OCD Artesia

Form 3160-3 (March 2012)

FORM APPROVED OMB No. 1004-0137 Expires October 31, 2014

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

5. Lease Serial No. NMLC-029426B

	APPLICATION	FOR	PERMIT	TO	DRILL	OR	REENTER
--	-------------	-----	--------	----	-------	----	---------

6. If Indian, Allotee or Tribe Name

APPLICATION FOR PERIVIT TO	DAILL OR	RECIVIER						
Ia. Type of work:	ER			7 If Unit or CA Agre	eement, Na	ime and No.		
Ib. Type of Well: ✓ Oil Well ☐ Gas Well ☐ Other	Sing	gle Zone Multip	ole Zone	8. Lease Name and Well No. CROW FEDERAL #25H <308711>				
2. Name of Operator APACHE CORPORATION		-873 =	>	9. API Well No. 2 30-015-	1194	74		
3a. Address 303 VETERANS AIRPARK LN #1000 MIDLAND, TX 79705	3b. Phone No. <i>(include area code)</i> 432-818-1167			10. Field and Pool, or FREN; GLORIETA	•	•		
4. Location of Well (Report location clearly and in accordance with any	y State requiremen	nts.*)		11. Sec., T. R. M. or E	31k.and Su	rvey or Area		
At surface 1680' FNL & 330' FEL UL: H			SEC: 10 T17S	R31E				
At proposed prod. zone 1680' FNL & 330' FWL UL: E				10 0		1.2 0		
14. Distance in miles and direction from nearest town or post office* APPROX 9.8 MILES NORTHEAST OF LOCO HILLS, NM				12. County or Parish EDDY		13. State NM		
15. Distance from proposed* 330'	16. No. of ac	res in lease	g Unit dedicated to this	well				
location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	1919.88 ACRES 160			ACRES				
18. Distance from proposed location*	19. Proposed Depth 20. BL			BIA Bond No. on file				
to nearest well, drilling, completed, applied for, on this lease, ft.	TVD: 5300' BLM-C0			O-1463 NATIONWIDE; NMB000736				
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approxim	ate date work will star	t* .	23. Estimated duration				
GL: 3940'	As Soon	n AS Appro	vec	~ 20 DAYS				
	24. Attacl	nments						
The following, completed in accordance with the requirements of Onshore	e Oil and Gas O	Order No.1, must be at	tached to the	is form:				
 Well plat certified by a registered surveyor. A Drilling Plan. 		4. Bond to cover the Item 20 above).	ne operation	ns unless covered by an	existing b	ond on file (see		
3. A Surface Use Plan (if the location is on National Forest System I SUPO must be filed with the appropriate Forest Service Office).	Lands, the	5. Operator certific6. Such other siteBLM.		ormation and/or plans as	may be re	equired by the		
25. Signature	, i	Printed/Typed)	Date					
sound of long	- ISORIN	IA L. FLORES			12/03/2	2013		
Title SUPVICE DRILLING SERVICES								

Approved by (Signal STEPHEN J. CAFFEY

Name (Printed/Typed)

Date DEC 3 1 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.

(Continued on page 2)

*(Instructions on page 2)

Roswell Controlled Water Basin

JAN 0.6 2014 NMOCD ARTESIA

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

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 day of
Well: CROW FEDERAL #25H
Operator Name: APACHE CORPORATION
Signature: Printed Name: BARRY GREEN
Title: Drilling Engineer Date: 9/19/2013
Email (optional):barry.green@apachecorp.com
Street or Box: 303 Veterans Airpark Ln., Ste. 3000
City, State, Zip Code: <u>Midland, TX 79705</u>
Telephone: 432-818-1059
Field Representative (if not above signatory):
Address (if different from above):
Telephone (if different from above):
Email (optional):

10

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.

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

A DI Mumbar

٩

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

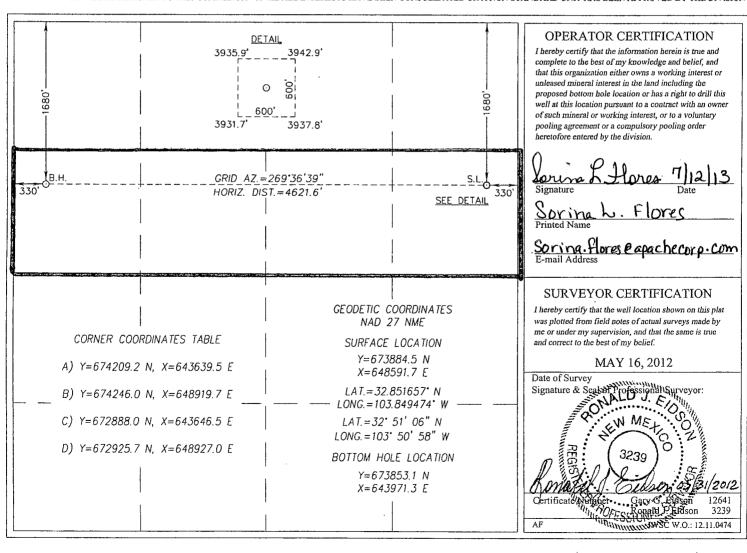
Form C-102 Revised August 1, 2011 Submit one copy to appropriate District Office

□ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

Ar	'I Number	IGUU	Pool Code Pool Name											
30-015	- 4	1944	11 26770 Fren: Glorieta - Yesp											
Property Co	ode				Property Nam	ie J			Well Number					
30871]			C	CROW FED	ERAL			25H					
OGRID N	lo.				Operator Nam	ne		H	Elevation					
873	,		APACHE CORPORATION 3940'											
Surface Location														
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County					
Н	10	17-S	31-E		1680	NORTH	330	EAST	EDDY					
				Bottom Hol	e Location If Diff	erent From Surface								
UL or lot No.	Section	Township	Township Range		Feet from the	North/South line	Feet from the	East/West line	County					
Е	10	17-S	31-E		1680	NORTH	330	WEST	EDDY					
Dedicated Acres	Joint or	Infill (Consolidation C	ode Ord	ler No.	<u></u>		- <u>l</u>						
160														

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



SECTION 10, TOWNSHIP 17 SOUTH, RANGE 31 EAST, N.M.P.M. **EDDY COUNTY** NEW MEXICO 3942.9 3935.9' **PROPOSED** Topsoil Stockpile 40 WELL PAD **NORTHWEST** NORTHEAST PAD CORNER PAD CORNER 3936.7 3942.6 CROW FEDERAL #27H CROW FEDERAL #26H 175 CROW FEDERAL #25H ELEV. 3940.0' LAT.=32.851657° N LONG.=103.849474° W LAT.=32° 51' 06" N LONG.=103° 50' 58" W PROPOSED ROAD 350 SOUTHEAST SOUTHWEST PAD CORNER PAD CORNER 3935.81 3937.3 3-W ELEC. LINE -W ELEC. LINE 3931.7 3937.8' 600' DIRECTIONS TO LOCATION FROM THE INTERSECTION OF U.S. HWY. #82, LOVINGTON HWY AND CO. RD. 223, SWEET GUM, GO NORTH-NORTHWEST ON SWEET GUM RD. APPROX. 0.8 MILES; VEER RIGHT AND GO NORTH-NORTHWEST APPROX. 0.5 MILES; TURN RIGHT AT ROAD TEE AND GO EAST-NORTHEAST APPROX. 0.1 MILES; TURN LEFT AND GO NORTH APPROX. 0.1 MILE, ROAD CURVES NORTHEAST. CONTINUE ALONG CURVE NORTHEAST APPROX. 0.1 MILE TO A FOUR WAY INTERSECTION; TURN LEFT AND GO NORTHWEST APPROX. 0.2 MILES; CONTINUE ON ROAD AND VEER RIGHT AND GO NORTH APPROX. 0.15 MILES; TURN LEFT AND GO WEST APPROX. 0.15 MILES; TURN RIGHT AND GO NORTH APPROX. 0.25 MILES; TURN RIGHT AND GO EAST APPROX. 0.15 MILES TO THREE WAY INTERSECTION; TURN LEFT AND GO NORTH APPROX. 0.75 MILES TO THREE WAY INTERSECTION; TURN RIGHT AND GO EAST APPROX. 0.5 MILES; TURN RIGHT AND GO SOUTH APPROX. 0.25 MILES; TURN LEFT AND GO EAST APPROX. 0.7 MILES TO A PROPOSED ROAD SURVEY. FOLLOW ROAD SURVEY EAST APPROX. 454 FEET TO THIS LOCATION. APACHE CORPORATION 100 100 200 Feet CROW FEDERAL #25H WELL Scale: 1"=100 LOCATED 1680 FEET FROM THE NORTH LINE AND 330 FEET FROM THE EAST LINE OF SECTION 10, PROVIDING SURVEYING SERVICES TOWNSHIP 17 SOUTH, RANGE 31 EAST, N.M.P.M., SINCE 1946 EDDY COUNTY, NEW MEXICO OHN WEST SURVEYING COMPANY 412 N. DAL PASO Survey Date: 5/16/12 CAD Date: 5/30/12 Drawn By: AF HOBBS, N.M. 88240

