

**Statement Accepting Responsibilities for Operations**

**Operator Name: Nadel and Gussman Heyco, LLC  
Street or Box: P.O. Box 1936  
City, State: Roswell, New Mexico  
Zip Code: 88202**

**The undersigned accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted on the leased land or portion thereof, as described below.**

**Lease No.: NMNM - 26385**

**Lease Name: Loco Sand Hills 9 Federal #2H  
Legal description of land: SL: 890' FSL & 490' FWL, BHL: 1650' FNL & 410 FWL  
Sec 9, T18S, R30E, Eddy County, New Mexico**

**Formation(s) (if applicable): Bone spring 2<sup>nd</sup> sands, C zone carbonate, 2<sup>nd</sup> sd C bench**

**Bond Coverage: Statewide Bond**

**BLM Bond File No.: NMB00520**

**Authorized Signature:**



**Title: Drilling Superintendent**

**Date: 6/12/08**

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD-ARTESIA

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

## SUNDRY NOTICES AND REPORTS ON WELLS

**Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.**

**SUBMIT IN TRIPLICATE- Other instructions on reverse side.**1. Type of Well  
☒ Oil Well ☐ Gas Well ☐ Other2. Name of Operator **Nadel and Gussman HEYCO, LLC**3a. Address  
**PO BOX 1936 ~ ROSWELL NM 88202-1936**3b. Phone No. (include area code)  
**505.623.6601**4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
**890' FSL & 490' FWL, Sec. 9, T18S, R30E**5. Lease Serial No  
**NM-26385**

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

8. Well Name and No.  
**Loco Sand Hills 9 Fedearl 2H**

9. API Well No.

10. Field and Pool, or Exploratory Area  
**Loco Hills; Bone Spring East**11. County or Parish, State  
**Eddy, New Mexico**

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

| TYPE OF SUBMISSION                                   | TYPE OF ACTION                                   |   |  |   |
|--|--|---|--|---|
| <input checked="" type="checkbox"/> Notice of Intent | <input type="checkbox"/> Acidize                 | <input type="checkbox"/> Deepen           | <input type="checkbox"/> Production (Start/Resume) | <input type="checkbox"/> Water Shut-Off |
| <input type="checkbox"/> Subsequent Report           | <input type="checkbox"/> Alter Casing            | <input type="checkbox"/> Fracture Treat   | <input type="checkbox"/> Reclamation               | <input type="checkbox"/> Well Integrity |
| <input type="checkbox"/> Final Abandonment Notice    | <input type="checkbox"/> Casing Repair           | <input type="checkbox"/> New Construction | <input type="checkbox"/> Recomplete                | <input type="checkbox"/> Other          |
|  | <input checked="" type="checkbox"/> Change Plans | <input type="checkbox"/> Plug and Abandon | <input type="checkbox"/> Temporarily Abandon       |   |
|  | <input type="checkbox"/> Convert to Injection    | <input type="checkbox"/> Plug Back        | <input type="checkbox"/> Water Disposal            |   |

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleate horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleation in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

**Going from Pit's to Closed Loop System.***OK C.I. 07/23/08*

14. I hereby certify that the foregoing is true and correct
- 
- Name (Printed/Typed)

**Tammy R. Link**Title **Production Tech**

Signature

Date

**07/07/2008****THIS SPACE FOR FEDERAL OR STATE OFFICE USE**Approved by **/s/ Linda S. C. Rundell****STATE DIRECTOR**Date **SEP 09 2008**

Conditions of approval, if any, are attached. Approval of this notice 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.

Office

**NM STATE OFFICE**

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)

RECEIVED MAY 21 2008

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                     |
|               | 39513                        | LOCO HILLS: BONE SPRING, EAST |
| Property Code | Property Name                | Well Number                   |
| 12959         | LOCO SAND HILLS 9 FEDERAL    | 2H                            |
| OGRID No.     | Operator Name                | Elevation                     |
| 258462        | NADEL AND GUSSMAN HEYCO, LLC | 3511'                         |

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             | 9       | 18-S     | 30-E  |         | 890           | SOUTH            | 490           | 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 |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| E             | 9       | 18-S     | 30-E  |         | 1650          | NORTH            | 410           | 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

**BOTTOM HOLE LOCATION**  
Y=642037.5 N  
X=607471.6 E

**DETAIL**  
3516.0' 3520.1'  
600'  
3513.1' 3519.1'

**GEODETIC COORDINATES**  
NAD 27 NME  
SURFACE LOCATION  
Y=639301.0 N  
X=607561.1 E  
LAT. = 32.757043° N  
LONG. = 103.983452° W

GRID AZ. = 358°07'32"  
HORIZ. DIST. = 2738.7'

NMNM-26385

120 acres

SEE 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.

*Keith Cannon* 6/12/08  
Signature Date  
Keith Cannon  
Printed Name

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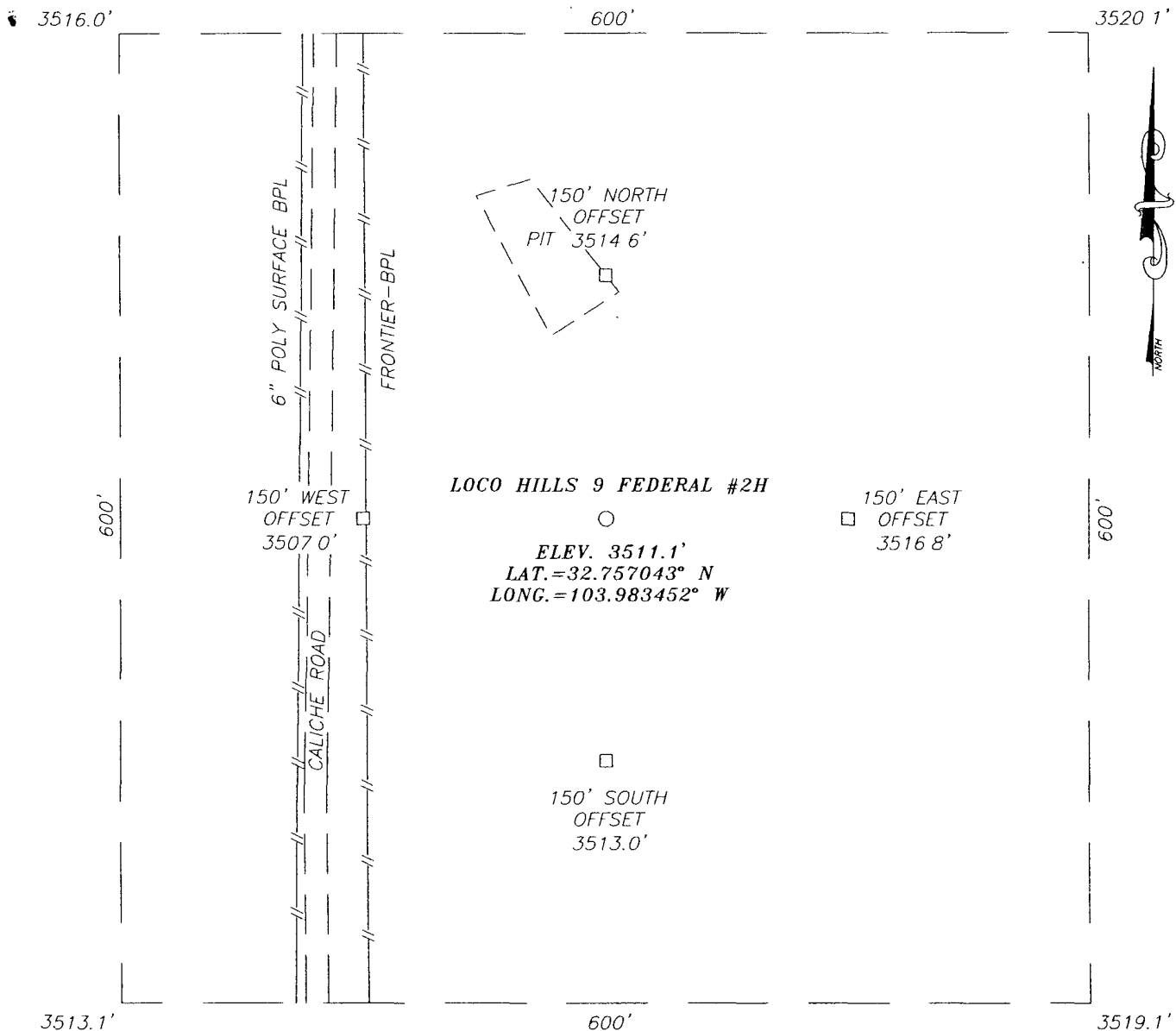
**SURVEYOR CERTIFICATION**

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.

