Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

# APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NMNM082896

6. If Indian, Allotee or Tribe Name:

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☑ Multiple Zone

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

8. Lease Name and Well No.: NIMITZ MDP1 12-1 FEDERAL COM 175H

2. Name of Operator: OXY USA INCORPORATED

9. API Well No.: 30-015-47792

3a. Address: 300 SOUTH GILLETTE AVENUE SUITE A-2, GILLETTE,

3b. Phone No. *(include area code)*: (307) 687-0087

10. Field and Pool, or Exploratory: ~~COTTON DRAW BONE SPRING/COTTO~~ Purple Sage:Woldfcamp

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

At surface: SESE / 439 FSL / 1068 FEL / LAT 32.2263513 / LONG -103.8291188

At proposed prod. zone: NENE / 20 FNL / 1260 FEL / LAT 32.2541311 / LONG -103.8297173

11. Sec., T. R. M. or Blk. and Survey or Area: SEC 12/T24S/R30E/NMP

14. Distance in miles and direction from nearest town or post office*: 27 miles

12. County or Parish: EDDY

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any): 20 feet

16. No of acres in lease: 880

17. Spacing Unit dedicated to this well: 640.0

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.: 35 feet

19. Proposed Depth: 11521 feet / 22351 feet

20. BLM/BIA Bond No. in file: FED: ESB000226

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3525 feet

22. Approximate date work will start*: 12/31/2019

23. Estimated duration: 45 days

## 24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

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

| 25. Signature | Name *(Printed/Typed)* | Date |
|---|---|---|
| (Electronic Submission) | SARAH CHAPMAN / Ph: (713) 366-5716 | 08/14/2019 |

Title: Regulatory Specialist

| Approved by *(Signature)* | Name *(Printed/Typed)* | Date |
|---|---|---|
| (Electronic Submission) | Cody Layton / Ph: (575) 234-5959 | 11/06/2020 |

| Title | Office |
|---|---|
| Assistant Field Manager Lands & Minerals | Carlsbad Field Office |

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

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.

Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system.

- Will require a directional survey with the C-104
- NSL Will require an administrative order for non-standard location prior to placing the well on production

APPROVED WITH CONDITIONS

Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string

KP 12/9/2020 GEO Review

(Continued on page 2)

*(Instructions on page 2)

**Approval Date: 11/06/2020**

JAG 12/11/2020

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

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

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

☐ AMENDED REPORT

# WELL LOCATION AND ACREAGE DEDICATION PLAT

NSL will be required

| API Number | Pool Code | Pool Name |
|---|---|---|
| 30-015-47792 | 98220 | Purple Sage Wolfcamp |

| Property Code | Property Name | Well Number |
|---|---|---|
| 329328 | NIMITZ MDP1 "12_1" FEDERAL COM | 175H |

| OGRID No. | Operator Name | Elevation |
|---|---|---|
| 16696 | OXY USA INC. | 3524.5' |

## Surface Location

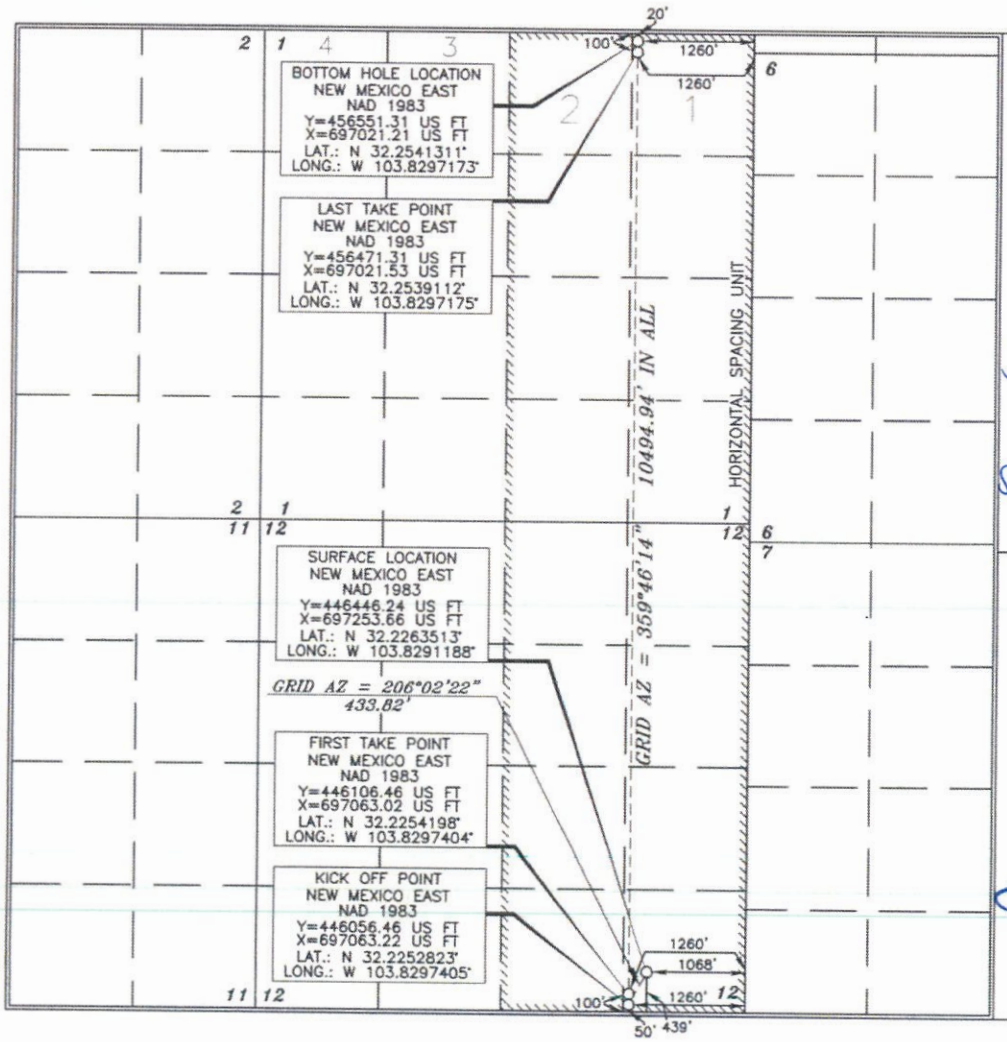
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| P | 12 | 24 SOUTH | 30 EAST, N.M.P.M. | | 439' | SOUTH | 1068' | EAST | EDDY |

## Bottom Hole Location If Different From Surface

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 24 SOUTH | 30 EAST, N.M.P.M. | | 20' | NORTH | 1260' | EAST | EDDY |

| Dedicated Acres | Joint or Infill | Consolidation Code | Order No. |
|---|---|---|---|
| 640 | | | |

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.




## OPERATOR CERTIFICATION

*I hereby certify that the information contained 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 a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.*

Sarah Chapman 8/13/19
Signature Date

Sarah Chapman
Printed Name

Sarah_chapman@oxy.com
E-mail Address

## SURVEYOR CERTIFICATION

*I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.*

15079
FEBRUARY 8, 2019
Date of Survey

Signature and Seal of Professional Surveyor

GARY L. JONES
NEW MEXICO
15079
REGISTERED PROFESSIONAL LAND SURVEYOR

Terry J. Asel 5/16/2019
Certificate Number 15079

WO# 190208WL-b (KA)

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1625 N. French Dr., Hobbs, NM 88240
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1000 Rio Brazos Road, 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, NM 87505

Submit Original
to Appropriate
District Office

# GAS CAPTURE PLAN

Date: 07-18-2019

☒ Original

Operator & OGRID No.: OXY USA INC. - 16696

☐ Amended - Reason for Amendment:_____

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomplete to new zone, re-frac) activity.

*Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).*

**Well(s)/Production Facility – Name of facility**

The well(s) that will be located at the production facility are shown in the table below.

| Well Name | API | Well Location (ULSTR) | Footages | Expected MCF/D | Flared or Vented | Comment |
|---|---|---|---|---|---|---|
| Nimitz MDP1 12_1 Fed Com 11H | Pending | D-13-T24S-R30E | 826' FNL 287' FWL | 2,500 | 0 | |
| Nimitz MDP1 12_1 Fed Com 12H | Pending | N-12-T24S-R30E | 615' FSL 1703'FWL | 2,500 | 0 | |
| Nimitz MDP1 12_1 Fed Com 13H | Pending | C-13-T24S-R30E | 498' FNL 2405' FWL | 2,500 | 0 | |
| Nimitz MDP1 12_1 Fed Com 14H | Pending | P-12-T24S-R30E | 830' FSL 795' FEL | 2,500 | 0 | |
| Nimitz MDP1 12_1 Fed Com 21H | Pending | D-13-T24S-R30E | 798' FNL 276' FWL | 5,500 | 0 | |
| Nimitz MDP1 12_1 Fed Com 22H | Pending | D-13-T24S-R30E | 892' FNL 311' FWL | 5,500 | 0 | |
| Nimitz MDP1 12_1 Fed Com 23H | Pending | N-12-T24S-R30E | 644' FSL 1766' FWL | 5,500 | 0 | |
| Nimitz MDP1 12_1 Fed Com 24H | Pending | C-13-T24S-R30E | 428' FNL 2405' FWL | 5,500 | 0 | |
| Nimitz MDP1 12_1 Fed Com 25H | Pending | P-12-T24S-R30E | 830'FSL 1350' FEL | 5,500 | 0 | |
| Nimitz MDP1 12_1 Fed Com 26H | Pending | P-12-T24S-R30E | 830' FSL 730' FEL | 5,500 | 0 | |
| Nimitz MDP1 12_1 Fed Com 41H | Pending | D-13-T24S-R30E | 986' FNL 345' FWL | 7,200 | 0 | |
| Nimitz MDP1 12_1 Fed Com 42H | Pending | D-13-T24S-R30E | 1047' FNL 368' FWL | 7,200 | 0 | |
| Nimitz MDP1 12_1 Fed Com 43H | Pending | N-12-T24S-R30E | 674' FSL 1830' FWL | 7,200 | 0 | |
| Nimitz MDP1 12_1 Fed Com 44H | Pending | N-12-T24S-R30E | 716' FSL 1921' FWL | 7,200 | 0 | |
| Nimitz MDP1 12_1 Fed Com 45H | Pending | P-12-T24S-R30E | 439' FSL 1138' FEL | 7,200 | 0 | |
| Nimitz MDP1 12_1 Fed Com 46H | Pending | P-12-T24S-R30E | 115' FSL 140' FEL | 7,200 | 0 | |
| Nimitz MDP1 12_1 Fed Com 171H | Pending | M-12-T24S-R30E | 275' FSL 67' FWL | 4,200 | 0 | |
| Nimitz MDP1 12_1 Fed Com 172H | Pending | N-12-T24S-R30E | 585' FSL 1639' FWL | 4,200 | 0 | |
| Nimitz MDP1 12_1 Fed Com 173H | Pending | C-13-T24S-R30E | 363' FNL 2405' FWL | 4,200 | 0 | |
| Nimitz MDP1 12_1 Fed Com 174H | Pending | C-13-T24S-R30E | 293' FNL 2405' FWL | 4,200 | 0 | |
| Nimitz MDP1 12_1 Fed Com 175H | Pending | P-12-T24S-R30E | 439' FSL 1068' FEL | 4,200 | 0 | |
| Nimitz MDP1 12_1 Fed Com 176H | Pending | P-12-T24S-R30E | 439' FSL 968' FEL | 4,200 | 0 | |
| Nimitz MDP1 13 Fed Com 11H | Pending | D-13-T24S-R30E | 953' FNL 333' FWL | 1,700 | 0 | |
| Nimitz MDP1 13 Fed Com 12H | Pending | N-12-T24S-R30E | 630' FSL 1734' FWL | 1,700 | 0 | |
| Nimitz MDP1 13 Fed Com 13H | Pending | C-13-T24S-R30E | 533' FNL 2405' FWL | 1,700 | 0 | |
| Nimitz MDP1 13 Fed Com 14H | Pending | P-12-T24S-R30E | 830' FSL 660' FEL | 1,700 | 0 | |
| Nimitz MDP1 13 Fed Com 21H | Pending | D-13-T24S-R30E | 859' FNL 299' FWL | 3,700 | 0 | |
| Nimitz MDP1 13 Fed Com 22H | Pending | D-13-T24S-R30E | 925' FNL 323' FWL | 3,700 | 0 | |
| Nimitz MDP1 13 Fed Com 23H | Pending | N-12-T24S-R30E | 659' FSL 1798' FWL | 3,700 | 0 | |
| Nimitz MDP1 13 Fed Com 24H | Pending | C-13-T24S-R30E | 463' FNL 2405' FWL | 3,700 | 0 | |
| Nimitz MDP1 13 Fed Com 25H | Pending | P-12-T24S-R30E | 830' FSL 760' FEL | 3,700 | 0 | |
| Nimitz MDP1 13 Fed Com 26H | Pending | P-12-T24S-R30E | 830' FSL 695' FEL | 3,700 | 0 | |
| Nimitz MDP1 13 Fed Com 41H | Pending | D-13-T24S-R30E | 1014' FNL 356' FWL | 5,000 | 0 | |
| Nimitz MDP1 13 Fed Com 42H | Pending | D-13-T24S-R30E | 1080' FNL 380' FWL | 5,000 | 0 | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Nimitz MDP1 13 Fed Com 43H | Pending | N-12-T24S-R30E | 689’ FSL 1862’ FWL | 5,000 | 0 | |
| Nimitz MDP1 13 Fed Com 44H | Pending | N-12-T24S-R30E | 704’ FSL 1893’ FWL | 5,000 | 0 | |
| Nimitz MDP1 13 Fed Com 45H | Pending | P-12-T24S-R30E | 439’ FSL 1103’ FEL | 5,000 | 0 | |
| Nimitz MDP1 13 Fed Com 46H | Pending | P-12-T24S-R30E | 80’ FSL 140’ FEL | 5,000 | 0 | |
| Nimitz MDP1 13 Fed Com 171H | Pending | M-12-T24S-R30E | 275’ FSL 32’ FWL | 2,800 | 0 | |
| Nimitz MDP1 13 Fed Com 172H | Pending | N-12-T24S-R30E | 600’ FSL 1671’ FWL | 2,800 | 0 | |
| Nimitz MDP1 13 Fed Com 173H | Pending | C-13-T24S-R30E | 328’ FNL 2405’ FWL | 2,800 | 0 | |
| Nimitz MDP1 13 Fed Com 174H | Pending | C-13-T24S-R30E | 393’ FNL 2405’ FWL | 2,800 | 0 | |
| Nimitz MDP1 13 Fed Com 175H | Pending | P-12-T24S-R30E | 439’ FSL 1033’ FEL | 2,800 | 0 | |
| Nimitz MDP1 13 Fed Com 176H | Pending | P-12-T24S-R30E | 439’ FSL 998’ FEL | 2,800 | 0 | |

**Gathering System and Pipeline Notification**

Well(s) will be connected to a production facility after flowback operations are complete, where a gas transporter system is in place. The gas produced from production facility is dedicated to Enterprise Field Services, LLC (“Enterprise”) and is connected to Enterprise low/high pressure gathering system located in Eddy County, New Mexico. OXY USA INC. (“OXY”) provides (periodically) to Enterprise a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, OXY and Enterprise have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at Enterprise’s Processing Plant located in Sec. 36, Twn. 24S, Rng. 30E, Eddy County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

**Flowback Strategy**

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Enterprise system at that time. Based on current information, it is OXY’s belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

**Alternatives to Reduce Flaring**

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
    - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
    - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
    - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

## Oxy USA Inc. - Nimitz MDP1 12-1 Federal Com 175H

### 1. Geologic Formations

| | | | |
|---|---|---|---|
| TVD of target | 11521' | Pilot Hole Depth | N/A |
| MD at TD: | 22351' | Deepest Expected fresh water: | 578' |

**Delaware Basin**

| Formation | TVD - RKB | Expected Fluids |
|---|---|---|
| Rustler | 578 | |
| Salado | 909 | Salt |
| Castile | 2,794 | Salt |
| Lamar/Delaware | 4,252 | Oil/Gas/Brine |
| Bell Canyon | 4,284 | Oil/Gas/Brine |
| Cherry Canyon | 5,146 | Oil/Gas/Brine |
| Brushy Canyon | 6,382 | Losses |
| Bone Spring | 8,114 | Oil/Gas |
| 1st Bone Spring | 9,082 | Oil/Gas |
| 2nd Bone Spring | 9,858 | Oil/Gas |
| 3rd Bone Spring | 11,048 | Oil/Gas |
| **Wolfcamp** | **11,505** | **Oil/Gas** |

*H2S, water flows, loss of circulation, abnormal pressures, etc.

