13-88

OCD Artesia

Form 3160-3
(April 2004)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. **NMLC-029426B**

6. If Indian, Allotee or Tribe Name TES 4/18/2013

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

1a. Type of work: ☑ DRILL ☐ REENTER

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

8. Lease Name and Well No. **CROW FEDERAL #17H <308711>**

2. Name of Operator **APACHE CORPORATION** <873>

9. API Well No. **30-015-** 40991

3a. Address **303 VETERANS AIRPARK LN #3000 MIDLAND, TX 79705**

3b. Phone No. *(include area code)* **432-818-1167**

10. Field and Pool, or Exploratory <96831> FROM ~~CEDAR LAKE~~;GLORIETA-YESO <26770>

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface **1775' FSL & 110' FWL**
At proposed prod. zone **1775' FSL & 330' FEL**

11. Sec., T. R. M. or Blk. and Survey or Area **SEC: 9 T17S R31E**

14. Distance in miles and direction from nearest town or post office* **7.8 MILES NORTHEAST OF LOCO HILLS, NM**

12. County or Parish **EDDY**

13. State **NM**

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) **110'**

16. No. of acres in lease **1919.88 ACRES**

17. Spacing Unit dedicated to this well **160 ACRES**

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. **~ 30'**

19. Proposed Depth TVD ~ 5775' MD ~ 10310'

20. BLM/BIA Bond No. on file **BLM-CO-1463 NATIONWIDE; NMB000736**

21. Elevations (Show whether DF, KDB, RT, GL, etc.) **3837'**

22. Approximate date work will start* As Soon As APD Apprvd

23. Estimated duration **~ 20-25 DAYS**

24. Attachments

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

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

25. Signature Sorina L Flores — Name *(Printed/Typed)* **SORINA L. FLORES** — Date 10/16/12

Title **SUPV OF DRILLING SERVICES**

Approved by *(Signature)* /s/ James A. Amos — Name *(Printed/Typed)* — Date JAN 11 2013

Title **FIELD MANAGER** — Office **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. APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**(Instructions on page 2)*

Roswell Controlled Water Basin

RECEIVED
JAN 15 2013
NMOCD ARTESIA

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

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, New Mexico 87505

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015- 40991	96831 26770	~~Cedar Lake~~ FREN; Glorieta-Yeso

Property Code	Property Name	Well Number
308911	CROW FEDERAL	17H

OGRID No.	Operator Name	Elevation
873	APACHE CORPORATION	3837'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	9	17-S	31-E		1775	SOUTH	110	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	9	17-S	31-E		1775	SOUTH	330	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			11 10310

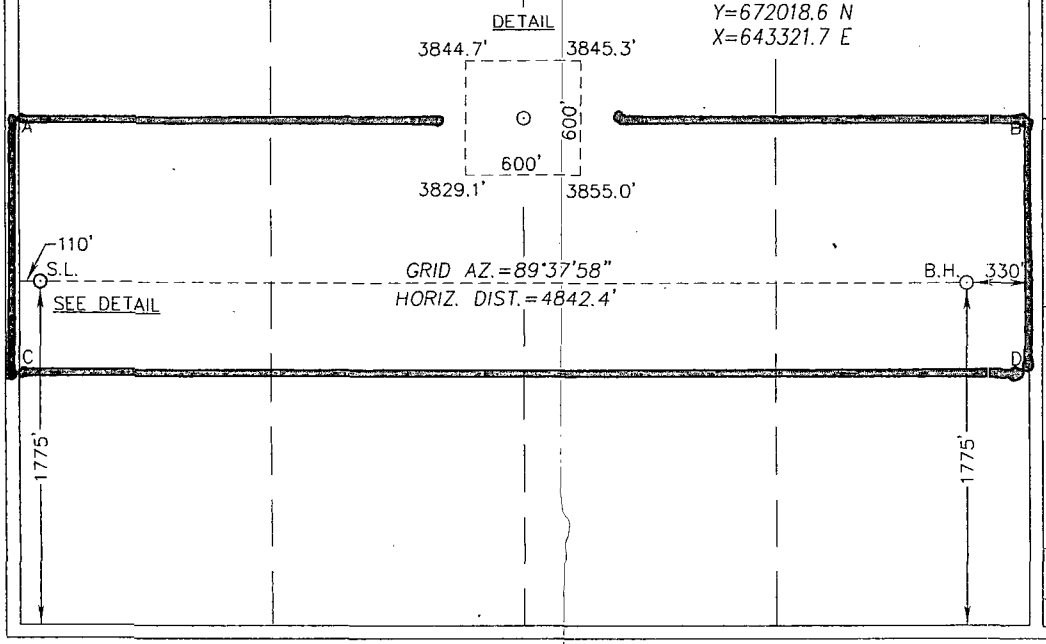
NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

CORNER COORDINATES TABLE
A) Y=672852.6 N, X=638365.7 E
B) Y=672888.0 N, X=643646.5 E
C) Y=671532.5 N, X=638373.2 E
D) Y=671567.1 N, X=643654.3 E

GEODETIC COORDINATES
NAD 27 NME

SURFACE LOCATION
Y=671987.6 N
X=638480.6 E
LAT.=32.846566° N
LONG.=103.882424° W
LAT.=32° 50' 48" N
LONG.=103° 52' 57" W

BOTTOM HOLE LOCATION
Y=672018.6 N
X=643321.7 E



OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Sorina L Flores 8/15/12
Signature Date

Sorina L. Flores
Printed Name

sorina.flores@apachecorp.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.

MAY 18, 2012
Date of Survey

Signature & Seal of Professional Surveyor:

RONALD J. EIDSON NEW MEXICO 3239 REGISTERED PROFESSIONAL SURVEYOR

Ronald J. Eidson 8/13/2012

Certificate Number		
	Gary L. Jones	12641
	Ronald J. Eidson	3239

AF — LASC W.O.: 12.11.0478

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
CARLSBAD FIELD OFFICE
620 E. GREENE STREET
CARLSBAD, NM 88220

OPERATOR CERTIFICATION

I HEARBY CERTIFY THAT I, OR SOMEONE UNDER MY DIRECT SUPERVISION, HAVE INSPECTED THE DRILL SITE AND ACCESS ROUTE PROPOSED HEREIN; THAT I AM FAMILIAR WITH THE CONDITIONS WHICH CURRENTLY EXIST; THAT I HAVE FULL KNOWLEDGE OF STATE AND FEDERAL laws applicable to this operation; that the statements made in the APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 3rd day of October, 2012

Well: CROW FEDERAL #17H

Operator Name: APACHE CORPORATION

Signature: _____ **Printed Name:** TERRY WEST

Title: Drilling Engineer Date: _____

Email (optional): terry.west@apachecorp.com

Street or Box: 303 Veterans Airpark Ln., Ste. 3000

City, State, Zip Code: Midland, TX 79705

Telephone: 432-818-1114

Field Representative (if not above signatory): _____

Address (if different from above): _____

Telephone (if different from above): _____

Email (optional): _____

Agents not directly employed by the operator must submit a letter from the operator authorizing that the agent to act or file this application on their behalf.

DRILLING PLAN: BLM COMPLIANCE
(Supplement to BLM 3160-3)

APACHE CORPORATION (OGRID: 873) CROW FEDERAL #17H

Lease #: NMLC-029426B Projected TVD: ~ 5775' MD: ~ 10310' GL: 3837'
SHL: 1775' FSL & 110' FWL UL: L SEC: 9 BHL: 1775' FSL & 330' FEL UL: I SEC: 9
T17S R31E EDDY COUNTY, NM

1. GEOLOGIC NAME OF SURFACE FORMATION: Eolian/Piedmond Alluvial Deposits

2. ESTIMATED TOPS OF GEOLOGICAL MARKERS & DEPTHS OF ANTICIPATED FRESH WATER, OIL OR GAS:

Quaternary Aeolian	Surf	Queen	2740'
Rustler	529'	Grayburg	3155'
Salt Top	722'	San Andres	3490' (Oil)
Salt Bottom	1683'	Glorieta	4954'
Yates	1845'	Yeso (Paddock)	5036' (Oil)
Seven Rivers	2128'	TD	TVD: 5775' MD: 10310'

Avg Depth to Ground Water: ~91'

Fresh water & prospectively valuable minerals, as described by BLM, encountered during drilling, will be recorded by depth & adequately protected. All oil & gas shows within zones of correlative rights will be tested to determine commercial potential. Surface FW sands will be protected by setting 13-3/8" csg @ 555' & circ cmt back to surface. Hydrocarbon zones will be protected by setting 9-5/8" csg @ ~3500', if water flow is encountered, then 7" @ ~ 5240'; 4-1/2" liner f/ 7" csg though build @ ~ 5248' TVD/MD holding @ ~ 5836' MD.