APR 30 2008  
NEW MEXICO  
GARY EIDSON  
Professional Surveyor  
15/20/08  
1241  
3239

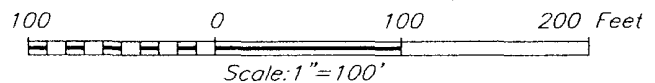
Certificate No. GARY EIDSON 12641  
RONALD J. EIDSON 3239

**SECTION 9, TOWNSHIP 18 SOUTH, RANGE 30 EAST, N.M.P.M.,**  
 EDDY COUNTY, NEW MEXICO



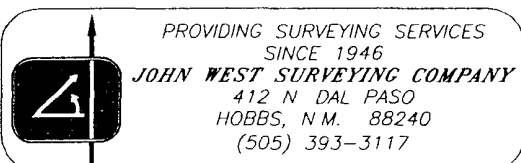
**DIRECTIONS TO LOCATION**

FROM THE INTERSECTION OF CO. RD. #217  
 (HAGERMAN CUTOFF RD.) AND GO RD. #216  
 (GENERAL AMERICAN RD.), GO SOUTH ON CO. RD.  
 #216 APPROX. 0.3 MILES TURN LEFT AND GO  
 EAST APPROX. 1.5 MILES. BEND RIGHT AND GO  
 SOUTHEAST APPROX. 0.6 MILES. TURN RIGHT AND  
 GO SOUTH APPROX. 1.4 MILES THIS LOCATION IS  
 APPROX. 175 FEET EAST



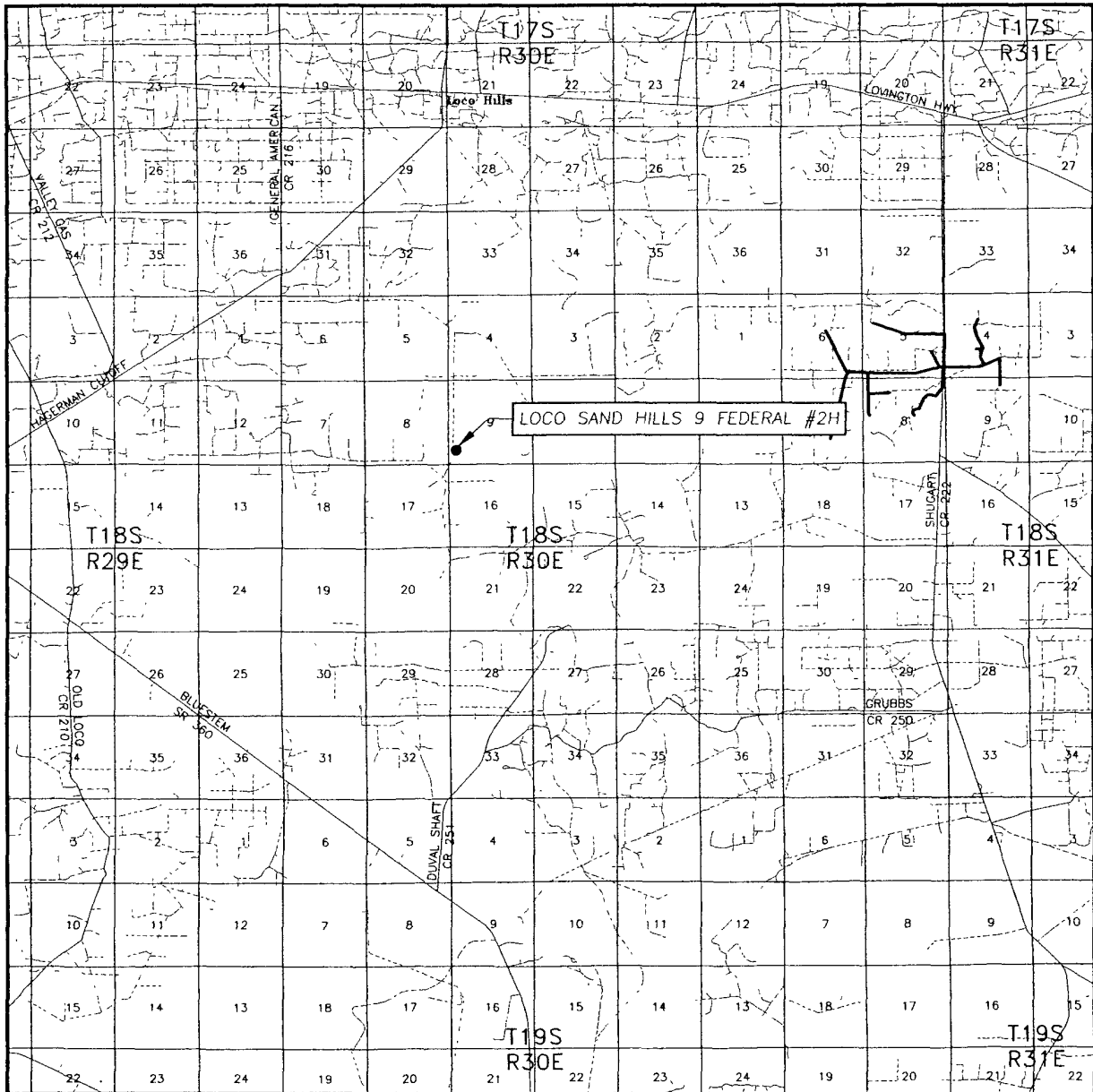
**NADEL AND GUSSMAN HEYCO, LLC**

LOCO SAND HILLS 9 FEDERAL #2H WELL  
 LOCATED 890 FEET FROM THE SOUTH LINE  
 AND 490 FEET FROM THE WEST LINE OF SECTION 9,  
 TOWNSHIP 18 SOUTH, RANGE 30 EAST, N.M.P.M.,  
 EDDY COUNTY, NEW MEXICO



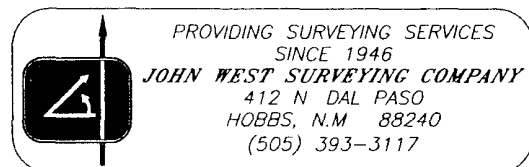
|                        |                     |
|------------------------|---------------------|
| Survey Date: 4/30/08   | Sheet 1 of 1 Sheets |
| W O Number. 08 11.0494 | Dr By AR            |
| Date: 2/01/08          | Disk                |
| 08110494               | Scale: 1"=100'      |

# VICINITY MAP

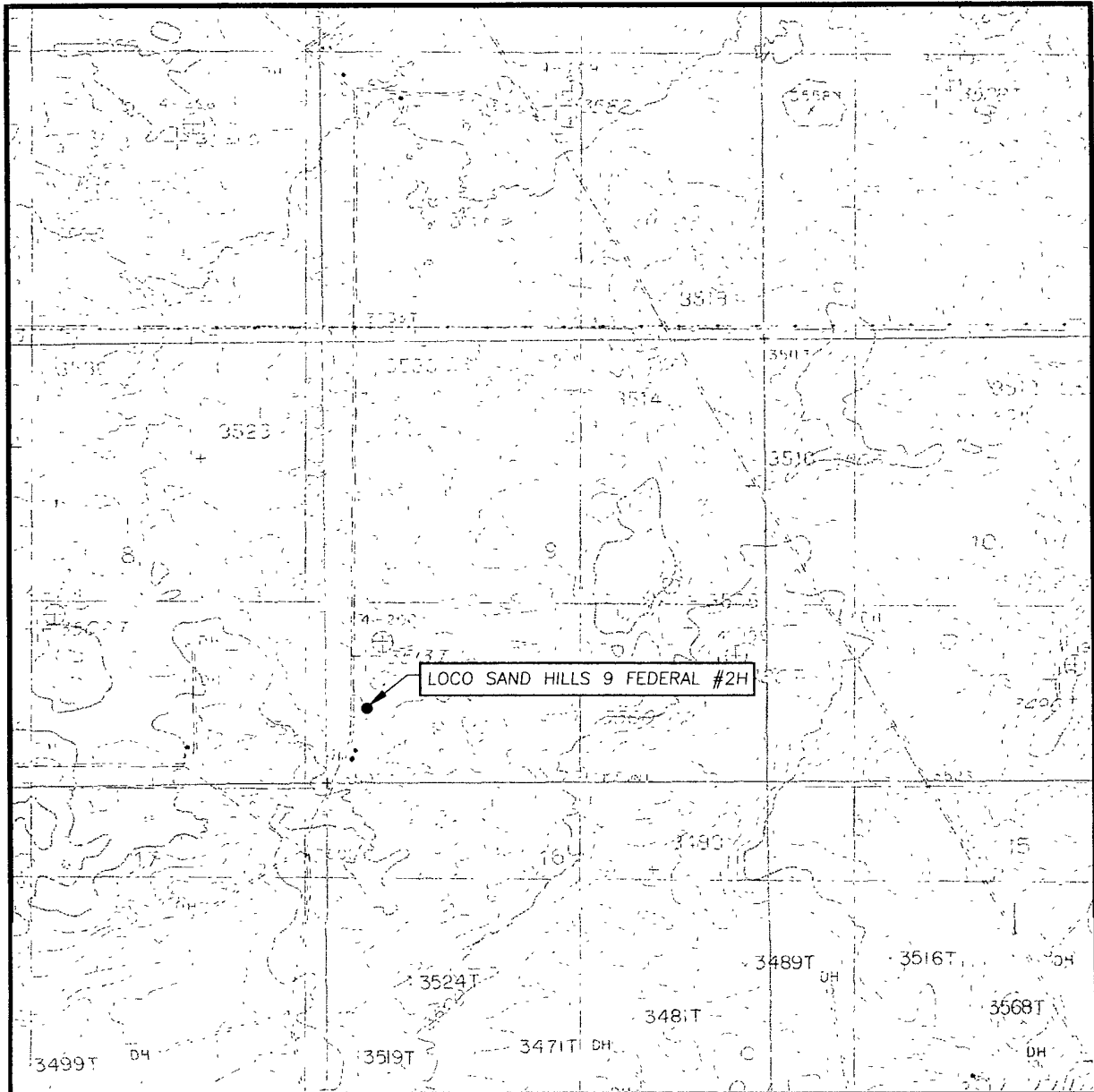


SCALE: 1" = 2 MILES

SEC. 9 TWP. 18-S RGE. 30-E  
 SURVEY \_\_\_\_\_ N.M.P.M.  
 COUNTY EDDY STATE NEW MEXICO  
 DESCRIPTION 890' FSL & 490' FWL  
 ELEVATION 3511'  
 OPERATOR NADEL AND GUSSMAN HEYCO, LLC  
 LEASE LOCO SAND HILLS 9 FEDERAL



# LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:  
LOCO HILLS, N.M. - 10'

SEC. 9 TWP. 18-S RGE. 30-E

SURVEY \_\_\_\_\_ N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

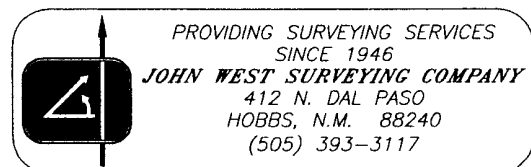
DESCRIPTION 890' FSL & 490' FWL

ELEVATION 3511'

OPERATOR NADEL AND  
GUSSMAN HEYCO, LLC

LEASE LOCO SAND HILLS 9 FEDERAL

U.S.G.S. TOPOGRAPHIC MAP  
LOCO HILLS, N.M.