### 2. Casing Program

| Hole Size (in) | Casing Interval | | Csg. Size (in) | Weight (lbs) | Grade | Conn. | SF Collapse | SF Burst | Buoyant Body SF Tension | Buoyant Joint SF Tension |
|---|---|---|---|---|---|---|---|---|---|---|
| | From (ft) | To (ft) | | | | | | | | |
| 14.75 | 0 | 849 | 10.75 | 40.5 | J-55 | BTC | 1.125 | 1.2 | 1.4 | 1.4 |
| 9.875 | 0 | 11006 | 7.625 | 26.4 | L-80 HC | BTC | 1.125 | 1.2 | 1.4 | 1.4 |
| 6.75 | 0 | 22351 | 5.5 | 20 | P-110 | DQX | 1.125 | 1.2 | 1.4 | 1.4 |
| | | | | | | | SF Values will meet or Exceed | | | |

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

*Oxy requests the option to set casing shallower yet still below the salts if losses or hole conditions require this. Cement volumes may be adjusted if casing is set shallower and a DV tool may be run in case hole conditions merit pumping a second stage cement job to comply with permitted top of cement. If cement circulated to surface during first stage, we will drop a cancelation cone and not pump the second stage.

*Oxy requests the option to run production casing with DQX, SF TORQ, and/or DQW TORQ connections to accommodate hole conditions or drilling operations.

**Oxy USA Inc. - Nimitz MDP1 12-1 Federal Com 175H**

## Annular Clearance Variance Request

As per the agreement reached in the Oxy/BLM face-to-face meeting on Feb 22, 2018, Oxy requests permission to allow deviation from the 0.422" annular clearance requirement from Onshore Order #2 under the following conditions:

1. Annular clearance to meet or exceed 0.422" between intermediate casing ID and production casing coupling only on the first 500' overlap between both casings.
2. Annular clearance less than 0.422" is acceptable for the curve and lateral portions of the production open hole section.

| | Y or N |
|---|---|
| Is casing new? If used, attach certification as required in Onshore Order #1 | Y |
| Does casing meet API specifications? If no, attach casing specification sheet. | Y |
| Is premium or uncommon casing planned? If yes attach casing specification sheet. | Y |
| Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria). | Y |
| Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing? | Y |
| | |
| Is well located within Capitan Reef? | N |
| If yes, does production casing cement tie back a minimum of 50' above the Reef? | |
| Is well within the designated 4 string boundary. | |
| | |
| Is well located in SOPA but not in R-111-P? | Y |
| If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing? | Y |
| | |
| Is well located in R-111-P and SOPA? | N |
| If yes, are the first three strings cemented to surface? | |
| Is 2nd string set 100' to 600' below the base of salt? | |
| | |
| Is well located in high Cave/Karst? | N |
| If yes, are there two strings cemented to surface? | |
| (For 2 string wells) If yes, is there a contingency casing if lost circulation occurs? | |
| | |
| Is well located in critical Cave/Karst? | N |
| If yes, are there three strings cemented to surface? | |

## 3. Cementing Program

| Casing String | # Sks | Wt. (lb/gal) | Yld (ft3/sack) | H20 (gal/sk) | 500# Comp. Strength (hours) | Slurry Description |
|---|---|---|---|---|---|---|
| Surface (Lead) | N/A | N/A | N/A | N/A | N/A | N/A |
| Surface (Tail) | 697 | 14.8 | 1.33 | 6.365 | 5:26 | Class C Cement, Accelerator |
| Intermediate 1st Stage (Lead) | N/A | N/A | N/A | N/A | N/A | N/A |
| Intermediate 1st Stage (Tail) | 605 | 13.2 | 1.65 | 8.640 | 11:54 | Class H Cement, Retarder, Dispersant, Salt |
| Intermediate 2nd Stage (Tail Slurry) to be pumped as Bradenhead Squeeze from surface, down the Intermediate annulus | | | | | | |
| Intermediate 2nd Stage (Lead) | N/A | N/A | N/A | N/A | N/A | N/A |
| Intermediate 2nd Stage (Tail) | 816 | 12.9 | 1.92 | 10.41 | 23:10 | Class C Cement, Accelerator |
| Production (Lead) | N/A | N/A | N/A | N/A | N/A | N/A |
| Production (Tail) | 868 | 13.2 | 1.38 | 6.686 | 3:39 | Class H Cement, Retarder, Dispersant, Salt |

| Casing String | Top (ft) | Bottom (ft) | % Excess |
|---|---|---|---|
| Surface (Lead) | N/A | N/A | N/A |
| Surface (Tail) | 0 | 849 | 100% |
| Intermediate 1st Stage (Lead) | N/A | N/A | N/A |
| Intermediate 1st Stage (Tail) | 6632 | 11006 | 5% |
| Intermediate 2nd Stage (Lead) | N/A | N/A | N/A |
| Intermediate 2nd Stage (Tail) | 0 | 6632 | 10% |
| Production (Lead) | N/A | N/A | N/A |
| Production (Tail) | 10506 | 22351 | 20% |

## 4. Pressure Control Equipment

| BOP installed and tested before drilling which hole? | Size? | Min. Required WP | Type | ✓ | Tested to: |
|---|---|---|---|---|---|
| 9.875" Hole | 13-5/8” | 5M | Annular | ✓ | 70% of working pressure |
| | | 5M | Blind Ram | ✓ | 250 psi / 5000 psi |
| | | | Pipe Ram | | |
| | | | Double Ram | ✓ | |
| | | | Other* | | |
| 6.75" Hole | 13-5/8” | 5M | Annular | ✓ | 70% of working pressure |
| | | 5M | Blind Ram | ✓ | 250 psi / 5000 psi |
| | | | Pipe Ram | | |
| | | | Double Ram | ✓ | |
| | | | Other* | | |

*Specify if additional ram is utilized.

Oxy will utilize a 5M annular with a 10M BOPE stack. The BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore

Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

| | |
|---|---|
| | Formation integrity test will be performed per Onshore Order #2.<br>On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i. |
| | A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart. |
| | Y — Are anchors required by manufacturer? |
| | A multibowl or a unionized multibowl wellhead system will be employed. The wellhead and connection to the BOPE will meet all API 6A requirements. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. We will test the flange connection of the wellhead with a test port that is directly in the flange. We are proposing that we will run the wellhead through the rotary prior to cementing surface casing as discussed with the BLM on October 8, 2015. See attached schematics. |

**BOP Break Testing Request**

As per the agreement reached in the Oxy/BLM face-to-face meeting on Feb 22, 2018, Oxy requests permission to allow BOP Break Testing under the following conditions:

- After a full BOP test is conducted on the first well on the pad.
- When skidding to drill an intermediate section that casing point is either shallower than the third Bone Spring or 10,000 feet TVD.
- Full BOP test will be required prior to drilling any production hole.

## 5. Mud Program

| Depth | | Type | Weight (ppg) | Viscosity | Water Loss |
|---|---|---|---|---|---|
| From (ft) | To (ft) | | | | |
| 0 | 849 | Water-Based Mud | 8.6-8.8 | 40-60 | N/C |
| 849 | 11006 | Saturated Brine-Based or Oil-Based Mud | 8.0-10.0 | 35-45 | N/C |
| 11006 | 22351 | Water-Based or Oil-Based Mud | 9.5-12.0 | 38-50 | N/C |

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times. The following is a general list of products: Barite, Bentonite, Gypsum, Lime, Soda Ash, Caustic Soda, Nut Plug, Cedar Fiber, Cotton Seed Hulls, Drilling Paper, Salt Water Clay, CACL2. Oxy will use a closed mud system.

| | |
|---|---|
| What will be used to monitor the loss or gain of fluid? | PVT/MD Totco/Visual Monitoring |

## 6. Logging and Testing Procedures

| **Logging, Coring and Testing.** | |
|---|---|
| Yes | Will run GR from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM. |
| No | Logs are planned based on well control or offset log information. |
| No | Drill stem test? If yes, explain |
| No | Coring? If yes, explain |

| **Additional logs planned** | | **Interval** |
|---|---|---|
| No | Resistivity | |
| No | Density | |
| No | CBL | |
| Yes | Mud log | ICP - TD |
| No | PEX | |

## 7. Drilling Conditions

| **Condition** | **Specify what type and where?** |
|---|---|
| BH Pressure at deepest TVD | 7190 psi |
| Abnormal Temperature | No |
| BH Temperature at deepest TVD | 173°F |

Pump high viscosity sweeps as needed for hole cleaning. The mud system will be monitored visually/manually as well as with an electronic PVT. The necessary mud products for additional weight and fluid loss control will be on location at all times. Appropriately weighted mud will be used to isolate potential gas, oil, and water zones until such time as casing can be cemented into place for zonal isolation.

| Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM. | |
|---|---|
| N | H2S is present |
| Y | H2S Plan attached |

## 8. Other facets of operation

| | Yes/No |
|---|---|
| Will the well be drilled with a walking/skidding operation? If yes, describe.<br>• We plan to drill the six well pad in batch by section: all surface sections, intermediate sections and production sections. The wellhead will be secured with a night cap whenever the rig is not over the well. | Yes |
| Will more than one drilling rig be used for drilling operations? If yes, describe.<br>• Oxy requests the option to contract a Surface Rig to drill, set surface casing, and cement for this well. If the timing between rigs is such that Oxy would not be able to preset surface, the Primary Rig will MIRU and drill the well in its entirety per the APD. Please see the attached document for information on the spudder rig. | Yes |

**Total estimated cuttings volume:** 1643.8 bbls**.**

Attachments
_x__ Directional Plan
_x__ H2S Contingency Plan
_x__ Flex III Attachments
_x__ Spudder Rig Attachment
_x__ Premium Connection Specs

## 9. Company Personnel

| Name | Title | Office Phone | Mobile Phone |
|---|---|---|---|
| Edgar Diaz-Aguirre | Drilling Engineer | 713-552-8594 | 713-550-2699 |
| William Turner | Drilling Engineer Supervisor | 713-350-4951 | 661-817-4586 |
| Simon Benavides | Drilling Superintendent | 713-522-8652 | 281-684-6897 |
| Diego Tellez | Drilling Manager | 713-350-4602 | 713-303-4932 |

# OXY

**PRD NM DIRECTIONAL PLANS (NAD 1983)**
**Nimitz MDP1 12_1**
**Nimitz MDP1 12_1 Federal Com 175H**

**Wellbore #1**

**Plan: Permitting Plan**

# Standard Planning Report

**14 June, 2019**

| | | | |
|---|---|---|---|
| **Database:** | HOPSPP | **Local Co-ordinate Reference:** | Well Nimitz MDP1 12_1 Federal Com 175H |
| **Company:** | ENGINEERING DESIGNS | **TVD Reference:** | RKB=26.5' @ 3551.00ft |
| **Project:** | PRD NM DIRECTIONAL PLANS (NAD 1983) | **MD Reference:** | RKB=26.5' @ 3551.00ft |
| **Site:** | Nimitz MDP1 12_1 | **North Reference:** | Grid |
| **Well:** | Nimitz MDP1 12_1 Federal Com 175H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Permitting Plan | | |

**Project** PRD NM DIRECTIONAL PLANS (NAD 1983)

| | | | |
|---|---|---|---|
| **Map System:** | US State Plane 1983 | **System Datum:** | Mean Sea Level |
| **Geo Datum:** | North American Datum 1983 | | |
| **Map Zone:** | New Mexico Eastern Zone | | Using geodetic scale factor |

**Site** Nimitz MDP1 12_1

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 446,271.81 usft | **Latitude:** | 32° 13' 33.331024 N |
| **From:** | Map | **Easting:** | 693,055.21 usft | **Longitude:** | 103° 50' 33.713673 W |
| **Position Uncertainty:** | 2.00 ft | **Slot Radius:** | 13.200 in | **Grid Convergence:** | 0.26 ° |

**Well** Nimitz MDP1 12_1 Federal Com 175H

| | | | | | | |
|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | 174.44 ft | **Northing:** | 446,446.24 usft | **Latitude:** | 32° 13' 34.864779 N |
| | **+E/-W** | 4,198.73 ft | **Easting:** | 697,253.66 usft | **Longitude:** | 103° 49' 44.827703 W |
| **Position Uncertainty** | | 2.00 ft | **Wellhead Elevation:** | 0.00 ft | **Ground Level:** | 3,524.50 ft |

**Wellbore** Wellbore #1

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|---|---|---|---|---|---|
| | HDGM | 6/14/2019 | 6.80 | 59.92 | 47,909 |

**Design** Permitting Plan

**Audit Notes:**

| | | | | |
|---|---|---|---|---|
| **Version:** | **Phase:** | PROTOTYPE | **Tie On Depth:** | 0.00 |

| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
|---|---|---|---|---|
| | 0.00 | 0.00 | 0.00 | 358.68 |

**Plan Sections**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 4,560.00 | 0.00 | 0.00 | 4,560.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5,059.81 | 10.00 | 190.76 | 5,057.28 | -42.73 | -8.12 | 2.00 | 2.00 | 0.00 | 190.76 | |
| 10,111.73 | 10.00 | 190.76 | 10,032.50 | -904.24 | -171.77 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 11,106.90 | 10.00 | 359.77 | 11,022.54 | -902.68 | -188.40 | 2.00 | 0.00 | 16.98 | 174.42 | |
| 11,905.53 | 89.86 | 359.77 | 11,496.00 | -339.80 | -190.65 | 10.00 | 10.00 | 0.00 | 0.00 | FTP (Nimitz MDP1 |
| 22,351.17 | 89.86 | 359.77 | 11,521.00 | 10,105.73 | -232.47 | 0.00 | 0.00 | 0.00 | 0.00 | PBHL (Nimitz MDP1 |

| | | | |
|---|---|---|---|
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| **Project:** | PRD NM DIRECTIONAL PLANS (NAD 1983) | **MD Reference:** | RKB=26.5' @ 3551.00ft |
| **Site:** | Nimitz MDP1 12_1 | **North Reference:** | Grid |
| **Well:** | Nimitz MDP1 12_1 Federal Com 175H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Permitting Plan | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 200.00 | 0.00 | 0.00 | 200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 400.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 500.00 | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 600.00 | 0.00 | 0.00 | 600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 700.00 | 0.00 | 0.00 | 700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 800.00 | 0.00 | 0.00 | 800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 900.00 | 0.00 | 0.00 | 900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,000.00 | 0.00 | 0.00 | 1,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,100.00 | 0.00 | 0.00 | 1,100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,200.00 | 0.00 | 0.00 | 1,200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,300.00 | 0.00 | 0.00 | 1,300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,400.00 | 0.00 | 0.00 | 1,400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,500.00 | 0.00 | 0.00 | 1,500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,600.00 | 0.00 | 0.00 | 1,600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,700.00 | 0.00 | 0.00 | 1,700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,800.00 | 0.00 | 0.00 | 1,800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 0.00 | 0.00 | 1,900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 0.00 | 0.00 | 2,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 0.00 | 0.00 | 2,100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 0.00 | 0.00 | 2,200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 0.00 | 0.00 | 2,300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 0.00 | 0.00 | 2,400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 0.00 | 0.00 | 2,500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 0.00 | 0.00 | 2,600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 0.00 | 0.00 | 2,700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 0.00 | 0.00 | 2,800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 0.00 | 0.00 | 2,900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 0.00 | 0.00 | 3,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 0.00 | 0.00 | 3,100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 0.00 | 0.00 | 3,200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 0.00 | 0.00 | 3,300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 0.00 | 0.00 | 3,400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 0.00 | 0.00 | 3,500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 0.00 | 0.00 | 3,600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 0.00 | 0.00 | 3,700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 0.00 | 0.00 | 3,800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 0.00 | 0.00 | 3,900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 0.00 | 0.00 | 4,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 0.00 | 0.00 | 4,100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,200.00 | 0.00 | 0.00 | 4,200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 0.00 | 0.00 | 4,300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 0.00 | 0.00 | 4,400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 0.00 | 0.00 | 4,500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,560.00 | 0.00 | 0.00 | 4,560.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,600.00 | 0.80 | 190.76 | 4,600.00 | -0.27 | -0.05 | -0.27 | 2.00 | 2.00 | 0.00 |
| 4,700.00 | 2.80 | 190.76 | 4,699.94 | -3.36 | -0.64 | -3.34 | 2.00 | 2.00 | 0.00 |
| 4,800.00 | 4.80 | 190.76 | 4,799.72 | -9.87 | -1.88 | -9.82 | 2.00 | 2.00 | 0.00 |
| 4,900.00 | 6.80 | 190.76 | 4,899.20 | -19.80 | -3.76 | -19.71 | 2.00 | 2.00 | 0.00 |
| 5,000.00 | 8.80 | 190.76 | 4,998.27 | -33.13 | -6.29 | -32.98 | 2.00 | 2.00 | 0.00 |
| 5,059.81 | 10.00 | 190.76 | 5,057.28 | -42.73 | -8.12 | -42.53 | 2.00 | 2.00 | 0.00 |
| 5,100.00 | 10.00 | 190.76 | 5,096.86 | -49.58 | -9.42 | -49.35 | 0.00 | 0.00 | 0.00 |