3. CASING PROGRAM: All casing is new & API approved

See COA

does not meet BLM min

STRING	HOLE SIZE	DEPTH	OD CSG	WEIGHT	COLLAR	GRADE	COLLAPSE	BURST	TENSION
Surface	17-1/2"	0' – ~~555'~~ 470	13-3/8"	48#	STC	H-40	1.0	1.21	1.8
Intermediate *	12-1/4"	0' - 3500'	9-5/8"	36#	STC	J-55	1.0	1.21	1.8
Production	8-3/4"	0' – 5240'	7"	26#	LTC	J-55	1.0	1.21	1.8
Production Liner	6-1/8"	5140' – 10310'	4.5"	11.6#	LTC	L-80	1.125	1.21	1.8

**Contingency: 9-5/8" sting will only be ran if water flows are encountered.*

4. CEMENT PROGRAM:

A. Surface (TOC – Surface) **100% excess cmt to surf Cmt with:**

Lead: 340 sx Class C w/4% Gel + 2% CaCL2 + 0.125#/sx CF + 0.25#/sx Defoamer *(13.5 wt, 1.75 yld)*
*Compressive Strengths : **12 hr** – 786 psi **24 hr** – 1213 psi*

Tail: 200 sx Class C w/ 1% CaCL2 (14.8 wt, 1.33 yld)
*Compressive Strengths: **12 hr** – 1565 psi **24 hr** – 2442 psi*

B. Intermediate (TOC – Surface) **50% excess cmt to surf. Cmt with:**

Lead: 710 sx Class C w/4% Gel + 2% CaCL2 + 0.125 #/sx CF + 0.25 #/sx Defoamer *(13.5 wt, 1.75 yld)*
*Compressive Strengths: **12 hr** – 709 psi **24 hr** – 1103 psi*

Tail: 380 sx Class C w/ 1% Retarder (14.8 wt, 1.33 yld)
*Compressive Strengths: **12 hr** – 1654 psi **24 hr** – 2256 psi*

(May use a DVT & modify cmt program for a 2 stage job, if a strong water flow is encountered)

C. Production (TOC: Surface) **35% excess cmt Cmt with:**

Lead: 240 sx Class C 50/50 Poz w/5% Salt + 10% Gel + 3 #/sx KOLSeal + 0.25% Defoamer + 0.125 #/sx CF
(11.9 wt, 2.46 yld)
*Compressive Strengths: **12 hr** – 156 psi **24 hr** – 1081 psi*

Tail: 390 sx PVL w/1.3% Salt + 5% Expanding cmt + 0.5% Gel suppressing agent + 0.1% antisetting agent + 0.25% Defoamer + 0.2% Retarder *(13.0 wt, 1.48 yld)*
*Compressive Strengths: **12 hr** – 642 psi **24 psi** – 1016 psi*

**Contingency: If 9-5/8" string is not ran, the following cmt program will be used for the Production string & will bring cmt to surface using 35% excess:*

Lead: 1000 sx Class C 50/50 w/5% Salt + 10% Gel + 3 #/sx KOL Seal + 0.25% Defoamer + 0.125 #/sx CF (11.9 wt, 2.46 yld)
Compressive Strengths: ***12 hr*** *– 156 psi* ***24 hr*** *– 1081 psi*

Tail: 390 sx PVL w/1.3% Salt + 5% Expanding cmt + 0.5% Gel suppressing agent + 0.1% antisetting agent + 0.25% Defoamer + 0.2% Retarder *(13.0 wt, 1.48 yld)*
Compressive Strengths: ***12 hr*** *– 642 psi* ***24 psi*** *– 1016 psi*

D. Apache proposes to run a multiple packer system on the 4-1/2" production liner which will tie back into the 7" string (No cmt). 9-5/8" string will only be ran if water flows are encountered. May have to use DVT & modify cmt program for a 2-stage job, if a strong water flow is encountered. Contingency cmt for production string will be used if intermediate string is not run. Intermediate string will only be run if water flows are encountered.

See COA

***** The above cmt volumes could be revised pending caliper measurement from open hole logs.*** *For Surface csg: If cmt does not circ to surface, the appropriate BLM office shall be notified. The TOC shall be determined as directed by the BLM for the specific set of circumstances. Cement will then be brought to surface via either 1" or ready mix operations, as specified by the BLM at that time.*

5. PROPOSED CONTROL EQUIPMENT

See COA

"EXHIBIT 3" shows a 13-5/8" 3M psi WP BOP consisting of at least annular bag type preventer. This BOP will be nippled up on the 13-3/8" surface csg head & tested to 70% of casing burst. After the 9-5/8" intermediate csg is set & cemented (or after the 7" string, if the 9-5/8" casing isn't ran), either a 13-5/8" or an 11" 3M BOP consisting of an annular bag type preventer, middle blind rams and bottom pipe rams will be installed in place of the original BOP & utilized continuously until TD is reached. The BOP will be tested at 2000 psi, maximum surface pressure is not expected to exceed 2M psi, BHP is calculated to be approximately 2541 psi. *All BOP's & associated equipment will be tested as per BLM *Drilling Operations Order #2*. The BOP will be operated & checked each 24 hr period & blind rams will be operated & checked when the drill pipe is out of the hole. Functional tests will be documented on the daily driller's log. *"EXHIBIT 3"* also shows a 3M psi choke manifold with a 3" blow down line. Full opening stabbing valve & Kelly cock will be on derrick floor in case of need. No abnormal pressures of temperatures are expected in this well. No nearby wells have encountered any problems.

6. AUXILIARY WELL CONTROL EQUIPMENT / MONITORING EQUIPMENT:

13-3/8" & 11" x 3000 psi Double BOP/Blind & pipe ram (3M BOP/BOPE to be used as 2M system)
4-1/2" x 3000 psi Kelly valve
13-3/8" & 11" x 3000 psi mud cross – H2S detector on production hole
Gate-type safety valve 3" choke line from BOP to manifold
2" adjustable chokes – 3" blow down line
Fill up line as per Onshore Order 2

7. PROPOSED MUD CIRCULATION SYSTEM: (Closed Loop System)

See COA

INTERVAL	MW (ppg)	VISC (sec/qt)	FLUID LOSS (cc)	MUD TYPE
0' –~~555'~~ 470'	8.6 – 8.8	28 - 30	NC	FW
~~470' 555'~~ to 3500' *	9.8 – 10.2	28 – 34	NC	Brine
3500' – 5240'	8.6 – 9.1	28 – 36	NC	FW/Brine
5240' – 10310'	8.6 – 9.1	28 – 40	15 - NC	FW/Brine

** Contingency: If 9-5/8" string is not run, these mud properties will be continued to the next casing seat instead of those indicated on the next line.*

***** The necessary mud products for weight addition and fluid loss control will be on location at all times. In order to run open hole logs & casing, the above mud properties may have to be altered to meet these needs.***

8. LOGGING, CORING & TESTING PROGRAM:

A. OH logs: Dual Laterolog, MSFL, CNL, Litho-Density, Gamma Ray, Caliper & Sonic from TD back to last csg shoe.
B. Run CNL, Gamma Ray from last csg shoe back to surface.
C. No cores, DST's or mud logger are planned at this time.
D. Additional testing will be initiated subsequent to setting the 5-1/2" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows & drill stem tests.

9. POTENTIAL HAZARDS:

No abnormal pressures or temperatures are anticipated. In the event abnormal pressures are encountered, however, the proposed mud program will be modified to increase the mud-weight. There is known presence of H_2S in this area. If H_2S is encountered the operator will comply with the provisions of *Onshore Oil & Gas Order No. 6.* No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP: 2541 psi and estimated BHT : 115°.

10. ANTICIPATED STARTING DATE AND DURATION OF OPERATIONS:

Road and location construction will begin after BLM has approved APD. Anticipated spud date will be after BLM approval and as soon as rig is available. Move in operations and drilling is expected to take ~ 25 days. If production casing is run then an additional 90 days will be needed to complete well and construct surface facilities and/or lay flow lines in order to place well on production.

11. OTHER FACETS OF OPERATION:

After running csg, cased hole Gamma Ray, Neutron Collar logs will be run from TD back to all possible productive zones. The Cedar Lake; Glorieta-Yeso formation will be perforated and stimulated in order to establish production. The well will be swab tested & potentialed as an oil well.