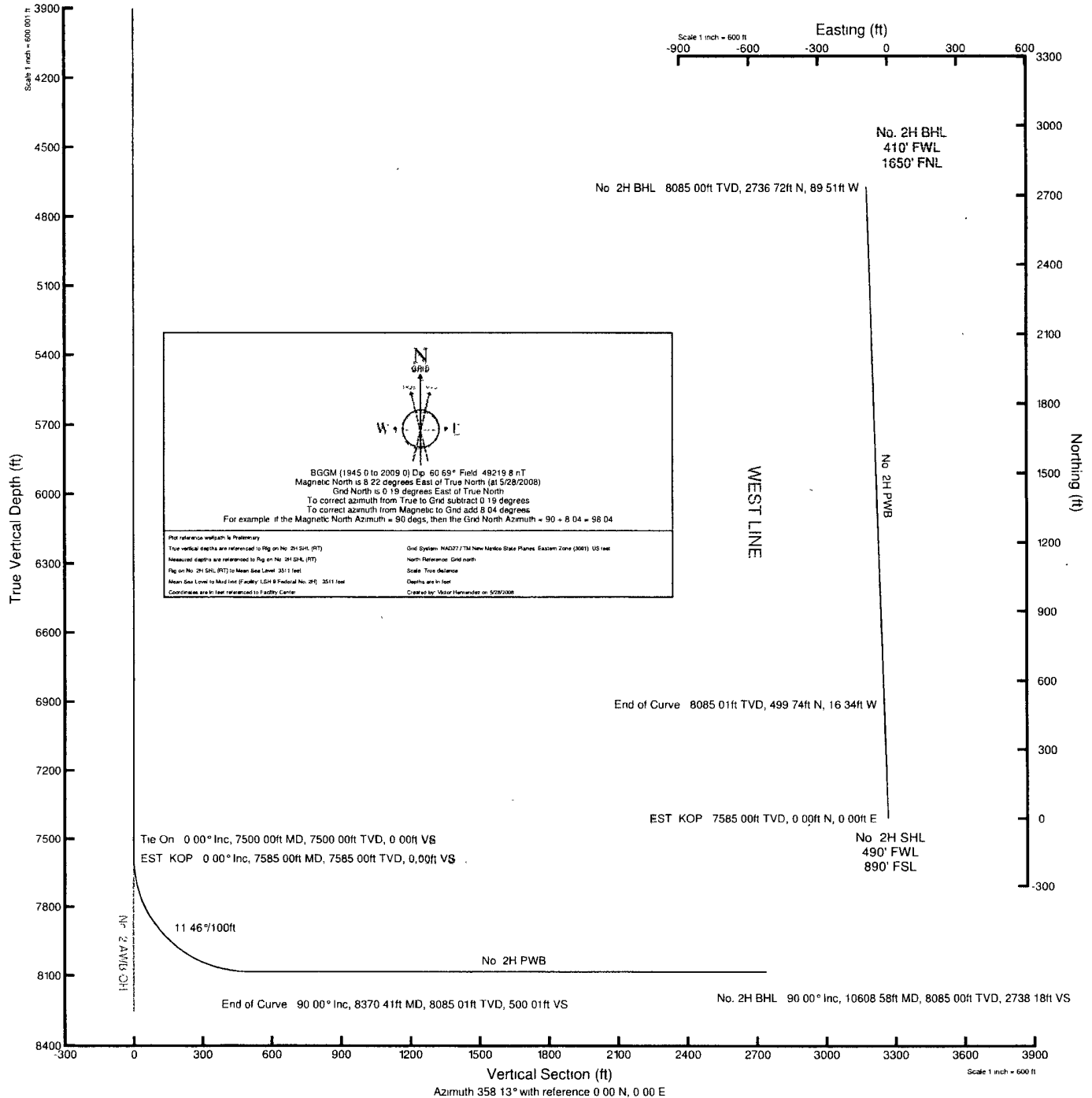
# Nadel & Gussman Permian, LLC

Location: Eddy County, NM Slot: No 2H SHL  
Field LSH 9 Federal No 2H Well: No 2H  
Facility LSH 9 Federal No. 2H Wellbore No. 2H PWB



## Well Profile Data

| Design Comment | MD (ft)  | Inc (°) | Az (°)  | TVD (ft) | Local N (ft) | Local E (ft) | DLS (%/100ft) | VS (ft) |
|----------------|----------|---------|---------|----------|--------------|--------------|---------------|---------|
| Tie On         | 7500.00  | 0.000   | 358.127 | 7500.00  | 0.00         | 0.00         | 0.00          | 0.00    |
| EST KOP        | 7585.00  | 0.000   | 358.127 | 7585.00  | 0.00         | 0.00         | 0.00          | 0.00    |
| End of Curve   | 8370.41  | 90.000  | 358.127 | 8085.01  | 499.74       | -16.34       | 11.46         | 500.01  |
| No 2H BHL      | 10608.58 | 90.000  | 358.127 | 8085.00  | 2736.72      | -89.51       | 0.00          | 2738.18 |







# Planned Wellpath Report

Preliminary

Page 2 of 3



INTEQ

## REFERENCE WELL IDENTIFICATION

|          |                              |                |                            |
|----------|------------------------------|----------------|----------------------------|
| Operator | Nadel & Gussman Permian, LLC | Slot           | No. 2H SHL                 |
| Area     | Eddy County, NM              | Well           | No. 2H                     |
| Field    | LSH 9 Federal No. 2H         | Wellbore       | No. 2H PWB                 |
| Facility | LSH 9 Federal No. 2H         | Sidetrack from | No. 2 AWB OH at 7500.00 MD |

## WELLPATH DATA (36 stations) † = interpolated/extrapolated station

| MD<br>[ft] | Inclination<br>[°] | Azimuth<br>[°] | TVD<br>[ft] | Vert Sect<br>[ft] | North<br>[ft] | East<br>[ft] | DLS<br>[°/100ft] | Comments     |
|------------|--------------------|----------------|-------------|-------------------|---------------|--------------|------------------|--------------|
| 0.00       | 0.000              | 358.127        | 0.00        | 0.00              | 0.00          | 0.00         | 0.00             |              |
| 7500.00    | 0.000              | 358.127        | 7500.00     | 0.00              | 0.00          | 0.00         | 0.00             | Tie On       |
| 7585.00    | 0.000              | 358.127        | 7585.00     | 0.00              | 0.00          | 0.00         | 0.00             | EST KOP      |
| 7600.00†   | 1.719              | 358.127        | 7600.00     | 0.22              | 0.22          | -0.01        | 11.46            |              |
| 7700.00†   | 13.178             | 358.127        | 7698.99     | 13.17             | -13.16        | -0.43        | 11.46            |              |
| 7800.00†   | 24.637             | 358.127        | 7793.44     | 45.52             | 45.49         | -1.49        | 11.46            |              |
| 7900.00†   | 36.096             | 358.127        | 7879.57     | 95.99             | 95.93         | -3.14        | 11.46            |              |
| 8000.00†   | 47.555             | 358.127        | 7953.97     | 162.56            | 162.47        | -5.31        | 11.46            |              |
| 8100.00†   | 59.014             | 358.127        | 8013.65     | 242.59            | 242.46        | -7.93        | 11.46            |              |
| 8200.00†   | 70.473             | 358.127        | 8056.25     | 332.88            | 332.70        | -10.88       | 11.46            |              |
| 8300.00†   | 81.932             | 358.127        | 8080.06     | 429.83            | 429.60        | -14.05       | 11.46            |              |
| 8370.41    | 90.000             | 358.127        | 8085.01     | 500.01            | 499.74        | -16.34       | 11.46            | End of Curve |
| 8400.00†   | 90.000             | 358.127        | 8085.01     | 529.60            | 529.31        | -17.31       | 0.00             |              |
| 8500.00†   | 90.000             | 358.127        | 8085.01     | 629.60            | 629.26        | -20.58       | 0.00             |              |
| 8600.00†   | 90.000             | 358.127        | 8085.01     | 729.60            | 729.21        | -23.85       | 0.00             |              |
| 8700.00†   | 90.000             | 358.127        | 8085.01     | 829.60            | 829.15        | -27.12       | 0.00             |              |
| 8800.00†   | 90.000             | 358.127        | 8085.01     | 929.60            | 929.10        | -30.39       | 0.00             |              |
| 8900.00†   | 90.000             | 358.127        | 8085.01     | 1029.60           | 1029.05       | -33.66       | 0.00             |              |
| 9000.00†   | 90.000             | 358.127        | 8085.00     | 1129.60           | 1128.99       | -36.92       | 0.00             |              |
| 9100.00†   | 90.000             | 358.127        | 8085.00     | 1229.60           | 1228.94       | -40.19       | 0.00             |              |
| 9200.00†   | 90.000             | 358.127        | 8085.00     | 1329.60           | 1328.89       | -43.46       | 0.00             |              |
| 9300.00†   | 90.000             | 358.127        | 8085.00     | 1429.60           | 1428.83       | -46.73       | 0.00             |              |
| 9400.00†   | 90.000             | 358.127        | 8085.00     | 1529.60           | 1528.78       | -50.00       | 0.00             |              |
| 9500.00†   | 90.000             | 358.127        | 8085.00     | 1629.60           | 1628.73       | -53.27       | 0.00             |              |
| 9600.00†   | 90.000             | 358.127        | 8085.00     | 1729.60           | 1728.67       | -56.54       | 0.00             |              |
| 9700.00†   | 90.000             | 358.127        | 8085.00     | 1829.60           | 1828.62       | -59.81       | 0.00             |              |
| 9800.00†   | 90.000             | 358.127        | 8085.00     | 1929.60           | 1928.57       | -63.08       | 0.00             |              |
| 9900.00†   | 90.000             | 358.127        | 8085.00     | 2029.60           | 2028.51       | -66.34       | 0.00             |              |
| 10000.00†  | 90.000             | 358.127        | 8085.00     | 2129.60           | 2128.46       | -69.61       | 0.00             |              |
| 10100.00†  | 90.000             | 358.127        | 8085.00     | 2229.60           | 2228.41       | -72.88       | 0.00             |              |