| | | | |
|---|---|---|---|
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| **Company:** | ENGINEERING DESIGNS | **TVD Reference:** | RKB=26.5' @ 3551.00ft |
| **Project:** | PRD NM DIRECTIONAL PLANS (NAD 1983) | **MD Reference:** | RKB=26.5' @ 3551.00ft |
| **Site:** | Nimitz MDP1 12_1 | **North Reference:** | Grid |
| **Well:** | Nimitz MDP1 12_1 Federal Com 175H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Permitting Plan | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 5,200.00 | 10.00 | 190.76 | 5,195.34 | -66.63 | -12.66 | -66.32 | 0.00 | 0.00 | 0.00 |
| 5,300.00 | 10.00 | 190.76 | 5,293.82 | -83.69 | -15.90 | -83.30 | 0.00 | 0.00 | 0.00 |
| 5,400.00 | 10.00 | 190.76 | 5,392.30 | -100.74 | -19.14 | -100.27 | 0.00 | 0.00 | 0.00 |
| 5,500.00 | 10.00 | 190.76 | 5,490.79 | -117.79 | -22.38 | -117.25 | 0.00 | 0.00 | 0.00 |
| 5,600.00 | 10.00 | 190.76 | 5,589.27 | -134.85 | -25.61 | -134.22 | 0.00 | 0.00 | 0.00 |
| 5,700.00 | 10.00 | 190.76 | 5,687.75 | -151.90 | -28.85 | -151.20 | 0.00 | 0.00 | 0.00 |
| 5,800.00 | 10.00 | 190.76 | 5,786.23 | -168.95 | -32.09 | -168.17 | 0.00 | 0.00 | 0.00 |
| 5,900.00 | 10.00 | 190.76 | 5,884.71 | -186.01 | -35.33 | -185.14 | 0.00 | 0.00 | 0.00 |
| 6,000.00 | 10.00 | 190.76 | 5,983.20 | -203.06 | -38.57 | -202.12 | 0.00 | 0.00 | 0.00 |
| 6,100.00 | 10.00 | 190.76 | 6,081.68 | -220.11 | -41.81 | -219.09 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 10.00 | 190.76 | 6,180.16 | -237.17 | -45.05 | -236.07 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 10.00 | 190.76 | 6,278.64 | -254.22 | -48.29 | -253.04 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 10.00 | 190.76 | 6,377.12 | -271.27 | -51.53 | -270.02 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 10.00 | 190.76 | 6,475.61 | -288.33 | -54.77 | -286.99 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 10.00 | 190.76 | 6,574.09 | -305.38 | -58.01 | -303.96 | 0.00 | 0.00 | 0.00 |
| 6,700.00 | 10.00 | 190.76 | 6,672.57 | -322.43 | -61.25 | -320.94 | 0.00 | 0.00 | 0.00 |
| 6,800.00 | 10.00 | 190.76 | 6,771.05 | -339.49 | -64.49 | -337.91 | 0.00 | 0.00 | 0.00 |
| 6,900.00 | 10.00 | 190.76 | 6,869.53 | -356.54 | -67.73 | -354.89 | 0.00 | 0.00 | 0.00 |
| 7,000.00 | 10.00 | 190.76 | 6,968.02 | -373.59 | -70.97 | -371.86 | 0.00 | 0.00 | 0.00 |
| 7,100.00 | 10.00 | 190.76 | 7,066.50 | -390.65 | -74.21 | -388.84 | 0.00 | 0.00 | 0.00 |
| 7,200.00 | 10.00 | 190.76 | 7,164.98 | -407.70 | -77.45 | -405.81 | 0.00 | 0.00 | 0.00 |
| 7,300.00 | 10.00 | 190.76 | 7,263.46 | -424.75 | -80.68 | -422.78 | 0.00 | 0.00 | 0.00 |
| 7,400.00 | 10.00 | 190.76 | 7,361.94 | -441.81 | -83.92 | -439.76 | 0.00 | 0.00 | 0.00 |
| 7,500.00 | 10.00 | 190.76 | 7,460.42 | -458.86 | -87.16 | -456.73 | 0.00 | 0.00 | 0.00 |
| 7,600.00 | 10.00 | 190.76 | 7,558.91 | -475.91 | -90.40 | -473.71 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 10.00 | 190.76 | 7,657.39 | -492.97 | -93.64 | -490.68 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 10.00 | 190.76 | 7,755.87 | -510.02 | -96.88 | -507.66 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 10.00 | 190.76 | 7,854.35 | -527.07 | -100.12 | -524.63 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 10.00 | 190.76 | 7,952.83 | -544.13 | -103.36 | -541.60 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 10.00 | 190.76 | 8,051.32 | -561.18 | -106.60 | -558.58 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 10.00 | 190.76 | 8,149.80 | -578.23 | -109.84 | -575.55 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 10.00 | 190.76 | 8,248.28 | -595.29 | -113.08 | -592.53 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 10.00 | 190.76 | 8,346.76 | -612.34 | -116.32 | -609.50 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 10.00 | 190.76 | 8,445.24 | -629.39 | -119.56 | -626.48 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 10.00 | 190.76 | 8,543.73 | -646.45 | -122.80 | -643.45 | 0.00 | 0.00 | 0.00 |
| 8,700.00 | 10.00 | 190.76 | 8,642.21 | -663.50 | -126.04 | -660.42 | 0.00 | 0.00 | 0.00 |
| 8,800.00 | 10.00 | 190.76 | 8,740.69 | -680.55 | -129.28 | -677.40 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 10.00 | 190.76 | 8,839.17 | -697.61 | -132.51 | -694.37 | 0.00 | 0.00 | 0.00 |
| 9,000.00 | 10.00 | 190.76 | 8,937.65 | -714.66 | -135.75 | -711.35 | 0.00 | 0.00 | 0.00 |
| 9,100.00 | 10.00 | 190.76 | 9,036.14 | -731.71 | -138.99 | -728.32 | 0.00 | 0.00 | 0.00 |
| 9,200.00 | 10.00 | 190.76 | 9,134.62 | -748.77 | -142.23 | -745.30 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 10.00 | 190.76 | 9,233.10 | -765.82 | -145.47 | -762.27 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 10.00 | 190.76 | 9,331.58 | -782.87 | -148.71 | -779.25 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 10.00 | 190.76 | 9,430.06 | -799.93 | -151.95 | -796.22 | 0.00 | 0.00 | 0.00 |
| 9,600.00 | 10.00 | 190.76 | 9,528.55 | -816.98 | -155.19 | -813.19 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 10.00 | 190.76 | 9,627.03 | -834.03 | -158.43 | -830.17 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 10.00 | 190.76 | 9,725.51 | -851.09 | -161.67 | -847.14 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 10.00 | 190.76 | 9,823.99 | -868.14 | -164.91 | -864.12 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 10.00 | 190.76 | 9,922.47 | -885.19 | -168.15 | -881.09 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 10.00 | 190.76 | 10,020.95 | -902.25 | -171.39 | -898.07 | 0.00 | 0.00 | 0.00 |
| 10,111.73 | 10.00 | 190.76 | 10,032.50 | -904.24 | -171.77 | -900.06 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 8.24 | 191.95 | 10,119.66 | -917.96 | -174.51 | -913.71 | 2.00 | -1.99 | 1.36 |
| 10,300.00 | 6.26 | 194.11 | 10,218.85 | -930.26 | -177.32 | -925.94 | 2.00 | -1.98 | 2.16 |
| 10,400.00 | 4.29 | 198.25 | 10,318.43 | -939.10 | -179.82 | -934.72 | 2.00 | -1.96 | 4.14 |

| | | | |
|---|---|---|---|
| **Database:** | HOPSPP | **Local Co-ordinate Reference:** | Well Nimitz MDP1 12_1 Federal Com 175H |
| **Company:** | ENGINEERING DESIGNS | **TVD Reference:** | RKB=26.5' @ 3551.00ft |
| **Project:** | PRD NM DIRECTIONAL PLANS (NAD 1983) | **MD Reference:** | RKB=26.5' @ 3551.00ft |
| **Site:** | Nimitz MDP1 12_1 | **North Reference:** | Grid |
| **Well:** | Nimitz MDP1 12_1 Federal Com 175H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Permitting Plan | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 10,500.00 | 2.39 | 209.12 | 10,418.25 | -944.48 | -182.01 | -940.05 | 2.00 | -1.91 | 10.88 |
| 10,600.00 | 0.98 | 264.47 | 10,518.21 | -946.38 | -183.88 | -941.91 | 2.00 | -1.40 | 55.34 |
| 10,700.00 | 2.06 | 337.24 | 10,618.18 | -944.81 | -185.43 | -940.30 | 2.00 | 1.07 | 72.77 |
| 10,800.00 | 3.94 | 351.07 | 10,718.04 | -939.77 | -186.66 | -935.23 | 2.00 | 1.88 | 13.83 |
| 10,900.00 | 5.90 | 355.86 | 10,817.67 | -931.25 | -187.56 | -926.69 | 2.00 | 1.96 | 4.79 |
| 11,000.00 | 7.87 | 358.25 | 10,916.94 | -919.28 | -188.14 | -914.71 | 2.00 | 1.98 | 2.40 |
| 11,100.00 | 9.86 | 359.69 | 11,015.74 | -903.87 | -188.39 | -899.30 | 2.00 | 1.99 | 1.44 |
| 11,106.90 | 10.00 | 359.77 | 11,022.54 | -902.68 | -188.40 | -898.11 | 2.00 | 1.99 | 1.13 |
| 11,200.00 | 19.31 | 359.77 | 11,112.51 | -879.15 | -188.49 | -874.58 | 10.00 | 10.00 | 0.00 |
| 11,300.00 | 29.31 | 359.77 | 11,203.53 | -838.04 | -188.66 | -833.48 | 10.00 | 10.00 | 0.00 |
| 11,400.00 | 39.31 | 359.77 | 11,286.02 | -781.74 | -188.88 | -777.19 | 10.00 | 10.00 | 0.00 |
| 11,500.00 | 49.31 | 359.77 | 11,357.49 | -711.97 | -189.16 | -707.44 | 10.00 | 10.00 | 0.00 |
| 11,600.00 | 59.31 | 359.77 | 11,415.76 | -630.86 | -189.49 | -626.34 | 10.00 | 10.00 | 0.00 |
| 11,700.00 | 69.31 | 359.77 | 11,459.05 | -540.86 | -189.85 | -536.35 | 10.00 | 10.00 | 0.00 |
| 11,800.00 | 79.31 | 359.77 | 11,486.06 | -444.71 | -190.23 | -440.22 | 10.00 | 10.00 | 0.00 |
| 11,900.00 | 89.31 | 359.77 | 11,495.96 | -345.33 | -190.63 | -340.85 | 10.00 | 10.00 | 0.00 |
| 11,905.53 | 89.86 | 359.77 | 11,496.00 | -339.80 | -190.65 | -335.33 | 10.00 | 10.00 | 0.00 |
| 12,000.00 | 89.86 | 359.77 | 11,496.23 | -245.33 | -191.03 | -240.87 | 0.00 | 0.00 | 0.00 |
| 12,100.00 | 89.86 | 359.77 | 11,496.47 | -145.33 | -191.43 | -140.89 | 0.00 | 0.00 | 0.00 |
| 12,200.00 | 89.86 | 359.77 | 11,496.71 | -45.33 | -191.83 | -40.91 | 0.00 | 0.00 | 0.00 |
| 12,300.00 | 89.86 | 359.77 | 11,496.94 | 54.67 | -192.23 | 59.07 | 0.00 | 0.00 | 0.00 |
| 12,400.00 | 89.86 | 359.77 | 11,497.18 | 154.67 | -192.63 | 159.06 | 0.00 | 0.00 | 0.00 |
| 12,500.00 | 89.86 | 359.77 | 11,497.42 | 254.67 | -193.03 | 259.04 | 0.00 | 0.00 | 0.00 |
| 12,600.00 | 89.86 | 359.77 | 11,497.66 | 354.66 | -193.43 | 359.02 | 0.00 | 0.00 | 0.00 |
| 12,700.00 | 89.86 | 359.77 | 11,497.90 | 454.66 | -193.83 | 459.00 | 0.00 | 0.00 | 0.00 |
| 12,800.00 | 89.86 | 359.77 | 11,498.14 | 554.66 | -194.23 | 558.98 | 0.00 | 0.00 | 0.00 |
| 12,900.00 | 89.86 | 359.77 | 11,498.38 | 654.66 | -194.63 | 658.96 | 0.00 | 0.00 | 0.00 |
| 13,000.00 | 89.86 | 359.77 | 11,498.62 | 754.66 | -195.03 | 758.95 | 0.00 | 0.00 | 0.00 |
| 13,100.00 | 89.86 | 359.77 | 11,498.86 | 854.66 | -195.43 | 858.93 | 0.00 | 0.00 | 0.00 |
| 13,200.00 | 89.86 | 359.77 | 11,499.10 | 954.66 | -195.83 | 958.91 | 0.00 | 0.00 | 0.00 |
| 13,300.00 | 89.86 | 359.77 | 11,499.34 | 1,054.66 | -196.23 | 1,058.89 | 0.00 | 0.00 | 0.00 |
| 13,400.00 | 89.86 | 359.77 | 11,499.58 | 1,154.66 | -196.63 | 1,158.87 | 0.00 | 0.00 | 0.00 |
| 13,500.00 | 89.86 | 359.77 | 11,499.82 | 1,254.65 | -197.03 | 1,258.85 | 0.00 | 0.00 | 0.00 |
| 13,600.00 | 89.86 | 359.77 | 11,500.06 | 1,354.65 | -197.44 | 1,358.84 | 0.00 | 0.00 | 0.00 |
| 13,700.00 | 89.86 | 359.77 | 11,500.30 | 1,454.65 | -197.84 | 1,458.82 | 0.00 | 0.00 | 0.00 |
| 13,800.00 | 89.86 | 359.77 | 11,500.53 | 1,554.65 | -198.24 | 1,558.80 | 0.00 | 0.00 | 0.00 |
| 13,900.00 | 89.86 | 359.77 | 11,500.77 | 1,654.65 | -198.64 | 1,658.78 | 0.00 | 0.00 | 0.00 |
| 14,000.00 | 89.86 | 359.77 | 11,501.01 | 1,754.65 | -199.04 | 1,758.76 | 0.00 | 0.00 | 0.00 |
| 14,100.00 | 89.86 | 359.77 | 11,501.25 | 1,854.65 | -199.44 | 1,858.74 | 0.00 | 0.00 | 0.00 |
| 14,200.00 | 89.86 | 359.77 | 11,501.49 | 1,954.65 | -199.84 | 1,958.73 | 0.00 | 0.00 | 0.00 |
| 14,300.00 | 89.86 | 359.77 | 11,501.73 | 2,054.65 | -200.24 | 2,058.71 | 0.00 | 0.00 | 0.00 |
| 14,400.00 | 89.86 | 359.77 | 11,501.97 | 2,154.64 | -200.64 | 2,158.69 | 0.00 | 0.00 | 0.00 |
| 14,500.00 | 89.86 | 359.77 | 11,502.21 | 2,254.64 | -201.04 | 2,258.67 | 0.00 | 0.00 | 0.00 |
| 14,600.00 | 89.86 | 359.77 | 11,502.45 | 2,354.64 | -201.44 | 2,358.65 | 0.00 | 0.00 | 0.00 |
| 14,700.00 | 89.86 | 359.77 | 11,502.69 | 2,454.64 | -201.84 | 2,458.63 | 0.00 | 0.00 | 0.00 |
| 14,800.00 | 89.86 | 359.77 | 11,502.93 | 2,554.64 | -202.24 | 2,558.62 | 0.00 | 0.00 | 0.00 |
| 14,900.00 | 89.86 | 359.77 | 11,503.17 | 2,654.64 | -202.64 | 2,658.60 | 0.00 | 0.00 | 0.00 |
| 15,000.00 | 89.86 | 359.77 | 11,503.41 | 2,754.64 | -203.04 | 2,758.58 | 0.00 | 0.00 | 0.00 |
| 15,100.00 | 89.86 | 359.77 | 11,503.65 | 2,854.64 | -203.44 | 2,858.56 | 0.00 | 0.00 | 0.00 |
| 15,200.00 | 89.86 | 359.77 | 11,503.89 | 2,954.64 | -203.84 | 2,958.54 | 0.00 | 0.00 | 0.00 |
| 15,300.00 | 89.86 | 359.77 | 11,504.12 | 3,054.63 | -204.24 | 3,058.52 | 0.00 | 0.00 | 0.00 |
| 15,400.00 | 89.86 | 359.77 | 11,504.36 | 3,154.63 | -204.64 | 3,158.51 | 0.00 | 0.00 | 0.00 |
| 15,500.00 | 89.86 | 359.77 | 11,504.60 | 3,254.63 | -205.04 | 3,258.49 | 0.00 | 0.00 | 0.00 |
| 15,600.00 | 89.86 | 359.77 | 11,504.84 | 3,354.63 | -205.44 | 3,358.47 | 0.00 | 0.00 | 0.00 |