W.O. No.: 12110474

Rev: 7/31/13

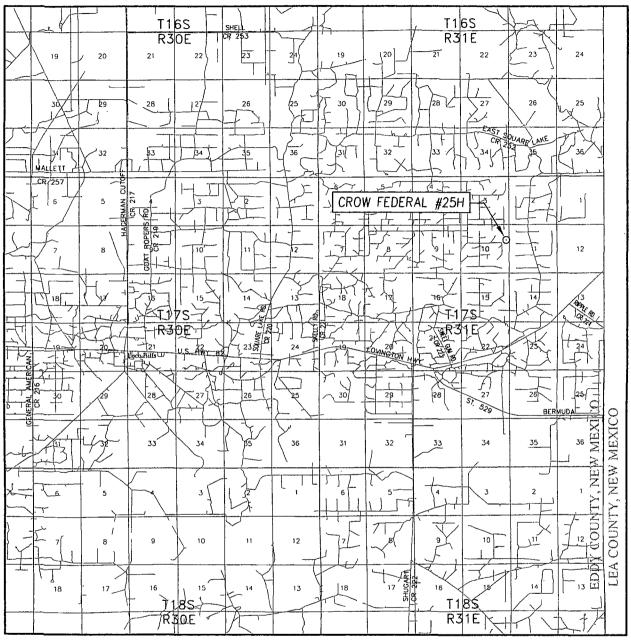
Rel. W.O.:

Sheet 1 of

(575) 393-3117

www.jwsc.biz

VICINITY MAP



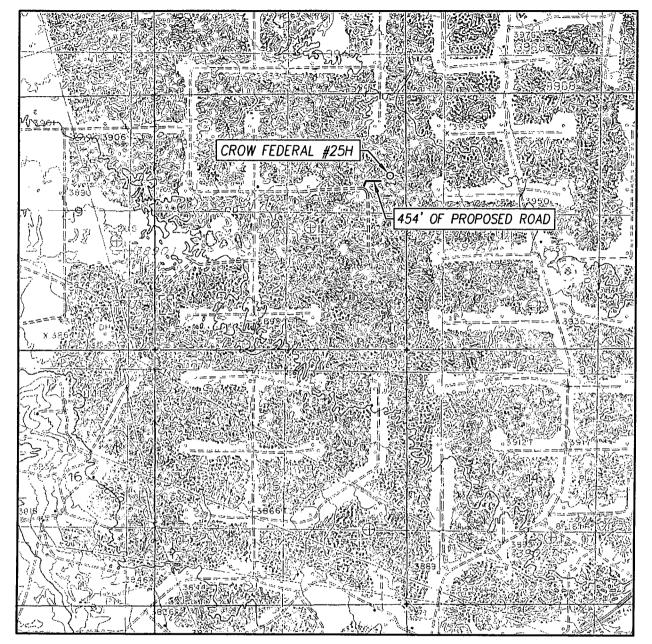
SCALE: 1" = 2 MILES

SEC. 10 TV	WP. <u>17-S</u> RGE. <u>31-E</u>
SURVEY	N.M.P.M.
COUNTY_ED	DY STATE NEW MEXICO
DESCRIPTION	1680' FNL & 330' FEL
ELEVATION	3940'
OPERATOR	APACHE CORPORATION
LEASE	CROW FEDERAL





LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

SEC. <u>10</u> TWP. <u>17-S</u> RGE. <u>31-E</u>

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 1680' FNL & 330' FEL

ELEVATION_____3940'

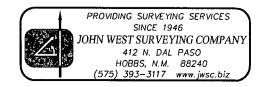
OPERATOR APACHE CORPORATION

LEASE ____ CROW FEDERAL

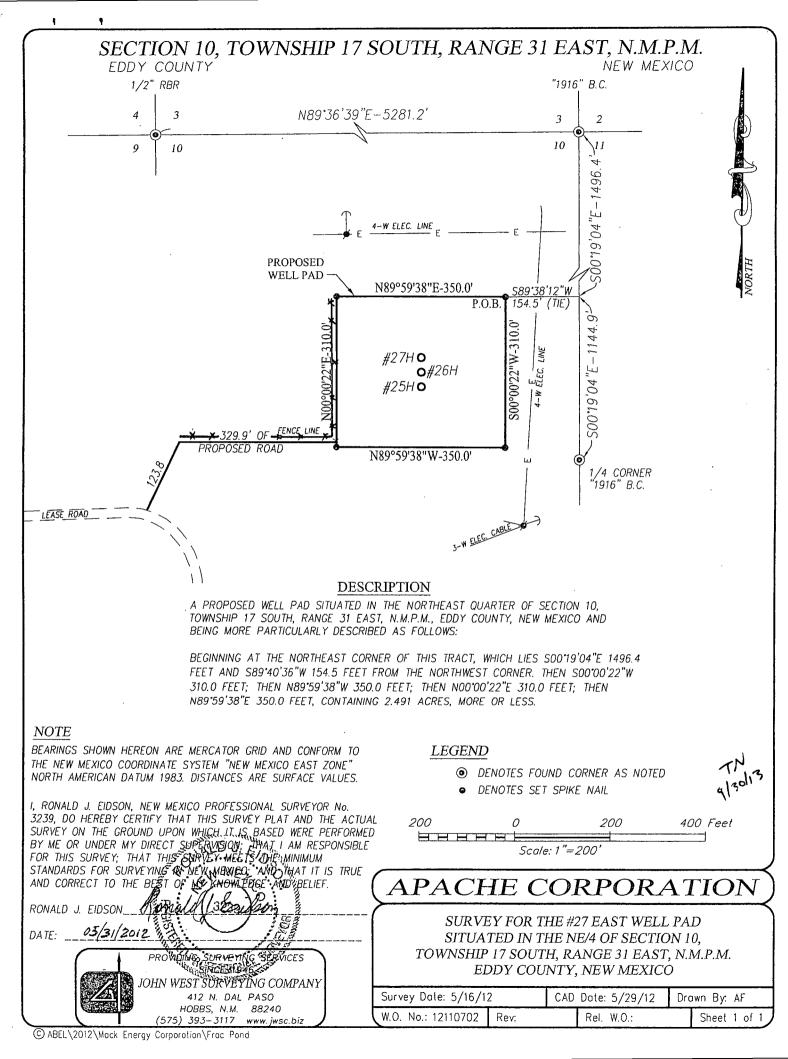
U.S.G.S. TOPOGRAPHIC MAP

MALJAMAR, N.M.

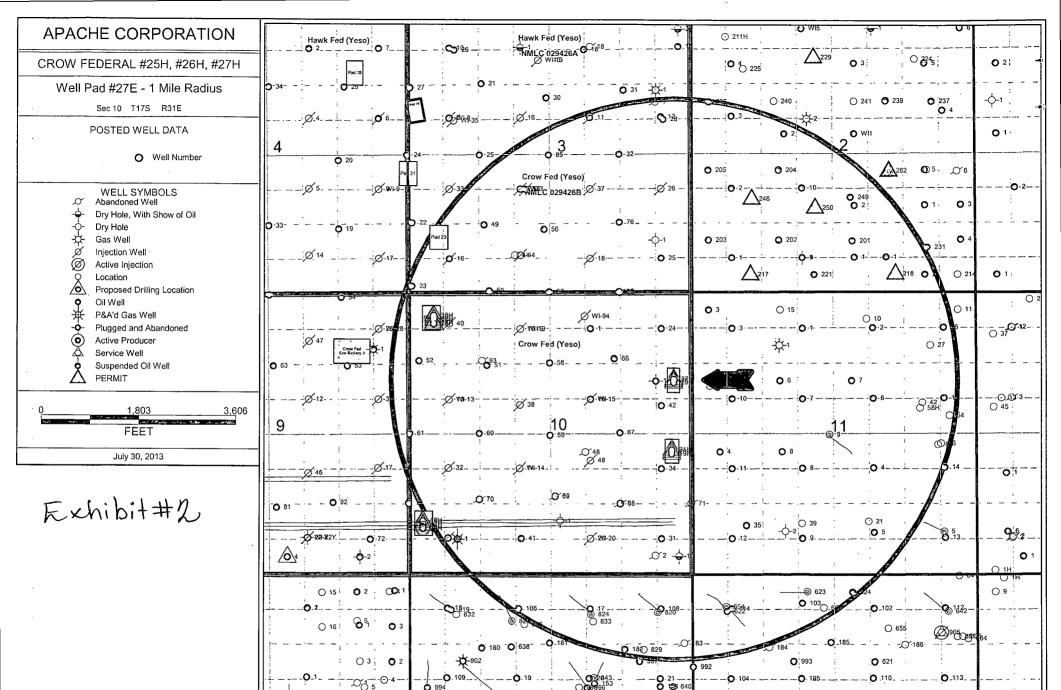
CONTOUR INTERVAL: MALJAMAR, N.M. - 10'