# Planned Wellpath Report

Preliminary

Page 3 of 3



INTEQ

## REFERRING WELL PATH IDENTIFICATION

|          |                              |                |                            |
|----------|------------------------------|----------------|----------------------------|
| Operator | Nadel & Gussman Permian, LLC | Slot           | No. 2H SHL                 |
| Area     | Eddy County, NM              | Well           | No. 2H                     |
| Field    | LSH 9 Federal No. 2H         | Wellbore       | No. 2H PWB                 |
| Facility | LSH 9 Federal No. 2H         | Sidetrack from | No. 2 AWB OH at 7500.00 MD |

## WELLPATH DATA (36 stations) † = interpolated/extrapolated station

| MD<br>[ft] | Inclination<br>[°] | Azimuth<br>[°] | TVD<br>[ft] | Vert Sect<br>[ft] | North<br>[ft] | East<br>[ft] | DLS<br>[°/100ft] | Comments   |
|------------|--------------------|----------------|-------------|-------------------|---------------|--------------|------------------|------------|
| 10200.00†  | 90.000             | 358.127        | 8085.00     | 2329.60           | 2328.35       | -76.15       | 0.00             |            |
| 10300.00†  | 90.000             | 358.127        | 8085.00     | 2429.60           | 2428.30       | -79.42       | 0.00             |            |
| 10400.00†  | 90.000             | 358.127        | 8085.00     | 2529.60           | 2528.25       | -82.69       | 0.00             |            |
| 10500.00†  | 90.000             | 358.127        | 8085.00     | 2629.60           | 2628.19       | -85.96       | 0.00             |            |
| 10600.00†  | 90.000             | 358.127        | 8085.00     | 2729.60           | 2728.14       | -89.23       | 0.00             |            |
| 10608.58   | 90.000             | 358.127        | 8085.00†    | 2738.18           | 2736.72       | -89.51       | 0.00             | No. 2H BHL |

## TARGETS

| Name          | MD<br>[ft] | TVD<br>[ft] | North<br>[ft] | East<br>[ft] | Grid East<br>[srv ft] | Grid North<br>[srv ft] | Latitude       | Longitude       | Shape |
|---------------|------------|-------------|---------------|--------------|-----------------------|------------------------|----------------|-----------------|-------|
| 1) No. 2H BHL | 10608.58   | 8085.00     | 2736.72       | -89.51       | 607471.60             | 642037.50              | 32°45'52.437"N | 103°59'01.369"W | point |

## SURVEY PROGRAM Ref Wellbore: No. 2H PWB Ref Wellpath: Preliminary

| Start MD<br>[ft] | End MD<br>[ft] | Positional Uncertainty Model | Log Name/Comment | Wellbore   |
|------------------|----------------|------------------------------|------------------|------------|
| 0.00             | 10608.58       | NaviTrak (Standard)          |                  | No. 2H PWB |

Application  
Nadel and Gussman Heyco, LLC  
**Loco Sand Hills 9 Federal #2H**  
Sec 9, T18S, R30E  
SHL: 890' FSL & 490' FWL  
BHL: 1650' FNL & 410' FWL  
Eddy County, New Mexico

In conjunction with Form 3160-3, Application For Permit To Drill Or Deepen subject well, Nadel and Gussman Heyco, LLC submits the following ten items of pertinent information in accordance with Onshore Oil & Gas Order No. 10.

1. Geologic Name of Surface Formation:  
Permian

2. Estimated Tops of Significant Geologic Markers:  
Formation                      Depth

| Qal At Surface                            | MD      | TVD   | Water |
|---|---------|-------|-------|
| Eroded or Collapsed Rustler               | 345'    |       |       |
| Salado                                    | 475'    |       |       |
| BX (Base Of Salt)                         | 1265'   |       |       |
| Yates                                     | 1465'   |       | Oil   |
| Seven River                               | 1825'   |       | Oil   |
| Bowers                                    | 2265'   |       | Oil   |
| Queen                                     | 2475'   |       | Oil   |
| Penrose                                   | 2640'   |       | Oil   |
| Grayburg                                  | 2845'   |       | Oil   |
| San Andres                                | 3335'   |       | Oil   |
| Bone Spring Ls                            | 4560'   |       | Oil   |
| BSPG "A" Zone Dol.                        | 6950'   |       | Oil   |
| 1 <sup>st</sup> BSPG Sand                 | 7050'   |       | Oil   |
| BSPG "B" Zone Dol.                        | 7350'   |       | Oil   |
| 2 <sup>nd</sup> BSPG Sand                 | 7560'   |       | Oil   |
| 2 <sup>nd</sup> BSPG Sand "C" Bench T/pay | 8060'   |       | Oil   |
| 2 <sup>nd</sup> BSPG Sand "C" Bench B/pay | 8170'   |       | Oil   |
| Pilot Hole TD                             | 8300'   |       |       |
| KOP                                       | 7635'   | 7635' |       |
| Top "B" Bench                             | 7875'   | 7760' |       |
| Top "C" Bench                             | 8165'   | 8060' |       |
| 1 <sup>st</sup> Horz. Target Point        | 8435'   | 8115' |       |
| BHL Target @ PTD                          | 10,600' | 8040' |       |

No other formations are expected to yield oil, gas, or fresh water in measurable volumes.  
The surface fresh water sands will be protected by setting 13 3/8" casing at 400' and circulating Cement back to surface. Potash/ fresh water sands will be protected by setting 9 5/8" casing at 3385' and circulating cement back to surface. Other intervals will be isolation by setting 5 1/2" Casing to total depth and circulating cement up into the 9 5/8" casing.

3. Proposed Casing Program:

| Hole size | DEPTH           | OD CSG  | WEIGHT | COLLAR | GRADE | New/Used |
|-----------|-----------------|---------|--------|--------|-------|----------|
| 17 1/2"   | 0' - 400'       | 13 3/8" | 48#    | ST&C   | H-40  | NEW      |
| 12 1/4"   | 0' - 3385'      | 9 5/8"  | 40#    | ST&C   | J-55  | NEW      |
| 8 3/4"    | 0' - 2500'      | 5 1/2"  | 17#    | LT&C   | L-80  | NEW      |
| 8 3/4"    | 2500' - 10,600' | 5 1/2"  | 17#    | LT&C   | L-80  | NEW      |

Safety Factors: Burst 1.0      Collapse 1.125      Tension 1.8

4. Cement Program: ( Note yields; and DV tool depths if multiple stages )

- a. 13 3/8" Surface Cement to surface with 165sx 35:65 Poz C, 2% CaCl, 1/4ppg Celloflake 6% Bentonite, 12.7ppg 1.94 cu.ft/sk yield, TOC @ surface  
Tail – 200sx C, 2% CaCl, 1/4ppg Celloflake, 14.8ppg. Yield, 1.34 TOC – Surface
- b. 9 5/8" Intermediate Cement to surface with 500sx 50:50 Poz C 5& salt, 0.125pps celloflake, 10% Bentonite and 0.2% AntiFoamer, 11.9 ppg, 2.46 cu.ft/sk yield, TOC @ surface  
Tail 200 sx C and 1% CaCl, 14.8 ppg, 1.33 cu.ft/sk Yield, TOC @ 2825'
- c. 5 1/2" Production 1<sup>st</sup> stage ( DV tool @ 6500')  
Lead – None  
Tail – 1150sx TXI Light weight, 1.33% salt, 0.2% antiFoamer, 0.3%, Uniflac 0.2% TIC Dispersant and 0.55% Retarder, 13.0ppg, 1.41 cy.ft./sk yield TOC @ 6500'
- 2<sup>nd</sup> Stage: Lead 400sx 35:65 Poz H, 5% Salt, 6% Bentonite, 0.2% Uniflac, 0.2% TIC Dispersant, 0.2% AnyiFoamer and 0.2% Retarder, 12.6ppg 2.04 cu.ft./sk  
Yield, TOC @ 3185'  
Tail 200sx TXI lightweight, 1.33% salt, 0.2% AntiFoamer, 0.3% Uniflac, 0.2% TIC Despersant and 0.2% Retarder, 13.0ppg, 1.39 cu.ft./sk Yield TOC @ 5660'

The above cement volumes could be revised pending the caliper measurement  
From the open hole logs. The top of cement is designed to reach approximately  
500' above the 9 5/8" casing shoe.