| | | | |
|---|---|---|---|
| **Database:** | HOPSPP | **Local Co-ordinate Reference:** | Well Nimitz MDP1 12_1 Federal Com 175H |
| **Company:** | ENGINEERING DESIGNS | **TVD Reference:** | RKB=26.5' @ 3551.00ft |
| **Project:** | PRD NM DIRECTIONAL PLANS (NAD 1983) | **MD Reference:** | RKB=26.5' @ 3551.00ft |
| **Site:** | Nimitz MDP1 12_1 | **North Reference:** | Grid |
| **Well:** | Nimitz MDP1 12_1 Federal Com 175H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Permitting Plan | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 15,700.00 | 89.86 | 359.77 | 11,505.08 | 3,454.63 | -205.84 | 3,458.45 | 0.00 | 0.00 | 0.00 |
| 15,800.00 | 89.86 | 359.77 | 11,505.32 | 3,554.63 | -206.24 | 3,558.43 | 0.00 | 0.00 | 0.00 |
| 15,900.00 | 89.86 | 359.77 | 11,505.56 | 3,654.63 | -206.64 | 3,658.41 | 0.00 | 0.00 | 0.00 |
| 16,000.00 | 89.86 | 359.77 | 11,505.80 | 3,754.63 | -207.04 | 3,758.40 | 0.00 | 0.00 | 0.00 |
| 16,100.00 | 89.86 | 359.77 | 11,506.04 | 3,854.63 | -207.44 | 3,858.38 | 0.00 | 0.00 | 0.00 |
| 16,200.00 | 89.86 | 359.77 | 11,506.28 | 3,954.63 | -207.84 | 3,958.36 | 0.00 | 0.00 | 0.00 |
| 16,300.00 | 89.86 | 359.77 | 11,506.52 | 4,054.62 | -208.24 | 4,058.34 | 0.00 | 0.00 | 0.00 |
| 16,400.00 | 89.86 | 359.77 | 11,506.76 | 4,154.62 | -208.64 | 4,158.32 | 0.00 | 0.00 | 0.00 |
| 16,500.00 | 89.86 | 359.77 | 11,507.00 | 4,254.62 | -209.04 | 4,258.30 | 0.00 | 0.00 | 0.00 |
| 16,600.00 | 89.86 | 359.77 | 11,507.24 | 4,354.62 | -209.44 | 4,358.29 | 0.00 | 0.00 | 0.00 |
| 16,700.00 | 89.86 | 359.77 | 11,507.48 | 4,454.62 | -209.84 | 4,458.27 | 0.00 | 0.00 | 0.00 |
| 16,800.00 | 89.86 | 359.77 | 11,507.71 | 4,554.62 | -210.24 | 4,558.25 | 0.00 | 0.00 | 0.00 |
| 16,900.00 | 89.86 | 359.77 | 11,507.95 | 4,654.62 | -210.64 | 4,658.23 | 0.00 | 0.00 | 0.00 |
| 17,000.00 | 89.86 | 359.77 | 11,508.19 | 4,754.62 | -211.05 | 4,758.21 | 0.00 | 0.00 | 0.00 |
| 17,100.00 | 89.86 | 359.77 | 11,508.43 | 4,854.62 | -211.45 | 4,858.19 | 0.00 | 0.00 | 0.00 |
| 17,200.00 | 89.86 | 359.77 | 11,508.67 | 4,954.61 | -211.85 | 4,958.18 | 0.00 | 0.00 | 0.00 |
| 17,300.00 | 89.86 | 359.77 | 11,508.91 | 5,054.61 | -212.25 | 5,058.16 | 0.00 | 0.00 | 0.00 |
| 17,400.00 | 89.86 | 359.77 | 11,509.15 | 5,154.61 | -212.65 | 5,158.14 | 0.00 | 0.00 | 0.00 |
| 17,500.00 | 89.86 | 359.77 | 11,509.39 | 5,254.61 | -213.05 | 5,258.12 | 0.00 | 0.00 | 0.00 |
| 17,600.00 | 89.86 | 359.77 | 11,509.63 | 5,354.61 | -213.45 | 5,358.10 | 0.00 | 0.00 | 0.00 |
| 17,700.00 | 89.86 | 359.77 | 11,509.87 | 5,454.61 | -213.85 | 5,458.08 | 0.00 | 0.00 | 0.00 |
| 17,800.00 | 89.86 | 359.77 | 11,510.11 | 5,554.61 | -214.25 | 5,558.07 | 0.00 | 0.00 | 0.00 |
| 17,900.00 | 89.86 | 359.77 | 11,510.35 | 5,654.61 | -214.65 | 5,658.05 | 0.00 | 0.00 | 0.00 |
| 18,000.00 | 89.86 | 359.77 | 11,510.59 | 5,754.61 | -215.05 | 5,758.03 | 0.00 | 0.00 | 0.00 |
| 18,100.00 | 89.86 | 359.77 | 11,510.83 | 5,854.60 | -215.45 | 5,858.01 | 0.00 | 0.00 | 0.00 |
| 18,200.00 | 89.86 | 359.77 | 11,511.07 | 5,954.60 | -215.85 | 5,957.99 | 0.00 | 0.00 | 0.00 |
| 18,300.00 | 89.86 | 359.77 | 11,511.30 | 6,054.60 | -216.25 | 6,057.97 | 0.00 | 0.00 | 0.00 |
| 18,400.00 | 89.86 | 359.77 | 11,511.54 | 6,154.60 | -216.65 | 6,157.96 | 0.00 | 0.00 | 0.00 |
| 18,500.00 | 89.86 | 359.77 | 11,511.78 | 6,254.60 | -217.05 | 6,257.94 | 0.00 | 0.00 | 0.00 |
| 18,600.00 | 89.86 | 359.77 | 11,512.02 | 6,354.60 | -217.45 | 6,357.92 | 0.00 | 0.00 | 0.00 |
| 18,700.00 | 89.86 | 359.77 | 11,512.26 | 6,454.60 | -217.85 | 6,457.90 | 0.00 | 0.00 | 0.00 |
| 18,800.00 | 89.86 | 359.77 | 11,512.50 | 6,554.60 | -218.25 | 6,557.88 | 0.00 | 0.00 | 0.00 |
| 18,900.00 | 89.86 | 359.77 | 11,512.74 | 6,654.60 | -218.65 | 6,657.86 | 0.00 | 0.00 | 0.00 |
| 19,000.00 | 89.86 | 359.77 | 11,512.98 | 6,754.59 | -219.05 | 6,757.85 | 0.00 | 0.00 | 0.00 |
| 19,100.00 | 89.86 | 359.77 | 11,513.22 | 6,854.59 | -219.45 | 6,857.83 | 0.00 | 0.00 | 0.00 |
| 19,200.00 | 89.86 | 359.77 | 11,513.46 | 6,954.59 | -219.85 | 6,957.81 | 0.00 | 0.00 | 0.00 |
| 19,300.00 | 89.86 | 359.77 | 11,513.70 | 7,054.59 | -220.25 | 7,057.79 | 0.00 | 0.00 | 0.00 |
| 19,400.00 | 89.86 | 359.77 | 11,513.94 | 7,154.59 | -220.65 | 7,157.77 | 0.00 | 0.00 | 0.00 |
| 19,500.00 | 89.86 | 359.77 | 11,514.18 | 7,254.59 | -221.05 | 7,257.75 | 0.00 | 0.00 | 0.00 |
| 19,600.00 | 89.86 | 359.77 | 11,514.42 | 7,354.59 | -221.45 | 7,357.74 | 0.00 | 0.00 | 0.00 |
| 19,700.00 | 89.86 | 359.77 | 11,514.66 | 7,454.59 | -221.85 | 7,457.72 | 0.00 | 0.00 | 0.00 |
| 19,800.00 | 89.86 | 359.77 | 11,514.89 | 7,554.59 | -222.25 | 7,557.70 | 0.00 | 0.00 | 0.00 |
| 19,900.00 | 89.86 | 359.77 | 11,515.13 | 7,654.58 | -222.65 | 7,657.68 | 0.00 | 0.00 | 0.00 |
| 20,000.00 | 89.86 | 359.77 | 11,515.37 | 7,754.58 | -223.05 | 7,757.66 | 0.00 | 0.00 | 0.00 |
| 20,100.00 | 89.86 | 359.77 | 11,515.61 | 7,854.58 | -223.45 | 7,857.64 | 0.00 | 0.00 | 0.00 |
| 20,200.00 | 89.86 | 359.77 | 11,515.85 | 7,954.58 | -223.85 | 7,957.63 | 0.00 | 0.00 | 0.00 |
| 20,300.00 | 89.86 | 359.77 | 11,516.09 | 8,054.58 | -224.25 | 8,057.61 | 0.00 | 0.00 | 0.00 |
| 20,400.00 | 89.86 | 359.77 | 11,516.33 | 8,154.58 | -224.65 | 8,157.59 | 0.00 | 0.00 | 0.00 |
| 20,500.00 | 89.86 | 359.77 | 11,516.57 | 8,254.58 | -225.06 | 8,257.57 | 0.00 | 0.00 | 0.00 |
| 20,600.00 | 89.86 | 359.77 | 11,516.81 | 8,354.58 | -225.46 | 8,357.55 | 0.00 | 0.00 | 0.00 |
| 20,700.00 | 89.86 | 359.77 | 11,517.05 | 8,454.58 | -225.86 | 8,457.53 | 0.00 | 0.00 | 0.00 |
| 20,800.00 | 89.86 | 359.77 | 11,517.29 | 8,554.58 | -226.26 | 8,557.52 | 0.00 | 0.00 | 0.00 |
| 20,900.00 | 89.86 | 359.77 | 11,517.53 | 8,654.57 | -226.66 | 8,657.50 | 0.00 | 0.00 | 0.00 |
| 21,000.00 | 89.86 | 359.77 | 11,517.77 | 8,754.57 | -227.06 | 8,757.48 | 0.00 | 0.00 | 0.00 |

| | | | |
|---|---|---|---|
| **Database:** | HOPSPP | **Local Co-ordinate Reference:** | Well Nimitz MDP1 12_1 Federal Com 175H |
| **Company:** | ENGINEERING DESIGNS | **TVD Reference:** | RKB=26.5' @ 3551.00ft |
| **Project:** | PRD NM DIRECTIONAL PLANS (NAD 1983) | **MD Reference:** | RKB=26.5' @ 3551.00ft |
| **Site:** | Nimitz MDP1 12_1 | **North Reference:** | Grid |
| **Well:** | Nimitz MDP1 12_1 Federal Com 175H | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | Wellbore #1 | | |
| **Design:** | Permitting Plan | | |

**Planned Survey**

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|---|---|---|---|---|---|---|---|---|---|
| 21,100.00 | 89.86 | 359.77 | 11,518.01 | 8,854.57 | -227.46 | 8,857.46 | 0.00 | 0.00 | 0.00 |
| 21,200.00 | 89.86 | 359.77 | 11,518.25 | 8,954.57 | -227.86 | 8,957.44 | 0.00 | 0.00 | 0.00 |
| 21,300.00 | 89.86 | 359.77 | 11,518.48 | 9,054.57 | -228.26 | 9,057.42 | 0.00 | 0.00 | 0.00 |
| 21,400.00 | 89.86 | 359.77 | 11,518.72 | 9,154.57 | -228.66 | 9,157.41 | 0.00 | 0.00 | 0.00 |
| 21,500.00 | 89.86 | 359.77 | 11,518.96 | 9,254.57 | -229.06 | 9,257.39 | 0.00 | 0.00 | 0.00 |
| 21,600.00 | 89.86 | 359.77 | 11,519.20 | 9,354.57 | -229.46 | 9,357.37 | 0.00 | 0.00 | 0.00 |
| 21,700.00 | 89.86 | 359.77 | 11,519.44 | 9,454.57 | -229.86 | 9,457.35 | 0.00 | 0.00 | 0.00 |
| 21,800.00 | 89.86 | 359.77 | 11,519.68 | 9,554.56 | -230.26 | 9,557.33 | 0.00 | 0.00 | 0.00 |
| 21,900.00 | 89.86 | 359.77 | 11,519.92 | 9,654.56 | -230.66 | 9,657.31 | 0.00 | 0.00 | 0.00 |
| 22,000.00 | 89.86 | 359.77 | 11,520.16 | 9,754.56 | -231.06 | 9,757.30 | 0.00 | 0.00 | 0.00 |
| 22,100.00 | 89.86 | 359.77 | 11,520.40 | 9,854.56 | -231.46 | 9,857.28 | 0.00 | 0.00 | 0.00 |
| 22,200.00 | 89.86 | 359.77 | 11,520.64 | 9,954.56 | -231.86 | 9,957.26 | 0.00 | 0.00 | 0.00 |
| 22,300.00 | 89.86 | 359.77 | 11,520.88 | 10,054.56 | -232.26 | 10,057.24 | 0.00 | 0.00 | 0.00 |
| 22,351.17 | 89.86 | 359.77 | 11,521.00 | 10,105.73 | -232.47 | 10,108.40 | 0.00 | 0.00 | 0.00 |

**Design Targets**

| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
|---|---|---|---|---|---|---|---|---|---|
| FTP (Nimitz MDP1 - plan hits target center - Point | 0.00 | 0.00 | 11,496.00 | -339.80 | -190.65 | 446,106.46 | 697,063.02 | 32° 13' 31.511274 N | 103° 49' 47.065596 |
| PBHL (Nimitz MDP1 - plan hits target center - Point | 0.00 | 0.00 | 11,521.00 | 10,105.73 | -232.47 | 456,551.31 | 697,021.21 | 32° 15' 14.871865 N | 103° 49' 46.982157 |