i



0-968

O 950 151

O 637

639

O:191

9 960

O 682

3 961

6 971

O 620

O 679

_**O**_22_ ⊙ 672

O 685

Q-91149. O 669

PETRA 7/30/2013 11:01:50 AM

O 11: O 6

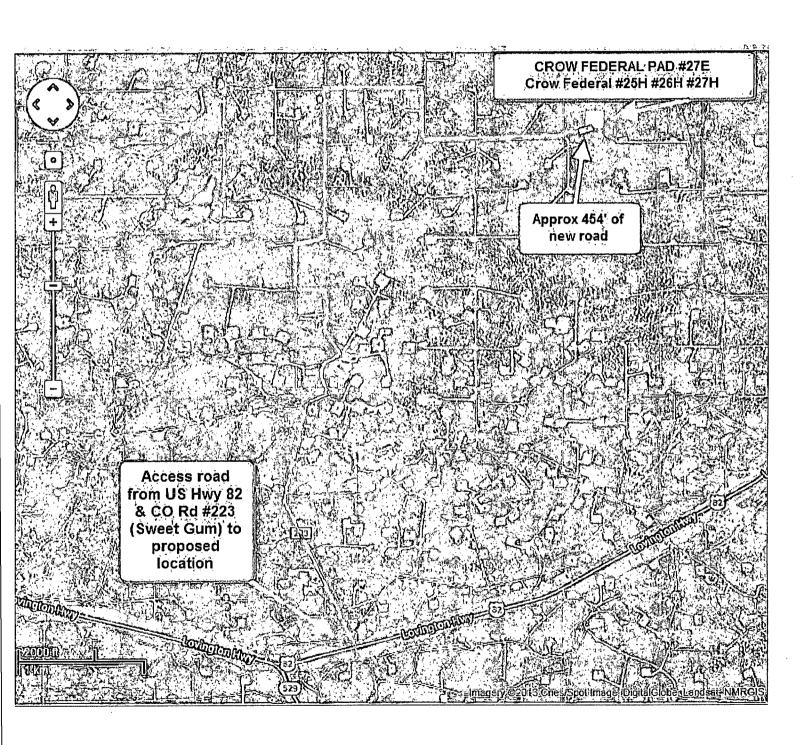
· O 10

O 14 O 12

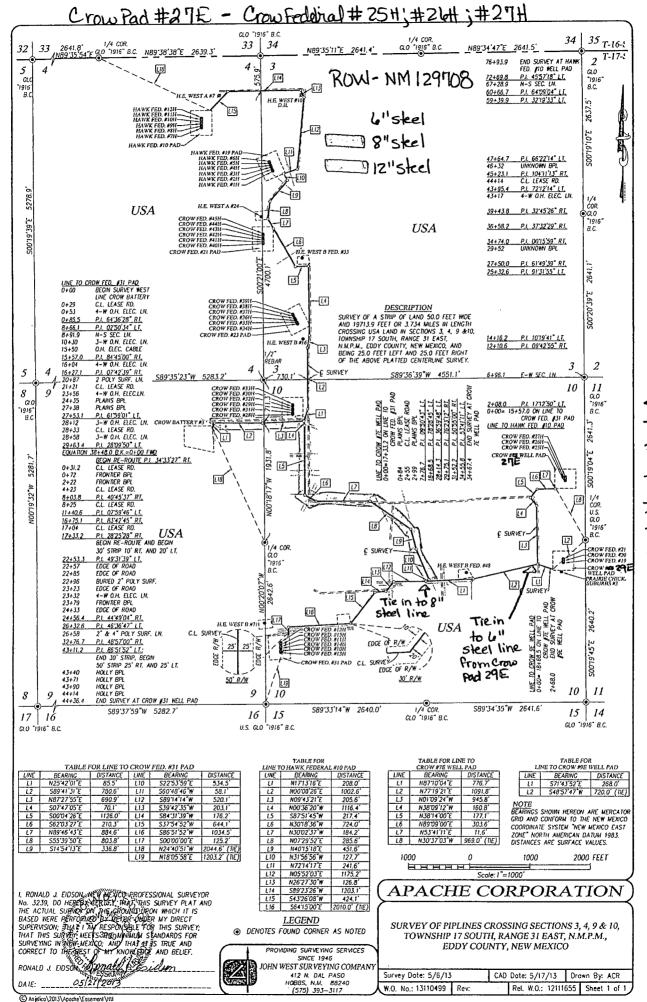
O 4

6 994

ACCESS ROAD PLAT CROW FEDERAL #25H, #26H, #27H EXHIBIT #1







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

APACHE CORPORATION (OGRID: 873) CROW FEDERAL #25H

Lease #: NMLC-029426B Projected TVD: ~5300' MD: ~9817' GL: 3940'

SHL: 1680' FNL & 330' FEL UL: H SEC: 10

BHL: 1680' FNL & 330' FWL UL: E SEC: 10

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	2813′
Rustler	605'	Grayburg	3228′
Salt Top	795′ ⁻	San Andres	3563' (Oil)
Salt Bottom	1756′	Glorieta	5027′
Yates	1918'	Yeso (Paddock)	5109' (Oil)
Seven Rivers	2200'	TD	TVD: 5300' MD: 981

Avg Depth to Ground Water: ~91′

All fresh water & prospectively valuable minerals, as described by BLM, encountered during drilling, will be recorded by depth and adequately protected. All oil & gas shows within zones of correlative rights will be tested to determine commercial potential. The surface fresh water sands will be protected by setting 13-3/8" csg @ 630" & circ cmt back to surface. All intervals will be isolated by setting 5-1/2" csg to TD & circ cmt above the base of 8-5/8" csg.

See COA

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

STRING	HOLE SIZE	DEPTH	OD CSG	WEIGHT	COLLAR	GRADE	COLLAPSE	BURST	TENSION
Surface	17-1/2"	0'-530'108	13-3/8"	48#	STC	H-40	1.125	1.0	1.8
Intermediate *	11"	0′ - 3500′	8-5/8"	32#	STC	J-55	1.125	1.0	1.8
Production	7-7/8"	0′ - 9817′	5-1/2"	17#	LTC	L-80	1.125	1.0	1.8

4. CEMENT PROGRAM:

<u>Surface (TOC – Surface) **100% excess cmt to surf** Cmt with:</u>

Lead: 670 sx Cl C w/1% CACL2 (14.8 wt, 1.33 yld)

Compressive Strengths: 12 hr - 1565 psi 24 hr - 2442 psi

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

Lead: 530 sx 35/65 Poz C w/6% Gel + 5% Salt (12.4 wt, 2.10 yld)

Compressive Strengths: 12 hr - 589 psi

24 hr - 947 psi

Tail: 310 sx Class C (14.8 wt, 1.34 yld)

Compressive Strengths: 12 hr – 813 psi 24 hr – 1205 psi

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

See Coa

Production (TOC: ~2500' from Surface) **35% excess cmt** Cmt with:

Lead: 120 sx 35-65 Poz C w/6% Gel + 5% Salt (12.4 wt, 2.10 yld)

Compressive Strengths: 12 hr - 589 psi 24 hr - 947 psi

Tail: 1020 sx PVL w/1.3% Salt + 0.6 Retarder (13.0 wt, 1.47 yld) Compressive Strengths: 12 hr – 800 psi 24 psi – 1000 psi

^{**} The above cmt volumes could be revised pending caliper measurement from open hole logs. For Surface csq: 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



"EXHIBIT 3" shows a 13-5/8" 3M psi WP BOP consisting of an annular bag type preventer. This BOP will be nippled up on the 13-3/8" surface csg head & tested to 2000psi using a test plug. After the 8-5/8" intermediate csg is set & cmt'd, an 11" 3M BOP consisting of an annular bag type preventer, middle pipe rams & bottom blind rams will be installed & utilized continuously until TD is reached "EXHIBIT 3A". The BOP will be tested at 2000 psi, maximum surface pressure is not expected to exceed 2M psi. BHP is calculated to be approximately 2332psi. *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 & 3A" also show 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 well control problems.

6. AUXILIARY WELL CONTROL EQUIPMENT / MONITORING EQUIPMENT:

4-1/2" x 3000 psi Kelly valve

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)



INTERVAL	MW (ppg)	VISC (sec/qt)	FLUID LOSS (cc)	MUD TYPE
0'-630' 700	8.3 – 8.8	28 – 36	NC	FW
€30' - 3500'	9.8 - 10.0	28 – 29	NC	Brine
3500′ – 9817′	9.0 – 10.0	28 – 29	NC	Brine/Cut Brine

^{**} Visual mud monitoring equipment shall be in place to detect volume changes. A mud test shall be performed every 24 hrs after mudding up to determine, as applicable: density, visc, gel strength, filtration, and pH. The necessary mud products for weight addition & 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.** No cores, DST's, mud logger or Open Hole logs are planned at this time.
- **B.** Additional testing will be initiated subsequent to setting the 5-1/2" production casing. Specific intervals will be targeted based on geological sample shows

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 H₂S in this area. If H₂S is encountered the operator will comply with the provisions of *Onshore Oil & Gas Order No. 6*. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP: 2332 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 $\frac{\sim 20 \text{ days}}{\sim 20 \text{ days}}$. If production casing is run then an additional $\frac{90 \text{ days}}{\sim 20 \text{ days}}$ 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 Fren; Glorieta-Yeso formation will be perforated and stimulated in order to establish production. The well will be tested & potentialed as an oil well.



Apache Corporation

Eddy County, NM (NAD27 NME) Crow Federal #25H

WB1/Job #1311118

Plan: Plan #2 09-17-13

Standard Planning Report

17 September, 2013





Design:

Plan #2 09-17-13

Phoenix Technology Services

Planning Report



GCR DB Local Co-ordinate Reference: Well #25H Database Company: Apache Corporation TVD Reference: KB @ 3951.00usft (Capstar 114) Eddy County, NM (NAD27 NME) Project: MD Reference: KB @ 3951.00usft (Capstar 114) Site: Crow Federal North Reference: Grid Well: #25H Survey Calculation Method: Minimum Curvature, Wellbore: WB1/Job #1311118

Project Eddy County, NM (NAD27 NME)

Map System: US State Plane 1927 (Exact solution) System Datum: Mean Sea Level

Geo Datum: NAD 1927 (NADCON CONUS)

Map Zone: New Mexico East 3001

Site Crow Federal Northing: 671,130.90 usft Site Position: 32° 50' 38.92796 N Latitude: From: Мар Easting: 643,906.80 usft Longitude: 103° 51' 53.16689 W 13-3/16 " Position Uncertainty: 0.00 usft Slot Radius: Grid Convergence: 0.25

#25H Well Well Position +N/-S 2,753.60 usft Northing: 673,884.50 usft 32° 51' 5.96596 N +E/-W 4,684.90 usft Easting: 648,591.70 usft Longitude: 103° 50' 58.10569 W Position Uncertainty 0.00 usft Wellhead Elevation: 3,940.00 usft Ground Level:

 Wellbore
 WB1/Job #1311118

 Magnetics
 Model Name
 Sample Date
 Declination
 Dip Angle
 Field Strength

 (°)
 (°)
 (°)
 (°)