5. Pressure Control Equipment:

The blowout preventor equipment (BOP) shown in Exhibit #1 will consist of a (5m system)  
Double ram type (5000psi WP) preventor and a bag type (hydril) preventor (5000psi WP)  
and rotating head. Both unit will be hydraulically operated and the ram type preventor will  
be equipped with blind rams on top 4 1/2" drill pipe rams on bottom. The drilling head will  
be installed on the 13 3/8" surface casing and ntilized continuously unit depth is reached.

see COA All BOP's and associated equipment will be tested to 1200psi with the rig pump before drilling  
Out the 13 3/8" casing shoe (70% of 48# H-40 casing). Prior to drilling out the 9 5/8" shoe, the  
The BOP's and Hydril will be tested as per BLM Drilling Operations Order #2. Pipe rams will be  
Operated and checked each 24hr period and each time drill pipe is out of the hole. These functional  
Test will be documented on the daily driller log. A 2" kill line and 3" choke line will be incorporated  
In the drilling spool below the ram-type BOP. Other accessory BOP equipment will include a Kelly  
Cock, floor safety valve, choke line and choke manifold having a 5000psi wp rating.

6. Drilling Fluid Program:

| Depth           | Mud Wt.   | Visc  | Fluid Loss | Type System               |
|-----------------|-----------|-------|------------|---------------------------|
| 0' – 400'       | 8.4 – 8.8 | 80-55 | NC         | Fresh Water               |
| 400' – 3385'    | 98-10.0   | 28-30 | NC         | Cut Brine                 |
| 3385' – 6900'   | 8.8-9.2   | 28-32 | NC         | Fresh Water               |
| 8600' – 10,600' | 8.8-9.2   | 28-34 | 10-12      | Cut Brine Water + Polymer |

The necessary mud products for weight addition and fluid loss control will be on  
Location at all times. Mud Program Subject to change due to hole conditions.

7. Auxiliary Equipment:

- A Kelly Cock will be in the drill string at all times.
- A full opening drill pipe stabbing valve having the appropriate Connections will be on the rig floor at all times.
- Hydrogen Sulfide detection equipment will be in operation after drilling  
Out the 13 3/8" casing shoe unit the 5 1/2" casing is cemented. Breathing  
Equipment will be on location upon drilling the 13 3/8" shoe unit total

Depth is reached.

**8. Testing, Logging, & Coring Program:**

- a. Mud logging unit from the base intermediate casing to depth  
10' samples will be caught by loggers
- b. Possible rotary sidewall cores
- c. No DST'S
- e. Platform express ( GR / LDT – CNL – PE / DLL – MCFL / NGT)

**9. Abnormal Conditions, Pressures, Temperature, or Potential Hazards:**

No abnormal conditions are expected. There is no known presence of H2S in this area.  
If H2S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No 6. If Lost circulation might occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well.  
Estimated BHP 4700 psi and estimated BHT 180. No H2S is anticipated to be encountered.

**9. Anticipated Starting Date & Duration of Operation:**

The anticipated starting date is set for as soon as possible after examination and approval of all drilling requirements.  
Duration of this project will be approximately 50 days from start of  
Construction of drilling pad until finish of completion operations

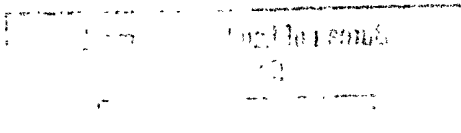
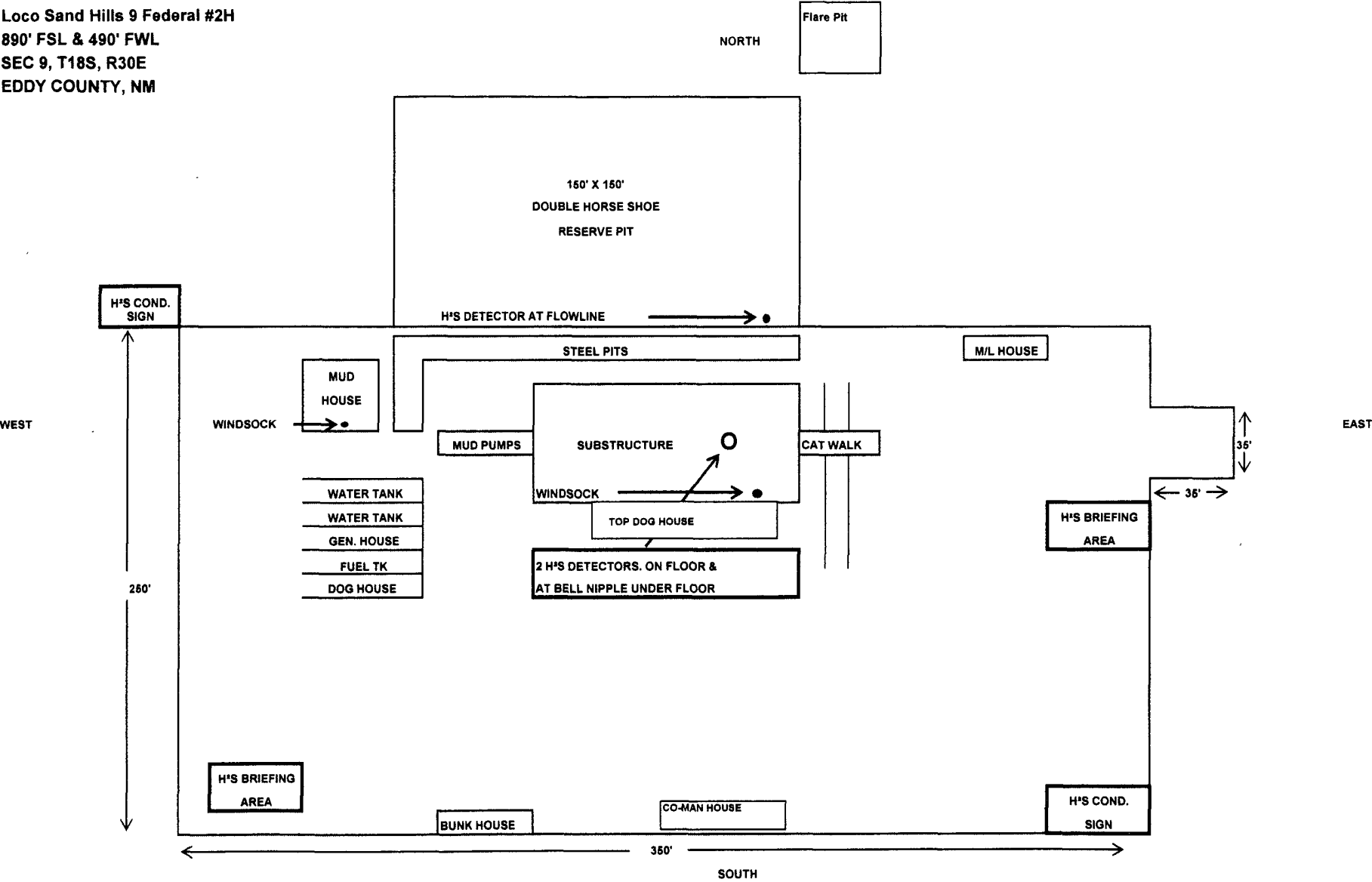