**Plan Annotations**

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates +N/-S (ft) | Local Coordinates +E/-W (ft) | Comment |
|---|---|---|---|---|
| 4,560.00 | 4,560.00 | 0.00 | 0.00 | Build 2.00°/100' |
| 5,059.81 | 5,057.28 | -42.73 | -8.12 | Hold 10.00° Tangent |
| 10,111.73 | 10,032.50 | -904.24 | -171.77 | Turn 2.00°/100' |
| 11,106.90 | 11,022.54 | -902.68 | -188.40 | KOP, Build 10.00°/100' |
| 11,905.53 | 11,496.00 | -339.80 | -190.65 | Landing Point |
| 22,351.17 | 11,521.00 | 10,105.73 | -232.47 | TD at 22351.17' MD |

Project: PRD NM DIRECTIONAL PLANS (NAD 1983)
Site: Nimitz MDP1 12_1
Well: Nimitz MDP1 12_1 Federal Com 175H
Wellbore: Wellbore #1
Design: Permitting Plan

PROJECT DETAILS: NM DIRECTIONAL PLANS (NAD 1983)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone

System Datum: Mean Sea Level

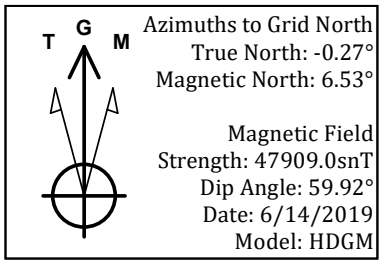
WELL DETAILS: Nimitz MDP1 12_1 Federal Com 175H

Ground Level: 3524.50

| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|---|---|---|---|---|---|
| 0.00 | 0.00 | 446446.24 | 697253.66 | 32° 13' 34.864779 N | 103° 49' 44.827703 W |

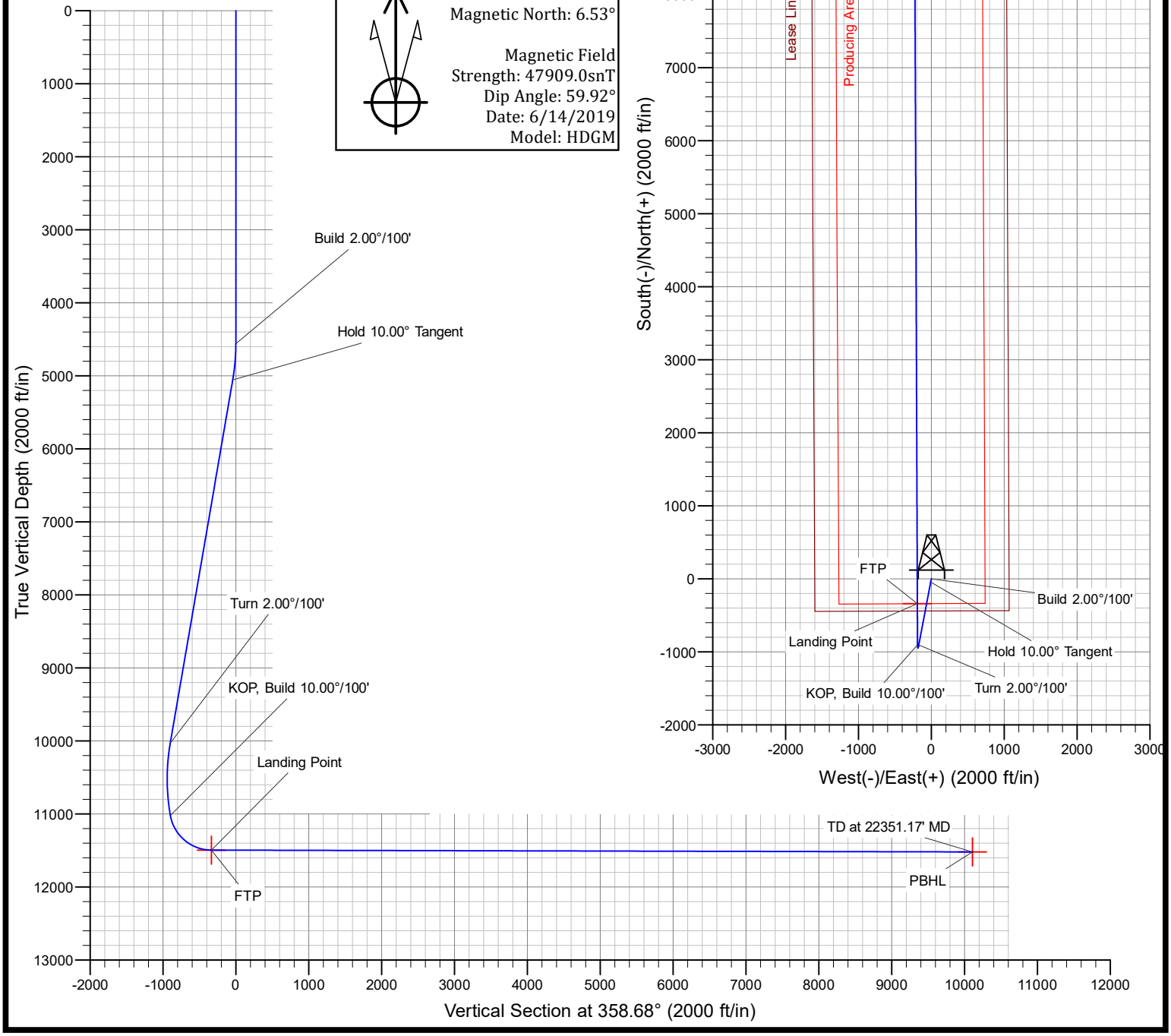
SECTION DETAILS

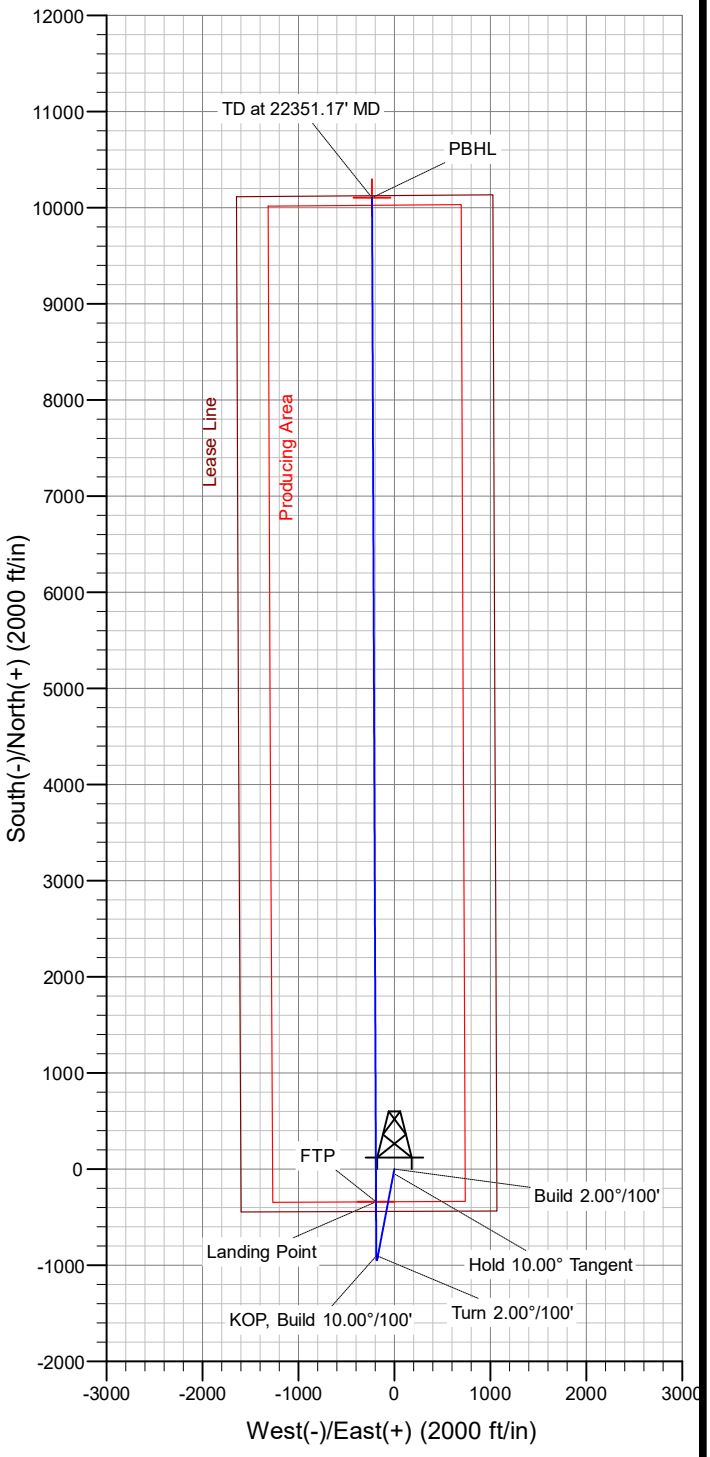
| MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | VSect | Annotation |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 4560.00 | 0.00 | 0.00 | 4560.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Build 2.00°/100' |
| 5059.81 | 10.00 | 190.76 | 5057.28 | -42.73 | -8.12 | 2.00 | 190.76 | -42.53 | Hold 10.00° Tangent |
| 10111.73 | 10.00 | 190.76 | 10032.50 | -904.24 | -171.77 | 0.00 | 0.00 | -900.06 | Turn 2.00°/100' |
| 11106.90 | 10.00 | 359.77 | 11022.54 | -902.68 | -188.40 | 2.00 | 174.42 | -898.11 | KOP, Build 10.00°/100' |
| 11905.53 | 89.86 | 359.77 | 11496.00 | -339.80 | -190.65 | 10.00 | 0.00 | -335.33 | Landing Point |
| 22351.17 | 89.86 | 359.77 | 11521.00 | 10105.73 | -232.47 | 0.00 | 0.00 | 10108.40 | TD at 22351.17' MD |




Azimuths to Grid North
True North: -0.27°
Magnetic North: 6.53°

Magnetic Field
Strength: 47909.0snT
Dip Angle: 59.92°
Date: 6/14/2019
Model: HDGM



# PECOS DISTRICT
# DRILLING CONDITIONS OF APPROVAL

| | |
|---|---|
| **OPERATOR'S NAME:** | OXY USA INC. |
| **WELL NAME & NO.:** | 175H –NIMITZ MDP1 12-1 FEDERAL COM |
| **SURFACE HOLE FOOTAGE:** | 439'/S & 1068'/E |
| **BOTTOM HOLE FOOTAGE** | 20'/N & 1260'/E |
| **LOCATION:** | Section 12 T.24 S., R.30E., NMP |
| **COUNTY:** | EDDY County, New Mexico |

COA

| | | | |
|---|---|---|---|
| H2S | ○ Yes | ◉ No | |
| Potash | ○ None | ◉ Secretary | ○ R-111-P |
| Cave/Karst Potential | ◉ Low | ○ Medium | ○ High |
| Cave/Karst Potential | ○ Critical | | |
| Variance | ○ None | ◉ Flex Hose | ○ Other |
| Wellhead | ○ Conventional | ○ Multibowl | ◉ Both |
| Other | ☐ 4 String Area | ☐ Capitan Reef | ☐ WIPP |
| Other | ☑ Fluid Filled | ☑ Cement Squeeze | ☐ Pilot Hole |
| Special Requirements | ☐ Water Disposal | ☑ COM | ☐ Unit |

## A. HYDROGEN SULFIDE

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

## B. CASING

**Casing Design:**

1. The **10-3/4** inch surface casing shall be set at approximately **512** feet (a minimum of **70 feet (Eddy County)** 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 surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

b. Wait on cement (WOC) time for a primary cement job will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
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.

**Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.**

2. The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:

**Option 1 (Single Stage):**

- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

**Option 2:**

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office.
  **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

❖ In **Secretary Potash Areas** if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.

**Operator has proposed to pump down 10-3/4" X 7-5/8" annulus. Operator must run a CBL or ECHO-METER from TD of the 7-5/8" casing to surface. Submit results to BLM.**

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

**Option 1 (Single Stage):**

- Cement should tie-back at least **500 feet** into previous casing string. Operator shall provide method of verification.

**Option 2:**

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:

- Cement should tie-back at least **500 feet** into previous casing string. Operator shall provide method of verification.

## C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'

2.

**Option 1:**

a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **5000 (5M)** psi.

**Option 2:**

1. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
c. Manufacturer representative shall install the test plug for the initial BOP test.
d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

**D. SPECIAL REQUIREMENT (S)**

**Communitization Agreement**

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

**Offline Cementing**

- Contact the BLM prior to the commencement of any offline cementing procedure.

**BOP Break Testing Variance**

- BOP break testing is not permitted on this well.

# GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

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

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

1. 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.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. 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.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

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

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. 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.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. 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. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
    e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

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

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not

hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

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

f. 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.

g. 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. This test shall be performed prior to the test at full stack pressure.

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

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**NMK09212020**

# Permian Drilling
# Hydrogen Sulfide Drilling Operations Plan
# New Mexico

## Scope

This contingency plan establishes guidelines for the public, all company employees, and contract employees who's work activities may involve exposure to hydrogen sulfide (H2S) gas.
While drilling this well, it is possible to encounter H2S bearing formations. At all times, the first barrier to control H2S emissions will be the drilling fluid, which will have a density high enough to control influx.

## Objective

1. Provide an immediate and predetermined response plan to any condition when H2S is detected. All H2S detections in excess of 10 parts per million (ppm) concentration are considered an Emergency.

2. Prevent any and all accidents, and prevent the uncontrolled release of hydrogen sulfide into the atmosphere.

3. Provide proper evacuation procedures to cope with emergencies.

4. Provide immediate and adequate medical attention should an injury occur.

## Discussion

| | |
|---|---|
| Implementation: | This plan with all details is to be fully implemented before drilling to commence. |
| Emergency response Procedure: | This section outlines the conditions and denotes steps to be taken in the event of an emergency. |
| Emergency equipment Procedure: | This section outlines the safety and emergency equipment that will be required for the drilling of this well. |
| Training provisions: | This section outlines the training provisions that must be adhered to prior to drilling. |
| Drilling emergency call lists: | Included are the telephone numbers of all persons to be contacted should an emergency exist. |
| Briefing: | This section deals with the briefing of all people involved in the drilling operation. |
| Public safety: | Public safety personnel will be made aware of any potential evacuation and any additional support needed. |
| Check lists: | Status check lists and procedural check lists have been included to insure adherence to the plan. |
| General information: | A general information section has been included to supply support information. |

## Hydrogen Sulfide Training

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

1. The hazards and characteristics of H2S.
2. Proper use and maintenance of personal protective equipment and life support systems.
3. H2S detection.
4. Proper use of H2S detectors, alarms, warning systems, briefing areas, evacuation procedures and prevailing winds.
5. Proper techniques for first aid and rescue procedures.
6. Physical effects of hydrogen sulfide on the human body.
7. Toxicity of hydrogen sulfide and sulfur dioxide.
8. Use of SCBA and supplied air equipment.
9. First aid and artificial respiration.
10. Emergency rescue.

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

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

H2S training refresher must have been taken within one year prior to drilling the well. Specifics on the well to be drilled will be discussed during the pre-spud meeting. H2S and well control (choke) drills will be performed while drilling the well, at least on a weekly basis. This plan shall be available in the well site. All personnel will be required to carry the documentation proving that the H2S training has been taken.

Service company and visiting personnel

A. Each service company that will be on this well will be notified if the zone contains H2S.

B. Each service company must provide for the training and equipment of their employees before they arrive at the well site.

C. Each service company will be expected to attend a well site briefing

## Emergency Equipment Requirements

1. Well control equipment

The well shall have hydraulic BOP equipment for the anticipated pressures. Equipment is to be tested on installation and follow Oxy Well Control standard, as well as BLM Onshore Order #2.

*Special control equipment:*

A. Hydraulic BOP equipment with remote control on ground. Remotely operated choke.
B. Rotating head
C. Gas buster equipment shall be installed before drilling out of surface pipe.

2. Protective equipment for personnel

A. Four (4) 30-minute positive pressure air packs (2 at each briefing area) on location.

B. Adequate fire extinguishers shall be located at strategic locations.

C. Radio / cell telephone communication will be available at the rig.

- Rig floor and trailers.
- Vehicle.