 IGRF2010_14
 09/17/13
 7.48
 60.66
 48,733

Plan #2 09-17-13 Design **Audit Notes:** Version: Phase: PLAN Tie On Depth: 0.00 Vertical Section: Depth From (TVD) +N/-S +E/-W Direction . (üsft) (usft) (usft) ः(°) 0.00 0.00 0.00 269.61

Plan Sections								-7		
Measured			Vertical			Dogleg	Build	Turn		
Depth (usft)	Inclination: (°)	Azimuth (°)	Depth (usft)	+N/-S (usft)	+E/-W (usft)	Rate (°/100usft)	Rate (°/100usft)	Rate (°/100usft)	TFO (°)	Target
						·		<u> </u>		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,922.75	0.00	0.00	4,922.75	0.00	0.00	0.00	0.00	0.00	0.00	
5,685.89	91.58	269.61	5,400.00	-3.34	-490.61	12.00	12.00	0.00	269.61	
7,495.96	91.58	269.61	5,350.00	-15.66	-2,299.95	0.00	0.00	0.00	0.00	MP-Crow Fed #25H
7,513.45	91.23	269.61	5,349.57	-15.77	-2,317.43	2.00	-2.00	0.01	179.79	
9,817.00	91.23	269.61	5,300.00	-31.40	-4,620.40	0.00	0.00	0.00	0.00	PBHL-Crow Fed #25h



Phoenix Technology Services

Planning Report



Database: Company: GCR DB

Apache Corporation

Project: Site: Well:

Eddy County, NM (NAD27 NME)

#25H

Wellbore: Design:

Crow Federal

WB1/Job #1311118 Plan #2 09-17-13

Local Co-ordinate Reference:

TVD Reference: MD Reference:

North Reference:

Survey Calculation Method:

Well #25H

KB @ 3951.00usft (Capstar 114)

KB @ 3951.00usft (Capstar 114)

Grid

Minimum Curvature

anned Survey		and the second seco	ست بيدود داريس بسر ه دو دو	and the second			Sign Sign and Sign Sign Sign Sign Sign Sign Sign Sign		and the second s
Measured		2. Sec. 2	Vertical			Vertical	Dogleg	Build	Turn
Depth (usft)	Inclination (°)	Azimuth	Depth (usft)	+N/-S (usft)	+E/-W (usft)	Section (usft)	Rate (°/100usft)	Rate (°/100usft)	Rate (°/100usft)
0.00	0,00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
605.00	0.00	0.00	605.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler						* ,			
795.00	0.00	0.00	795.00	0.00	0.00	0.00	0.00	0.00	0.00
T/Salt	and the second of the second o			Annual of the second of the se	a maranta amanga i		or and promote the second of t	annes agriere, are person i	The same state of the same sta
1,756.00	0.00	0.00	1,756.00	0.00	0.00	0.00	0.00	0.00	0.00
1,918.00	0.00	0.00	1,918.00	0.00	0.00	0.00	0.00	0.00	0.00
Yates		The second second	ر و محمد بسند . وها دها از داد داد داد داد داد داد						
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
Seven River	<u>s</u>		argumente de la company de la				ر د حسبت در د اگران این خواه		
2,813.00	0.00	0.00	2,813.00	0.00	0.00	0.00	0.00	0.00	0.00
Queen 3,228.00	0.00	0.00	3,228.00	0.00	0.00	0.00	0.00	0.00	أخديس للمشد
Grayburg	0.00		3,220.00	1, 1, 7 pr = 7.00		0.00	0.00	0.00	0.00
3,563.00	0.00	0.00	3,563.00	0.00	0.00	0.00	0.00	0.00	0.00
San Andres									
4,922.75 KOP Start B	0.00	0.00	4,922.75	0.00	0.00	0.00	0.00	0.00	0.00
T , the plant and the plant		11. U.S.			الأنف فسير مشع الراءا	4	· i. i. i. i.		adrodo Nast
5,000.00 5,027.52	9.27 12.57	269.61 269.61	4,999.66 5,026.68	-0.04 -0.08	-6.24 -11.45	6.24 11.45	12.00 12.00	12.00	0.00
Glorieta	72.57	209.01 Cartinate (1)	3,020.00	1. 4. Salata (1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	वीक्ष रीक्षण प्रकार । सम्बद्ध	ाः र अन्यसम्बद्धः इति	ा गुरुक्षण सम्यास्य उत्त	12.00	0.00
5,100.00	21.27	269.61	5,095.96	-0.22	-32.53	32.53	12.00	12.00	0.00
5,112.96	22.83	269.61	5,107.97	-0.25	-37.39	37.39	12.00	12.00	0.00
(Yeso) Padde		200.01	5,107.57	-0.20	Tr 49	07.55	12.00 12.00	12.00	0.00
5,200.00	33.27	269.61	5,184.68	-0.53	-78.26	78.26	12.00	12.00	0.00
5,300.00	45.27	269.61	5,261.95	-0.96	-141.45	141.45	12.00	12.00	0.00
5,400.00	57.27	269.61	5,324.40	-1.49	-219.32	219.32	12.00	12.00	0.00
5,500.00	69.27	269.61	5,369.29	-2.10	-308.47	308.48	12.00	12.00	0.00
5,600.00	81.28	269.61	5,394.66	-2.76	-405.01	405.01	12.00	12.00	0.00
5,685.88	91.58	269.61	5,400.00	-3.34	-490.60	490.61	12.00	12.00	0.00
	0.08 hold at 5685		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	teri i a mari		فالأسابأ المكأر الما	Tr da Alex	
5,700.00	91.58	269.61	5,399.61	-3.44	-504.72	504.73	0.00	0.00	0.00
5,800.00	91.58	269.61	5,396.85	-4.12	-604.68	604.69	0.00	0.00	0.00
5,900.00	91.58	269.61	5,394.08	-4.80	-704.63	704.65	0.00	0.00	0.00
6,000.00	91.58	269.61	5,391.32	-5.48	-804.59	804.61	0.00	0.00	0.00
6,100.00	91.58	269.61	5,388.56	-6.16	-904.55	904.57	0.00	0.00	0.00
6,200.00	91.58	269.61	5,385.80	-6.84	-1,004.51	1,004.54	0.00	0.00	0.00
6,300.00	91.58	269.61	5,383.04	-7.52	-1,104.47	1,104.50	0.00	0.00	0.00
6,400.00	91.58	269.61	5,380.27	-8.20	-1,204.43	1,204.46	0.00	0.00	0.00
6,500.00	91.58	269.61	5,377.51	-8.88	-1,304.39	1,304.42	0.00	0.00	0.00
6,600.00	91.58	269.61	5,374.75	-9.56	-1,404.35	1,404.38	0.00	0.00	0.00
6,700.00	91.58	269.61	5,371.99	-10.24	-1,504.31 1,604.37	1,504.35	0.00	0.00	0.00
6,800.00	91.58	269.61	5,369.22	-10.92	-1,604.27	1,604.31	0.00	0.00	0.00
6,900.00	91.58	269.61	5,366.46	-11.60	-1,704.23	1,704.27	0.00	0.00	0.00
7,000.00 7,100.00	91.58 91.58	269.61 269.61	5,363.70 5,360.94	-12.28 -12.96	-1,804.19 -1,904.15	1,804.23 1,904.19	0.00 0.00	0.00 0.00	0.00 0.00
7,200.00	91.58 91.58	269.61 269.61	5,358.18 5,355.41	-13.64 14.33	-2,004.11 2,104.07	2,004.15	0.00	0.00	0.00
7,300.00	91.58	269.61	5,355.41	-14.32	-2,104.07	2,104.12	0.00	0.00	0.00
7,400.00 7,495.96	91.58 91.58	269.61 269.61	5,352.65 5,350.00	-15.00 -15.66	-2,204.03 -2,299.95	2,204.08 2,300.00	0.00	0.00	0.00
A A CANADA TO THE PARTY TO THE	0 TFO 179.79 - N		manuscript of the second of the second	-10,00	-2,235,50	2,300.00	0.00	0.00	0.00
7,500.00	91.50	269.61	5,349.89	-15.68	-2,303.99	2,304.04	2.00	-2.00	0.01



Phoenix Technology Services

Planning Report



GCR:DB

Company: Apache Corporation

Project: Eddy County, NM (NAD27 NME)

Crow Federal Site: Site: Well: #25H

WB1/Job.#1311118 Wellborê: ⋅⋅⋅ Design: Plan #2 09-17-13 Local Co-ordinate Reference:

TVD Reference:

North Reference: Survey Calculation Method:

Well #25H

KB @ 3951.00usft (Capstar 114) KB @ 3951.00usft (Capstar 114)

Grid:

Minimum Curvature

ned S	iurvey			Charles of the Control of the Contro		3-8				
N	leasured			Vertical			, Vertical	Dogleg	Build	Turn
	Depth	Inclination	Azimuth	Depth-	+N/-S	+E/-W	Section	Rate	Rate	Rate
,)-, 'd'	(usft)	(°)	(°)	ં (usft) 🦓 .	(üsft)	(usft)	(usft);	(°/100usft) -	(°/100ušft)	(º/100usft)
	7,513.44	91.23	269.61	5,349.57	-15.77	-2,317.43	2,317.48	2.00	-2.00	0.01
	Start 2303.5	6 hold at 7513.44	MD	عاشب حسست				- 77		<u> </u>
	7,600.00	91.23	269.61	5,347.71	-16.36	-2,403.96	2,404,02	0.00	0.00	0.00
	7,700.00	91.23	269.61	5,345.56	-17.04	-2,503.94	2,503.99	0.00	0.00	0.00
	7,800.00	91.23	269.61	5,343.40	-17.72	-2,603.91	2,603.97	0.00	0.00	0.00
	7,900.00	91.23	269.61	5,341.25	-18.40	-2,703.88	2,703.95	0.00	0.00	0.00
	8,000.00	91.23	269.61	5,339.10	-19.07	-2,803.86	2,803.92	0.00	0.00	0.00
	8,100.00	91.23	269.61	5,336.95	-19.75	-2,903.83	2,903.90	0.00	0.00	0.00
	8,200.00	91.23	269.61	5,334.80	-20.43	-3,003.81	3,003.88	0.00	0.00	0.00
	8,300.00	91.23	269.61	5,332.64	-21.11	-3,103.78	3,103.85	0.00	0.00	0.00
	8,400.00	91.23	269.61	5,330.49	-21.79	-3,203.76	3,203.83	0.00	0.00	0.00
	8,500.00	91.23	269,61	5,328.34	-22.47	-3,303.73	3,303.81	0.00	0.00	0.00
	8,600.00	91.23	269.61	5,326.19	-23.14	-3,403.71	3,403.79	0.00	0.00	0.00
	8,700.00	91.23	269.61	5,324.04	-23.82	-3,503.68	3,503.76	0.00	0.00	0.00
	8,800.00	91.23	269.61	5,321.89	-24.50	-3,603.66	3,603.74	0.00	0.00	0.00
	8,900.00	91.23	269.61	5,319.73	-25.18	-3,703.63	3,703.72	0.00	0.00	0.00
	9,000.00	91.23	269.61	5,317.58	-25.86	-3,803.60	3,803.69	0.00	0.00	0.00
	9,100.00	91.23	269.61	5,315.43	-26.54	-3,903.58	3,903.67	0.00	0.00	0.00
	9,200.00	91.23	269.61	5,313.28	-27.21	-4,003.55	4,003.65	0.00	0.00	0.00
	9,300.00	91.23	269.61	5,311.13	-27.89	-4,103.53	4,103.62	0.00	0.00	0.00
	9,400.00	91.23	269.61	5,308.97	-28.57	-4,203.50	4,203.60	0.00	0.00	0.00
	9,500.00	91.23	269.61	5,306.82	-29.25	-4,303.48	4,303.58	0.00	0.00	0.00
	9,600.00	91.23	269.61	5,304.67	-29.93	-4,403.45	4,403.55	0.00	0.00	0.00
	9,700.00	91.23	269.61	5,302.52	-30.61	-4,503.43	4,503.53	0.00	0.00	0.00
	9,800.00	91.23	269.61	5,300.37	-31.28	-4,603.40	4,603.51	0.00	0.00	0.00
	9,817.00	91.23	269.61	5,300.00	-31.40	-4,620.40	4,620.51	0.00	0.00	0.00
Ţ	D at 9817.0	0 - PBHL-Crow F	ed #25H	والمالية والمتالة والمالة والم			is Leader		ار را میشود. با تا دادیان که معداد انتشار	

Design Targets Target Name hit/miss target Shape		p Dir	*TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL-Crow Fed #25H - plan hits target center - Point	0.00	0.00	5,300.00	-31.40	-4,620.40	673,853.10	643,971.30	32° 51′ 5.86145 N	103° 51' 52.26924 W
MP-Crow Fed #25H - plan hits target center - Point	0.00	0.00	5,350.00	-15.66	-2,299.95	673,868.84	646,291.76	32° 51′ 5.91450 N	103° 51' 25.06727 W



Phoenix Technology Services

Planning Report



Database: GCR DB Local Co-ordinate Reference: KB @ 3951.00usft (Capstar 114) Apache Corporation Company: TVD Reference: Project: Eddy County, NM (NAD27 NME) KB @ 3951.00usft (Capstar 114) MD Reference: Crow Federal Site: North Reference: Grid Minimum Curvature Well: Survey Calculation Method: WB1/Job #1311118 Wellbore: Plan #2 09-17-13 Design:

Formations			and the second s		and the party of t		
**	Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (f).	Dip Direction (°)	•,
	605.00	605.00	Rustler		-1.58	269.61	
	795.00	795.00	T/Salt		-1.58	269,61	
	1,756.00	1,756.00	B/Salt		-1.58	269.61	
	1,918.00	1,918.00	Yates		-1.58	269.61	
	2,200.00	2,200.00	Seven Rivers		-1.58	269.61	
	2,813.00	2,813.00	Queen		-1.58	269.61	•
	3,228.00	3,228.00	Grayburg		-1.58	269.61	
	3,563.00	3,563.00	San Andres		-1.58	269.61	
	5,027.52	5,026.68	Glorieta		-1.58	269.61	
	5,112.96	5,107.97	(Yeso) Paddock		-1.58	269.61	

Plan Annotations Measured	Vertical	Local Coor	dinates	
Depth (usft)	Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment.
4,922.75	4,922.75	0.00	0.00	KOP Start Build 12.00
5,685.88	5,400.00	-3.34	-490.60	LP Start 1810.08 hold at 5685.88 MD
7,495.96	5,350.00	-15.66	-2,299.95	Start DLS 2.00 TFO 179.79
7,513.44	5,349.57	-15.77	-2,317.43	Start 2303.56 hold at 7513.44 MD
9,817.00	5,300.00	-31.40	-4,620.40	TD at 9817.00



Project: Eddy County, NM (NAD27 NME)

Site: Crow Federal Well: #25H

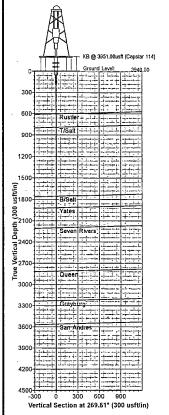
Wellbore: WB1/Job #1311118 Design: Plan #2 09-17-13 Rig: Capstar 114





Azimuths to Grid North True North: -0.269 Magnetic North: 7.22°

Magnetic Field Strength: 48733.4snT Dip Angle: 60.66° Date: 09/17/2013 Model: IGRF2010 14



WELL DETAILS +EI-W Northing Easting 648591.70 Latittude 32" 51" 5.96596 N 103" 50" 58.10569 W SECTION DETAILS MD Inc Azi TVD 0,00 0,00 0,00 0,00 4922,75 0,00 0,00 4922,75 5685,89 91,58 269,61 5400,00 KOP Start Build 12.00 LP Start 1810,08 hold at 5685,88 MD 7495.96 91.58 269.61 5350.00 7513.45 91.23 269.61 5349.57 Start DLS 2.00 TFO 179.79 Start 2303.56 hold at 7513.44 MD 0.00 4620.51 PBHL-Crow Fed #25H DESIGN TARGET DETAILS +N/-S +E/-W Northing Easting Latitude Longitude Shap -31.40 -4620.40 673853.10 643971.30 32*51*586145 N 103*51*52,26924 W Point TVD PBHI -Crow Fed #25H 5300,00 plan hits target center MP-Crow Fed #25H -15.66 -2299.95 673868.84 646291.75 32*51*5.91450 N 103*51*25.06727 W Point 5350.00 - plan hits target center

PROJECT DETAILS: Eddy County, NM (NAD27 NME) Geodetic System: US State Plane 1927 (Exact solution) Datum: NAD 1927 (NADCON CONUS) Zone: New Mexico East 3001 System Datum: Mean Sea Level

SITE DETAILS: Crow Federal

Site Centre Northing: 671130,90 Easting: 643906,80

Positional Uncertainity: 0,00 Convergence: 0.25 Local North: Grid

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir	
605,00	605,00	Rustler	-1.58	269,61	
795,00	795.00	T/Salt	-1.58	269,61	
1756,00	1756,00	B/Salt	-1.58	269,61	
1918.00	1918.00	Yales	-1,58	269,61	
2200,00	2200,00	Seven Rivers	-1.58	269,61	
2813,00	2813,00	Queen	-1.58	269.61	
3228,00	3228,00	Grayburg	-1.58	269.61	
3563.00	3563.00	San Andres	-1.58	269.61	
5026,68	5027,52	Glorieta	-1,58	269,61	
5107.97	5112,96	(Yeso) Paddock	-1,58	269,61	

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

Local Origin: Well #25H, Grid North

Latitude: 32* 51' 5,96596 N Longitude: 103* 50' 58,10569 W

Grid North: 673884 50 Scale Factor: 1.000

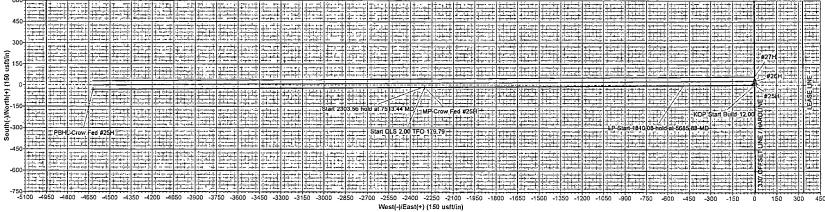
Geomagnetic Model: IGRF2010_14 Sample Date: 17-Sep-13 Magnetic Declination: 7.48° Dip Angle from Horizontal: 60.66° Magnetic Field Strength: 48733

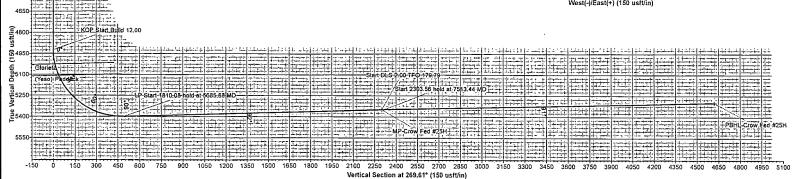
To convert a Magnetic Direction to a Grid Direction, Add 7.22*
To convert a Magnetic Direction to a True Direction, Add 7.48* East
To convert a True Direction to a Grid Direction, Subtract 0,26*