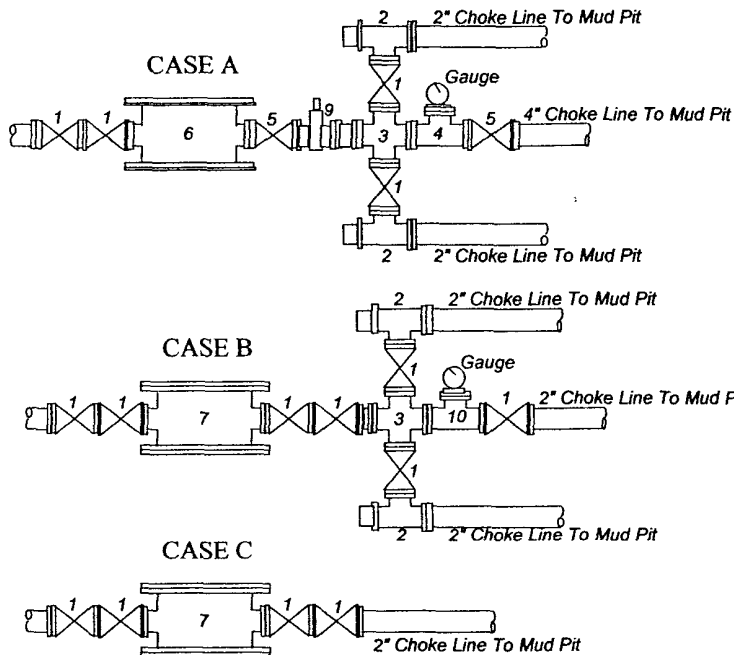
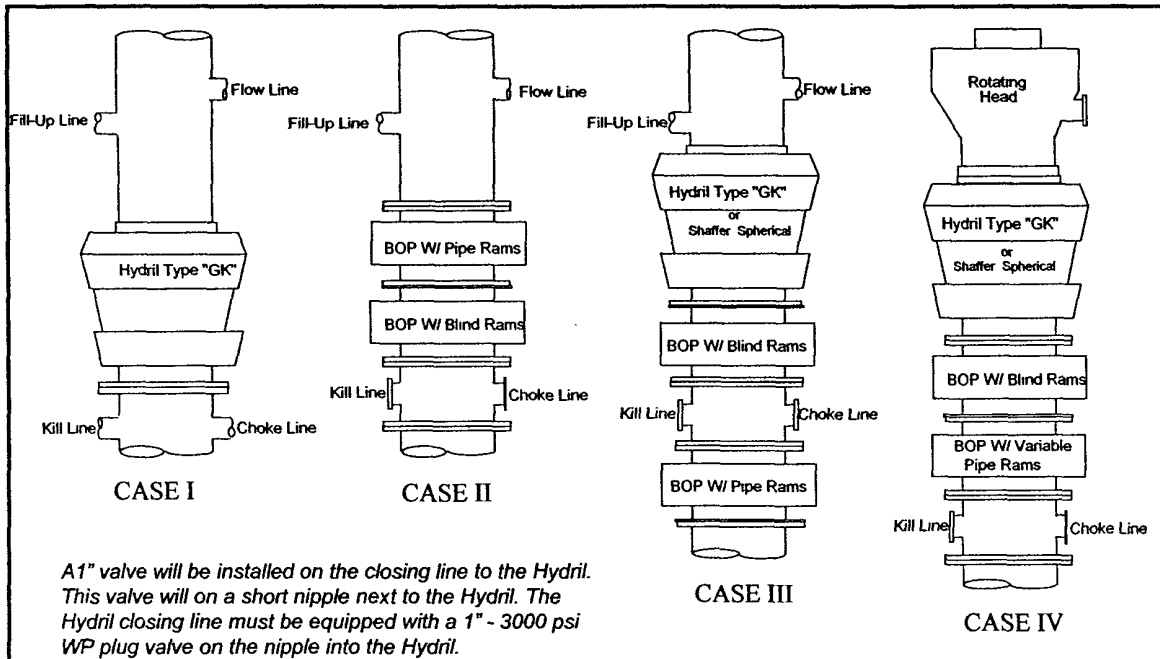
EXHIBIT "D" LOCATION DIAGRAM

Loco Sand Hills 9 Federal #2H  
890' FSL & 490' FWL  
SEC 9, T18S, R30E  
EDDY COUNTY, NM



# Nadel and Gussman Heyco, LLC

## MINIMUM BLOWOUT PREVENTER REQUIREMENTS



| BOP SIZE | BOP CASE | WORKING PRESSURE | CHOKE CASE |
|----------|----------|------------------|------------|
| 13-5/8"  | IV       | 5000psi          | A          |

**\*Rotating head required**

Bradenhead : \_\_\_\_\_  
 Mfr: \_\_\_\_\_  
 Size: \_\_\_\_\_ Type: \_\_\_\_\_

### Legend

- 2" flanged all steel valve must be either Cameron "F", Halliburton Low Torque or Shaffer Flo-Seal.
- 2" flanged adjustable chokes, min. 1" full opening & equipped with hard trim.
- 4" x 2" flanged steel cross.
- 4" flanged steel tee.
- 4" flanged all steel valve (Type as in no. 1).
- Drilling Spool with 2" x 4" flanged outlet.
- Drilling Spool with 2" x 2" flanged outlet.
- 2" x 2" flanged steel cross.
- 4" pressure operated gate valve.
- 2" flanged steel tee.

### Notes

Choke manifold may be located in any convenient position. Use all steel fittings throughout. Make 90° turns with bull plugged tees only. No field welding will be permitted on any of the components of the choke manifold and related equipment upstream of the chokes. The choke spool and all lines and fittings must be at least equivalent to the test pressure of the preventers required. Independent closing control unit with clearly marked controls to be located on derrick floor near driller's position.

(10-31-96) WTXBOPS PPT

**NADEL AND GUSSMAN HEYCO, L.L.C.**  
**P.O. BOX 1936**  
**ROSWELL N.M. 88202**  
**(575) 623-6601 (Office)**  
**(575) 624-5321 (Fax)**

**Re: Loco Sand Hill 9 Federal #2H**  
**SHL: 890' FSL & 490' FWL**  
**BHL: 1650' FNL & 410' FWL**  
**Unit Letter E, Sec. 9-T18S-R30E**  
**Eddy, NM**  
**Rule 118 H2S Exposure**

Dear Mr. Ingram

Nadel and Gussman Heyco have evaluated this well and we do not expect to encounter hydrogen sulfide. However, we will employ a third party monitoring system. We will begin monitoring prior to drilling out the intermediate casing and will continue monitoring the remainder of the well.

Please contact me if you have any additional questions.(575) 626-1936

Sincerely,



Keith Cannon  
Drilling Superintendent  
6/12/08



## **Hydrogen Sulfide Drilling Operations Plan**

1. Company and Contract personnel admitted on location should be trained by a qualified H<sub>2</sub>S safety instructor to the following:
  - A. Characteristics of H<sub>2</sub>S.
  - B. Physical Effects and Hazards.
  - C. Proper Use of Safety Equipment and Life Support Systems.
  - D. Principle and Operation of H<sub>2</sub>S Detectors, Warning System and Briefing.
  - E. Evacuation Procedure, Routes and First Aid.
  - F. Proper Use of 30 minute Pressure Demand Air Pack.
2. H<sub>2</sub>S Detection and Alarm Systems
  - A. H<sub>2</sub>S Detectors and Audio Alarm System to be Located at Bell Nipple, End of Blooie Line (mud pit) and on Derrick floor or doghouse.
3. Windsock and/or Wind Streamers
  - A. Windsock at Mud Pit Area Should be High Enough to be Visible.
  - B. Windsock at Briefing Area Should be High Enough to be Visible.
  - C. There Should be a Windsock at Entrance to Location.
4. Condition Flags and Signs
  - A. Warning Sign on Access Road to Location.
  - B. Flags to be Displayed on Sign at Entrance to Location.
    1. Green Flag, Normal Safe Condition.
    2. Yellow Flag, Indicates Potential Pressure and Danger.
    3. Red Flag, Danger H<sub>2</sub>S Present in Dangerous Concentration  
Only Emergency Personnel Admitted to Location.
5. Well Control Equipment
  - A. See Attached Diagram.
6. Communication
  - A. While Working Under Masks Chalkboards Will be Used for Communication.
  - B. Hand Signals will be Used Where Chalk Board is Inappropriate.
  - C. Two Way Radio or Cell Phone will be Used to Communicate off Location in Case of Available at Most Drilling Foreman's Trailer or Living Quarters.
7. Drillstem Testing
  - A. Exhausts will be Watered.
  - B. Flare Line will be Equipped with an Electric Igniter or a propane pilot light in case gas reaches the surface.
  - C. If Location is near any Dwelling a Closed DST will be Performed.
8. Drilling Contractor Supervisor will be Required to be Familiar with the Effects H<sub>2</sub>S has on tubular goods and other mechanical equipment.
9. If H<sub>2</sub>S Encountered, Mud system will be Altered if Necessary to Maintain Control of Formation. A Mud Gas Separator will be Brought into Service Along with H<sub>2</sub>S Scavengers if Necessary.

## CONTACTING AUTHORITIES

Nadel and Gussman HEYCO personnel must liason with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as; type and volume of release, wind direction, location of release, etc. Be prepared with all information available. The following call list of essential and potential responders has been prepared for use during a release. This response plan must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

| <u>LOCATION</u>       | <u>ENTITY</u>                      | <u>PHONE NUMBER:</u> |
|-----------------------|------------------------------------|----------------------|
| Artesia               | Sheriff's Office                   | (575) 746-9888       |
| Artesia               | State Police                       | (575) 748-9718       |
| Carlsbad              | Bureau of land Management          | (575) 887-6544       |
|                       | Ambulance                          | 911                  |
| Loco Hills            | Fire Department                    | (575) 677-2349       |
| Artesia               | Fire Department                    | (575) 746-2701       |
| Carlsbad              | Local Emergency Planning Committee | (575) 887-3798       |
| Roswell               | Nadel and Gussman HEYCO, LLC       | Off. (575) 623-6601  |
| Midland Tx            | Terry West, Drilling Engineer.     | Cell (432) 682-1472  |
| Artesia               | Keith Cannon, Drlg Superintendent  | Cell (575) 626-1936  |
| Artesia               | Clay Stevens, Safety Man           | Cell (575) 626-1965  |
| <u>OTHER CONTACTS</u> |                                    |                      |
| Artesia               | Schlumberger Technology            | (575) 748-1392       |
| Artesia               | South Environmental                | (575) 420-1942       |
| Hobbs                 | Horizon Mud                        | (575) 393-8641       |
| Lovington             | Assurance Fire Safety              | (575) 396-7004       |
| Odessa, TX            | Wild Well Control, Inc.            | (432) 550-6202       |
| Odessa, TX            | Cudd Pressure Control, Inc.        | (432) 563-3356       |
| Lubbock, TX           | Flight for Life                    | (806) 743-9911       |
| Albuquerque, NM       | Med Flight Air Ambulance           | (505) 842-4433       |