3. Hydrogen sulfide sensors and alarms

A. H2S sensor with alarms will be located on the rig floor, at the bell nipple, and at the flow line. These monitors will be set to alarm at 10 ppm with strobe light, and audible alarm.
B. Hand operated detectors with tubes.
C. H2S monitor tester (to be provided by contract Safety Company.)
D. There shall be one combustible gas detector on location at all times.

4. Visual Warning Systems

A. One sign located at each location entrance with the following language:

**Caution – potential poison gas**
**Hydrogen sulfide**
**No admittance without authorization**

*Wind sock – wind streamers*:

A. One 36” (in length) wind sock located at protection center, at height visible from rig floor.
B. One 36” (in length) wind sock located at height visible from pit areas.

*Condition flags*

A. One each condition flag to be displayed to denote conditions.

**green – normal conditions**
**yellow – potential danger**
**red – danger, H2S present**

B. Condition flag shall be posted at each location sign entrance.

5. Mud Program

The mud program is designed to minimize the risk of having H2S and other formation fluids at surface. Proper mud weight and safe drilling practices will be applied. H2S scavengers will be used to minimize the hazards while drilling. Below is a summary of the drilling program.

*Mud inspection devices:*

Garrett gas train or hatch tester for inspection of sulfide concentration in mud system.

6. Metallurgy

A. Drill string, casing, tubing, wellhead, blowout preventers, drilling spools or adapters, kill lines, choke manifold, lines and valves shall be suitable for the H2S service.
B. All the elastomers, packing, seals and ring gaskets shall be suitable for H2S service.

7. Well Testing

No drill stem test will be performed on this well.

8. Evacuation plan

Evacuation routes should be established prior to well spud for each well and discussed with all rig personnel.

9. Designated area

A. Parking and visitor area: all vehicles are to be parked at a predetermined safe distance from the wellhead.
B. There will be a designated smoking area.
C. Two briefing areas on either side of the location at the maximum allowable distance from the well bore so they offset prevailing winds perpendicularly, or at a 45-degree angle if wind direction tends to shift in the area.

## Emergency procedures

A. In the event of any evidence of H2S level above 10 ppm, take the following steps:

1. The Driller will pick up off bottom, shut down the pumps, slow down the pipe rotation.

2. Secure and don escape breathing equipment, report to the upwind designated safe briefing / muster area.

3. All personnel on location will be accounted for and emergency search should begin for any missing, the Buddy System will be implemented.

4. Order non-essential personnel to leave the well site, order all essential personnel out of the danger zone and upwind to the nearest designated safe briefing / muster area.

5. Entrance to the location will be secured to a higher level than our usual "Meet and Greet" requirement, and the proper condition flag will be displayed at the entrance to the location.

6. Take steps to determine if the H2S level can be corrected or suppressed and, if so, proceed as required.

B. If uncontrollable conditions occur:

1. Take steps to protect and/or remove any public in the down-wind area from the rig – partial evacuation and isolation. Notify necessary public safety personnel and appropriate regulatory entities (i.e. BLM) of the situation.

2. Remove all personnel to the nearest upwind designated safe briefing / muster area or off location.

3. Notify public safety personnel of safe briefing / muster area.

4. An assigned crew member will blockade the entrance to the location. No unauthorized personnel will be allowed entry to the location.

5. Proceed with best plan (at the time) to regain control of the well. Maintain tight security and safety procedures.

C. Responsibility:

1. Designated personnel.

a. Shall be responsible for the total implementation of this plan.
b. Shall be in complete command during any emergency.
c. Shall designate a back-up.

| | | |
|---|---|---|
| All personnel: | 1. | On alarm, don escape unit and report to the nearest upwind designated safe briefing / muster area upw |
| | 2. | Check status of personnel (buddy system). |
| | 3. | Secure breathing equipment. |
| | 4. | Await orders from supervisor. |
| Drill site manager: | 1. | Don escape unit if necessary and report to nearest upwind designated safe briefing / muster area. |
| | 2. | Coordinate preparations of individuals to return to point of release with tool pusher and driller (using the buddy system). |
| | 3. | Determine H2S concentrations. |
| | 4. | Assess situation and take control measures. |
| Tool pusher: | 1. | Don escape unit Report to up nearest upwind designated safe briefing / muster area. |
| | 2. | Coordinate preparation of individuals to return to point of release with tool pusher drill site manager (using the buddy system). |
| | 3. | Determine H2S concentration. |
| | 4. | Assess situation and take control measures. |
| Driller: | 1. | Don escape unit, shut down pumps, continue |

| | | |
|---|---|---|
| | | rotating DP. |
| | 2. | Check monitor for point of release. |
| | 3. | Report to nearest upwind designated safe briefing / muster area. |
| | 4. | Check status of personnel (in an attempt to rescue, use the buddy system). |
| | 5. | Assigns least essential person to notify Drill Site Manager and tool pusher by quickest means in case of their absence. |
| | 6. | Assumes the responsibilities of the Drill Site Manager and tool pusher until they arrive should they be absent. |
| Derrick man<br>Floor man #1<br>Floor man #2 | 1. | Will remain in briefing / muster area until instructed by supervisor. |
| Mud engineer: | 1. | Report to nearest upwind designated safe briefing / muster area. |
| | 2. | When instructed, begin check of mud for ph and H2S level. (Garett gas train.) |
| Safety personnel: | 1. | Mask up and check status of all personnel and secure operations as instructed by drill site manager. |

**Taking a kick**

When taking a kick during an H2S emergency, all personnel will follow standard Well control procedures after reporting to briefing area and masking up.

**Open-hole logging**

All unnecessary personnel off floor. Drill Site Manager and safety personnel should monitor condition, advise status and determine need for use of air equipment.

**Running casing or plugging**

Following the same "tripping" procedure as above. Drill Site Manager and safety personnel should determine if all personnel have access to protective equipment.

## Ignition procedures

The decision to ignite the well is the responsibility of the operator (Oxy Drilling Management). The decision should be made only as a last resort and in a situation where it is clear that:

1. Human life and property are endangered.
2. There is no hope controlling the blowout under the prevailing conditions at the well.

Instructions for igniting the well

1. Two people are required for the actual igniting operation. They must wear self-contained breathing units and have a safety rope attached. One man (tool pusher or safety engineer) will check the atmosphere for explosive gases with the gas monitor. The other man is responsible for igniting the well.
2. Primary method to ignite: 25 mm flare gun with range of approximately 500 feet.
3. Ignite upwind and do not approach any closer than is warranted.
4. Select the ignition site best for protection, and which offers an easy escape route.
5. Before firing, check for presence of combustible gas.
6. After lighting, continue emergency action and procedure as before.
7. All unassigned personnel will remain in briefing area until instructed by supervisor or directed by the Drill Site Manager.

**Remember**: After well is ignited, burning hydrogen sulfide will convert to sulfur dioxide, which is also highly toxic. **Do not assume the area is safe after the well is ignited.**

## Status check list

Note: All items on this list must be completed before drilling to production casing point.

1. H2S sign at location entrance.
2. Two (2) wind socks located as required.
3. Four (4) 30-minute positive pressure air packs (2 at each Briefing area) on location for all rig personnel and mud loggers.
4. Air packs inspected and ready for use.
5. Cascade system and hose line hook-up as needed.
6. Cascade system for refilling air bottles as needed.
7. Condition flag on location and ready for use.
8. H2S detection system hooked up and tested.
9. H2S alarm system hooked up and tested.
10. Hand operated H2S detector with tubes on location.
11. 1 – 100' length of nylon rope on location.
12. All rig crew and supervisors trained as required.
13. All outside service contractors advised of potential H2S hazard on well.
14. No smoking sign posted and a designated smoking area identified.
15. Calibration of all H2S equipment shall be noted on the IADC report.

Checked by:_____ Date:_____

## Procedural check list during H2S events

**Perform each tour:**

1. Check fire extinguishers to see that they have the proper charge.

2. Check breathing equipment to ensure that it in proper working order.

3. Make sure all the H2S detection system is operative.

**Perform each week:**

1. Check each piece of breathing equipment to make sure that demand or forced air regulator is working. This requires that the bottle be opened and the mask assembly be put on tight enough so that when you inhale, you receive air or feel air flow.

2. BOP skills (well control drills).

3. Check supply pressure on BOP accumulator stand by source.

4. Check breathing equipment mask assembly to see that straps are loosened and turned back, ready to put on.

5. Check pressure on breathing equipment air bottles to make sure they are charged to full volume. ( Air quality checked for proper air grade "D" before bringing to location)

6. Confirm pressure on all supply air bottles.

7. Perform breathing equipment drills with on-site personnel.

8. Check the following supplies for availability.

    A. Emergency telephone list.
    B. Hand operated H2S detectors and tubes.

## General evacuation plan

1. When the company approved supervisor (Drill Site Manager, consultant, rig pusher, or driller) determines the H2S gas cannot be limited to the well location and the public will be involved, he will activate the evacuation plan.

2. Drill Site Manager or designee will notify local government agency that a hazardous condition exists and evacuation needs to be implemented.

3. Company or contractor safety personnel that have been trained in the use of H2S detection equipment and self-contained breathing equipment will monitor H2S concentrations, wind directions, and area of exposure. They will delineate the outer perimeter of the hazardous gas area. Extension to the evacuation area will be determined from information gathered.

4. Law enforcement personnel (state police, police dept., fire dept., and sheriff's dept.) Will be called to aid in setting up and maintaining road blocks. Also, they will aid in evacuation of the public if necessary.

5. After the discharge of gas has been controlled, company safety personnel will determine when the area is safe for re-entry.

**Important: Law enforcement personnel will not be asked to come into a contaminated area. Their assistance will be limited to uncontaminated areas. Constant radio contact will be maintained with them.**

## Emergency actions

Well blowout – if emergency

1. Evacuate all personnel to "Safe Briefing / Muster Areas" or off location if needed.

2. If sour gas – evacuate rig personnel.

3. If sour gas – evacuate public within 3000 ft radius of exposure.

4. Don SCBA and shut well in if possible using the buddy system.

5. Notify Drilling Superintendent and call 911 for emergency help (fire dept and ambulance) if needed.
6. Implement the Blowout Contingency Plan, and Drilling Emergency Action Plan.

6. Give first aid as needed.

Person down location/facility

1. If immediately possible, contact 911. Give location and wait for confirmation.

2. Don SCBA and perform rescue operation using buddy system.

## Toxic effects of hydrogen sulfide

Hydrogen sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 ppm, which is .001% by volume. Hydrogen sulfide is heavier than air (specific gravity – 1.192) and colorless. It forms an explosive mixture with air between 4.3 and 46.0 percent by volume. Hydrogen sulfide is almost as toxic as hydrogen cyanide and is between five and six times more toxic than carbon monoxide. Toxicity data for hydrogen sulfide and various other gases are compared in table i. Physical effects at various hydrogen sulfide exposure levels are shown in table ii.

Table i
Toxicity of various gases

| Common name | Chemical formula | Specific gravity (sc=1) | Threshold limit (1) | Hazardous limit (2) | Lethal concentration (3) |
|---|---|---|---|---|---|
| Hydrogen Cyanide | Hcn | 0.94 | 10 ppm | 150 ppm/hr | 300 ppm |
| Hydrogen Sulfide | H2S | 1.18 | 10 ppm | 250 ppm/hr | 600 ppm |
| Sulfur Dioxide | So2 | 2.21 | 5 ppm | - | 1000 ppm |
| Chlorine | Cl2 | 2.45 | 1 ppm | 4 ppm/hr | 1000 ppm |
| Carbon Monoxide | Co | 0.97 | 50 ppm | 400 ppm/hr | 1000 ppm |
| Carbon Dioxide | Co2 | 1.52 | 5000 ppm | 5% | 10% |
| Methane | Ch4 | 0.55 | 90,000 ppm | Combustible above 5% in air | |

1) threshold limit – concentration at which it is believed that all workers may be repeatedly exposed day after day without adverse effects.

2) hazardous limit – concentration that will cause death with short-term exposure.

3) lethal concentration – concentration that will cause death with short-term exposure.

## Toxic effects of hydrogen sulfide

Table ii
Physical effects of hydrogen sulfide

| Percent (%) | Ppm | Concentration Grains 100 std. Ft3* | Physical effects |
|---|---|---|---|
| 0.001 | <10 | 00.65 | Obvious and unpleasant odor. |

| | | | |
|---|---|---|---|
| 0.002 | 10 | 01.30 | Safe for 8 hours of exposure. |
| 0.010 | 100 | 06.48 | Kill smell in 3 – 15 minutes. May sting eyes and throat. |
| 0.020 | 200 | 12.96 | Kills smell shortly; stings eyes and throat. |
| 0.050 | 500 | 32.96 | Dizziness; breathing ceases in a few minutes; needs prompt artificial respiration. |
| 0.070 | 700 | 45.36 | Unconscious quickly; death will result if not rescued promptly. |
| 0.100 | 1000 | 64.30 | Unconscious at once; followed by death within minutes. |

*at 15.00 psia and 60’f.

## Use of self-contained breathing equipment (SCBA)

1. Written procedures shall be prepared covering safe use of SCBA's in dangerous atmosphere, which might be encountered in normal operations or in emergencies. Personnel shall be familiar with these procedures and the available SCBA.

2 SCBA's shall be inspected frequently at random to insure that they are properly used, cleaned, and maintained.

3. Anyone who may use the SCBA's shall be trained in how to insure proper face-piece to face seal. They shall wear SCBA's in normal air and then wear them in a test atmosphere. (note: such items as facial hair {beard or sideburns} and eyeglasses will not allow proper seal.) Anyone that may be reasonably expected to wear SCBA's should have these items removed before entering a toxic atmosphere. A special mask must be obtained for anyone who must wear eyeglasses or contact lenses.

4. Maintenance and care of SCBA's:

    a. A program for maintenance and care of SCBA's shall include the following:
        1. Inspection for defects, including leak checks.
        2. Cleaning and disinfecting.
        3. Repair.
        4. Storage.

    b. Inspection, self-contained breathing apparatus for emergency use shall be inspected monthly.
        1. Fully charged cylinders.
        2. Regulator and warning device operation.
        3. Condition of face piece and connections.
        4. Rubber parts shall be maintained to keep them pliable and prevent deterioration.

    c. Routinely used SCBA's shall be collected, cleaned and disinfected as frequently as necessary to insure proper protection is provided.

5. Persons assigned tasks that requires use of self-contained breathing equipment shall be certified physically fit (medically cleared) for breathing equipment usage at least annually.

6. SCBA's should be worn when:

    A. Any employee works near the top or on top of any tank unless test reveals less than 10 ppm of H2S.

B. When breaking out any line where H2S can reasonably be expected.

C. When sampling air in areas to determine if toxic concentrations of H2S exists.

D. When working in areas where over 10 ppm H2S has been detected.

E. At any time there is a doubt as to the H2S level in the area to be entered.

## Rescue
## First aid for H2S poisoning

Do not panic!

Remain calm – think!

1. Don SCBA breathing equipment.

2. Remove victim(s) utilizing buddy system to fresh air as quickly as possible. (go up-wind from source or at right angle to the wind. Not down wind.)

3. Briefly apply chest pressure – arm lift method of artificial respiration to clean the victim's lungs and to avoid inhaling any toxic gas directly from the victim's lungs.

4. Provide for prompt transportation to the hospital, and continue giving artificial respiration if needed.

5. Hospital(s) or medical facilities need to be informed, before-hand, of the possibility of H2S gas poisoning – no matter how remote the possibility is.

6. Notify emergency room personnel that the victim(s) has been exposed to H2S gas.

Besides basic first aid, everyone on location should have a good working knowledge of artificial respiration.

