OCD-ARTESIA

RECEIVED		S					
Form 3160-3 (April 2004) JUL 1 2 2012 UNITED STATES	1			OMB N	APPROVED fo. 1004-0137 March 31, 2007		
NMOCO ARTEMA MENT OF THE I	INTERIOR			5. Lease Serial No. NMLC-029435B / NMLC-029435			
APPLICATION FOR PERMIT TO		REENTER		6. If Indian, Allotee or Tribe Name			
la. Type of work: DRILL REENTH	ER.			7. If Unit or CA Agr	eement, Name and No.		
lb. Type of Well: ✓ Oil Well ☐ Gas Well ☐ Other	√ Sin	gle ZoneMultip	ole Zone	8. Lease Name and RAVEN FED	Well No. ERAL COM # IOH		
2. Name of Operator APACHE CORPORATION		<87	3>	9. API Well No. 30-015-	40466 Tes		
3a. Address 303 VETERANS AIRPARK LN #3000 MIDLAND, TX 79705		10. Field and Pool, or CEDAR LAK	Exploratory (96831) E;GLORIETA-YESO				
4. Location of Well (Report location clearly and in accordance with an At surface 2218' FNL & 220' FWL Sec:	58	11. Sec., T. R. M. or E	Blk. and Survey or Area				
At proposed prod zone 2218' FNL & 330' FWL Sec:	-	2 NMLC-02	9435A	UL: E SEC:	8 T17S R31E		
14. Distance in miles and direction from nearest town or post offices APPROX 6.6 MILES NORTHEASWT OF LOCO HILLS	S, NM			12. County or Parish EDDY	13. State NM		
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig, unit line, if any)	16. No. of ac	cres in lease ACRES		g Unit dedicated to this 8 ACRES	well		
(Also to hearest eng. till tille, it ally) 18. Distance from proposed location*	19. Proposed			BIA Bond No. on file			
to nearest well, drilling, completed, applied for, on this lease, ft.	TVD-	4825' 4621'		- CO - 1463 NATIONWIDE			
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3727'	1	nate date work will star		23. Estimated duration ~ 25 DAYS	on .		
	24. Attac	- , ,					
The following, completed in accordance with the requirements of Onshor 1. Well plat certified by a registered surveyor.	e Oil and Gas (4 Bond to cover the			existing bond on file (see		
 A Drilling Plan. A Surface Use Plan (if the location is on National Forest System SUPO shall be filed with the appropriate Forest Service Office). 	Lands, the	Item 20 above). 5. Operator certific 6. Such other site authorized offic	specific info	ormation and/or plans as	s may be required by the		
25. Signature Sarine & Flory	_ '	(Printed/Typed) SORINA L. FLORE	ES		Date 5/30/12		
Title SUPV OF DRILLING SERVICES					•		
Approved by (Signature)	Name ((Printed/Typed)	mes F	L Apres	Date JUL 1 0 2012		
Title FIELD MANAGER	Office	CARLSBAD F	FIELD OF	FICE	-		
Application approval does not warrant or certify that the applicant holds conduct operations thereon.	s legal or equita	able title to those right	_		ontitle the applicant to		
Conditions of approval, if any, are attached. Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a cr	ine for any ne	con knowingly and u					
States any false, fictitious or fraudulent statements or representations as to	o any matter wi	thin its jurisdiction.	muny to III	and to any department t	agency of the Office		

*(Instructions on page 2)

Roswell Controlled Water Basin

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	MAY, 2012						
Well: RAVEN FEDERAL 10H							
Operator Name: <u>APACHE</u>	CORPORATION						
Signature: Tury Ves	Printed Name: TERRY WEST						
Title: Drilling Engineer	Date:						
Email (optional):terry.v	vest@apachecorp.com						
Street or Box: 303 Vete	erans Airpark Ln., Ste. 3000						
City, State, Zip Code: <u>Midland</u>	, TX 79705						
Telephone:	432-818-1114						
Field Representative (if not above	e signatory):						
Address (if different from above):							
Telephone (if different from abov	re <u>):</u>						
Email (optional):							

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

DISTRICT I 1625 N. French Dr., Hobbs, NM 88240 Phone: (575) 393-6161 Fax: (575) 393-0720

Phone: (575) 393-6161 Pax: (575) 393-0720 DISTRICT II 811 S. Fust St., Artesia, NM 88210 Phone. (575) 748-1283 Fax. (575) 748-9720 DISTRICT III 1000 Rio Brazos Road, Aztec, NM 87410 Phone: (505) 334-6178 Fax: (505) 334-6170 DISTRICT IV 1220 S. St. Francis Dr., Santa Fe, NM 87505 Phone: (505) 476-3460 Fax: (505) 476-3462

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

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

□ AMENDED REPORT

		WEL	L LOCA	ΓΙΟΝ A	ND ACREA	AGE DEDICA	ATION PLA	.T	
30-015 -	lumber 4/7	4/06	_	ool Code	C.	edar Lake	Pool Name	tn - Y	(ecn
Property Code	10	1000	162	•	Property Nam	ERAL C		-19	
37333 OGRID No.)			K	Operator Nam				10H Elevation
873				APAC	CHE CORPO				3727'
		· · · · · · · · · · · · · · · · · · ·			Surface Locati	ion			
	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/Wes	
Е	8	17-S	31-E		2218	NORTH	220	WES	ST EDDY
					w	erent From Surface			
UL or lot No.	Section 7	Township 17-S	Range 31-E	Lot Idn	Feet from the 2218	North/South line NORTH	Feet from the 330	East/Wes WES	
Dedicated Acres	Joint or		onsolidation Co	de Ord	2210 er No.	NORTH	330	WES	51 EDD1
191.68									
	DD : 00000		1 my =======		D. T. G. T. C. T.	NOVIGOT IT:	1011 0011 1011		7/10 9627
NO ALLOWABLE WILL	BE ASSIGN	ED TO THIS CO	MPLETION UNI	IL ALL INTE	RESTS HAVE BEEN C	CONSOLIDATED OR A N	ION-STANDARD UNI	T HAS BEEN A	APPROVED BY THE DIVIS
31 57 AC B H	ORDINATE 9 N, X= 5.1 N, X= 1.8 N, X=	:628075.2 E :633078.6 E :628079 2 E	3729.7' 3726 2'	88 SEE DETAIL 37.3. O 009 600' _ 37.2.	5.2' GEOL SL 6.7' LA LONG LA LONG	DETIC COORDINATE NAD 27 NME URFACE LOCATION Y=673239.7 N X=633303 5 E NT=32.850067 N IG.=103.899264 N T.=32° 51' 00" N G=103° 53' 57" W TOM HOLE LOCATIO Y=673206 7 N X=628407 9 E	I hereby cer complete to that this org unleased mi proposed be well at this to of such min pooling agriculture. Sorial Printed Na SURV I hereby cer was plotted me or under and correct in Signature of the supplemental supplemen	tify that the infet the best of my anization either neural interest in the thickness of my anization either neural interest in the thickness of the thickness o	Date Flores Apachecorp. Co ERTIFICATION Il location shown on this plat s of actual surveys made by n, and that the same is true y belief. H 27, 2012 fessional Surveyor:

DRILLING PLAN: BLM COMPLIANCE

(Supplement to BLM 3160-3)

APACHE CORPORATION (OGRID: 873) RAVEN FEDERAL #10H

Lease #: NMLC-029435B Projected TVD: ~4825' MD: ~9627' GL: 3727'

SHL: 2218' FNL & 220' FWL UL: E SEC: 8 BHL: 2063' FNL & 330' FEL LOT: 2 SEC: 7

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 2412'	
Rustler	421'	Grayburg 2819'	
Salt Top	502′	San Andres 3136' (Oil)	
Salt Bottom	1346′	Glorieta 4611'	
Yates	1522'	Yeso (Paddock) 4675' (Oil)	
Seven Rivers	1799'	TD TVD ~4825′ MD ~9	627'

Avg Depth to Ground Water: ~91'

Fresh water & prospectively valuable minerals, as described by BLM, encountered during drilling, will be recorded by depth & adequately protected. All oil & gas shows within zones of correlative rights will be tested to determine commercial potential. Surface fresh water sands will be protected by setting 13-3/8" csg @ 450' & circ cmt back to surface. Hydrocarbon zones will be protected by setting 9-5/8" csg @ ~ 3500', if water flow is encountered, then 7" @ ~4510'; and a 4-1/2" liner from the 7" csg though the KOP @ ~ 4513'; the curve & on to TD @ ~9627' MD.

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' – 450'	13-3/8"	48#	STC	H-40	1.0	1.21	1.8
Intermediate	12-1/4"	0' - 3500'	9-5/8"	36# 36#	STC	J-55	1.0	1.21	1.8
Production	8-3/4"	0′ - 4510′	7"	26#	LTC	J-55	1.0	1.21	1.8
Production Liner	6-1/8"	4410' – 9627'	4.5"	11.6#	LTC	L-80	1.125	1.21	1.8

^{*}Contingency: 9-5/8" string will only be pan if water flows are encountered.

4. CEMENT PROGRAM:

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

Lead: 170 sx Class H 50/50 w/10% Gel + 0.5# Star Seal + 0.25% De-foamer + 3% Salt (11.9 wt, 2.31 yld)

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

Tail: 250 sx Class C w/ 0.25% De-foamer (14.8 wt, 1.33 vld)

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

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

<u>Lead</u>: 550 sx Class H 50/50 w/10% Gel + 2# Star Seal + 0.25% De-foamer (11.9 wt, 2.24 yld)

Compressive Strengths: 12 hr - 540 psi 24 hr - 866 psi

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

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

Production (TOC: ~FOC) 5

C. Production (TOC: ~500' from surface) **35% excess cmt** Cmt with:

Lead: 270 sx Class H 50/50 w/10% Gel + 2# Star Seal + 0.25% Defoamer (11.9 wt, 2.24 yld)

Compressive Strengths: 12 hr - 540 psi 24 hr - 866 psi

Tail: 320 sx Class C w/1% CaCL + 0.25% De-foamer (14.8 wt. 1.34 vld)

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

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

<u>Lead</u>: 1167 sx Class H 50/50 w/10% Gel + 2# Star Seal + 0.25% Defoamer (11.9 wt, 2.24 yld)

Compressive Strengths: 12 hr - 540 psi 24 hr - 866 psi

<u>Tail:</u> 202 sx Class C w/1% CaCL + 0.25% De-foamer (14.8 wt, 1.34 yld)

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

D. Apache proposes to run a multiple packer system on the 4-1/2" production liner wich will tie back into the 7" string (No Cmt). An isolation packer will be set on either side of the Glorieta top & no ports will be placed between this isolation packer & the liner top packer. An isolation packer will be set at or a few feet inside the lease offset limit & no ports will be placed between this isolation packer & the liner top packer, if the adjoining leases are not going to be unitized.

** The above cmt volumes could be revised pending caliper measurement from open hole logs. For Surface csg: If cmt does not circ to surface, the appropriate BLM office shall be notified. The top of cement shall be determined by either a temperature survey or by tagging, 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 at least annular bag type preventer. This BOP will be nippled up on the 13-3/8" surface csg head & tested to 70% of casing burst. After the 9-5/8" intermediate csg is set & cemented (or after the 7" string, if the 9-5/8" casing isn't ran), either a 13-5/8" or an 11" 3M BOP consisting of an annular bag type preventer, middle blind rams and bottom pipe rams will be installed in place of the original BOP & utilized continuously until TD is reached. The BOP will be tested at 2000 psi, maximum surface pressure is not expected to exceed 2M psi, BHP is calculated to be approximately 2123 psi. *All BOP's & associated equipment will be tested as per BLM Drilling Operations Order #2. The BOP will be operated & checked each 24 hr period & blind rams will be operated & checked when the drill pipe is out of the hole. Functional tests will be documented on the daily driller's log. "EXHIBIT 3" also shows a 3M psi choke manifold with a 3" blow down line. Full opening stabbing valve & Kelly cock will be on derrick floor in case of need. No abnormal pressures of temperatures are expected in this well. No nearby wells have encountered any problems.