**WELL CONTROL**

**Surface Use Plan**  
Nadel and Gussman Heyco. LLC  
Loco Sand Hills 9 Federal #2H  
Section 9, T18S, R30E  
SL; 890' FSL & 490' FWL  
BHL; 1650' FNL & 410' FWL  
Eddy County, New Mexico

1. **Existing Roads:**  
Exhibit A is a portion of a New Mexico map showing the location of the proposed location. The location is approximately 5 miles South of Loco Hills, NM. Leave Loco Hills on Co road 217 & travel South 3 miles & turn Left on Co Rd. 216 Go 0.4 mile & turn left. Go 2.8 mile To Y stay right. Go 1.2 miles to location just on the east side of road.
2. **Planned Access Roads:**  
No new road will be built to access this location.
3. **Location of Existing Wells:**  
See EXHIBIT B From the surveying company / vicinity map
4. **Location of Tank Batteries, Electric Lines, Etc:**  
In the event a producing well is drilled, a tank battery will be built on the location.
5. **Location and Type of Water Supply:**  
Water will be obtained from commercial sources.
6. **Source of Construction Material:**  
We will use materials from reserve pit or a state, BLM approved pits to build the location.
7. **Methods of Handling Waste Disposal:**  
Waste will be handled in an approved manner. The wellsite will be cleaned of all waste within 30 days of final completion of the well.
8. **Ancillary Facilities:**  
N/A
9. **Wellsite Layout:**
  - a. EXHIBIT D shows the relative location and dimensions of the well pad, reserve pits, and major rig components.
  - b. The land is relatively Sand dunm with sandy soil
  - c. The pad and pit area have been staked.
10. **Plan for Restoration of the Surface:**
  - a. After drilling and completion operations are completed, all equipment and other materials not needed for further operations will be removed. Pits will be Deep buired and the location cleaned of all trash to leave the wellsite as pleasant in appearance as possible.
  - b. If the proposed operation is nonproductive, all restoration and/or vegetation requirements of the BLM will be complied with, and will be accomplished as quickly as possible. All pits will be filled and leveled within 90 days after abandonment.

11. **Other Information:**

- a. The mineral and surface owner is the Federal Government, Land and Grazing leasing had been contacted.
- b. The topography consists of sandy soil with native grasses. No wildlife was observed, but the usual inhabitants of this region are Jackrabbits, Reptiles, Coyotes, etc.
- c. There are no ponds, lakes, or rivers in this area.
- d. An Archaeological Survey has been made and a copy has been sent to the Carlsbad BLM office. There is no evidence of any significant archaeological, historical, or cultural sites in the area. Further, there are no occupied dwellings or windmills in the area.
- e. Should any incidental oil be recovered during testing of this well, this oil will be considered waste oil and not sellable due to contamination by drilling and/or completion fluids.

Keith Cannon, Drilling Superintendent  
Nadel and Gussman Heyco, LLC  
P.O. Box 1936  
Roswell, NM  
505-623-6601

JUNE 12, 2008

**Operator's Certification:**

I certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; that the work associated with operations proposed herein will be performed by Nadel and Gussman Heyco, LLC and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Keith Cannon, Drilling Superintendent  
Nadel and Gussman Heyco, LLC  
P.O. Box 1936  
Roswell, NM  
505-623-6601

A handwritten signature in black ink, appearing to read "Keith Cannon", with a long horizontal flourish extending to the right.

June 12, 2008

1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

## Energy Minerals and Natural Resources

Form C-144  
June 1, 2004

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

For drilling and production facilities, submit to appropriate NMOCD District Office.  
For downstream facilities, submit to Santa Fe office

### Pit or Below-Grade Tank Registration or Closure

Is pit or below-grade tank covered by a "general plan"? Yes ☐ No ☐

Type of action. Registration of a pit or below-grade tank ☐ Closure of a pit or below-grade tank ☐

Operator: Harvey E Yates Telephone: (505) 623-6601 e-mail address: kcannon@heycoenergy.com

Address: 500 N. Main., Suite 1, P.O. Box 1936, Roswell N.M. 88202

Facility or well name: Loco Sand Hills 9 Federal #2H API #: U/L or Qtr/Qtr M, SW 1/4 / SW 1/4 Sec 9, T18S, R30E

County: Eddy Latitude 32.757043' N Longitude 103.983452' W NAD: 1927 ☒ 1983 ☐

Surface Owner: Federal ☒ State ☐ Private ☐ Indian ☐

#### Pit

Type: Drilling ☒ Production ☐ Disposal ☐

Workover ☐ Emergency ☐

Lined ☒ Unlined ☐

Liner type: Synthetic ☒ Thickness 20 mil Clay ☐

Pit Volume 15,500 bbl

#### Below-grade tank

Volume: \_\_\_\_\_ bbl Type of fluid: \_\_\_\_\_

Construction material: \_\_\_\_\_

Double-walled, with leak detection? Yes ☐ If not, explain why not.

Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.)

Less than 50 feet

(20 points)

50 feet or more, but less than 100 feet

(10 points)

100 feet or more

( 0 points)XXX

Wellhead protection area: (Less than 200 feet from a private domestic water source, or less than 1000 feet from all other water sources.)

Yes

(20 points)

No

( 0 points)XXX

Distance to surface water: (horizontal distance to all wetlands, playas, irrigation canals, ditches, and perennial and ephemeral watercourses.)

Less than 200 feet

(20 points)

200 feet or more, but less than 1000 feet

(10 points)XXX

1000 feet or more

( 0 points)

**Ranking Score (Total Points)**

10

**If this is a pit closure:** (1) Attach a diagram of the facility showing the pit's relationship to other equipment and tanks. (2) Indicate disposal location: (check the onsite box if you are burying in place) onsite ☒ offsite ☐ If offsite, name of facility \_\_\_\_\_. (3) Attach a general description of remedial action taken including remediation start date and end date. (4) Groundwater encountered: No ☒ Yes ☐ If yes, show depth below ground surface \_\_\_\_\_ ft. and attach sample results.

(5) Attach soil sample results and a diagram of sample locations and excavations

Additional Comments: No Groundwater / or no records near by

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that the above-described pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☐, a general permit ☐, or an (attached) alternative OCD-approved plan ☐.

Date: 6/12/2008

Printed Name Keith Cannon, Drilling Superintendent Signature \_\_\_\_\_

Your certification and NMOCD approval of this application/closure does not relieve the operator of liability should the contents of the pit or tank contaminate ground water or otherwise endanger public health or the environment. Nor does it relieve the operator of its responsibility for compliance with any other federal, state, or local laws and/or regulations.

Approval:

Printed Name/Title \_\_\_\_\_ Signature \_\_\_\_\_ Date: \_\_\_\_\_

# PECOS DISTRICT CONDITIONS OF APPROVAL

|                       |                                     |
|-----------------------|-------------------------------------|
| OPERATOR'S NAME:      | Nadel and Gussman HEYCO, LLC        |
| LEASE NO.:            | NMNM-26385                          |
| WELL NAME & NO.:      | Loco Sand Hills 9 Federal # 2H      |
| SURFACE HOLE FOOTAGE: | 890' FSL & 490' FWL                 |
| BOTTOM HOLE FOOTAGE   | 1650' FNL & 410' FWL                |
| LOCATION:             | Section 09, T. 18 S., R 30 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.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
  - Lesser Prairie Chicken
  - OHV area
- ☒ **Construction**
  - Notification
  - Topsoil
  - Reserve Pit
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- ☒ **Road Section Diagram**
- ☒ **Drilling**
- ☐ **Production (Post Drilling)**
  - Well Structures & Facilities
  - Pipelines
  - Electric Lines
- ☐ **Reserve Pit Closure/Interim Reclamation**
- ☐ **Final Abandonment/Reclamation**

## **I. GENERAL PROVISIONS**

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

## **II. PERMIT EXPIRATION**

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

## **III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES**

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

## **IV. NOXIOUS WEEDS**

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.



## **V. SPECIAL REQUIREMENT(S)**

**Mitigation Measures:** The mitigation measures include the Pecos District Conditions of Approval, the standard stipulations for the Lesser Prairie Chicken, the standard stipulation for permanent resource roads. The Loco Hills 9 Federal # 2H well location will have the standard stipulations for the Hackberry Lake OHV area being that it is located in the northwest corner of the SMA area.

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am.

The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

### **Hack Berry Lake – OHV Area**

#### **Surface Mitigation**

The following mitigation will apply to minimize impacts during all phases of pipeline construction.

1. Nadel and Gussman HEYCO, LLC will post signs at trail and pipeline intersect locations to warn OHV users in the area of pipeline construction.
2. At no time will ditches remain open unless temporary barricade fence is installed to protect OHV users in the area.
3. All pipelines associated with this project will be buried at minimum stipulations specifications when crossing or paralleling trails.
4. Upon completion of pipeline construction, the company will replace the affected trail portions to the quality they were before the project's start.

**Sand Tank 9 Federal # 2H:** Reserve pits East V-Door South

## **VI. CONSTRUCTION**

### **A. NOTIFICATION**

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

### **B. TOPSOIL**

The operator shall stockpile the topsoil of the well pad. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

### **C. RESERVE PITS**

The reserve pit shall be constructed and closed in accordance with the NMOCD rules.

**The reserve pit shall be constructed 150' X 150' on the East side of the well pad V-Door South.**

The reserve pit shall be constructed, so that upon completion of drilling operations, the dried pit contents shall be buried a minimum depth of three feet below ground level. Should the pit content level not meet the three foot minimum depth requirement, the excess contents shall be removed until the required minimum depth of three feet below ground level has been met. The operator shall properly dispose of the excess contents at an authorized disposal site.