Revised CM 6/27/2012

## OXY Permian Delaware NM Basin Drilling & Completions Incident Reporting

## OXY Permian Crisis Team Hotline Notification

| Person | Location | Office Phone | Cell/Mobile Phone | Home Phone | Pager Number |
|---|---|---|---|---|---|
| **Drilling & Completions Department** | | | | | |
| Drilling & Completions Manager: John Willis | Houston | (713) 366-5556 | (713) 259-1417 | | |
| Drilling Superintendent: Simon Benavides | Houston | (713) 215-7403 | (832) 528-3547 | | |
| Completions Superintendent: Chris Winter | Houston | (713) 366-5212 | (806) 239-8774 | | |
| Drilling Eng. Supervisor: Diego Tellez | Houston | (713) 350-4602 | (713) 303-4932 | | |
| Drilling Eng. Supervisor: Randy Neel | Houston | (713) 215-7987 | (713) 517-5544 | | |
| Completions Eng. Supervisor: Evan Hinkel | Houston | (713) 366-5436 | (281) 236-6153 | | |
| Drilling & Completions HES Lead. Ryan Green | Houston | (713) 336-5753 | (281) 520-5216 | | |
| Drilling & Completions HES Advisor:Kenny Williams | Carlsbad | (432) 686-1434 | (337) 208-0911 | | |
| Drilling & Completions HES Advisor:Kyle Holden | Carlsbad | (432) 686-1435 | (661) 369-5328 | | |
| Drilling & Completions HES Advisor Sr:Dave Schmidt | Carlsbad | | (559) 310-8572 | | |
| Drilling & Completions HES Advisor. :Seth Doyle | Carlsbad | | (337) 499-0756 | | |
| HES / Enviromental & Regulatory Department | Location | Office | Cell Phone | | |
| Jon Hamil-HES Manager | Houston | (713) 497-2494 | (832) 537-9885 | | |
| Mark Birk-HES Manager | Houston | (713) 350-4615 | (949) 413-3127 | | |
| Austin Tramell | Midland | (432) 699-4208 | (575) 499-4919 | | |
| Rico Munoz | Midland | (432) 699-8366 | (432) 803-4116 | | |
| Amber DuckWorth | Midland | | (832) 966-1879 | | |
| Kelley Montgomery- Regulatory Manager | Houston | (713) 366-5716 | (832) 454-8137 | | |
| Sandra Musallam -Regulatory Lead | Houston | +1 (713) 366-5106 | +1 (713) 504-8577 | | |
| Bishop, Steve-DOT Pipeline Coordinator | Midland | 432-685-5614 | | | |
| Wilson, Dusty-Safety Advisor | Midland | 432-685-5771 | (432) 254-2336 | | |
| John W Dittrich Eniromental Advisor | Midland | | (575) 390-2828 | | |
| William (Jack) Calhoun-Environmental Lead | Houston | 713 (350) 4906 | (281) 917-8571 | | |
| Robert Barrow-Risk Engineer Manager | Houston | (713) 366-5611 | (832) 867-5336 | | |
| Sarah Holmes-HSE Cordinator | Midland | (432) 685-5758 | | | |
| Administrative | Location | Office | | | |
| Sarah Holmes | Midland | (432) 685-5830 | | | |
| Robertson, Debbie | Midland | (432) 685-5812 | | | |
| Laci Hollaway | Midland | (432) 685-5716 | (432) 631-6341 | | |
| Administrative | Location | Office | | | |
| Rosalinda Escajeda | Midland | (432) 685-5831 | | | |
| Moreno, Leslie (contract) | Hobbs | (575) 397-8247 | | | |
| Sehon, Angela (contractor) | Levelland | (806) 894-8347 | | | |
| Vasquez, Claudia (contractor) | North Cowden | (432) 385-3120 | | | |
| **XstremeMD** | Location | Office | | | |
| Medical Case Management | Orla, TX | (337) 205-9314 | | | |
| **Axiom Medical Consulting** | Location | Office | | | |
| Medical Case Management | | (877) 502-9466 | | | |
| **Regulatory Agencies** | | | | | |
| Bureau of Land Management | Carlsbad, NM | (505) 887-6544 | | | |
| Bureau of Land Management | Hobbs, NM | (505) 393-3612 | | | |
| Bureau of Land Management | Roswell, NM | (505) 393-3612 | | | |
| Bureau of Land Management | Santa Fe, NM | (505) 988-6030 | | | |
| DOT Juisdictional Pipelines-Incident Reporting New Mexico Public Regulaion Commission | Santa Fe, NM | (505) 827-3549<br>(505) 490-2375 | | | |
| DOT Juisdictional Pipelines-Incident Reporting Texas Railroad Commission | Austin, TX | (512) 463-6788 | | | |
| EPA Hot Line | Dallas, Texas | (214) 665-6444 | | | |
| Federal OSHA, Area Office | Lubbock, Texas | (806) 472-7681 | | | |
| National Response Center | Washington, D. C. | (800) 424-8802 | | | |
| National Infrastructure Coordinator Center | | (202) 282-9201 | | | |
| New Mexico Air Quality Bureau | Santa Fe, NM | (505) 827-1494 | | | |
| New Mexico Oil Conservation Division | Artesia, NM | (505) 748-1283 | After Hours (505) 370-7545 | | |
| New Mexico Oil Conservation Division | Hobbs, NM | (505) 393-6161 | | | |
| New Mexico Oil Conservation Division | Santa Fe, NM | (505) 471-1068 | | | |
| New Mexico OCD Environmental Bureau | Santa Fe, NM | (505) 827-7152<br>(505) 476-3470 | | | |
| New Mexico Environmental Department | Hobbs, NM | (505) 827-9329 | | | |
| NM State Emergency Response Center | Santa Fe, NM | (505) 827-9222 | | | |
| Railroad Commission of TX | District 1 San Antonio, TX | (210) 227-1313 | | | |
| Railroad Commission of TX | District 7C San Angelo, TX | (325) 657-7450 | | | |
| Railroad Commission of TX | District 8, 8A Midland, TX | (432) 684-5581 | | | |
| Texas Emergency Response Center | Austin, TX | (512) 463-7727 | | | |
| TCEQ Air | Region 2 Lubbock, TX | (806) 796-3494 | | | |
| TCEQ Water/Waste/Air | Region 3 Abilene, TX | (325) 698-9674 | | | |
| TCEQ Water/Waste/Air | Region 7 Midland, TX | (432) 570-1359 | | | |
| TCEQ Water/Waste/Air | Region 9 San Antonio, TX | (512) 734-7981 | | | |
| TCEQ Water/Waste/Air | Region 8 San Angelo | (325) 655-9479 | | | |

| Medical Facilities | | | | | |
|---|---|---|---|---|---|
| Abernathy Medical Clinic | Abernathy, TX | (806) 298-2524 | | | |
| Alliance Hospital | Odessa, TX | (432) 550-1000 | | | |
| Artesia General Hospital | Artesia, NM | (505) 748-3333 | | | |
| Brownfield Regional Medical Center | Brownfield, TX | (806) 637-3551 | | | |
| Cogdell Memorial Hospital | Snyder, TX | (325) 573-6374 | | | |
| Covenant Hospital Levelland | Levelland, TX | (806) 894-4963 | | | |
| Covenant Medical Center | Lubbock, TX | (806) 725-1011 | | | |
| Covenant Medical Center Lakeside | Lubbock, TX | (806) 725-6000 | | | |
| Covenant Family Health | Synder, TX | (325) 573-1300 | | | |
| Crockett County Hospital | Ozona, TX | (325) 392-2671 | | | |
| Guadalupe Medical Center | Carlsbad, NM | (505) 887-6633 | | | |
| Lea Regional Hospital | Hobbs, NM | (505) 492-5000 | | | |
| McCamey Hospital | McCamey, TX | (432) 652-8626 | | | |
| Medical Arts Hospital | Lamesa, TX | (806) 872-2183 | | | |
| Medical Center Hospital | Odessa, TX | (432) 640-4000 | | | |
| Medi Center Hospital | San Angelo, TX | (325) 653-6741 | | | |
| Memorial Hospital | Ft. Stockton | (432) 336-2241 | | | |
| Memorial Hospital | Seminole, TX | (432) 758-5811 | | | |
| Midland Memorial Hospital | Midland, TX | (432) 685-1111 | | | |
| Nor-Lea General Hospital | Lovington, NM | (505) 396-6611 | | | |
| Odessa Regional Hospital | Odessa, TX | (432) 334-8200 | | | |
| Permian General Hospital | Andrews, TX | (432) 523-2200 | | | |
| Reagan County Hospital | Big Lake, TX | (325) 884-2561 | | | |
| Reeves County Hospital | Pecos, TX | (432) 447-3551 | | | |
| Shannon Medical Center | San Angelo, TX | (325) 653-6741 | | | |
| Union County General Hospital | Clayton, NM | (505) 374-2585 | | | |
| University Medical Center | Lubbock, TX | (806) 725-8200 | | | |
| Val Verde Regional Medical Center | Del Rio, TX | (830) 775-8566 | | | |
| Ward Memorial Hospital | Monahans, TX | (432) 943-2511 | | | |
| Yoakum County Hospital | Denver City, TX | (806) 592-5484 | | | |
| **Law Enforcement - Sheriff** | | | | | |
| Andrews Cty Sheriff's Department | Andrews County(Andrews) | (432) 523-5545 | | | |
| Crane Cty Sheriff's Department | Crane, County (Crane) | (432) 558-3571 | | | |
| Crockett Cty Sheriff's Department | Crockett County (Ozona) | (325) 392-2661 | | | |
| Dawson Cty Sheriff's Department | Dawson County (Lamesa) | (806) 872-7560 | | | |
| Ector Cty Sheriff's Department | Ector County (Odessa) | (432) 335-3050 | | | |
| Eddy Cty Sheriff's Department | Eddy County (Artesia) | (505) 746-2704 | | | |
| Eddy Cty Sheriff's Department | Eddy County (Carlsbad) | (505) 887-7551 | | | |
| Gaines Cty Sheriff's Department | Gaines County (Seminole) | (432) 758-9871 | | | |
| Hockley Cty Sheriff's Department | Hockley County(Levelland) | (806) 894-3126 | | | |
| Kent Cty (Jayton City Sheriff's Dept.) | Kent County(Jayton) | (806) 237-3801 | | | |
| Lea Cty Sheriff's Department | Lea County (Eunice) | (505) 384-2020 | | | |
| Lea Cty Sheriff's Department | Lea County (Hobbs) | (505) 393-2515 | | | |
| Lea Cty Sheriff's Department | Lea County (Lovington) | (505) 396-3611 | | | |
| Lubbock Cty Sheriff's Department | Lubbock Cty (Abernathy) | (806) 296-2724 | | | |
| Midland Cty Sheriff's Department | Midland County (Midland) | (432) 688-1277 | | | |
| Pecos Cty Sheriff's Department | Pecos County (Iraan) | (432) 639-2251 | | | |
| Reeves Cty Sheriff's Department | Reeves County (Pecos) | (432) 445-4901 | | | |
| Scurry Cty Sheriff's Department | Scurry County (Snyder) | (325) 573-3551 | | | |
| Terry Cty Sheriff's Department | Terry County (Brownfield) | (806) 637-2212 | | | |
| Union Cty Sheriff's Department | Union County (Clayton) | (505) 374-2583 | | | |
| Upton Cty Sheriff's Department | Upton County (Rankin) | (432) 693-2422 | | | |
| Ward Cty Sheriff's Department | Ward County (Monahans) | (432) 943-3254 | | | |
| Yoakum City Sheriff's Department | Yoakum Co. (Denever City) | (806) 456-2377 | | | |

| Law Enforcement - Police | | | | | |
|---|---|---|---|---|---|
| Abernathy City Police | Abernathy, TX | (806) 298-2545 | | | |
| Andrews City Police | Andrews, TX | (432) 523-5675 | | | |
| Artesia City Police | Artesia, NM | (505) 746-2704 | | | |
| Brownfield City Police | Brownfield, TX | (806) 637-2544 | | | |
| Carlsbad City Police | Carlsbad, NM | (505) 885-2111 | | | |
| Clayton City Police | Clayton, NM | (505) 374-2504 | | | |
| Denver City Police | Denver City, TX | (806) 592-3516 | | | |
| Eunice City Police | Eunice, NM | (505) 394-2112 | | | |
| Hobbs City Police | Hobbs, NM | (505) 397-9265<br>(505) 393-2677 | | | |
| Jal City Police | Jal, NM | (505) 395-2501 | | | |
| Jayton City Police | Jayton, TX | (806) 237-3801 | | | |
| Lamesa City Police | Lamesa, TX | (806) 872-2121 | | | |
| Levelland City Police | Levelland, TX | (806) 894-6164 | | | |
| Lovington City Police | Lovington, NM | (505) 396-2811 | | | |
| Midland City Police | Midland, TX | (432) 685-7113 | | | |
| Monahans City Police | Monahans, TX | (432) 943-3254 | | | |
| Odessa City Police | Odessa, TX | (432) 335-3378 | | | |
| Seminole City Police | Seminole, TX | (432) 758-9871 | | | |
| Snyder City Police | Snyder, TX | (325) 573-2611 | | | |
| Sundown City Police | Sundown, TX | (806) 229-8241 | | | |
| **Law Enforcement - FBI** | | | | | |
| FBI | Alburqueque, NM | (505) 224-2000 | | | |
| FBI | Midland, TX | (432) 570-0255 | | | |
| **Law Enforcement - DPS** | | | | | |
| NM State Police | Artesia, NM | (505) 746-2704 | | | |
| NM State Police | Carlsbad, NM | (505) 885-3137 | | | |
| NM State Police | Eunice, NM | (505) 392-5588 | | | |
| NM State Police | Hobbs, NM | (505) 392-5588 | | | |
| NM State Police | Clayton, NM | (505) 374-2473; 911 | | | |
| TX Dept of Public Safety | Andrews, TX | (432) 524-1443 | | | |
| TX Dept of Public Safety | Big Lake, TX | (325) 884-2301 | | | |
| TX Dept of Public Safety | Brownfield, TX | (806) 637-2312 | | | |
| TX Dept of Public Safety | Iraan, TX | (432) 639-3232 | | | |
| TX Dept of Public Safety | Lamesa, TX | (806) 872-8675 | | | |
| TX Dept of Public Safety | Levelland, TX | (806) 894-4385 | | | |
| TX Dept of Public Safety | Lubbock, TX | (806) 747-4491 | | | |
| TX Dept of Public Safety | Midland, TX | (432) 697-2211 | | | |
| TX Dept of Public Safety | Monahans, TX | (432) 943-5857 | | | |
| TX Dept of Public Safety | Odessa, TX | (432) 332-6100 | | | |
| TX Dept of Public Safety | Ozona, TX | (325) 392-2621 | | | |
| TX Dept of Public Safety | Pecos, TX | (432) 447-3533 | | | |
| TX Dept of Public Safety | Seminole, TX | (432) 758-4041 | | | |
| TX Dept of Public Safety | Snyder, TX | (325) 573-0113 | | | |
| TX Dept of Public Safety | Terry County TX | (806) 637-8913 | | | |
| TX Dept of Public Safety | Yoakum County TX | (806) 456-2377 | | | |