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

INTERVAL	MW (ppg)	VISC (sec/qt)	FLUID LOSS (cc)	MUD TYPE
0' -450'	8.6 – 8.8	28 – 30	NC	FW
450' to 3500' *	9.8 – 10.2	28 – 34	NC	Brine
3500' – 4510'	8.6 – 9.1	28 – 36	NC	FW/Brine
4510' – 9627'	8.6 – 9.1	28 – 40	15 - NC	FW/Brine

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

7. AUXILIARY WELL CONTROL EQUIPMENT / MONITORING EQUIPMENT:

11" x 3000 psi Double BOP/Blind & pipe ram (3M BOP/BOPE to be used as 2M system)

4-1/2" x 3000 psi Kelly valve

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

8. LOGGING, CORING & TESTING PROGRAM: See CoA

- A. OH logs: Dual Laterolog, MSFL, CNL, Litho-Density, Gamma Ray, Caliper & Sonic from TD back to last csg shoe.
- B. Run CNL, Gamma Ray from 8-5/8" csg shoe back to surface.
- **C.** No cores, DST's or mud logger are planned at this time.
- **D.** Additional testing will be initiated subsequent to setting the 5-1/2" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows & drill stem tests.

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

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*. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP: 2123 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 as soon after Santa Fe and BLM approval and as soon as rig will be available. Move in operations and drilling is expected to take $\sim 25 \, \text{days}$. If production casing is run then an additional $90 \, \text{days}$ 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 Cedar Lake; Glorieta-Yeso formation will be perforated and stimulated in order to establish production. The well will be swab tested & potentialed as an oil well.

Apache Corporation

Eddy County, NM Raven Federal Raven Federal # 10H

Raven Federal #10H

Plan: Plan 1 05-01-2012

Standard Planning Report (Field)

01 May, 2012

Planning Report

vell Raven Federal # 10H VELL @ 3740.00usft (Original Well Elev) VELL @ 3740.00usft (Original Well Elev) ind Database: Local Co-ordinate Reference: Company: TVD Reference: Project: MD Reference: Site: North Reference: Well: Survey Calculation Method: Wellborê:≀ Design: "

Project AEGOVICOURIYANIM

Map System: Geo Datum:

US State Plane 1927 (Exact solution)

NAD 1927 (NADCON CONUS)

New Mexico East 3001 Map Zone:

System Datum: Mean Sea Level

Reventedered 了你只是**你是你的**你是你们 Site Northing: 673,239.70 usft 32° 51' 0.2430 N Latitude: Site Position: From: Мар Easting: 633,303.50 usft Longitude: 103° 53' 57 3509 W 0.00 usft 13-3/16 " 0.24° Slot Radius: **Position Uncertainty: Grid Convergence:**

Reventederel # 10H Well The River Well Position Northing: 673,239.70 usft Latitude: 32° 51' 0 2430 N 0.00 usft +E/-W 0.00 usft Easting: 633,303 50 usft Longitude: 103° 53' 57.3509 W **Position Uncertainty** 0 00 usft Wellhead Elevation: **Ground Level:** 3,727 00 usft

Wellbore Reven Federal MOH THE WAR STATE OF THE STATE OF T Model Name Sample Date Declination Dip Angle Field Strength a (*) 04/30/12 IGRF2010_14 7.68 60.69 48,867

Pan 105-01-2012 Design AZERO CHARLEST Audit Notes: PI AN Version: Phase: Tie On Depth: 0.00 Vertical Section: Depth From (TVD) +E/-W (usft) (usft) (usft) 🕨 (°) 0.00 0.00 0.00 269.61

n Sections Veasured Depth (usft)	nclination	Azimuth	Vertical Depth (usft)	+N/-\$ (usft)	+Ê/-W ,(usft)	Dogleg Rate (*/100usft)	Build Rate (*/100usft)	Turn Rate (°/100usft)	IIFO (*)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0 00	
4,513.03	0 00	0 00	4,513.03	0.00	0 00	0.00	0.00	0.00	0 00	
5,113.03	90.00	269.61	4,895.00	-2.60	-381.96	15 00	15.00	0.00	269 61	10H Landing Pt
5,142.85	90.89	269.61	4,894.77	-2.80	-411.78	3 00	3.00	0.01	0.26	
7,370.17	90.89	269.61	4,860.00	-17.80	-2,638.78	0.00	0 00	0.00	0 00	10H Mid Pt
9,627.31	90 88	269.61	4,825.00	-33.00	-4,895.60	0.00	0.00	0.00	-180.00	10H BHL

And the second of the second o		The second secon	The second secon
Database:	CORDBV5000	ocal Co-ordinate Reference:	Well Reven Federal (710H
Company:	Apadra Corporation	IVD Reference:	WELLOSKILONSKOMENWEDLING
Project:	Eddy County XIM	MD Reference:	WELL@SY000vsit(Circlet Well Elev)
Site:	ReveniFedard	North Reference:	©10
Well:	Reven Federal @ 10H	Survey Calculation Method:	Midmum Quvelune
Wellbore:	Reven Federal (MOH)		
Design:	Rain 1 05 00 2012		The state of the s