The reserve pit shall be constructed and maintained so that runoff water from outside the location is not allowed to enter the pit. The berms surrounding the entire perimeter of the pit shall extend a minimum of two (2) feet above ground level. At no time will standing fluids in the pit be allowed to rise above ground level.

The reserve pit shall be fenced on three (3) sides during drilling operations. The fourth side shall be fenced immediately upon rig release.

### **D. FEDERAL MINERAL MATERIALS PIT**

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction of the reserve pit may be used for surfacing the well pad and access road and other facilities on the lease.

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the Carlsbad Field Office at (575) 234-5972.

#### **E. WELL PAD SURFACING**

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

#### **F. ON LEASE ACCESS ROADS**

##### **Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

##### **Surfacing**

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

##### **Crowning**

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

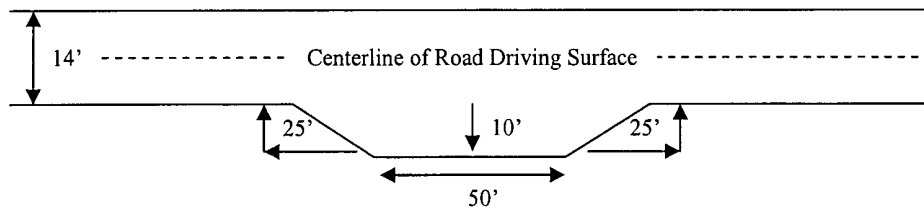
##### **Ditching**

Ditching shall be required on both sides of the road.

### Turnouts

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:

**Standard Turnout – Plan View**

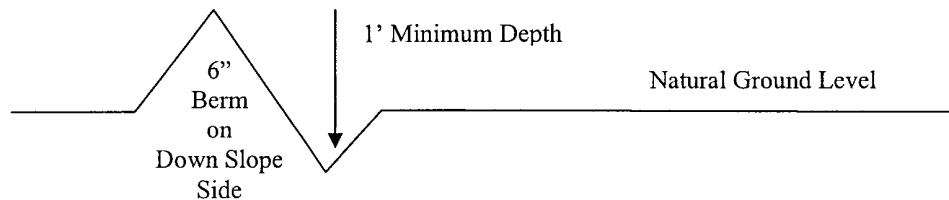


### Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

**Cross Section of a Typical Lead-off Ditch**



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

### **Formula for Spacing Interval of Lead-off Ditches**

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

### **Culvert Installations**

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

### **Cattleguards**

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

### **Fence Requirement**

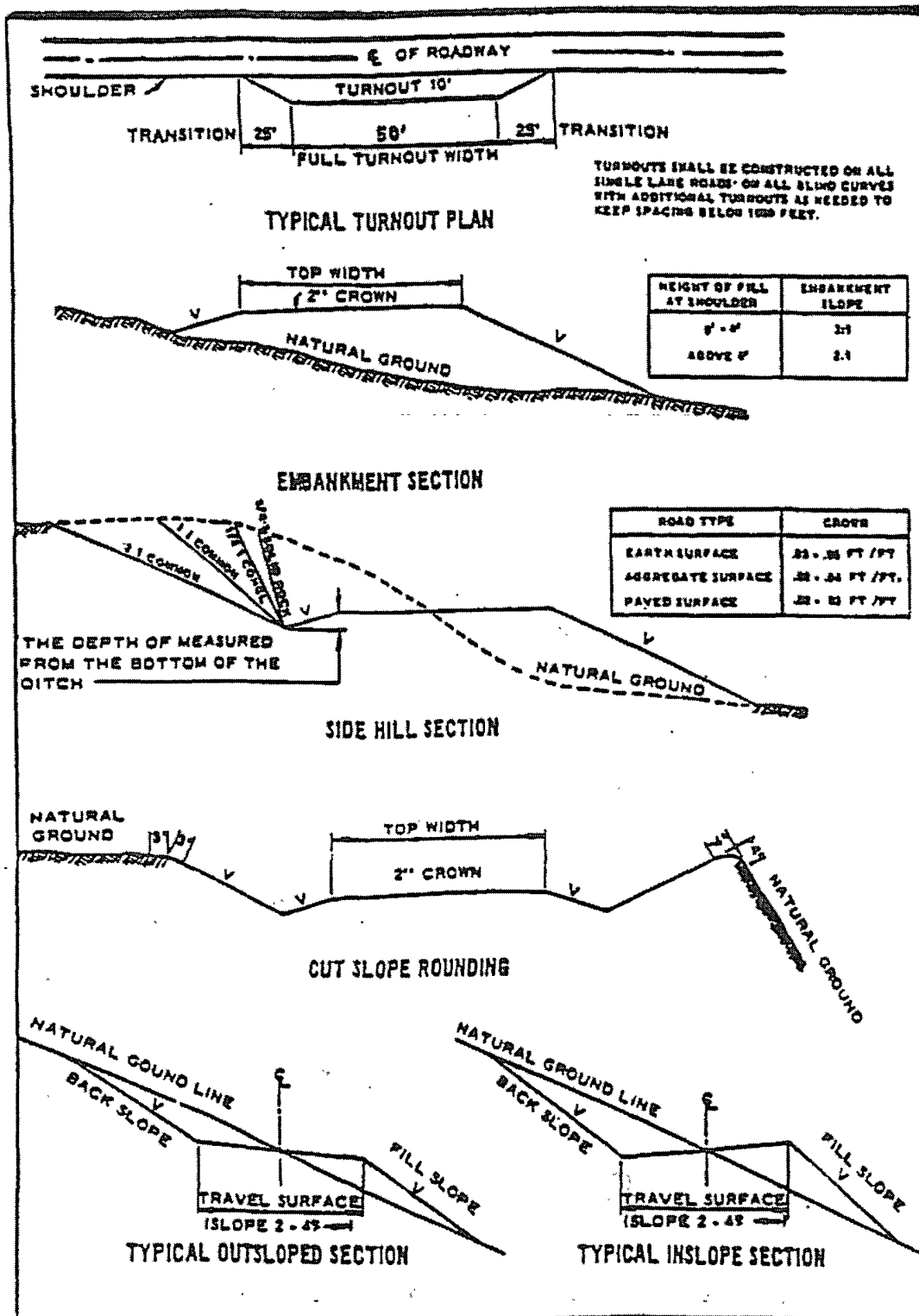
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

### **Public Access**

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Figure 1 – Cross Sections and Plans For Typical Road Sections



## 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. **Hydrogen Sulfide has been reported as a hazard, but no measurements have been recorded. It is recommended that monitoring equipment be onsite for potential Hydrogen Sulfide. If Hydrogen Sulfide is encountered, please report measurements and formations to the BLM.**
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

**Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.**

**Centralizers required on surface casing per Onshore Order 2.III.B.1.f.**

**Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Lead slurry does not have to reach 500 pounds, but information still required to show compressive strength within 18-24 hours depending on water basin or potash. WOC for water basin or potash applies to entire wellbore.**

**No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.**

**Secretary's Potash**

**Possible H2O flows in the Salado and Grayburg**

1. The 13-3/8 inch surface casing shall be set at approximately 400 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) 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.
  - 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 cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:

☒ Cement to surface. If cement does not circulate see B.1.a-d above.

**Centralizers required on horizontal leg, must be type for horizontal service and minimum of one every other joint.**

3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
  - a. First stage to DV tool, cement shall:  
☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office, before proceeding with second stage cement job.
  - b. Second stage above DV tool, cement shall:  
☒ Cement should tie-back at least **500** feet into previous casing string. **Operator shall provide method of verification. 500 feet tie-back required due to Secretary's Potash.**



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. 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. A variance to test the surface casing and BOP/BOPE (**entire system**) to the reduced pressure of 1000 psi with the rig pumps is approved.

#### **D. DRILL STEM TEST**

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

**LB 8/1/08**

## **VIII. PRODUCTION (POST DRILLING)**

### **A. WELL STRUCTURES & FACILITIES**

#### **Placement of Production Facilities**

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

#### **Containment Structures**

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

#### **Painting Requirement**

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color Shale Green, Munsell Soil Color Chart # 5Y 4/2

### **B. PIPELINES**

### **C. ELECTRIC LINES**

## **IX. INTERIM RECLAMATION & RESERVE PIT CLOSURE**

### **A. INTERIM RECLAMATION**

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting interim reclamation.

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

At the time reserve pits are to be reclaimed, operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

### **B. RESERVE PIT CLOSURE**

The reserve pit, when dried and closed, shall be recontoured, all trash removed, and reseeded as follows:

BLM Serial #:  
Company Reference:  
Well Name and Number:

Seed Mixture for LPC Sand/Shinnery Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)\* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed\* per acre:

| <u>Species</u>      | <u>lb/acre</u> |
|---------------------|----------------|
| Plains Bristlegrass | 5lbs/A         |
| Sand Bluestem       | 5lbs/A         |
| Little Bluestem     | 3lbs/A         |
| Big Bluestem        | 6lbs/A         |
| Plains Coreopsis    | 2lbs/A         |
| Sand Dropseed       | 1lbs/A         |

\*\*Four-winged Saltbush 5lbs/A

\* This can be used around well pads and other areas where caliche cannot be removed.

\*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed  
(Insert Seed Mixture Here)

## **X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS**

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.

On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the private surface land owner agreement.