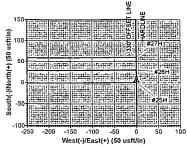
LEGEND ~

#27H, WB1/Job #1311120, Plan #2 09-17-13 V0 #26H, WB1/Job #1311119, Plan #1 08-27-13 V0

Plan #2 09-17-13



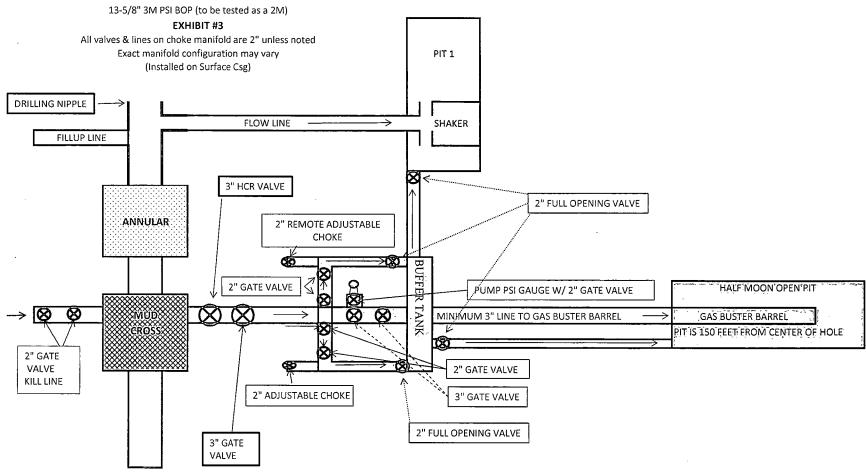




Created By: Julio Piña Date: 13:55, September 17 2013

APACHE BOP AND CHOKE MANIFOLD SCHEMATIC

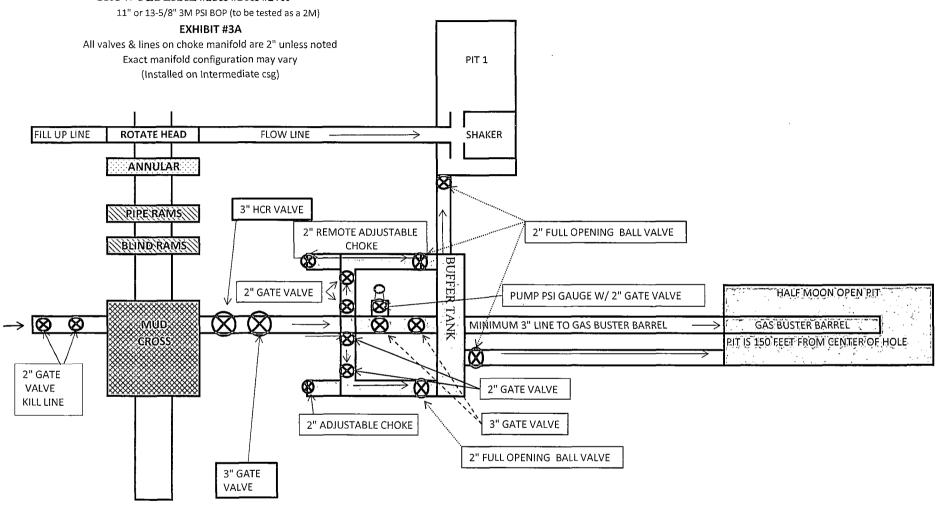
CROW FEDERAL #25H #26H #27H



^{***} If H2S is encountered in quantities greater than 100ppm, Apache will shut in well & install a remote operated choke ***

APACHE BOP AND CHOKE MANIFOLD SCHEMATIC

CROW FEDERAL #25H #26H #27H



^{***} If H2S is encountered in quantities greater than 100ppm, Apache will shut in well & install a remote operated choke ***

Apache

Closed Loop Equipment Diagram
Exhibit 4

Crow Federal #25H #26H #27H



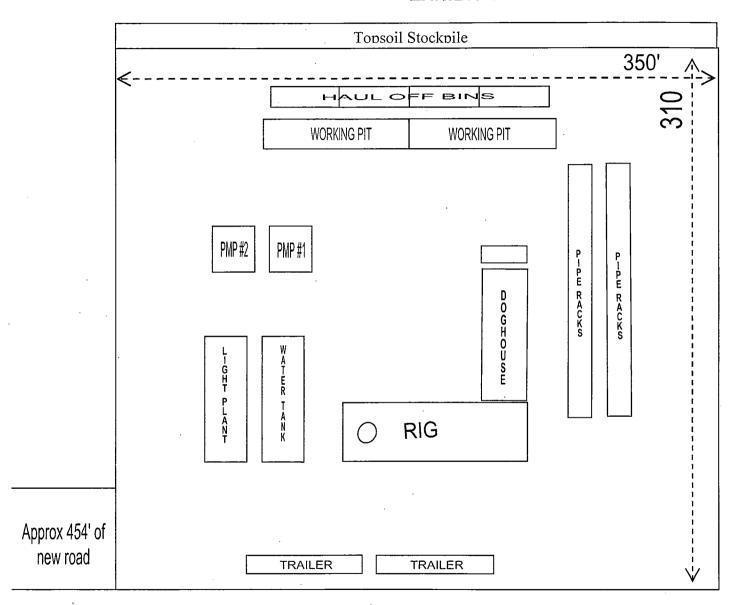
Steel half pit Fluid StorageTanks Roll off cutting 4" Panic line 150' f/wellhead containers on tracks (Buried under Closed Loop Equip) Roll off cutting Solids Separator - container on tracks 2" Choke line 150' f/wellhead (Buried under Closed Loop Equip) Steel pits Shakers 2" choke line to pit Choke Manifold Pipe Racks Water Tank Light Plant

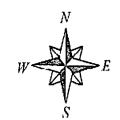
Approx 454' of new road

JRAILER

TRAILER

RIG ORIENTATION & LAYOUT CROW FEDERAL #25H #26H #27H EXHIBIT 5

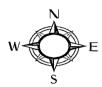




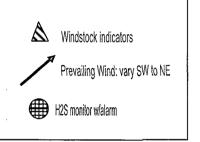
人ののの ののの **人**

Apache

Drilling Location
H2S Safety Equipment Diagram
Exhibit 6

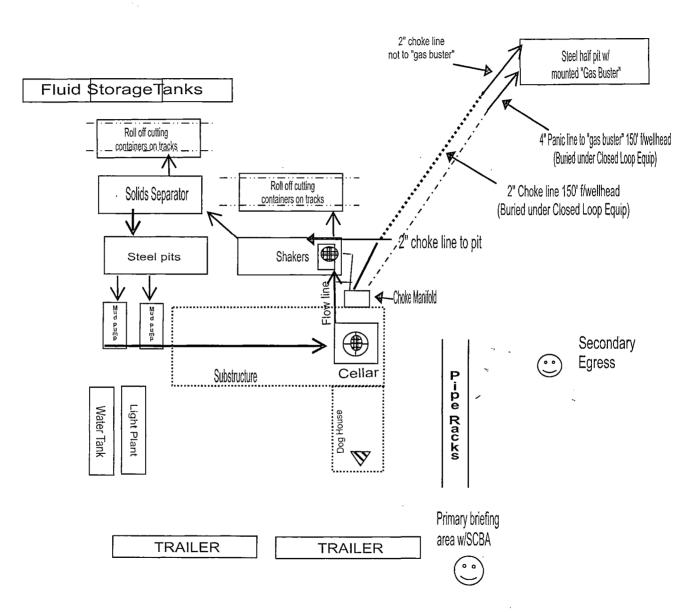


Crow Federal #25H #26H #27H



H2S Warning Sign ~ 200' but no more than 500' from well location

Approx 454' of new road



HYDROGEN SULFIDE (H2S) DRILLING OPERATIONS PLAN

Hydrogen Sulfide Training:

<u>All regularly assigned personnel, contracted or employed by Apache Corporation</u> 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 (H₂S)
- The proper use and maintenance of personal protective equipment and life support systems.
- The proper use of H₂S 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 H₂S 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 H₂S 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.

H₂S SAFETY EQUIPMENT AND SYSTEMS:

Well Control Equipment that will be available & installed if H₂S 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 H₂S monitors positioned on location for best coverage & response. These units have warning lights & audible sirens when H₂S levels of 20 ppm are reached.
- One portable H₂S 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 H₂S circulated to the surface. Proper mud weights, safe drilling practices & the use of H₂S scavengers will minimize hazards when penetrating H₂S bearing zones.
- A mud-gas separator and H₂S 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 H₂S service.
- All elastomers used for packing & seals shall be H₂S trim.

Communication:

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

HYDROGEN SULFIDE (H2S) CONTINGENCY PLAN

Assumed 100 ppm ROE = 3000'

100 ppm H₂S concentration shall trigger activation of this plan.