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	6									9.19
Measured 🔭			Vertical	Subsea			· Vertical	Dogleg	, Build	Turn .
Depth Incl	0.00	Azimuth	† Depth	Depth	+N/-S	+Ē/-W.	Section	Rate	.`√Rāte.	Rate
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- 421.00 - TEAR			421.00	3,313.00	0.00	, , , , , , , , , , , , , , , , , , , 	0.00	0.00	0.00	
502.00	0.00	0.00	502.00	3,238.00	0.00	0.00	0.00	0.00	0.00	0.00
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Sen Andres									1 3 3 3 3	
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4,590.00	11.55	269.61	4,589.48	-849.48	-0.05	-7.73	7.73	15.00	15.00	0 00
Contract		تكنفيت يفين فأعن				*		7,20	the state of the s	
4,601.80	13.32	269.61	4,601.00	-861.00	-0.07	-10.27	10.27	15 00	15.00	0.00
Peddods :			4,000,00		<u> </u>	20.07		45.00		0.00
4,667.15	23 12	269.61	4,663 00	-923.00	-0.21	-30.67	30.67	15 00	15.00	0.00
4,680.00	25.05	269 61	4,674 73	-934.73	-0 24	-35.92	35.92	15.00	15.00	0.00
4,770 00	38 55	269.61	4,751.05	-1,011.05	-0 57	-83.22	83.23	15.00	15 00	0.00
4,860 00	52.05	269.61	4,814.21	-1,074.21	-1.00	-147.04	147.05	15.00	15 00	0.00
4,950 00 5,040 00	65.55 79.05	269.61 269.61	4,860.74 4,888.04	-1,120 74	-1.52 -2.11	-223 84 -309.38	223.85 309.39	15.00 15.00	15.00 15.00	0.00 0.00
5,040 00	79.05	209.01	4,000.04	-1,148.04	-2.11	-308.30	309.39	15.00	15.00	0.00
<u>Lendho</u> leL=			建筑都然						2.3-8-12-3	And the same
5,113.03	90.00	269.61	4,895.00	-1,155.00	-2.60	-381.96	381.97	15 00	15.00	0.00
5,130.00	90.51	269.61	4,894.93	-1,154.93	-2.72	-398.93	398.94	3 00	3.00	0.01
- Cold 900 for			4.004.77		· · · · · · · · · · · · · · · · · · ·				3.00	
5,142 85 5,220.00	90.89 90.89	269.61 269.61	4,894.77 4,893.56	-1,154 77 -1,153.56	-2.80 -3 32	-411.78 -488.92	411.79 488.93	3.00 0.00	3.00 0.00	0 01 0.00
5,310 00	90.89	269.61	4,892.16	-1,153.50	-3.93	-578.91	578 92	0.00	0.00	0.00
•										
5,400.00	90.89	269 61	4,890.76	-1,150.75	-4.53	-668 89	668.91	0.00	0 00	0.00
5,490 00	90.89	269 61	4,889.35	-1,149.35	-5.14	-758.88	758.90	0.00	0 00	0.00
5,580.00 5,670.00	90.89 90 89	269.61 269.61	4,887.95 4,886.54	-1,147.95 -1,146.54	-5.75 -6.35	-848 87 -938 85	848.89 938.88	0.00 0.00	0.00 0.00	0 00 0.00
5,760 00	90 89	269.61	4,885.14	-1,145.14	-6.96	-1,028.84	1,028.87	0.00	0.00	0.00
				•						
5,850 00	90.89	269 61	4,883.73	-1,143 73	-7.56	-1,118 83	1,118.85	0 00	0.00	0 00
5,940 00 6,030 00	90.89 90.89	269.61 269.61	4,882.33 4,880 92	-1,142 33 -1,140.92	-8.17 -8.78	-1,208 82 -1,298 80	1,208.84 1,298.83	0 00 0 00	0.00 0.00	0 00 0 00
6,120 00	90.89 90.89	269.61	4,880 92	-1,140.92 -1,139.52	-8.78 -9.38	-1,298 80	1,388 82	0.00	0.00	0.00
6,210.00	90.89	269.61	4,878.11	-1,138.11	-9.99	-1,478 78	1,478.81	0.00	0.00	0.00
				•						
6,300 00	90 89	269.61	4,876.71	-1,136.71 1,135.30	-10 59	-1,568.76 1,658.75	1,568.80	0.00	0.00	0.00
6,390.00 6,480.00	90.89 98.08	269.61 269.61	4,875.30 4,873.90	-1,135.30 -1,133 90	-11.20 -11 81	-1,658.75 -1,748 74	1,658 79 1,748 78	0.00 0.00	0.00 0.00	0 00 0 00
6,570.00	90.89 90.89	269.61	4,872.49	-1,133.90 -1,132.49	-12.41	-1,746 74	1,746 76	0.00	0.00	0 00
6,660.00	90.89	269.61	4,871 09	-1,131.09	-13 02	-1,928.71	1,928.76	0.00	0.00	0 00
·			•							
6,750.00	90.89	269.61	4,869.68	-1,129.68 -1,128 28	-13.62	-2,018.70 -2,108.69	2,018.74 2,108.73	0.00	0.00	0 00
6,840.00 6,930.00	90 89 90 89	269 61 269.61	4,868 28 4,866 87	-1,128 28 -1,126.87	-14.23 -14.84	-2,108.69 -2,198.67	2,108.73 2,198.72	0.00 0.00	0.00 0.00	0.00 0 00
7,020 00	90.89	269.61	4,865.47	-1,126.67 -1,125.47	-14.64 -15.44	-2,196.67	2,196 72	0.00	0.00	0 00
	90.89	269.61	4,864.06	-1,123.47	-16.05	-2,378.65	2,378.70	0.00	0.00	0.00
-			,						,,,,	
7,110.00		260.64	4 000 00	4 400 00	10.00	2 460 63	2 460 60	0.00	0.00	0.00
-	90.89 90.89	269 61 269 61	4,862.66 4,861.25	-1,122 66 -1,121.25	-16 65 -17.26	-2,468 63 -2,558.62	2,468.69 2,558.68	0.00 0.00	0.00 0.00	0.00 0.00

Planning Report

Database: CORIDB V5000 Company: Apadine Corporation
Project: Eddy County: NIM
Site: Revent Rederal
Well: Revent Rederal CORIDB
Wellbore: Revent Rederal CAORIDB
Design: Clan 4 05500-2012

Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method Well Revent rederel # 10 h

WELL @ 6740.00 vs.t (Original Well Elev)

WELL @ 3740.00 vs.t (Original Well Elev)

Original Well Elev)

Original Well Elev)