Apache Corporation

Eddy County, NM (Nad27)
Section 9, T17S - R31E
Crow Federal 17H
Wellbore #1

Plan: Plan #1 080812

Apache

08 August, 2012

PHOENIX
TECHNOLOGY SERVICES

Company:	Apache Corporation	Local Co-ordinate Reference:	Well Crow Federal 17H
Project:	Eddy County, NM (Nad27)	TVD Reference:	Well @ 3862.00usft (Original Well Elev + 25' KB)
Site:	Section 9, T17S - R31E	MD Reference:	Well @ 3862.00usft (Original Well Elev + 25' KB)
Well:	Crow Federal 17H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1 080812	Database:	GCR DB v5000

Project Eddy County, NM (Nad27)

Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site Section 9, T17S - R31E

Site Position:		Northing:	671,957.60 usft	Latitude:	32° 50' 47.3419 N
From:	Map	Easting:	638,480.80 usft	Longitude:	103° 52' 56.7258 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.24 °

Well Crow Federal 17H

Well Position	+N/-S	0.00 usft	Northing:	671,987.60 usft	Latitude:	32° 50' 47.6387 N
	+E/-W	0.00 usft	Easting:	638,480.60 usft	Longitude:	103° 52' 56.7266 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,837.00 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	08/08/12	7.64	60.68	48,839

Design Plan #1 080812

Audit Notes:

Version:	Phase:	PLAN	Tie On Depth:	0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	89.63

Survey Tool Program Date 08/08/12

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	10,310.35	Plan #1 080812 (Wellbore #1)	MWD	MWD - Standard

Company:	Apache Corporation	**Local Co-ordinate Reference:**	Well Crow Federal 17H
Project:	Eddy County, NM (Nad27)	**TVD Reference:**	Well @ 3862.00usft (Original Well Elev + 25' KB)
Site:	Section 9, T17S - R31E	**MD Reference:**	Well @ 3862.00usft (Original Well Elev + 25' KB)
Well:	Crow Federal 17H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1 080812	**Database:**	GCR DB v5000

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	-3,862.00	0.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
100.00	0.00	0.00	-3,762.00	100.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
200.00	0.00	0.00	-3,662.00	200.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
300.00	0.00	0.00	-3,562.00	300.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
400.00	0.00	0.00	-3,462.00	400.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
500.00	0.00	0.00	-3,362.00	500.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
529.00	0.00	0.00	-3,333.00	529.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
Rustler										
600.00	0.00	0.00	-3,262.00	600.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
700.00	0.00	0.00	-3,162.00	700.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
722.00	0.00	0.00	-3,140.00	722.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
T/Salt										
800.00	0.00	0.00	-3,062.00	800.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
900.00	0.00	0.00	-2,962.00	900.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
1,000.00	0.00	0.00	-2,862.00	1,000.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
1,100.00	0.00	0.00	-2,762.00	1,100.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
1,200.00	0.00	0.00	-2,662.00	1,200.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
1,300.00	0.00	0.00	-2,562.00	1,300.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
1,400.00	0.00	0.00	-2,462.00	1,400.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
1,500.00	0.00	0.00	-2,362.00	1,500.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
1,600.00	0.00	0.00	-2,262.00	1,600.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
1,683.00	0.00	0.00	-2,179.00	1,683.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
B/Salt										
1,700.00	0.00	0.00	-2,162.00	1,700.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
1,800.00	0.00	0.00	-2,062.00	1,800.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
1,845.00	0.00	0.00	-2,017.00	1,845.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
Yates										
1,900.00	0.00	0.00	-1,962.00	1,900.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60

Company:	Apache Corporation	**Local Co-ordinate Reference:**	Well Crow Federal 17H
Project:	Eddy County, NM (Nad27)	**TVD Reference:**	Well @ 3862.00usft (Original Well Elev + 25' KB)
Site:	Section 9, T17S - R31E	**MD Reference:**	Well @ 3862.00usft (Original Well Elev + 25' KB)
Well:	Crow Federal 17H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1 080812	**Database:**	GCR DB v5000

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
2,000.00	0.00	0.00	-1,862.00	2,000.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
2,100.00	0.00	0.00	-1,762.00	2,100.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
2,127.00	0.00	0.00	-1,735.00	2,127.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
Seven Rivers										
2,200.00	0.00	0.00	-1,662.00	2,200.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
2,300.00	0.00	0.00	-1,562.00	2,300.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
2,400.00	0.00	0.00	-1,462.00	2,400.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
2,500.00	0.00	0.00	-1,362.00	2,500.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
2,600.00	0.00	0.00	-1,262.00	2,600.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
2,700.00	0.00	0.00	-1,162.00	2,700.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
2,740.00	0.00	0.00	-1,122.00	2,740.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
Queen										
2,800.00	0.00	0.00	-1,062.00	2,800.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
2,900.00	0.00	0.00	-962.00	2,900.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
3,000.00	0.00	0.00	-862.00	3,000.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
3,100.00	0.00	0.00	-762.00	3,100.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
3,155.00	0.00	0.00	-707.00	3,155.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
Grayburg										
3,200.00	0.00	0.00	-662.00	3,200.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
3,300.00	0.00	0.00	-562.00	3,300.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
3,400.00	0.00	0.00	-462.00	3,400.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
3,490.00	0.00	0.00	-372.00	3,490.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
San Andres										
3,500.00	0.00	0.00	-362.00	3,500.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
3,600.00	0.00	0.00	-262.00	3,600.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
3,700.00	0.00	0.00	-162.00	3,700.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
3,800.00	0.00	0.00	-62.00	3,800.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60

Company:	Apache Corporation	Local Co-ordinate Reference:	Well Crow Federal 17H
Project:	Eddy County, NM (Nad27)	TVD Reference:	Well @ 3862.00usft (Original Well Elev + 25' KB)
Site:	Section 9, T17S - R31E	MD Reference:	Well @ 3862.00usft (Original Well Elev + 25' KB)
Well:	Crow Federal 17H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1 080812	Database:	GCR DB v5000

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
3,900.00	0.00	0.00	38.00	3,900.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
4,000.00	0.00	0.00	138.00	4,000.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
4,100.00	0.00	0.00	238.00	4,100.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
4,200.00	0.00	0.00	338.00	4,200.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
4,300.00	0.00	0.00	438.00	4,300.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
4,400.00	0.00	0.00	538.00	4,400.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
4,500.00	0.00	0.00	638.00	4,500.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
4,600.00	0.00	0.00	738.00	4,600.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
4,700.00	0.00	0.00	838.00	4,700.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
4,800.00	0.00	0.00	938.00	4,800.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
4,900.00	0.00	0.00	1,038.00	4,900.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
4,954.00	0.00	0.00	1,092.00	4,954.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
Glorieta										
5,000.00	0.00	0.00	1,138.00	5,000.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
5,036.00	0.00	0.00	1,174.00	5,036.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
(Yeso) Paddock										
5,100.00	0.00	0.00	1,238.00	5,100.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
5,200.00	0.00	0.00	1,338.00	5,200.00	0.00	0.00	0.00	0.00	671,987.60	638,480.60
5,248.80	0.00	0.00	1,386.80	5,248.80	0.00	0.00	0.00	0.00	671,987.60	638,480.60
Start Build 15.00										
5,300.00	7.68	89.63	1,437.85	5,299.85	0.02	3.43	3.43	15.00	671,987.62	638,484.03
5,400.00	22.68	89.63	1,534.08	5,396.08	0.19	29.54	29.54	15.00	671,987.79	638,510.14
5,500.00	37.68	89.63	1,620.28	5,482.28	0.51	79.67	79.67	15.00	671,988.11	638,560.27
5,600.00	52.68	89.63	1,690.57	5,552.57	0.96	150.39	150.40	15.00	671,988.56	638,630.99
5,697.00	67.23	89.63	1,739.00	5,601.00	1.50	234.13	234.14	15.00	671,989.10	638,714.73
Blinebry										
5,700.00	67.68	89.63	1,740.15	5,602.15	1.52	236.91	236.91	15.00	671,989.12	638,717.51

Company:	Apache Corporation	Local Co-ordinate Reference:	Well Crow Federal 17H
Project:	Eddy County, NM (Nad27)	TVD Reference:	Well @ 3862.00usft (Original Well Elev + 25' KB)
Site:	Section 9, T17S - R31E	MD Reference:	Well @ 3862.00usft (Original Well Elev + 25' KB)
Well:	Crow Federal 17H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1 080812	Database:	GCR DB v5000