| Firefighting & Rescue | | | | | |
|---|---|---|---|---|---|
| Abernathy | Abernathy, TX | (806) 298-2022 | | | |
| Amistad/Rosebud | Amistad/Rosebud, NM | (505) 633-9113 | | | |
| Andrews | Andrews, TX | (432) 523-4820<br>(432) 523-3111 | | | |
| Artesia | Artesia, NM | (505) 746-5051 | | | |
| Big Lake | Big Lake, TX | (325) 884-3650 | | | |
| Brownfield-Administrative & other calls | Brownfield, TX | (816) 637-4547 | | | |
| Brownfield emergency only | Brownfield, TX | 911 | | | |
| Carlsbad | Carlsbad, NM | (505) 885-3125 | | | |
| Clayton | Clayton, NM | (505) 374-2435 | | | |
| Cotton Center | Cotton Center, TX | (806) 879-2157 | | | |
| Crane | Crane, TX | (432) 558-2361 | | | |
| Del Rio | Del Rio, TX | (830) 774-8650 | | | |
| Denver City | Denver City, TX | (806) 592-3516 | | | |
| Eldorado | Eldorado, TX | (325) 853-2691 | | | |
| Eunice | Eunice, NM | (505) 394-2111 | | | |
| Garden City | Garden City, TX | (432) 354-2404 | | | |
| Goldsmith | Goldsmith, TX | (432) 827-3445 | | | |
| Hale Center | Hale Center, TX | (806) 839-2411 | | | |
| Halfway | Halfway, TX | | | | |
| Hobbs | Hobbs, NM | (505) 397-9308 | | | |
| Jal | Jal, NM | (505) 395-2221 | | | |
| Jayton | Jayton, TX | (806) 237-3801 | | | |
| Kermit | Kermit, TX | (432) 586-3468 | | | |
| Lamesa | Lamesa, TX | (806) 872-4352 | | | |
| Levelland | Levelland, TX | (806) 894-3154 | | | |
| Lovington | Lovington, NM | (505) 396-2359 | | | |
| Maljamar | Maljamar, NM | (505) 676-4100 | | | |
| McCamey | McCamey, TX | (432) 652-8232 | | | |
| Midland | Midland, TX | (432) 685-7346 | | | |
| Monahans | Monahans, TX | (432) 943-4343 | | | |
| Nara Visa | Nara Visa, NM | (505) 461-3300 | | | |
| Notrees | Notress, TX | (432) 827-3445 | | | |
| Odessa | Odessa, TX | (432) 335-4659 | | | |
| Ozona | Ozona, TX | (325) 392-2626 | | | |
| Pecos | Pecos, TX | (432) 445-2421 | | | |
| Petersburg | Petersburg, TX | (806) 667-3461 | | | |
| Plains | Plains, TX | (806) 456-8067 | | | |
| Plainview | Plainview, TX | (806) 296-1170 | | | |
| Rankin | Rankin, TX | (432) 693-2252 | | | |
| San Angelo | San Angelo, TX | (325) 657-4355 | | | |
| Sanderson | Sanderson, TX | (432) 345-2525 | | | |
| Seminole | Seminole, TX | (432) 758-3676<br>(432) 758-9871 | | | |
| Smyer | Smyer, TX | (806) 234-3861 | | | |
| Snyder | Snyder, TX | (325) 573-6215 | | | |
| Sundown | Sundown, TX | 911 | | | |
| Tucumcari | Tucumcari, NM | 911 | | | |
| West Odessa | Odessa, TX | (432) 381-3033 | | | |

| **Ambulance** | | | | | |
|---|---|---|---|---|---|
| Abernathy Ambulance | Abernathy, TX | (806) 298-2241 | | | |
| Amistad/Rosebud | Amistad/Rosebud, NM | (505) 633-9113 | | | |
| Andrews Ambulance | Andrews, TX | (432) 523-5675 | | | |
| Artesia Ambulance | Artesia, NM | (505) 746-2701 | | | |
| Big Lake Ambulance | Big Lake, TX | (325) 884-2423 | | | |
| Big Spring Ambulance | Big Spring, TX | (432) 264-2550 | | | |
| Brownfield Ambulance | Brownfield, TX | (806) 637-2511 | | | |
| Carlsbad Ambulance | Carlsbad, NM | (505) 885-2111; 911 | | | |
| Clayton, NM | Clayton, NM | (505) 374-2501 | | | |
| Denver City Ambulance | Denver City, TX | (806) 592-3516 | | | |
| Eldorado Ambulance | Eldorado, TX | (325) 853-3456 | | | |
| Eunice Ambulance | Eunice, NM | (505) 394-3258 | | | |
| Goldsmith Ambulance | Goldsmith, TX | (432) 827-3445 | | | |
| Hobbs, NM | Hobbs, NM | (505) 397-9308 | | | |
| Jal, NM | Jal, NM | (505) 395-2501 | | | |
| Jayton Ambulance | Jayton, TX | (806) 237-3801 | | | |
| Lamesa Ambulance | Lamesa, TX | (806) 872-3464 | | | |
| Levelland Ambulance | Levelland, TX | (806) 894-8855 | | | |
| Lovington Ambulance | Lovington, NM | (505) 396-2811 | | | |
| McCamey Hospital | McCamey, TX | (432) 652-8626 | | | |
| Midland Ambulance | Midland, TX | (432) 685-7499 | | | |
| Monahans Ambulance | Monahans, TX | (432) 943-3385 or 3731 | | | |
| Nara Visa, NM | Nara Visa, NM | (505) 461-3300 | | | |
| Odessa Ambulance | Odessa, TX | (432) 335-3378 | | | |
| Ozona Ambulance | Ozona, TX | (325) 392-2671 | | | |
| Pecos Ambulance | Pecos, TX | (432) 445-4444 | | | |
| Rankin Ambulance | Rankin, TX | (432) 693-2443 | | | |
| San Angelo Ambulance | San Angelo, TX | (325) 657-4357 | | | |
| Seminole Ambulance | Seminole, TX | (432) 758-8816<br>(432) 758-9871 | | | |
| Snyder Ambulance | Snyder, TX | (325) 573-1911 | | | |
| Stanton Ambulance | Stanton, TX | (432) 756-2211 | | | |
| Sundown Ambulance | Sundown, TX | 911 | | | |
| Tucumcari, NM | Tucumcari, NM | 911 | | | |
| **Medical Air Ambulance Service** | | | | | |
| AEROCARE - Methodist Hospital | Lubbock, TX | (800) 627-2376 | | | |
| San Angelo Med-Vac Air Ambulance | San Angelo, TX | (800) 277-4354 | | | |
| Southwest Air Ambulance Service | Stanford, TX | (800) 242-6199 | | | |
| Southwest MediVac | Snyder, TX | (800) 242-6199 | | | |
| Southwest MediVac | Hobbs, NM | (800) 242-6199 | | | |
| Odessa Care Star | Odessa, TX | (888) 624-3571 | | | |
| NWTH Medivac | Amarillo, TX | (800) 692-1331 | | | |

# Permian Drilling
# Hydrogen Sulfide Drilling Operations Plan
# Nimitz MDP1 12-1 Federal Com 175H

Open drill site. No homes or buildings are near the proposed location.

1. Escape

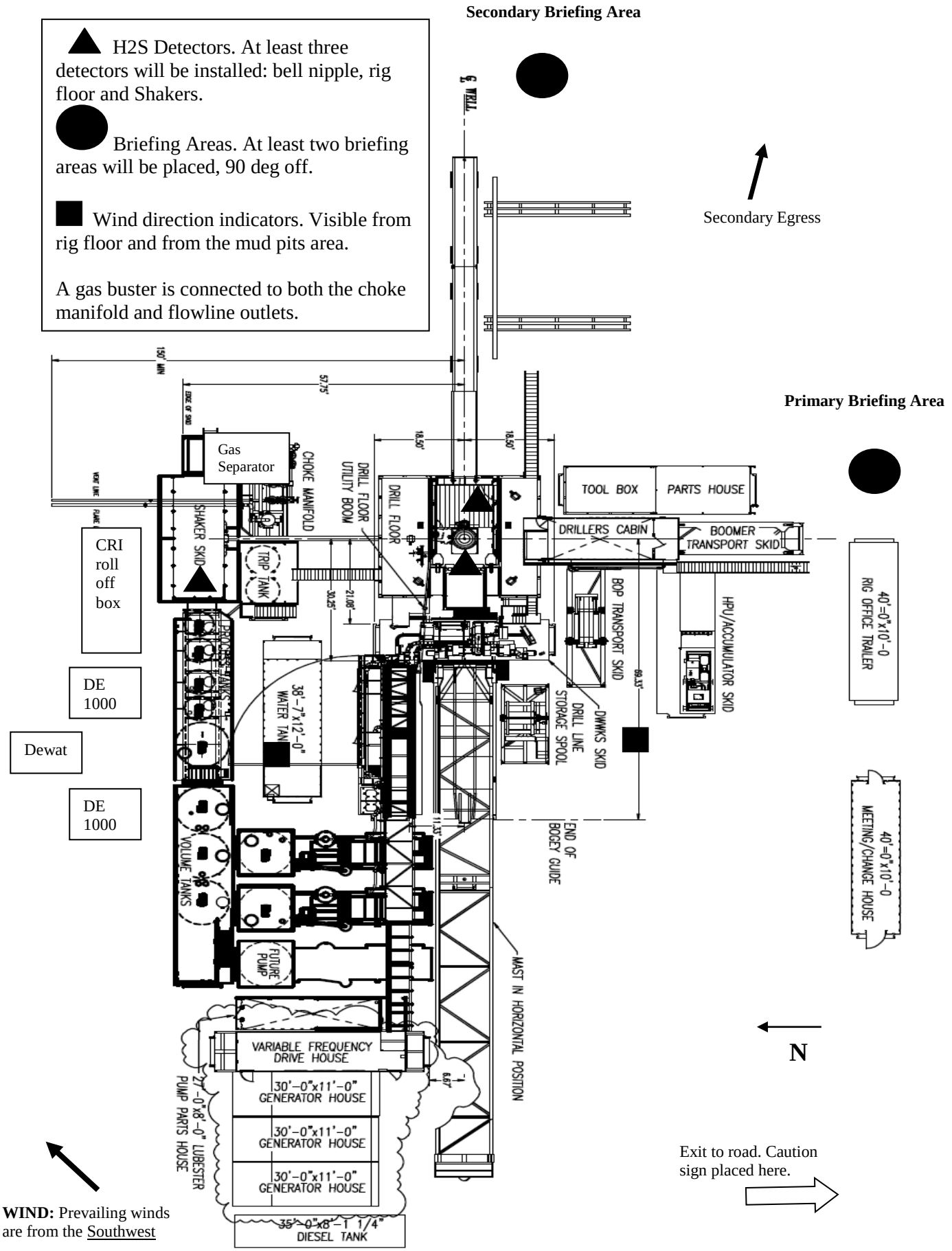
   Personnel shall escape upwind of wellbore in the event of an emergency gas release. Escape can take place through the lease road on the Southeast side of the location. Personnel need to move to a safe distance and block the entrance to location. If the primary route is not an option due to the wind direction, then a secondary egress route should be taken.

▲ H2S Detectors. At least three detectors will be installed: bell nipple, rig floor and Shakers.

● Briefing Areas. At least two briefing areas will be placed, 90 deg off.

■ Wind direction indicators. Visible from rig floor and from the mud pits area.

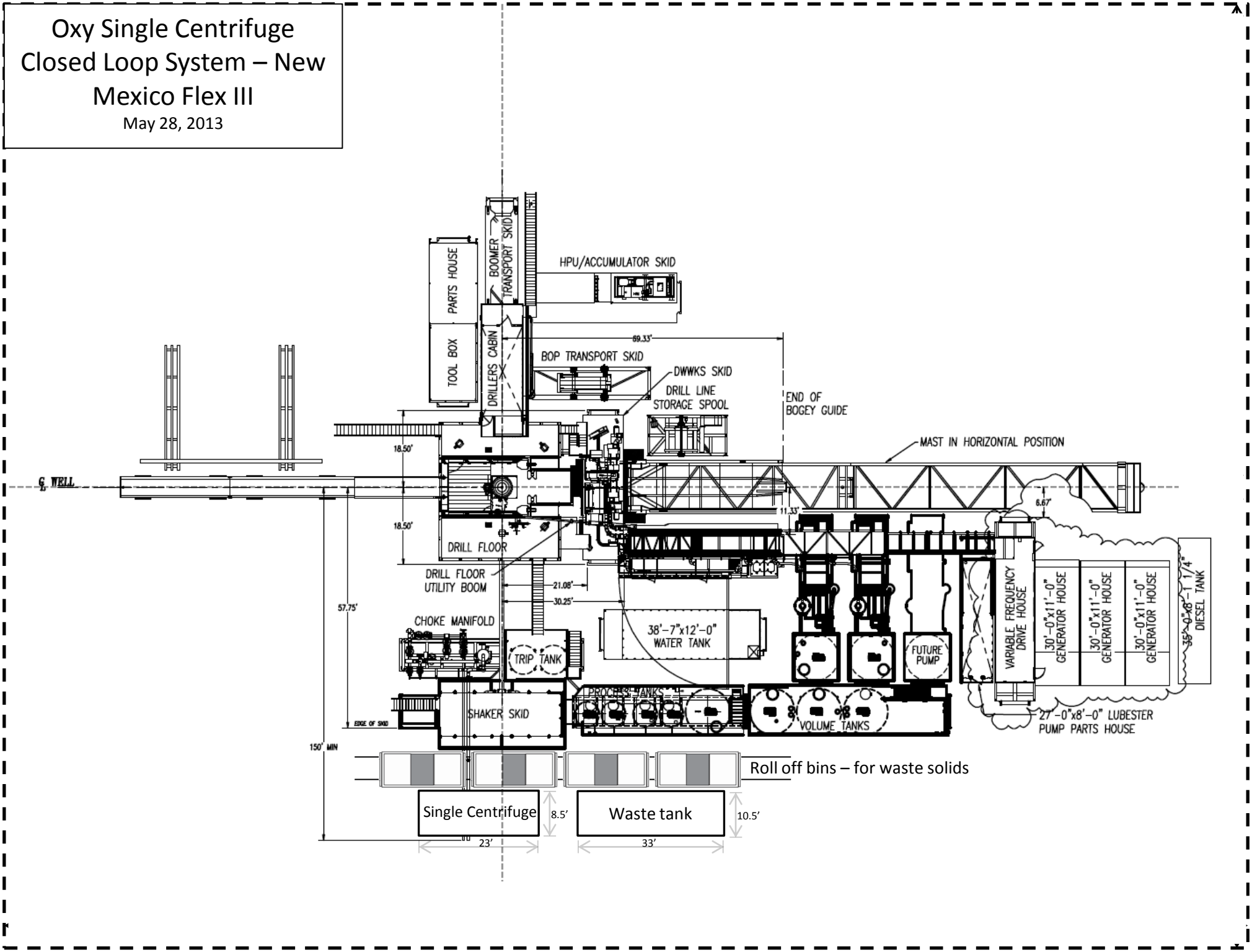
A gas buster is connected to both the choke manifold and flowline outlets.



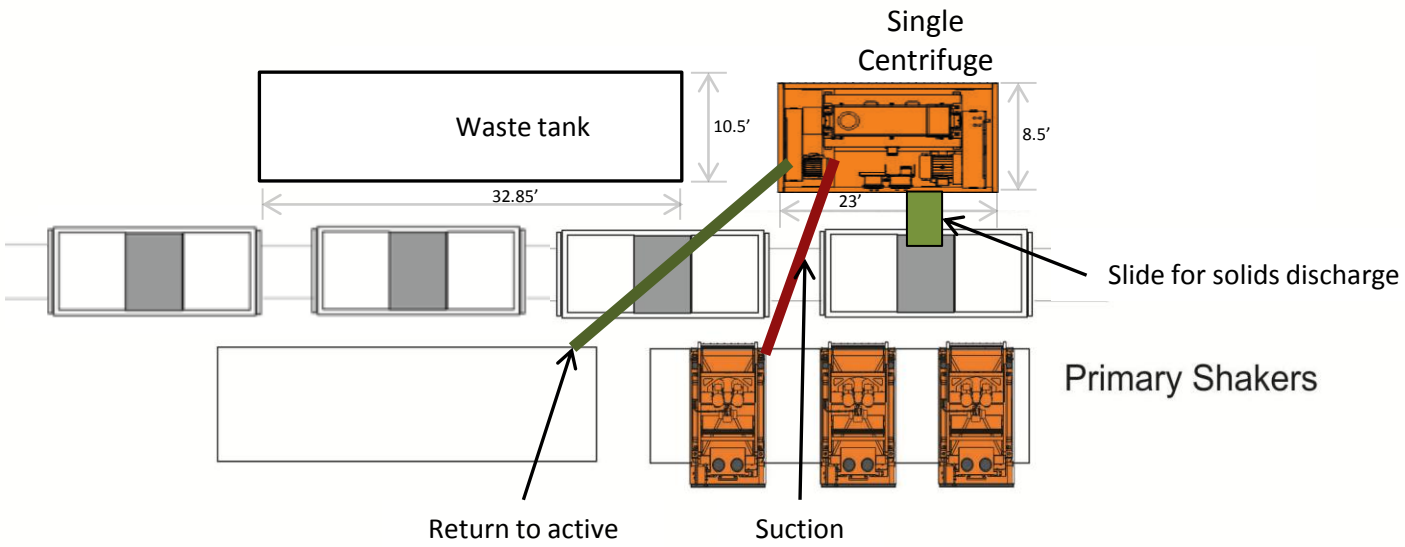

**WIND:** Prevailing winds are from the Southwest

# Oxy Single Centrifuge Closed Loop System – New Mexico Flex III

May 28, 2013



Oxy





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May 28, 2013