nned Survey							7.5			
						y in the		,	B 111	
Measured Depth	(in a financian co		Vertical Depth	Subsea Depth	W SALL C	+E/-W	Vertical Section	Dogleg Rate	Build Rate	Turn Rate
(üsft)	Inclination	Azimuth	(usft)	The state of the s	+N/-S	∵r⊑/-vv∧ (usft) · . ∞	こう たてい かがく こうぶ		(°/100usft)	E - The SAN PLANT THE PARTY.
(usit)	A (0)		(usit)(, a	(usit)	(usft)	(usit)	usiti	(Altousit)	(/ioudsit)	Infilodusity.
7,370 17	90.89	269.61	4,860.00	-1,120.00	-17.80	-2,638 78	2,638.84	0.00	0 00	0 00
7,380.00	90.89	269.61	4,859.85	-1,119.85	-17.87	-2,648.61	2,648.67	0.00	0.00	0.00
7,470.00	90.89	269.61	4,858.44	-1,118.44	-18.47	-2,738.59	2,738.66	0.00	0.00	0.00
7,560.00	90.89	269.61	4,857.04	-1,117.04	-19.08	-2,828.58	2,828.65	0.00	0 00	0.00
7,650.00	90.89	269.61	4,855.64	-1,115.64	-19.68	-2,918.57	2,918.64	0.00	0.00	0.00
7,740 00	90.89	269.61	4,854.23	-1,114.23	-20.29	-3,008.56	3,008 62	0 00	0.00	0.00
7,830 00	90 89	269.61	4,852.83	-1,112.83	-20.90	-3,098.54	3,098.61	0 00	0.00	0.00
7,920.00	90.89	269.61	4,851.43	-1,111.43	-21.50	-3,188.53	3,188.60	0.00	0 00	0.00
8,010.00	90.89	269.61	4,850.03	-1,110.03	-22.11	-3,278.52	3,278.59	0.00	0.00	0.00
8,100.00	90.89	269.61	4,848.63	-1,108.63	-22.72	-3,368.50	3,368.58	0.00	0.00	0.00
8,190.00	90.89	269.61	4,847.23	-1,107.23	-23.32	-3,458.49	3,458.57	0.00	0.00	0.00
8,280.00	90.89	269.61	4,845.84	-1,105 84	-23.93	-3,548.48	3,548 56	0 00	0.00	0.00
8,370.00	90.89	269.61	4,844.44	-1,104.44	-24 53	-3,638.47	3,638.55	0 00	0.00	0.00
8,460.00	90 89	269.61	4,843.04	-1,103 04	-25.14	-3,728.45	3,728.54	0.00	0 00	0.00
8,550 00	90.89	269.61	4,841.65	-1,101.65	-25.75	-3,818.44	3,818.53	0 00	0 00	0.00
8,640.00	90.89	269.61	4,840.25	-1,100.25	-26.35	-3,908 43	3,908.52	0.00	0.00	0 00
8,730.00	90.89	269 61	4,838 86	-1,098.86	-26.96	-3,998.41	3,998.50	0.00	0.00	0.00
8,820.00	90.89	269.61	4,837.46	-1,097.46	-27.56	-4,088.40	4,088.49	0.00	0 00	0.00
8,910.00	90 89	269.61	4,836.07	-1,096.07	-28 17	-4,178.39	4,178.48	0.00	0.00	0.00
9,000 00	90.89	269.61	4,834.68	-1,094.68	-28.78	-4,268.38	4,268.47	0.00	0.00	0.00
9,090.00	90 89	269.61	4,833 29	-1,093.29	-29 38	-4,358.36	4,358.46	0.00	0.00	0.00
9,180.00	90.89	269.61	4,831.90	-1,091.90	-29.99	-4,448.35	4,448 45	0.00	0.00	0.00
9,270.00	90.88	269.61	4,830.51	-1,090.51	-30.59	-4,538.34	4,538.44	0.00	0.00	0.00
9,360.00	90.88	269 61	4,829.12	-1,089.12	-31.20	-4,628 32	4,628.43	0.00	0.00	0 00
9,450.00	90.88	269 61	4,827.73	-1,087.73	-31 81	-4,718 31	4,718.42	0.00	0 00	0.00
9,540.00	90 88	269.61	4,826.35	-1,086.35	-32.41	-4,808.30	4,808.41	0 00	0 00	0.00
JD=93	7 P					Sort.	200	7.75 W. C.		
9,627.31	90.88	269 61	4,825.00	-1,085 00	-33.00	-4,895.60	4,895.71	0.00	0.00	0 00

Design Targets Target Name - Inivmiss target Dip - Shape			TVD (usft)	+N/-S (usft)	+Ē/.W (usft).√	Northing (usft)	Easting) (usft)	Latitude.	Longitude
10H BHL - plan hits target center - Point	0.00	0.00	4,825.00	-33 00	-4,895.60	673,206 70	628,407.90	32° 51' 0.1119 N	103° 54' 54.7397 W
10H Mid Pt - plan hits target center - Point	0.00	0 00	4,860.00	-17.80	-2,638.78	673,221.89	630,664 72	32° 51' 0 1731 N	103° 54' 28.2840 W
10H Landing Pt - plan hits target center - Point	0.00	0.00	4,895.00	-2.60	-381.96	673,237.10	632,921.54	32° 51' 0 2328 N	103° 54' 1.8284 W

Planning Report

Database: GGR@Biva000 Local Co-ordinate Reference:
Company: Applied Companion TVD Reference:
Project: Eddy.com/ty.NM MD Reference:
Site: Reven Redeal # 10th
Well: Reven Redeal # 10th
Wellbore: Rayan Redeal # 10th
Design: Plant 105-01-2012

Well Reven Federal (#90H)
WELL (@ 3740.00usit (Original Well Elev)
WELL (@ 3740.00usit (Original Well Elev)
Grid
Minimum Gurvature

Formations Measured Depth (usft)	Vertical Depth (usft)	Namé	Dip Dip Direction Lithology (*) ((*)
421 00	421.00	Rustler	0.00
502.00	502.00	T/Salt	0 00
1,346.00	1,346.00	B/Salt	0.00
1,522.00	1,522.00	Yates	0.00
3,136.00	3,136.00	San Andres	0.00
4,601.80	4,601.00	Glorieta	0.00
4,667.15	4,663.00	Paddock	0.00

Plan Annotations		M. M. Maria	Bildren Fin to	
Measured,	Vertical	Local Coordi	nates	
(usft)	(usft)	tN/S	tE/-W	。Comment
En hassin Latin Latin Se	take to the it		(usit)	THE RESERVE OF THE PROPERTY OF
4,513.03	4,513.03	0.00	0 00	KOP = 4513'
5,113 03	4,895.00	-2.60	-381 96	Landing Pt. = 5113'
5,142.85	4,894.77	-2.80	-411.78	Hold 90.9° Inc = 5143'
7,370.17	4,860.00	-17.80	-2,638.78	Mid Pt = 7370'
9,627.31	4,825 00	-33.00	-4,895.60	TD = 9627'



1000

True Vertical Depth (200

320

3400

San Andres

KOP = 4513*

200

Yates

Apache Corporation

Project: Eddy County, NM Site: Raven Federal Well: Raven Federal # 10H Wellbore: Raven Federal #10H Plan: Plan 1 05-01-2012



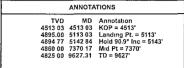
Azimuths to Grid North True North: -0 23° Magnetic North 7.44' Magnetic Field Strength 48857 2snT Dip Angle 50 69° Date 04/30/2012 Model IGRF2010_14

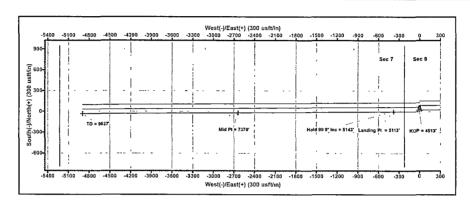
WELL DETAILS: Raven Federal # 10H

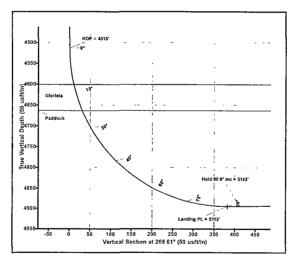
Northing Easting Ground Level 3727 00 Longitude 673239.70 633303 50 32* 51* 0 2430 N 103* 53* 57.3509 W

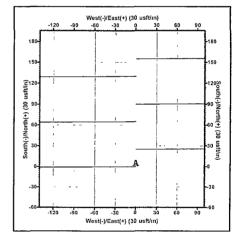
Formation	MDPath	TVDPath	
Rustler	421 00	421 00	
T/Salt	502.08	502 00	
B/Salt	1346 00	1346 00	
Yates	1522 00	1522 00	
San Andres	3136 00	3136 00	
Glorieta	4601 80	4601 00	
Paddock	4667 15	4663 00	

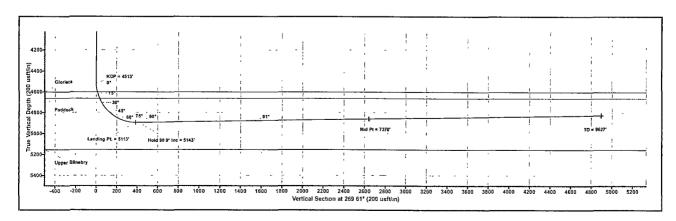
			_	SECTI	ON DETA	ILS				_
MD	Inc	Azı	TVD	+N/-S		Dieg	TFace			_
0 00	0 00	0 00	0 00	0 00	0.00	0 00	0 00	0 00		
4513 03	0 00	0 00	4513 03	0 00	0.00	0 00	0 00	0.00		
5113 03	90 00	269 61	4895 00	-2 60	-381.96	15 00	269 61	381 97	10H Landing Pt	
5142 84	90 89	269 61	4894 77	-2 80	-411 78	3 00		411 79	-	
57379 17	90 89	269 61	4860 00	-17 80	-2638 78	0.00	0 00	2638 84	10H Mid Pt	
69627 31	90 88	269 61	4825 00	-33 00	-4895 60	0 00	-180 00	4895 71	10H BHL	