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
5,800.00	82.68	89.63	1,765.66	5,627.66	2.13	333.30	333.31	15.00	671,989.73	638,813.90
5,836.46	88.15	89.63	1,768.57	5,630.57	2.37	369.63	369.64	15.00	671,989.97	638,850.23
Start 4473.89 hold at 5836.46 MD										
5,900.00	88.15	89.63	1,770.62	5,632.62	2.77	433.14	433.14	0.00	671,990.37	638,913.74
6,000.00	88.15	89.63	1,773.85	5,635.85	3.41	533.08	533.09	0.00	671,991.01	639,013.68
6,100.00	88.15	89.63	1,777.08	5,639.08	4.05	633.03	633.04	0.00	671,991.65	639,113.63
6,200.00	88.15	89.63	1,780.31	5,642.31	4.69	732.97	732.99	0.00	671,992.29	639,213.57
6,300.00	88.15	89.63	1,783.53	5,645.53	5.33	832.92	832.94	0.00	671,992.93	639,313.52
6,400.00	88.15	89.63	1,786.76	5,648.76	5.97	932.86	932.88	0.00	671,993.57	639,413.46
6,500.00	88.15	89.63	1,789.99	5,651.99	6.61	1,032.81	1,032.83	0.00	671,994.21	639,513.41
6,600.00	88.15	89.63	1,793.22	5,655.22	7.25	1,132.76	1,132.78	0.00	671,994.85	639,613.36
6,700.00	88.15	89.63	1,796.45	5,658.45	7.89	1,232.70	1,232.73	0.00	671,995.49	639,713.30
6,800.00	88.15	89.63	1,799.68	5,661.68	8.53	1,332.65	1,332.68	0.00	671,996.13	639,813.25
6,900.00	88.15	89.63	1,802.90	5,664.90	9.17	1,432.59	1,432.62	0.00	671,996.77	639,913.19
7,000.00	88.15	89.63	1,806.13	5,668.13	9.81	1,532.54	1,532.57	0.00	671,997.41	640,013.14
7,100.00	88.15	89.63	1,809.36	5,671.36	10.45	1,632.49	1,632.52	0.00	671,998.05	640,113.09
7,200.00	88.15	89.63	1,812.59	5,674.59	11.09	1,732.43	1,732.47	0.00	671,998.69	640,213.03
7,300.00	88.15	89.63	1,815.82	5,677.82	11.73	1,832.38	1,832.41	0.00	671,999.33	640,312.98
7,400.00	88.15	89.63	1,819.05	5,681.05	12.37	1,932.32	1,932.36	0.00	671,999.97	640,412.92
7,500.00	88.15	89.63	1,822.27	5,684.27	13.01	2,032.27	2,032.31	0.00	672,000.61	640,512.87
7,600.00	88.15	89.63	1,825.50	5,687.50	13.65	2,132.21	2,132.26	0.00	672,001.25	640,612.81
7,700.00	88.15	89.63	1,828.73	5,690.73	14.29	2,232.16	2,232.21	0.00	672,001.89	640,712.76
7,800.00	88.15	89.63	1,831.96	5,693.96	14.93	2,332.11	2,332.15	0.00	672,002.53	640,812.71
7,900.00	88.15	89.63	1,835.19	5,697.19	15.57	2,432.05	2,432.10	0.00	672,003.17	640,912.65
8,000.00	88.15	89.63	1,838.41	5,700.41	16.21	2,532.00	2,532.05	0.00	672,003.81	641,012.60
8,100.00	88.15	89.63	1,841.64	5,703.64	16.85	2,631.94	2,632.00	0.00	672,004.45	641,112.54
8,200.00	88.15	89.63	1,844.87	5,706.87	17.49	2,731.89	2,731.95	0.00	672,005.09	641,212.49

Company:	Apache Corporation	Local Co-ordinate Reference:	Well Crow Federal 17H
Project:	Eddy County, NM (Nad27)	TVD Reference:	Well @ 3862.00usft (Original Well Elev + 25' KB)
Site:	Section 9, T17S - R31E	MD Reference:	Well @ 3862.00usft (Original Well Elev + 25' KB)
Well:	Crow Federal 17H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1 080812	Database:	GCR DB v5000

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVDSS (usft)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
8,300.00	88.15	89.63	1,848.10	5,710.10	18.13	2,831.84	2,831.89	0.00	672,005.73	641,312.44
8,400.00	88.15	89.63	1,851.33	5,713.33	18.77	2,931.78	2,931.84	0.00	672,006.37	641,412.38
8,500.00	88.15	89.63	1,854.56	5,716.56	19.41	3,031.73	3,031.79	0.00	672,007.01	641,512.33
8,600.00	88.15	89.63	1,857.78	5,719.78	20.05	3,131.67	3,131.74	0.00	672,007.65	641,612.27
8,700.00	88.15	89.63	1,861.01	5,723.01	20.69	3,231.62	3,231.68	0.00	672,008.29	641,712.22
8,800.00	88.15	89.63	1,864.24	5,726.24	21.33	3,331.56	3,331.63	0.00	672,008.93	641,812.16
8,900.00	88.15	89.63	1,867.47	5,729.47	21.97	3,431.51	3,431.58	0.00	672,009.57	641,912.11
9,000.00	88.15	89.63	1,870.70	5,732.70	22.61	3,531.46	3,531.53	0.00	672,010.21	642,012.06
9,100.00	88.15	89.63	1,873.93	5,735.93	23.25	3,631.40	3,631.48	0.00	672,010.85	642,112.00
9,200.00	88.15	89.63	1,877.15	5,739.15	23.89	3,731.35	3,731.42	0.00	672,011.49	642,211.95
9,300.00	88.15	89.63	1,880.38	5,742.38	24.53	3,831.29	3,831.37	0.00	672,012.13	642,311.89
9,400.00	88.15	89.63	1,883.61	5,745.61	25.17	3,931.24	3,931.32	0.00	672,012.77	642,411.84
9,500.00	88.15	89.63	1,886.84	5,748.84	25.81	4,031.19	4,031.27	0.00	672,013.41	642,511.79
9,600.00	88.15	89.63	1,890.07	5,752.07	26.45	4,131.13	4,131.22	0.00	672,014.05	642,611.73
9,700.00	88.15	89.63	1,893.30	5,755.30	27.09	4,231.08	4,231.16	0.00	672,014.69	642,711.68
9,800.00	88.15	89.63	1,896.52	5,758.52	27.73	4,331.02	4,331.11	0.00	672,015.33	642,811.62
9,900.00	88.15	89.63	1,899.75	5,761.75	28.37	4,430.97	4,431.06	0.00	672,015.97	642,911.57
10,000.00	88.15	89.63	1,902.98	5,764.98	29.01	4,530.91	4,531.01	0.00	672,016.61	643,011.51
10,100.00	88.15	89.63	1,906.21	5,768.21	29.65	4,630.86	4,630.96	0.00	672,017.25	643,111.46
10,200.00	88.15	89.63	1,909.44	5,771.44	30.29	4,730.81	4,730.90	0.00	672,017.89	643,211.41
10,300.00	88.15	89.63	1,912.67	5,774.67	30.93	4,830.75	4,830.85	0.00	672,018.53	643,311.35
10,310.35	88.15	89.63	1,913.00	5,775.00	31.00	4,841.10	4,841.20	0.00	672,018.60	643,321.70
TD at 10310.35										

Company:	Apache Corporation	Local Co-ordinate Reference:	Well Crow Federal 17H
Project:	Eddy County, NM (Nad27)	TVD Reference:	Well @ 3862.00usft (Original Well Elev + 25' KB)
Site:	Section 9, T17S - R31E	MD Reference:	Well @ 3862.00usft (Original Well Elev + 25' KB)
Well:	Crow Federal 17H	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1 080812	Database:	GCR DB v5000

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,740.00	2,740.00	Queen			
5,697.00	5,601.00	Blinebry			
1,683.00	1,683.00	B/Salt			
5,036.00	5,036.00	(Yeso) Paddock			
529.00	529.00	Rustler			
722.00	722.00	T/Salt			
2,127.00	2,127.00	Seven Rivers			
4,954.00	4,954.00	Glorieta			
1,845.00	1,845.00	Yates			
3,490.00	3,490.00	San Andres			
3,155.00	3,155.00	Grayburg			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
5,248.80	5,248.80	0.00	0.00	Start Build 15.00
5,636.46	5,630.57	2.37	369.63	Start 4473.89 hold at 5636.46 MD
10,310.35	5,775.00	31.00	4,841.10	TD at 10310.35

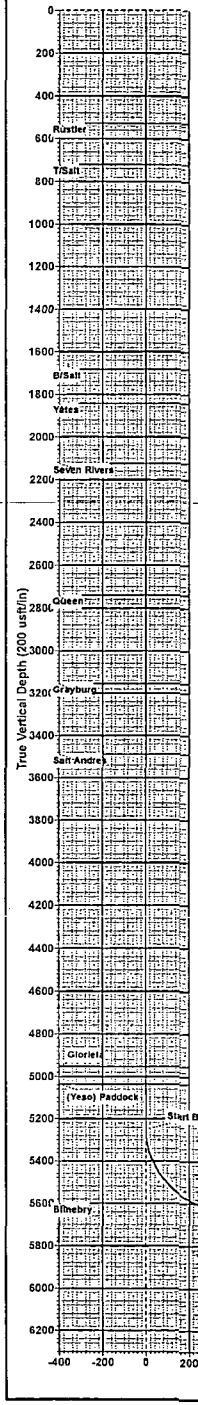
Checked By: _____ Approved By: _____ Date: _____