Emergency Procedures

In the event of a release of gas containing H₂S, 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 H₂S 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 :
 - o Detection of H₂S, and
 - o Measures for protection against the gas,
 - o 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 (SO₂). 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 H₂S and SO₂

	1.00.00 0. 1.2	<u> </u>			
Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H ₂ S	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 #8

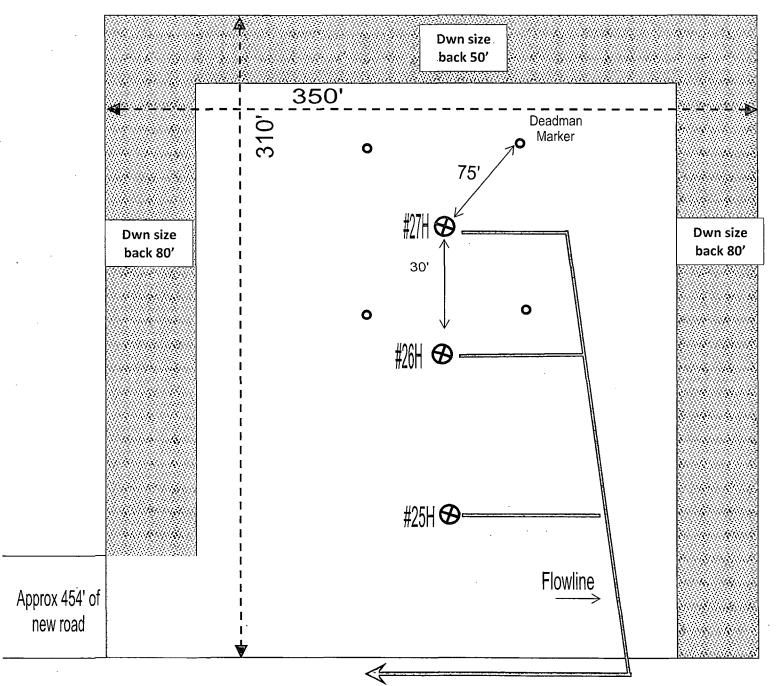
WARNING

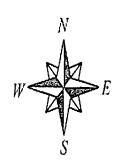
YOU ARE ENTERING AN H2S AREA AUTHORIZED PERSONNEL ONLY

- 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 #25H #26H #27H EXHIBIT #7







SURFACE USE PLAN OF OPERATIONS

EXISTING ROADS

A. Proposed Well Site Location:

a. The well site & elevation plat for the proposed well are reflected on the well site layout (form C-102). Well staked by John West Surveying Company.

B. Existing Roads

a. From the intersection of US Hwy #82, Lovington Hwy & CoRd #223, Sweet Gum, Go NW on Sweet Gum Rd approx 0.8 miles, veer Right, go NNW approx 0.5 miles, turn Right @ road tee, go ENE approx 0.1 miles, turn Left, go North approx 0.1 mile, road curves NE, continue along curve NE approx 0.1 mile to a four way intersection, turn Left, go NW approx 0.2 miles, continue on road, veer Right, go North approx 0.15 miles, turn Left, go West approx 0.15 miles, turn Right, go North approx 0.25 miles, turn Right, go East approx 0.15 miles to three way intersection, turn Left, go North approx 0.75 miles to three way intersection, turn Right, go East approx 0.5 miles, turn Right, go South approx 0.25 miles, turn Left, go East approx 0.7 miles to proposed road survey, follow road survey East approx 454' to this location.

C. Route Location

a. Approx 454' of new road is expected to be constructed. The existing lease road will be used to the extent possible. If a lease/access road needs to be constructed, all lease roads will be graded in compliance with BLM standards. See E (a).

D. Existing Road Maintenance or Improvement Plan

- a. *EXHIBIT 1* is a portion of a topo map showing the well & roads in the vicinity of the proposed location. The proposed well site & access route to the location are indicated in BLUE on *EXHIBIT 1*. Right of way using this proposed route will be requested if necessary.
- b. Routing grading & maintenance of existing roads will be conducted as necessary to maintain their condition as long as any operations continue on this lease. Roads will be maintained according to specifications in "EXISTING ROADS Section E (a)" of this Surface Use Plan.

E. Width, Max Grade, Turnout Ditches, Culverts, Cattle Guards, & Surface Equipment

a. All lease roads will be graded in compliance with BLM standards. All new & reconstructed roads will have a width & "crown design" (i.e. The max width of the driving surface will be 14'. The road will be crowned & ditched with a 2% slope from the tip of the crown to the edge of the driving surface. The ditches will be 1' deep with 3:1 slopes. The driving surface will be made of 6" rolled & compacted caliche.) If required, culverts and cattle guards will be set per BLM Specs.

LOCATION OF EXISTING WELLS

A. "EXHIBIT 2" indicates existing wells within a one mile radius of the proposed location.

LOCATION OF EXISTING AND/OR PROPOSED FACILITIES

- A. Existing production facilities are located at the Crow Federal Battery #3.
- B. New Facilities in the Event of Production

In the event well is productive, APACHE will install approx 1589.9' of 6" buried, leaving pad, steel flow line (1 for liquid, 1 for gas; the 6" flowline will tie-in to existing 6" flowline from Crow Pad #29E), internal poly liner, externally wrapped with synergy, to the proposed Crow Federal Battery following existing lease roads. Pipeline has been approved under ROW #NM-129708. (No pumping units will be used, fluid will be lifted with Electronic Submersible Pump.) If electricity is needed, power will be obtained from Central Valley Electric. Path & length will vary pending Central Valley Electric Coop evaluation. Central Valley Electric will apply for ROW for their power lines. "SEE EXHIBIT 1 & 1A".

C. Rehabilitation of Disturbed Areas Unnecessary for Production

Following the construction, those access areas required for continued production will be graded to provide drainage and minimize erosion. The areas unnecessary for use will be graded to blend in with the surrounding topography "SEE PLANS FOR RESTORATION OF THE SURFACE"

LOCATION AND TYPE OF WATER SUPPLY

A. All water (fresh or otherwise) needed for the drilling and completion of this well will be purchased from a commercial source and trucked to the location via existing and/or proposed access roads. No water source wells will be drilled and no surface water will be utilized.

CONSTRUCTION MATERIALS

A. Materials

On-site caliche will be used for any required access road and/or well site pad. If necessary, caliche will be hauled from a BLM approved pit. No surface materials will be disturbed except those necessary for actual grading and construction of the drill site and access road.

METHODS FOR HANDLING WASTE DISPOSAL

A. Cuttings

Apache will us a Closed Loop System. Cuttings will be contained in roll off bins, hauled & disposed of to a state approved disposal facility.

B. Drilling Fluids

Drilling fluids will be contained in steel pits, frac tanks and disposed at licensed disposal sites and/or will be cleaned and reused.

C. Produced Fluids

Water production will be contained in steel pits. Fluids may be cleaned and reused and/or disposed at a state approved facility. Hydrocarbon fluid or other fluids that may be produced during testing will be retained in test tanks until sold and hauled from site.

D. Salts

Salts remaining after completion will be picked up by supplier, including broken sacks.

E. Sewage

Current laws and regulations pertaining to the disposal of human waste will be complied with. A Port-a-John will be provided for the crews. This will be properly maintained during the drilling operations and removed upon completion of the well. Port-a-John will be cleaned out periodically.

F. Garbage

Receptacles for garbage disposal during the drilling of this well will be provided and equipped to prevent scattering by wind, animals, etc. This waste will be hauled to an approved landfill site.

G. Cleanup of Well Site

Upon release of the drilling rig, the surface of the drilling pad will be graded to accommodate a completion rig if electric log analysis indicates potential productive zones. Reasonable cleanup will be performed prior to the final restoration of the site.

ANCILLARY FACILITIES

A. Upon completion, and/or testing of this well, rental tank facilities will be utilized until permanent storage is established. No camps, airstrips or staging are anticipated to be constructed.

WELLSITE LAYOUT

A. Rig Orientation and Layout

"EXHIBIT 5" shows the dimensions of the well pad, closed loop system and the location of the major rig components. Only minor leveling of the well site will be required. No significant cuts or fills will be necessary.

B. Closed Loop System

A Closed Loop System will be used. Cuttings will be stored in steel roll off bins until they are hauled to a state approved disposal facility. "SEE EXHIBIT 4"

C. Location of Access Road

"SEE EXHIBIT 1 & John West Surveying well site pad location plat"

PLANS FOR SURFACE RECLAMATION

A. Reserve Pit Cleanup

Not applicable. Closed Loop System will be used.

B. Restoration Plans (Production Developed) "SEE EXHIBIT 7"

Those areas not required for production will be graded & recontoured to match surrounding topography and surfacing material will be removed. Topsoil from the soil pile will be loaded over the disturbed area to the extent possible and will be seeded. Subsurface soils from East side of the pad will be spread over the downsized areas for recontouring & then topsoil will be spread back over these areas. The portion of the site required for production will be graded to minimize erosion and provide access during inclement conditions. This may need to be modified in certain circumstances to prevent inundation of the locations' pad and surface facilities. Due to the topography of the area, no problems are anticipated and no erosion or other detrimental effects are expected as a result of this operation. Following depletion and abandonment of the site, restoration procedures will be those that follow under "ITEM C" of "PLANS FOR SURFACE RECLAMATION".

C. Restoration Plans (No Production Developed)

With no production developed, the entire surface disturbed by construction of the well site will be restored as closely as possible to its pre-operation appearance, including re-vegetation. Surfacing material will be removed and the site will be recontoured to match surrounding topography with provisions made to minimize erosion. The topsoil, as available, shall be placed in a uniform layer and seeded according to the Bureau of Land Management's stipulations. Due to the topography of the area, no problems are anticipated and no erosion or other detrimental effects are expected as a result of this operation.

D. Rehabilitation's Timetable

Upon completion of drilling operations, the initial cleanup of the site will be performed as soon as weather and site conditions allow economic execution of the work.

SURFACE OWNERSHIP

A. Surface Ownership of drill site & access routes:

United Stated Department of the Interior c/o Bureau of Land Management 620 E. Greene St.
Carlsbad, NM 88220

OTHER INFORMATION

A. Terrain, Soil, Vegetation, Wildlife, Surface Use

Slightly rolling hills; Topsoil is made up of caliche and sand; Plants are sparse, primarily grasses, some mesquite & shinnery oak; No wildlife observed but likely that deer, rabbits, coyotes & rodents traverse the area, which are all typical of the semi-arid desert land; Land primarily used for grazing.

B. Surface Water

There are no ponds, lakes, streams or rivers within several miles of the proposed location.