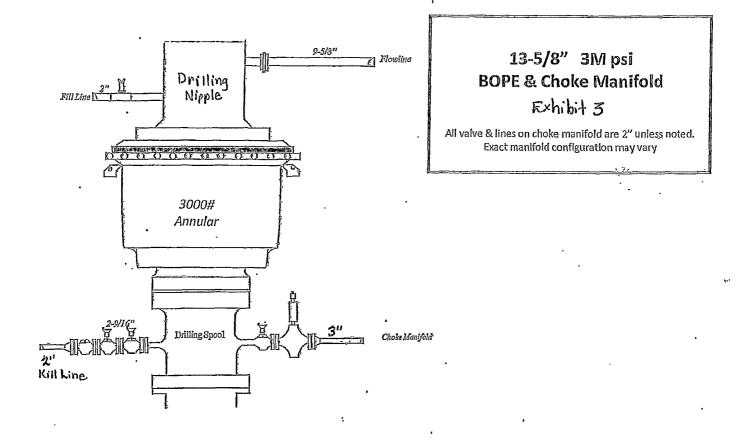


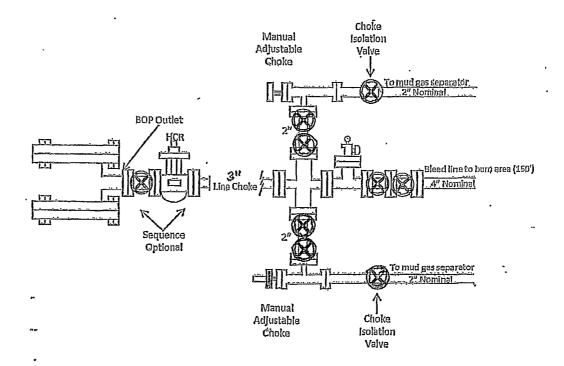


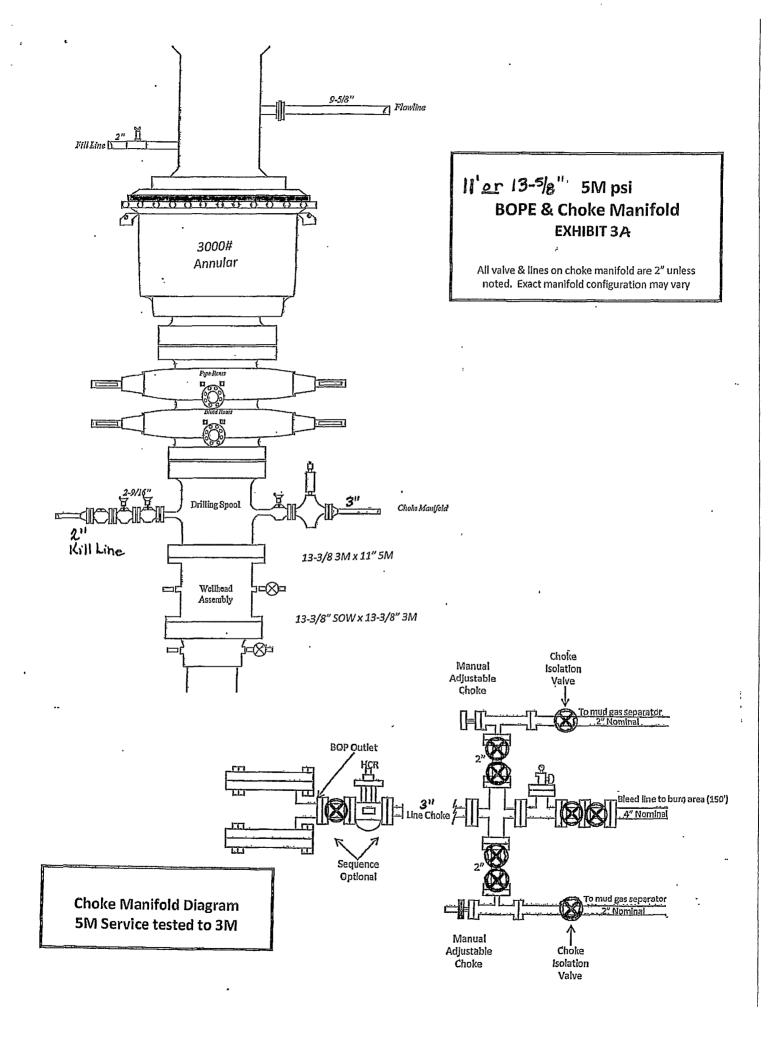


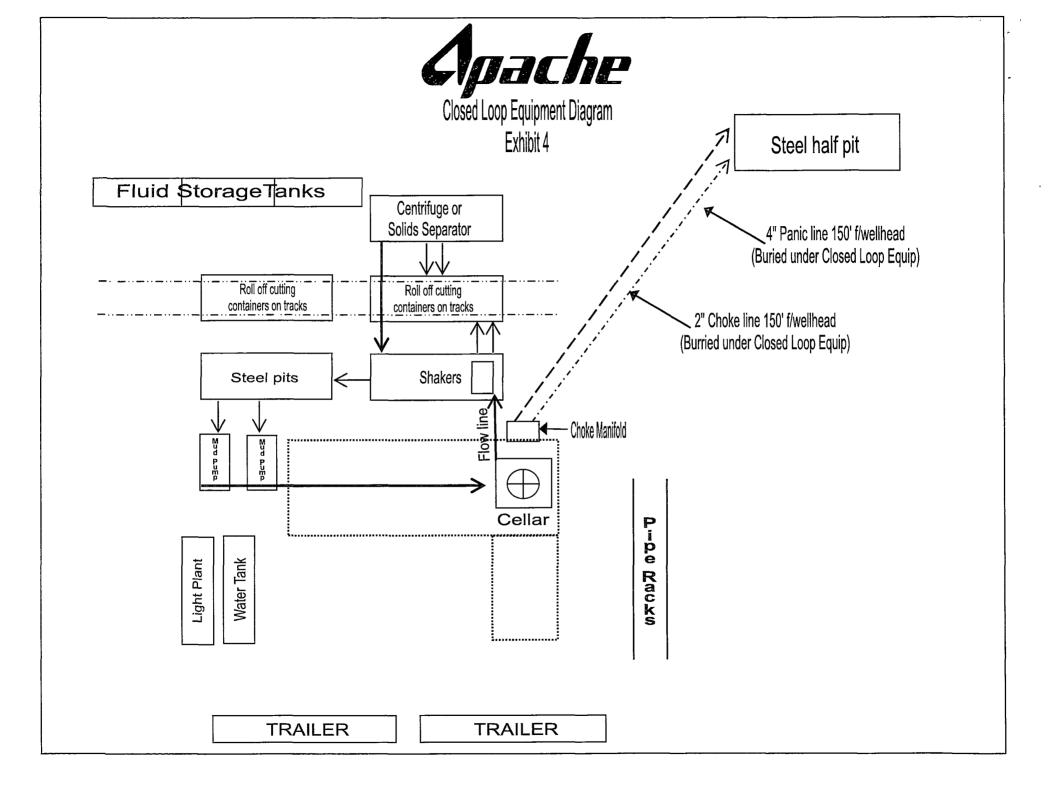














DESIGN PLAN, OPERATING & MAINTENANCE PLAN, & CLOSURE PLAN FOR OCD FOR C-144

RAVEN FEDERAL #10H

DESIGN PLAN

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

Equipment includes:

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

OPERATING AND MAINTENANCE PLAN

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

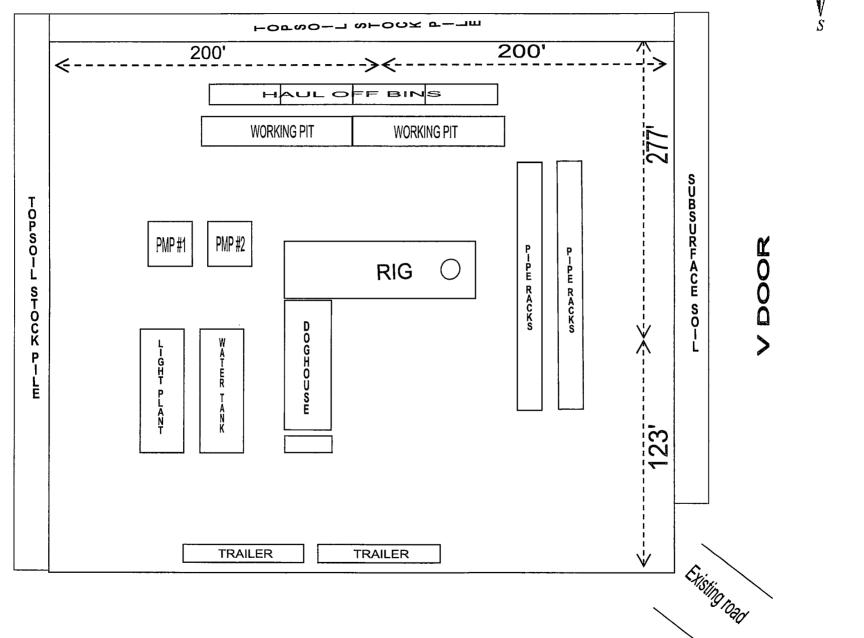
CLOSURE PLAN

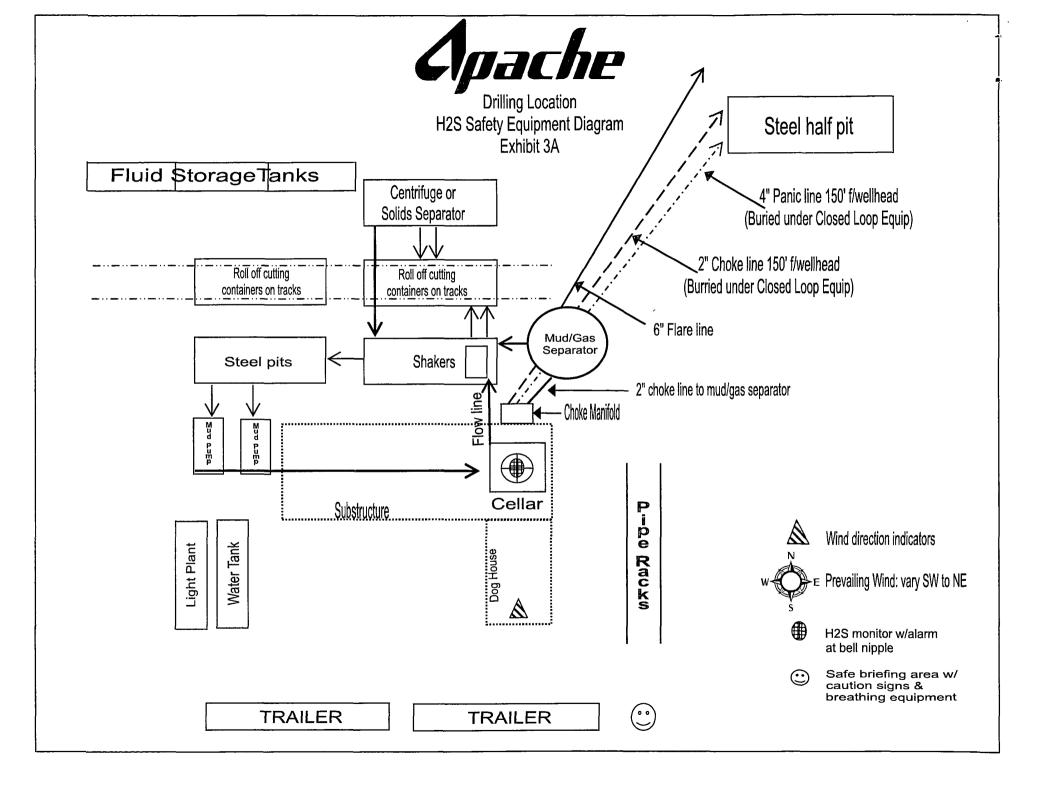
All haul bins containing cuttings will be removed from location and hauled to Sundance Incorporated (NM-01-0003) disposal site located 3 miles East of Eunice, NM on the Texas border / Controlled Recovery, Inc's (NM-01-0006) disposal site located near mile marker 66 on Highway 62/180.

Sorina L. Flores Supv. of Drilling Services

RIG ORIENTATION & LAYOUT RAVEN FEDERAL #10H EXHIBIT 5 (Revised)







HYDROGEN SULFIDE (H2S) DRILLING OPERATIONS PLAN

Hydrogen Sulfide Training:

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

- The hazards and characteristics of hydrogen sulfide (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

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H₂S	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. <u>EMERGENCY PROCEDURE ON DRILLING OR COMPLETION OPERATIONS</u>

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:

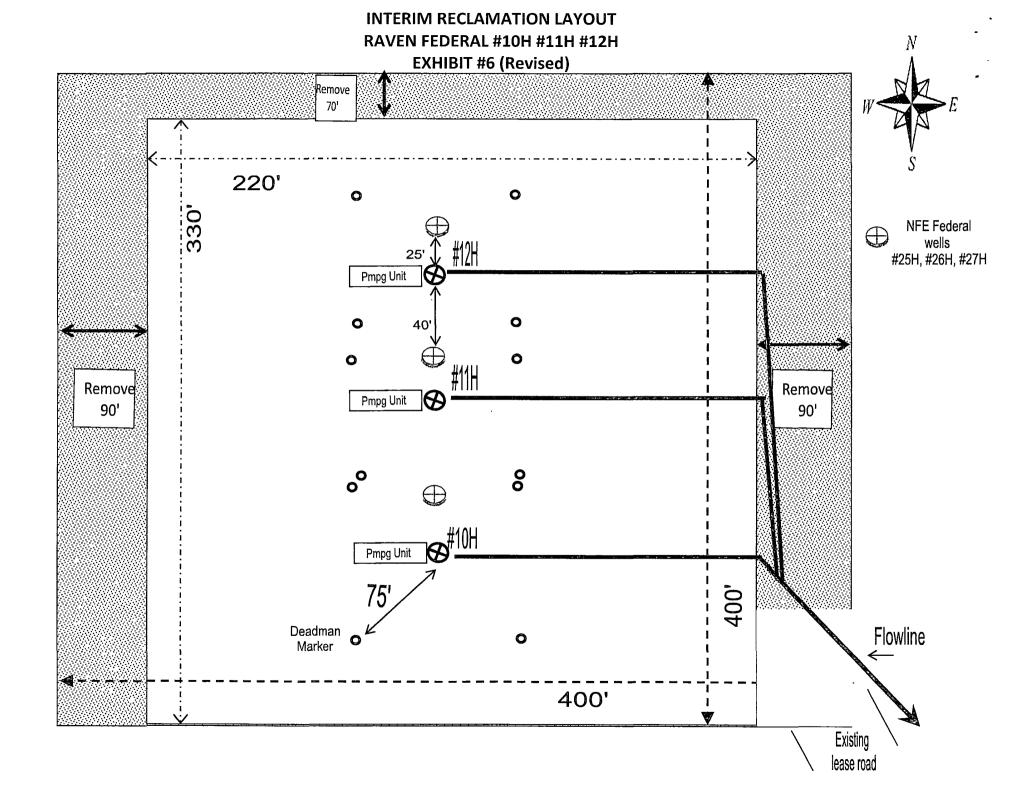
Name	Office	Mobile	Home
Danny Laman – Drlg Superintendent	432-818-1022	432-634-0288	432-520-3528
Terry West – Drilling Engineer	432-818-1114	432-664-7254	
Bobby Smith – Drilling Manager	432-818-1020	432-556-7701	
Jeff Burt – EH&S Coordinator		432-631-9081	

^{**}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	
	575-393-3612
Bureau of Land Management	3/3-393-3012



PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME: Apache Corporation
LEASE NO.: LC-029435A
WELL NAME & NO.: Raven Federal #10H
SURFACE HOLE FOOTAGE: 2218' FNL & 220' FWL
BOTTOM HOLE FOOTAGE 2218' FNL & 330' FWL Sec. 7
LOCATION: Section 8, T. 17 S., R. 31 E., NMPM
COUNTY: Eddy County, New Mexico

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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.

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