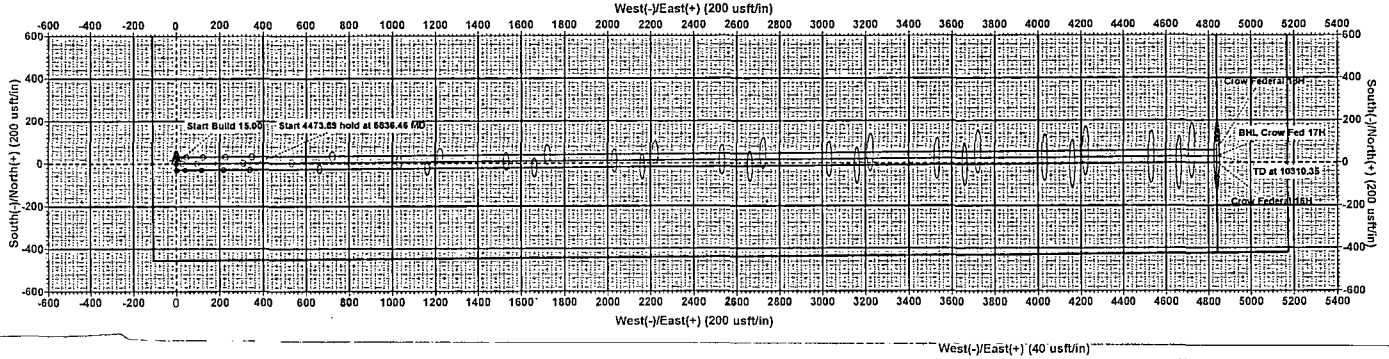
Apache Corporation

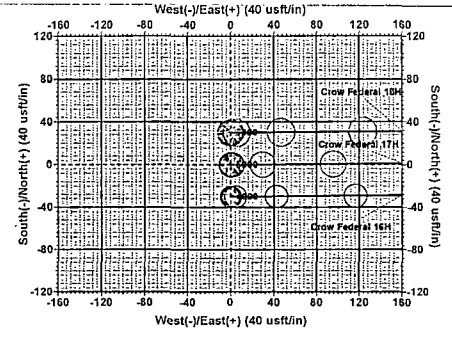
PHOENIX TECHNOLOGY SERVICES

PROJECT DETAILS: Eddy County, NM (Nad27)	
Geodetic System:	US State Plane 1927 (Exact solution)
Datum:	NAD 1927 (NADCON CONUS)
Ellipsoid:	Clarke 1866
Zone:	New Mexico East 3001
System Datum:	Mean Sea Level
Location North:	Grid

Project: Eddy County, NM (Nad27)
Site: Section 9, T17S - R31E
Well: Crow Federal 17H
Wellbore: Wellbore #1
Plan: Plan #1 080812
Rig: _____







WELL DETAILS: Crow Federal 17H			
	Ground Level: 3837.00		
Northing	Easting	Latittude	Longitude
671987.60	638480.6032°	50' 47.6387 N	103° 52' 56.7266 W

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
BHL Crow Fed 17H	5775.00	31.00	4841.10	672018.60	643321.70	Point

FORMATION TOP DETAILS

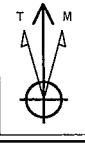
TVDPath	MDPath	Formation
529.00	529.00	Rustler
722.00	722.00	T/Salt
1683.00	1683.00	B/Salt
1845.00	1845.00	Yates
2127.00	2127.00	Seven Rivers
2740.00	2740.00	Queen
3155.00	3155.00	Grayburg
3490.00	3490.00	San Andres
4954.00	4954.00	Glorieta
5036.00	5036.00	(Yeso) Paddock
5601.00	5697.00	Blinebry

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5248.80	0.00	0.00	5248.80	0.00	0.00	0.00	0.00	0.00	
5836.46	88.15	89.63	5630.57	2.37	369.63	15.00	89.63	369.64	
10310.35	88.15	89.63	5775.00	31.00	4841.10	0.00	0.00	4841.20	BHL Crow Fed 17H

ANNOTATIONS

TVD	MD	Annotation
5248.80	5248.80	Start Build 15.00
5630.57	5836.46	Start 4473.89 hold at 5836.46 MD
5775.00	10310.35	TD at 10310.35

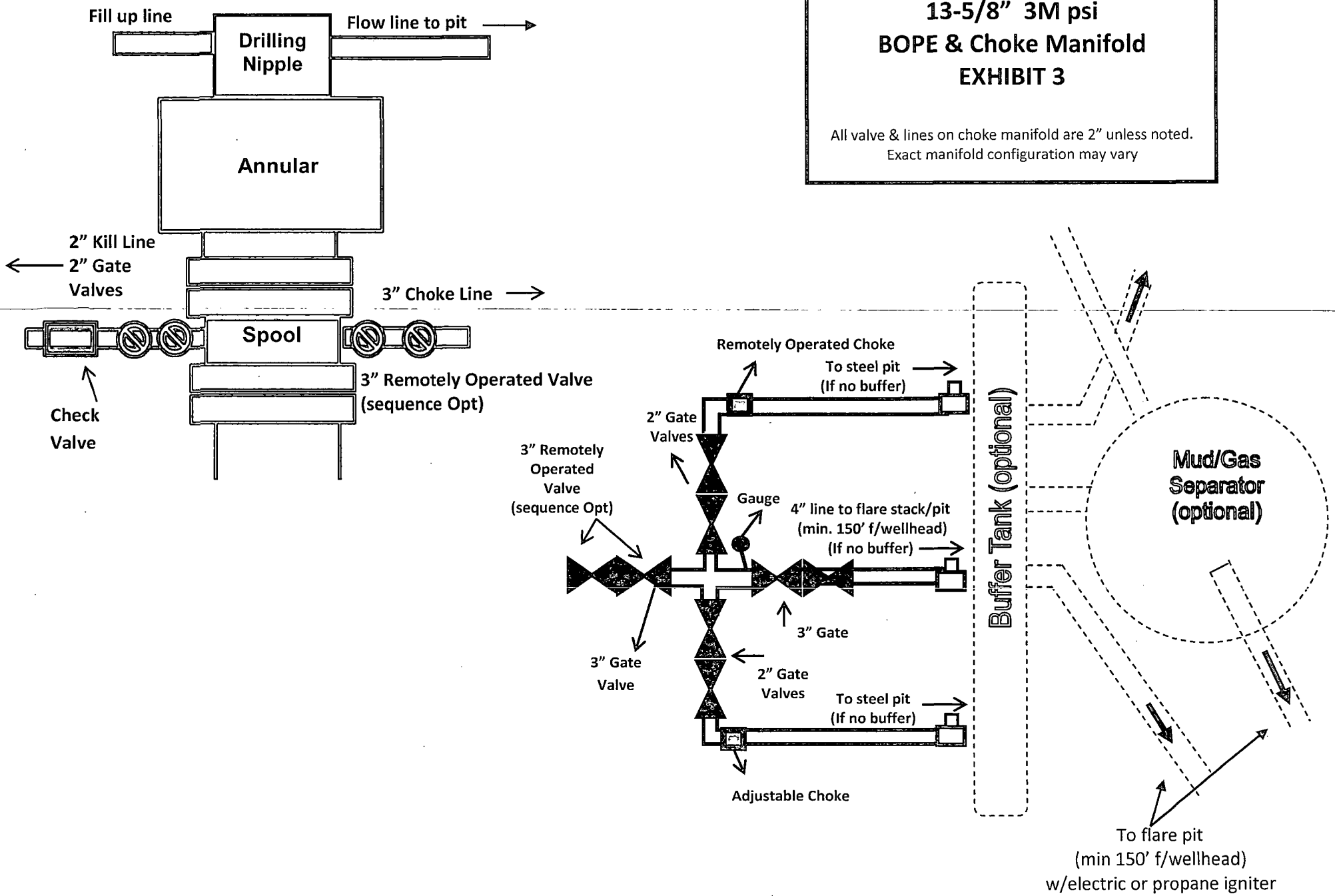


Azimuths to Grid North
True North: -0.24°
Magnetic North: 7.39°

Magnetic Field
Strength: 48838.6snT
Dip Angle: 60.68°
Date: 08/08/2012
Model: IGRF2010_14

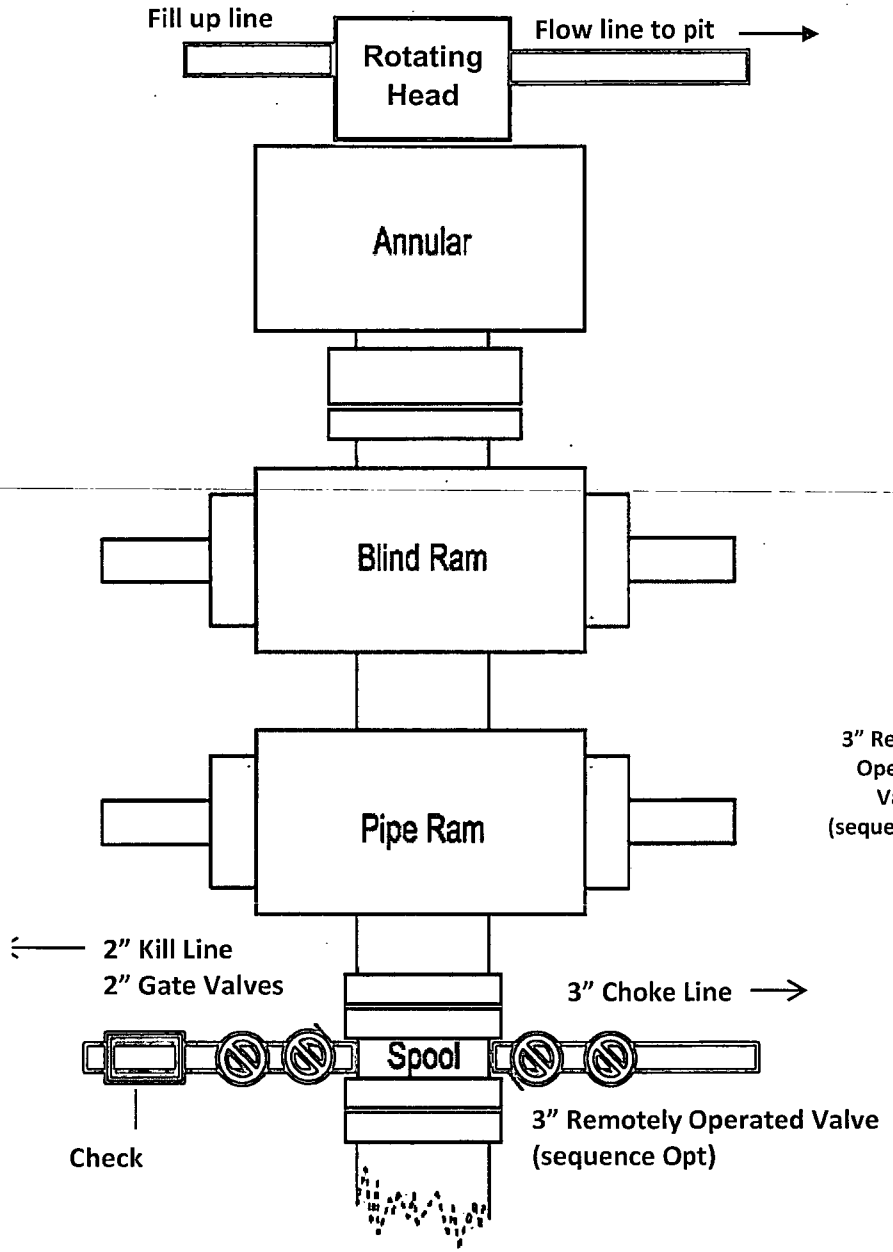
13-5/8" 3M psi
BOPE & Choke Manifold
EXHIBIT 3

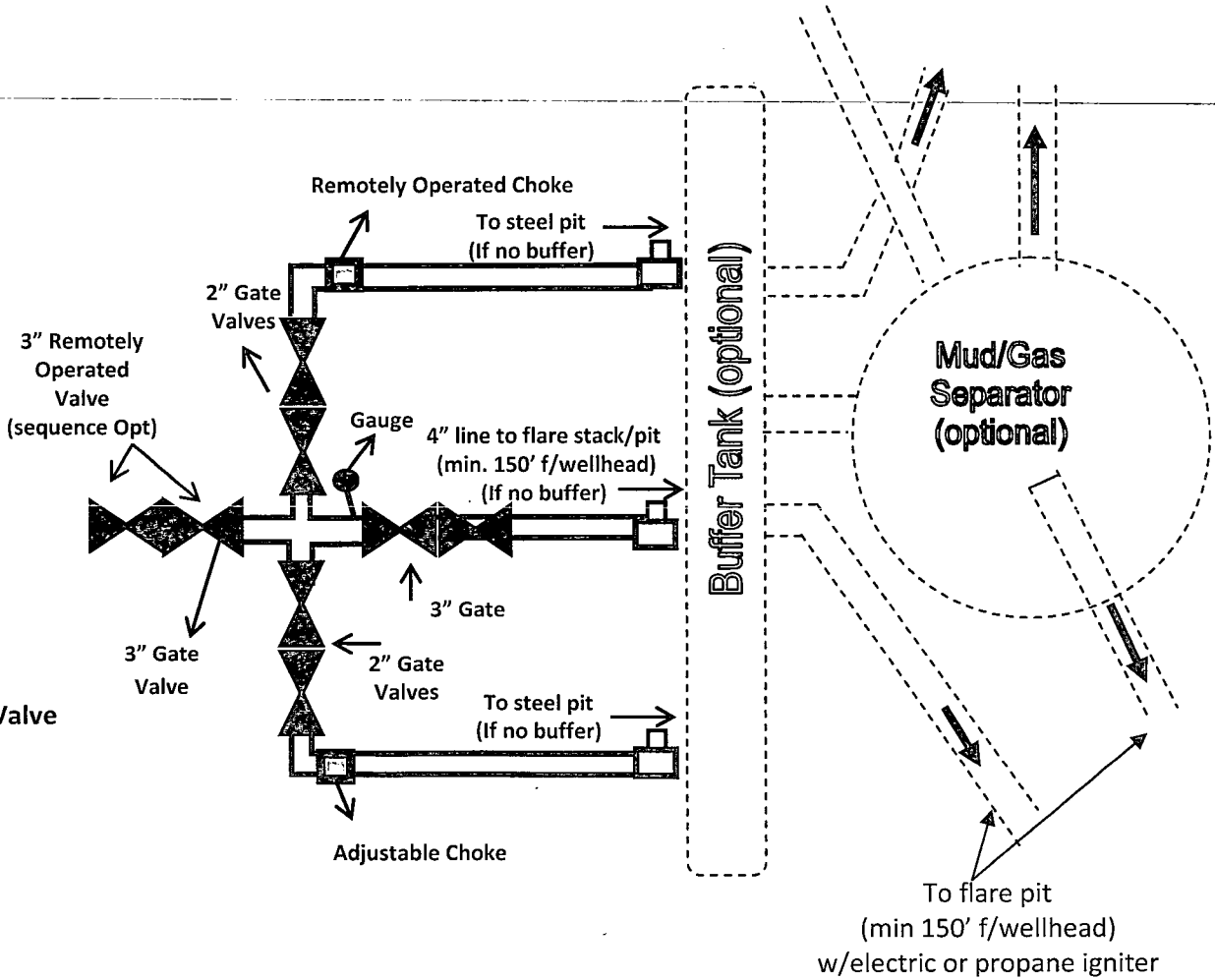
All valve & lines on choke manifold are 2" unless noted.
Exact manifold configuration may vary



11" or 13-5/8" 3M psi BOPE & Choke Manifold EXHIBIT 3A

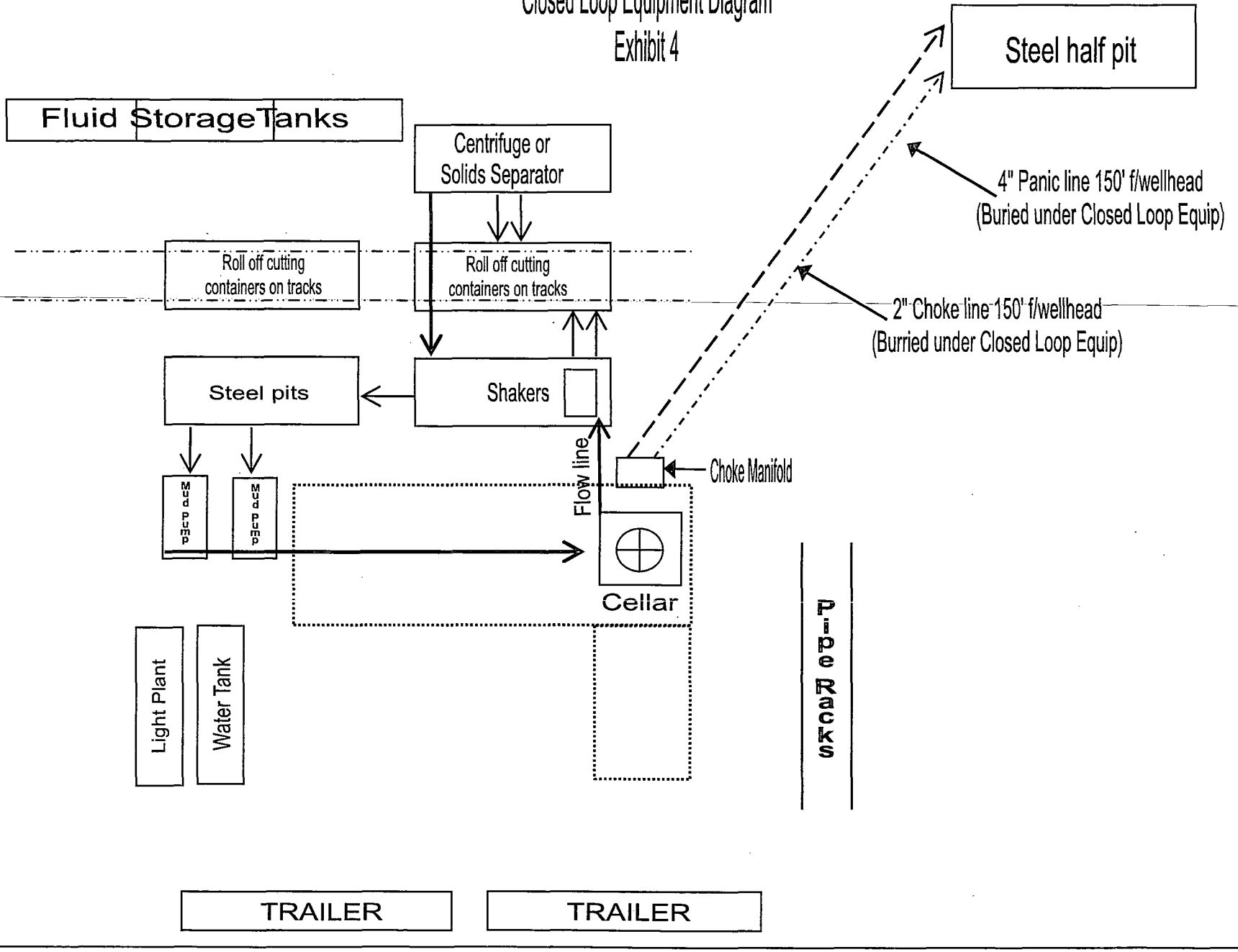
All valve & lines on choke manifold are 2" unless noted.
Exact manifold configuration may vary





Apache

Closed Loop Equipment Diagram
Exhibit 4



Apache

DESIGN PLAN, OPERATING & MAINTENANCE PLAN, & CLOSURE PLAN FOR OCD FOR C-144

CROW FEDERAL #17H

DESIGN PLAN

Fluid & cuttings coming from drilling operations will pass over the Shale Shaker with the cuttings going to the Sundance Inc / CRI haul off bin and the cleaned fluid returning to the working steel pits.

Equipment includes:

2 – 500 bbl steel frac tanks (fresh water for drilling)
2 – 180 bbl steel working pits
3 – 75 bbl steel haul off bins
2 – Pumps (6-1/2" x 10" PZ 10 or equivalent)
1 – Shale shaker
1 – Mud cleaner – QMAX MudStripper

OPERATING AND MAINTENANCE PLAN

Inspection to occur every tour for proper operation of system and individual components. If any problems are found they will be repaired and/or corrected immediately.

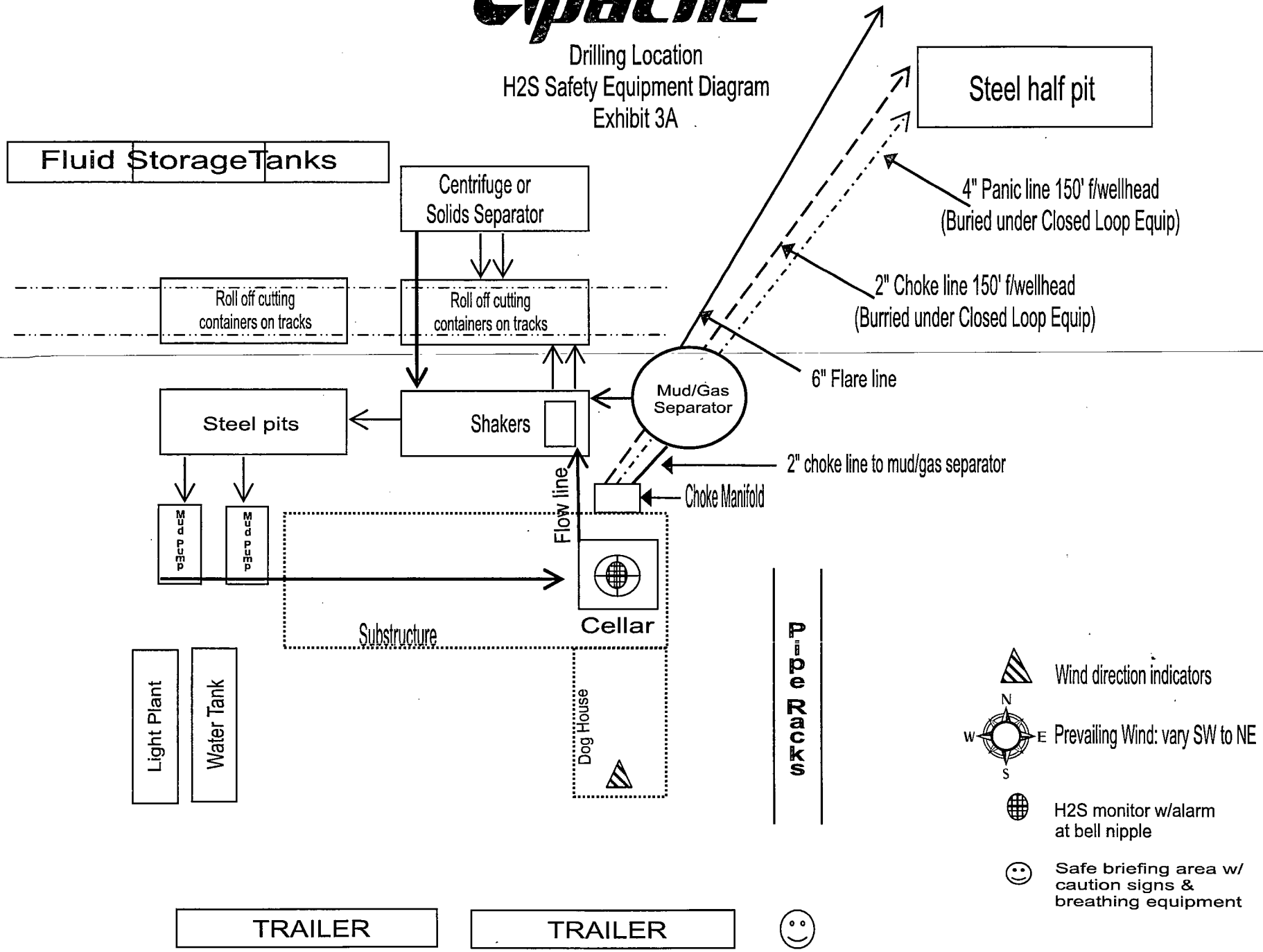
CLOSURE PLAN

All haul bins containing cuttings will be removed from location and hauled to Sundance Incorporated (NM-01-0003) disposal site located 3 miles East of Eunice, NM on the Texas border / Controlled Recovery, Inc's (NM-01-0006) disposal site located near mile marker 66 on Highway 62/180.

Sorina L. Flores
Supv. of Drilling Services

Apache

Drilling Location
H2S Safety Equipment Diagram
Exhibit 3A



HYDROGEN SULFIDE (H_2S) DRILLING OPERATIONS PLAN

Hydrogen Sulfide Training:

All regularly assigned personnel, contracted or employed by Apache Corporation will receive training from qualified instructor(s) in the following areas prior to commencing drilling possible hydrogen sulfide bearing formations in this well:

- The hazards and characteristics of hydrogen sulfide (H_2S)
- The proper use and maintenance of personal protective equipment and life support systems.
- The proper use of H_2S detectors, alarms, warning systems, briefing area, evacuation procedures & prevailing winds.
- The proper techniques for first aid and rescue procedures.

Supervisory personnel will be trained in the following areas:

- The effects of H_2S on metal components. If high tensile tubulars are to be utilized, personnel will be trained in their special maintenance requirements.
- Corrective action & shut-in procedures when drilling or reworking a well & blowout prevention / well control procedures.
- The contents and requirements of the H_2S Drilling Operations Plan

There will be an initial training session just prior to encountering a known or probable H_2S zone (within 3 days or 500') and weekly H_2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H_2S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received proper training.

H_2S SAFETY EQUIPMENT AND SYSTEMS:

Well Control Equipment that will be available & installed if H_2S is encountered:

- Flare Line with electronic igniter or continuous pilot.
- Choke manifold with a minimum of one remote choke.
- Blind rams & pipe rams to accommodate all pipe sizes with properly sized closing unit.
- Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head & flare gun with flares

Protective Equipment for Essential Personnel:

- Mark II Survive-air 30 minute units located in dog house & at briefing areas, as indicated on wellsite diagram.

H2S Dection and Monitoring Equipment:

- Two portable H_2S monitors positioned on location for best coverage & response. These units have warning lights & audible sirens when H_2S levels of 20 ppm are reached.
- One portable H_2S monitor positioned near flare line.

H2S Visual Warning Systems:

- Wind direction indicators are shown on wellsite diagram.
- Caution / Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used when appropriate.

Mud Program:

- The Mud Program has been designed to minimize the volume of H_2S circulated to the surface. Proper mud weights, safe drilling practices & the use of H_2S scavengers will minimize hazards when penetrating H_2S bearing zones.
- A mud-gas separator and H_2S gas buster will be utilized as needed.

Metallurgy:

- All drill strings, casing, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold & lines, & valves will be suitable for H_2S service.
- All elastomers used for packing & seals shall be H_2S trim.

Communication:

- Cellular telephone and 2-way radio communications in company vehicles, rig floor and mud logging trailer.

HYDROGEN SULFIDE (H_2S) CONTINGENCY PLAN

Assumed 100 ppm ROE = 3000'

100 ppm H_2S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H_2S, the first responder(s) must

- Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- Evacuate any public places encompassed by the 100 ppm ROE.
- Be equipped with H_2S monitors and air packs in order to control the release.
- Use the "buddy system" to ensure no injuries occur during the response
- Take precautions to avoid personal injury during this operation.
- Contact operators and/or local officials to aid in operation. See list of phone numbers attached.
- Have received training in the :
    - Detection of H_2S, and
    - Measures for protection against the gas,
    - Equipment used for protection and emergency response.

Ignition of Gas source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO_2). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever this is an ignition of the gas.

Characteristics of H_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	1.189 Air = I	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO_2	2.21 Air = I	2 ppm	N/A	1000 ppm

Contacting Authorities

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

WELL CONTROL EMERGENCY RESPONSE PLAN

I. GENERAL PHILOSOPHY

Our objective is to ensure that during an emergency, a predetermined procedure is followed so that prompt decisions can be made based on accurate information.

The best way to handle and emergency is with an experienced organization set up for the sole purpose of solving the problem. The *Well Control Emergency Response Team* was organized to handle dangerous & expensive well control problems. The *Team* is structured such that each individual can contribute the most from his area of expertise. Key decision-makers are determined prior to an emergency to avoid confusion about who is in charge.

If the well is flowing uncontrolled at the surface or subsurface, *The Emergency Response Team* will be mobilized. The *Team* is customized for the people currently on the Apache staff. Staff changes may require a change in the plan.

II. EMERGENCY PROCEDURE ON DRILLING OR COMPLETION OPERATIONS

A. In the event of an emergency the *Drilling Foreman or Tool-Pusher* will immediately contact only one of the following starting with the first name listed:

Name	Office	Mobile	Home
Danny Laman – Drlg Superintendent	432-818-1022	432-634-0288	432-520-3528
Terry West – Drilling Engineer	432-818-1114	432-664-7254	
Bobby Smith – Drilling Manager	432-818-1020	432-556-7701	
Jeff Burt – EH&S Coordinator		432-631-9081	

***This one phone call will free the Drilling Foreman to devote his full time to securing the safety of personnel & equipment. This call will initiate the process to mobilize the Well Control Emergency Response Team. Apache maintains an Emergency Telephone Conference Room in the Houston office. This room is available for us by the Permian Region. The room has 50 separate telephone lines.*

B. The Apache employee contacted by the Drilling Foreman will begin contacting the rest of the *Team.* If **Danny Laman** is out of contact, **Bob Lange** will be notified.

C. If a member of the *Emergency Response Team* is away from the job, he must be available for call back. Telephone numbers should be left with secretaries or a key decision-maker.

D. Apache's reporting procedure for spills or releases of oil or hazardous materials will be implemented when spills or releases have occurred or are probable.

EMERGENCY RESPONSE NUMBERS:

SHERIFF DEPARTMENT	
Eddy County	575-887-7551
Lea County	575-396-3611
FIRE DEPARTMENT	911
Artesia	575-746-5050
Carlsbad	575-885-2111
Eunice	575-394-2111
Hobbs	575-397-9308
Jal	575-395-2221
Lovington	575-396-2359
HOSPITALS	911
Artesia Medical Emergency	575-746-5050
Carlsbad Medical Emergency	575-885-2111
Eunice Medical Emergency	575-394-2112
Hobbs Medical Emergency	575-397-9308
Jal Medical Emergency	575-395-2221
Lovington Medical Emergency	575-396-2359
AGENT NOTIFICATIONS	
Bureau of Land Management	575-393-3612
New Mexico Oil Conservation Division	575-393-6161

EXHIBIT #7

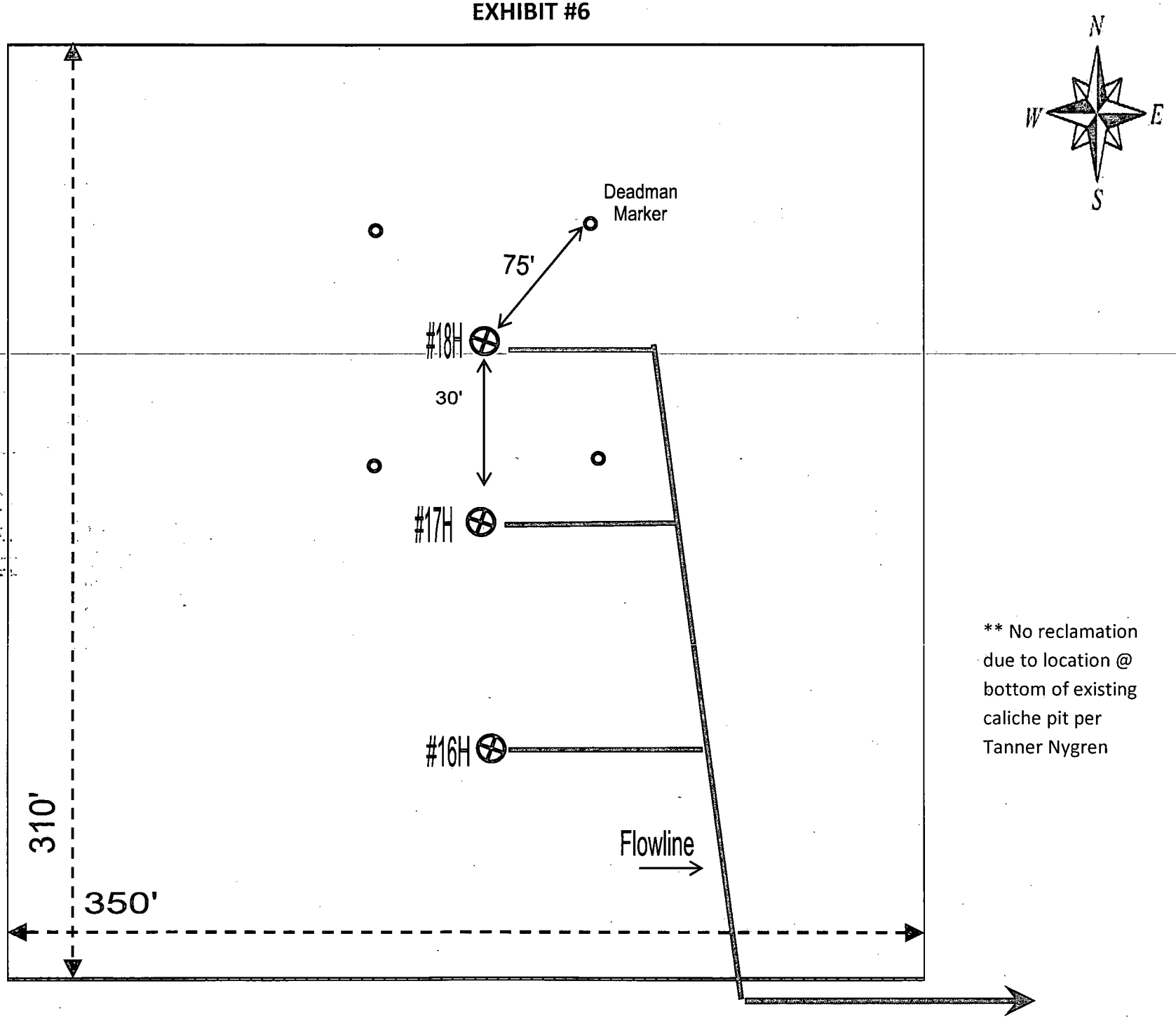
WARNING

YOU ARE ENTERING AN H_2S AREA
AUTHORIZED PERSONNEL ONLY

1. BEARDS OR CONTACT LENSES NOT ALLOWED
2. HARD HATS REQUIRED
3. SMOKING DESIGNATED AREAS ONLY
4. BE WIND CONSCIOUS AT ALL TIMES
5. CHECK WITH APACHE CORPORATION

APACHE CORPORATION
1-888-257-6840

INTERIM RECLAMATION LAYOUT
CROW FEDERAL #16H, #17H, #18H
EXHIBIT #6



** No reclamation due to location @ bottom of existing caliche pit per Tanner Nygren

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**APACHE CORPORATION**
LEASE NO.:	**NMLC-029426b**
WELL NAME & NO.:	**Crow Federal 17H**
SURFACE HOLE FOOTAGE:	**1755' FSL & 0110' FWL**
BOTTOM HOLE FOOTAGE	**1755' FSL & 0330' FEL Sec 9, T. 17 S., R 31 E.**
LOCATION:	**Section 9, T. 17 S., R 31 E., NMPM**
COUNTY:	**Eddy County, New Mexico**

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.