C. Water Wells

No known water wells within 1-1/2 miles of the proposed location.

D. Residences and Buildings

No dwellings within the immediate vicinity of the proposed location.

E. Historical Sites

None observed.

F. Archeological Resources

An Apache agrees to contribute funding to the Permian Basin Cultural Resource Fund in lieu of being required to conduct a Class III survey for cultural resources associated with this project. Any location or construction conflicts will be resolved before construction begins.

- G. Onsite: Onsite by Tanner Nygren, BLM Specialist.
- H. Well Signs: Well signs will be incompliance per State requirements and specifications.
- I. Drilling Contractor: Pending

OPERATOR'S FIELD REPRESENTATIVE

(Field personnel responsible for compliance with development plan for surface use)

DRILLING

Danny Laman Drilling Superintendent 303 Veterans Airpark Ln #3000 Midland, TX 79705 432-818-1022 - office 432-634-0288 -- cell

PRODUCTION

Craig Maxwell Sr. Production Foreman 2350 W. Marland Blvd Hobbs, NM 88240 575-393-7106 – w 575-441-2568 – c

. Well-Site Evaluation Field Form 27	•
Company Name: Apache Well Name Ped (E	ast Side)
Location: Section 10, T. 17 S. R. 31 E. Footage 1690 FNL & 10	F <u>E_</u> L
Examined by Tarrer Nygras Date 5/3/	12
Operator Representative Harold Swan	
Resources	
Description & Topography: (cut & fill, etc.) Small sand dimes	<u> </u>
(flat)	· · · · · · · · · · · · · · · · · · ·
Soils: (reseeding stips, etc.)	
Cave Area: 16 W	· · · · · · · · · · · · · · · · · · ·
Hydrogeology: (wells, playas, floodplain, drainages, erosive soils, plant indicators, etc.)	
Shinnery oak habitat	· · ·
Wildlife: (habitat, LPC, SDL, etc.) LPC /5DL	
Range Improvements: (fences, etc.)	
Well Infrastructure	Soil
V-Door Direction: E Topsoil: North	125
Road Route: SW corner (road entirely on)	•
Production Facility Placement:	5' 8, 175
Interim Reclamation: N by 50', W + E by 80'	125
Other: (VRM, existing structures, etc.) Kecla, med pad to the w	est
Evaluation: (Moved?) 1620FNL 330FEL / 1680	FNL 330FEL
COA: Construct fence west of the & pad, and north of the access	
pad and morth of the access	

Lease Road (Existing) Reclaimed Area - Proposed Road ** Proposed Fence] Proposed Pad Edges



PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME: Apache Corporation

LEASE NO.: NMLC-029426B

WELL NAME & NO.: | Crow Federal 25H

SURFACE HOLE FOOTAGE: 1680' FNL & 0330' FEL BOTTOM HOLE FOOTAGE: 1680' FNL & 0330' FWL

LOCATION: Section 10, 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.

General Provisions
Permit Expiration
Archaeology, Paleontology, and Historical Sites
Noxious Weeds
Special Requirements
Fence Construction Requirement
Lesser Prairie-Chicken Timing Stipulations
Ground-level Abandoned Well Marker
Construction
Notification
Topsoil
Closed Loop System
Federal Mineral Material Pits
Well Pads
Roads
Road Section Diagram
☑ Drilling
Cement Requirements
H2S Requirements
Logging Requirements
Waste Material and Fluids
⊠ Production (Post Drilling)
Well Structures & Facilities
Pipelines
☐ Interim Reclamation
Final Abandonment & Reclamation

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

Fence Construction Requirement

The operator (Apache) must take whatever means necessary to prevent vehicle traffic from driving on the reclaimed/abandoned well site located immediately to the west of the proposed well pad. At a minimum, the operator must:

- 1. Construct a fence along the west side of the proposed well pad and along the north side of the proposed access road as depicted in the survey plats of the well site in the APD. The fence must be installed prior to well pad/road construction and in a fashion to deter vehicle traffic. The fence must be maintained throughout the life of the well or as long as the adjacent abandoned well site is in reclamation status.
- 2. Post signs to deter contractors/employees from driving upon the abandoned well site adjacent to the west side of Apache's well pad.

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

<u>Ground-level Abandoned Well Marker to avoid raptor perching</u>: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

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

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

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

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing

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

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

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

Crowning

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

Ditching

Ditching shall be required on both sides of the road.

Turnouts

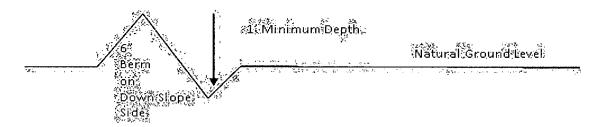
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

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

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

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

Cattleguards

An appropriately sized cattleguard sufficient to carry out the project shall be installed and maintained at fence/road crossings.

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

Public Access

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

Construction Steps

- 1. Salvage topsoil
- 3. Redistribute topsoil
- 2. Construct road
- 4. Revegetate slopes

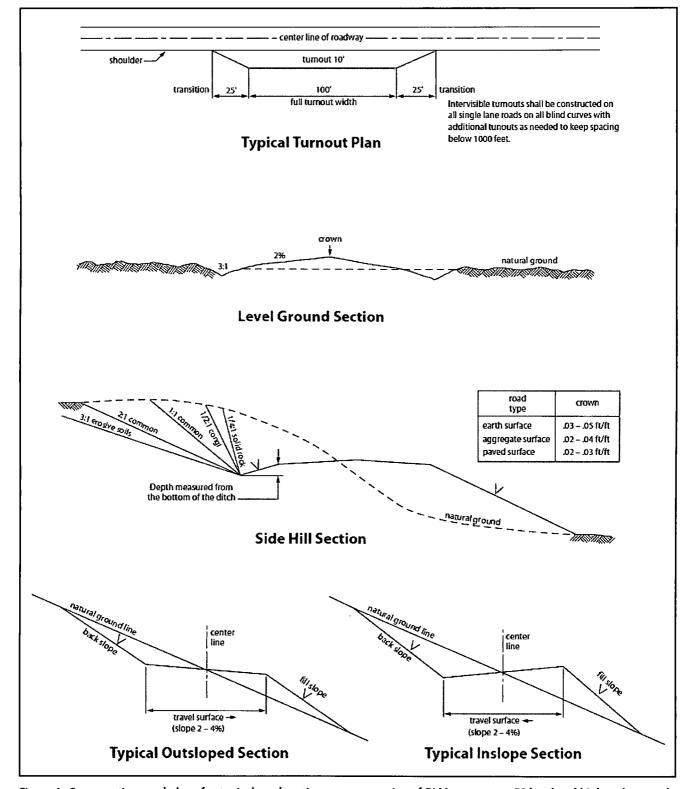


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. DRILLING

A. DRILLING OPERATIONS 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

- 1. A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the Grayburg formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.
- 2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. If the drilling rig is removed without approval an Incident of Non-Compliance will be written and will be a "Major" violation.
- 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.

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. 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.).

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

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS. See individual casing strings for details regarding lead cement slurry requirements.

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

Possibility of water flows in the Rustler, Artesia Group, San Andres, and Queen. Possibility of lost circulation in the Red Beds, Rustler, Grayburg, and San Andres.

- 1. The 13-3/8 inch surface casing shall be set at approximately 700 feet (in a competent bed below the Magenta Dolomite, which is a Member of the Rustler, and if salt is encountered, set casing at least 25 feet above the salt) and cemented to the surface. Fresh water mud to be used to setting depth.
 - 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 is to include the lead cement slurry.
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
- 2. The minimum required fill of cement behind the 8-5/8 inch intermediate casing is:
 - ☐ Cement to surface. If cement does not circulate see B.1.a, c-d above.

Operator does <u>NOT</u> have approval to use a DV tool. A sundry must be submitted to the BLM with the appropriate information.

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

- 3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
 - Cement as proposed by operator. Operator shall provide method of verification.
- 4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

- 1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
- 2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 2000 (2M) psi (Installing 3M annular, testing to 2,000 psi).
- 3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 8-5/8 intermediate casing shoe shall be 2000 (2M) psi (Installing a 3M, testing to 2,000 psi).
- 4. 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. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**.

- c. 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.
- d. The results of the test shall be reported to the appropriate BLM office.
- e. 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.
- f. 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.

D. DRILL STEM TEST

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

E. 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.

JAM 121813

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

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

Exclosure Netting (Open-top Tanks)

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the

largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

B. PIPELINES

A copy of the application (Grant, Sundry Notice, APD) and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

- 1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
- 2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
- 3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.
- 4. The holder shall be liable for damage or injury to the United States to the extent

provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
- b. Activities of other parties including, but not limited to:
 - (1) Land clearing.
 - (2) Earth-disturbing and earth-moving work.
 - (3) Blasting.
 - (4) Vandalism and sabotage.
- c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

- 5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any responsibility as provided herein.
- 6. All construction and maintenance activity will be confined to the authorized right-of-way width of _______ feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline must be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline must be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity will be confined to existing roads or right-of-ways.
- 7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.
- 8. The holder shall install the pipeline on the surface in such a manner that will minimize

suspension of the pipeline across low areas in the terrain. In hummocky of duney areas, the pipeline will be "snaked" around hummocks and dunes rather then suspended across these features.

- 9. The pipeline shall be buried with a minimum of <u>24</u> inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.
- 10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.
- 11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.
- 12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.
- 13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.
- 14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.
- 15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

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

17. Surface pipelines must be less than or equal to 4 inches and a working pressure below 125 psi.

IX. INTERIM RECLAMATION

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

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

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

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory

revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture for LPC Sand/Shinnery Sites

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

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

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

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

^{*}Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed