OCD-ARTESIA

ATS-12-356

Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. **NM-93469** TES 11/21/2012

6. If Indian, Allotee or Tribe Name **NA**

1a. Type of work: [✓] DRILL [ ] REENTER

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

1b. Type of Well: [✓] Oil Well [ ] Gas Well [ ] Other [✓] Single Zone [ ] Multiple Zone

8. Lease Name and Well No. **Hot Dog 23 Federal No. 4** <38435>

2. Name of Operator **Read & Stevens, Inc** <18917>

9. API Well No. 30-015-40841

3a. Address **P.O. Box 1518, Roswell, NM 88202-1518**

3b. Phone No. *(include area code)* **575 622-3770**

10. Field and Pool, or Exploratory **Dog Canyon Grayburg** <17940>

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface **990 FSL, 330 FWL, Sec. 23, T16S, R27E, NMPM**
At proposed prod. zone **same**

11. Sec., T. R. M. or Blk. and Survey or Area **Sec.23, T16S, R27E, NMPM**

14. Distance in miles and direction from nearest town or post office* **10 Air miles ENE of Artesia, 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 acres in lease	17. Spacing Unit dedicated to this well
330 / 330	800	40 Acres
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. on file
810	1600	NM-2310
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3533 Land Surface	03/15/2012	21 days

24. Attachments

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

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

25. Signature *Tim Collier* | Name *(Printed/Typed)* **Tim Collier** | Date **3-7-12**

Title **Senior Vice President for Drilling & Exploration**

Approved by *(Signature)* /s/ Don Peterson | Name *(Printed/Typed)* /s/ Don Peterson | Date AUG 13 2012

Title for FIELD MANAGER | Office CARLSBAD FIELD OFFICE

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

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

**(Instructions on page 2)*

Roswell Controlled Water Basin

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

RECEIVED
AUG 17 2012
NMOCD ARTESIA

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

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

Form C-102
Revised July 16, 2010
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-015-40841	~~17897~~ 17940	Dog Canyon Grayburg

[4] Property Code	[5] Property Name	[6] Well Number
38435	Hot Dog 23 Federal	4

[7] OGRID No.	[8] Operator Name	[9] Elevation
18917	Read & Stevens, Inc.	3533

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	23	16 S	27 E		990	South	330	West	Eddy

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
40			

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.

16

Geodetic Location
N32.90368°
W 104.25645°
(NAD 27)

330'
990'

[17] OPERATOR CERTIFICATION

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

Signature — Date: March 2012

Printed Name: Rody McMinn

E-mail Address: RMCMINN@READ-STEVENS.COM

TALLIEN@READ-STEVENS.COM

[18] SURVEYOR CERTIFICATION

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

Date of Survey: January 19, 2012

Signature and Seal of Professional Surveyor

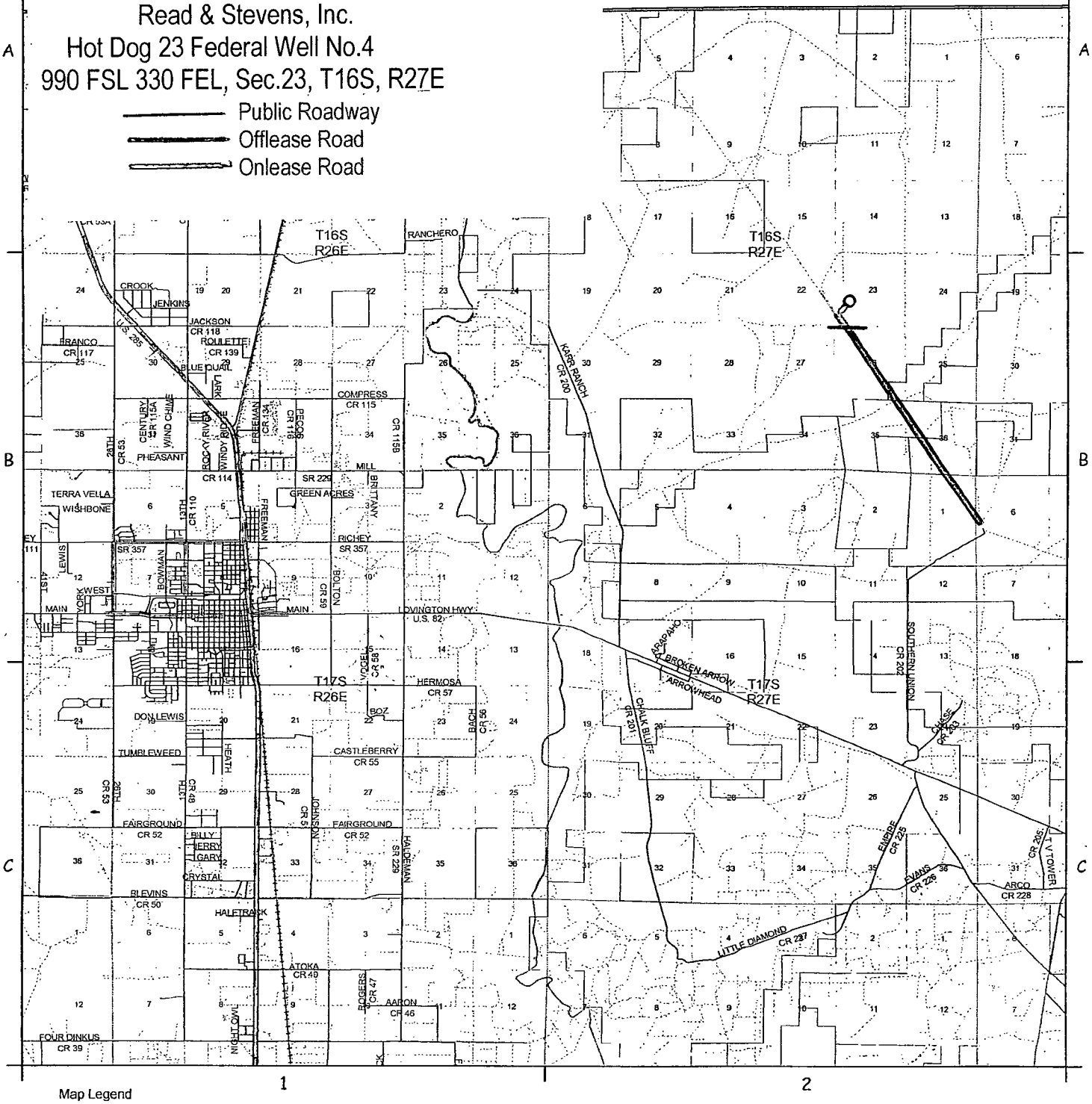
NEW MEXICO 8112 REGISTERED PROFESSIONAL LAND SURVEYOR

Certificate Number 8112

Exhibit A

Read & Stevens, Inc.
Hot Dog 23 Federal Well No.4
990 FSL 330 FEL, Sec.23, T16S, R27E

Public Roadway
Offlease Road
Onlease Road



Continued on Page 9

Continued on Page 11

Continued on Page 15

Map Legend

- BLM
- BOR
- DOE
- FS
- NPS
- P
- S
- SGF
- SP
- 2 LANE
- 4 LANE
- CANAL
- PRIVATE
- RAILROAD
- TRAIL
- Township
- Section
- Pecos River

N W E S

1 0 1 2 Miles

Scale 1" = 2 miles

CGIS
Cooperative Geographic Information System

Rev. 06/06/2005

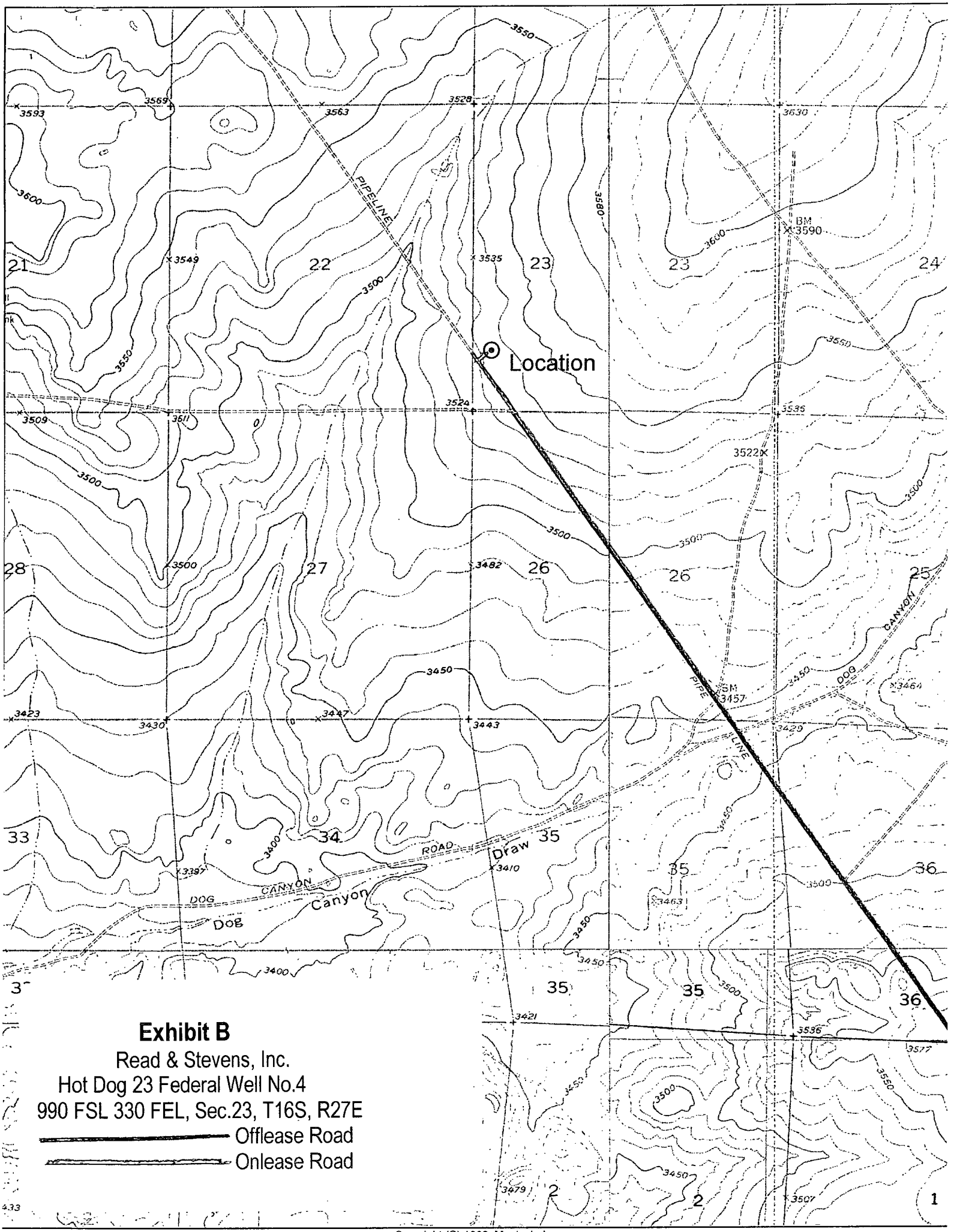


Exhibit B

Read & Stevens, Inc.

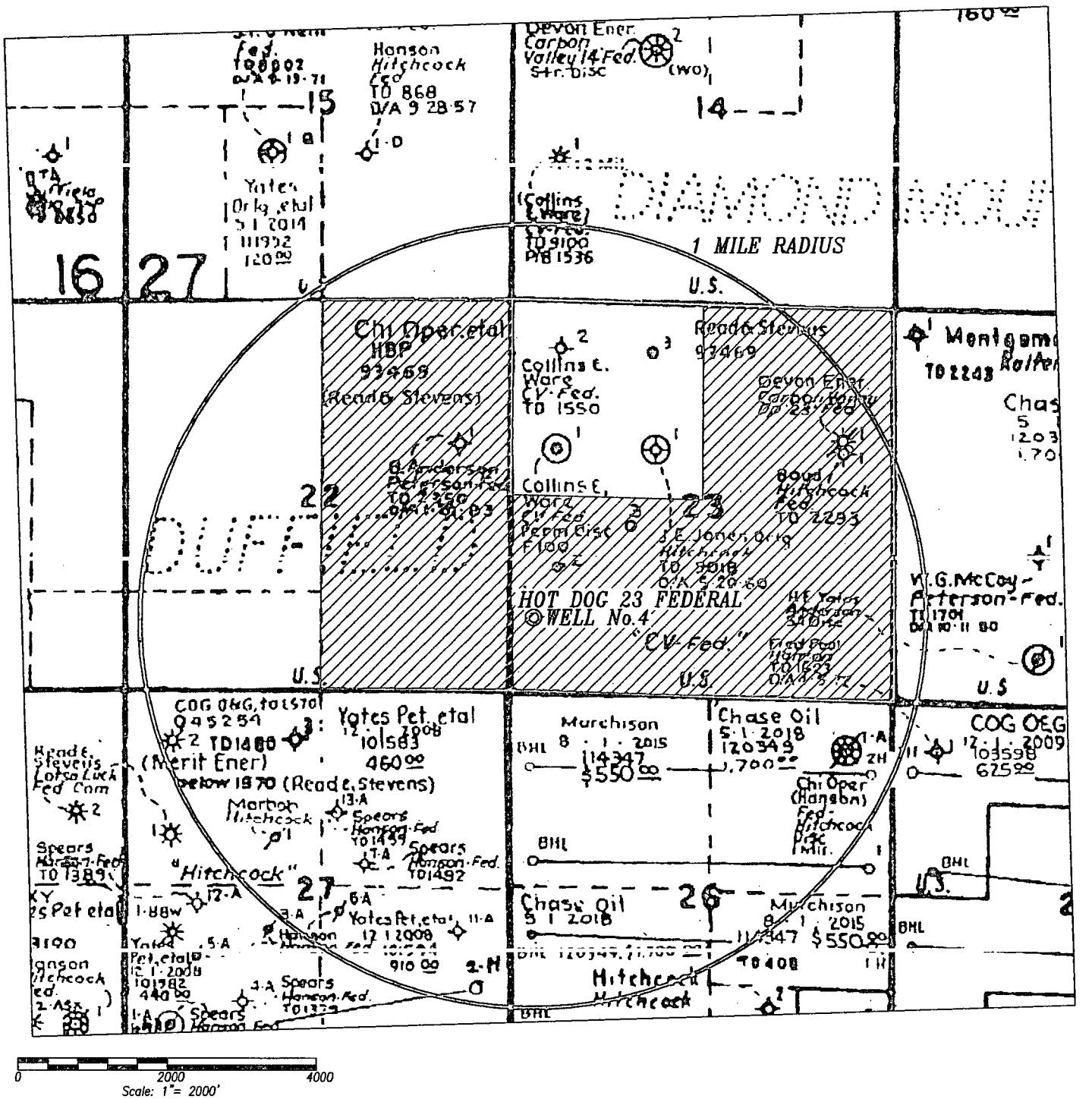
Hot Dog 23 Federal Well No.4

990 FSL 330 FEL, Sec.23, T16S, R27E

Offlease Road

Onlease Road

EXHIBIT "C" -- ADJACENT OIL & GAS WELLS



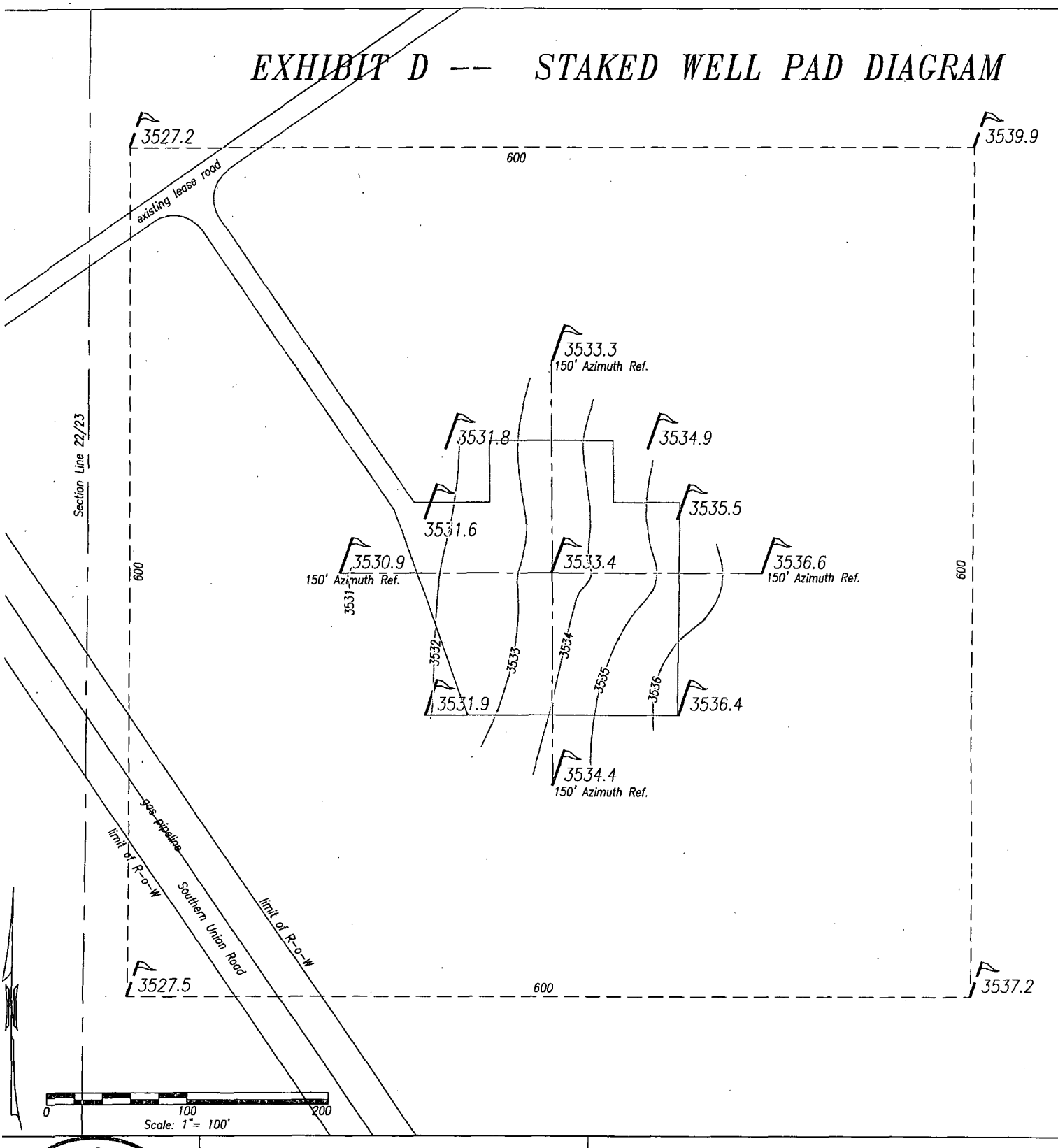
P.R. Patton & Associates
Consulting Engineers
Surveyors

Petroleum Bldg.
Roswell, N.M. 88203
575 / 622-9106

Read & Stevens, Inc.

HOT DOG 23 FED. No. 4
990 FSL 330 FWL, Sec. 23
T16S, R27E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

EXHIBIT D -- STAKED WELL PAD DIAGRAM



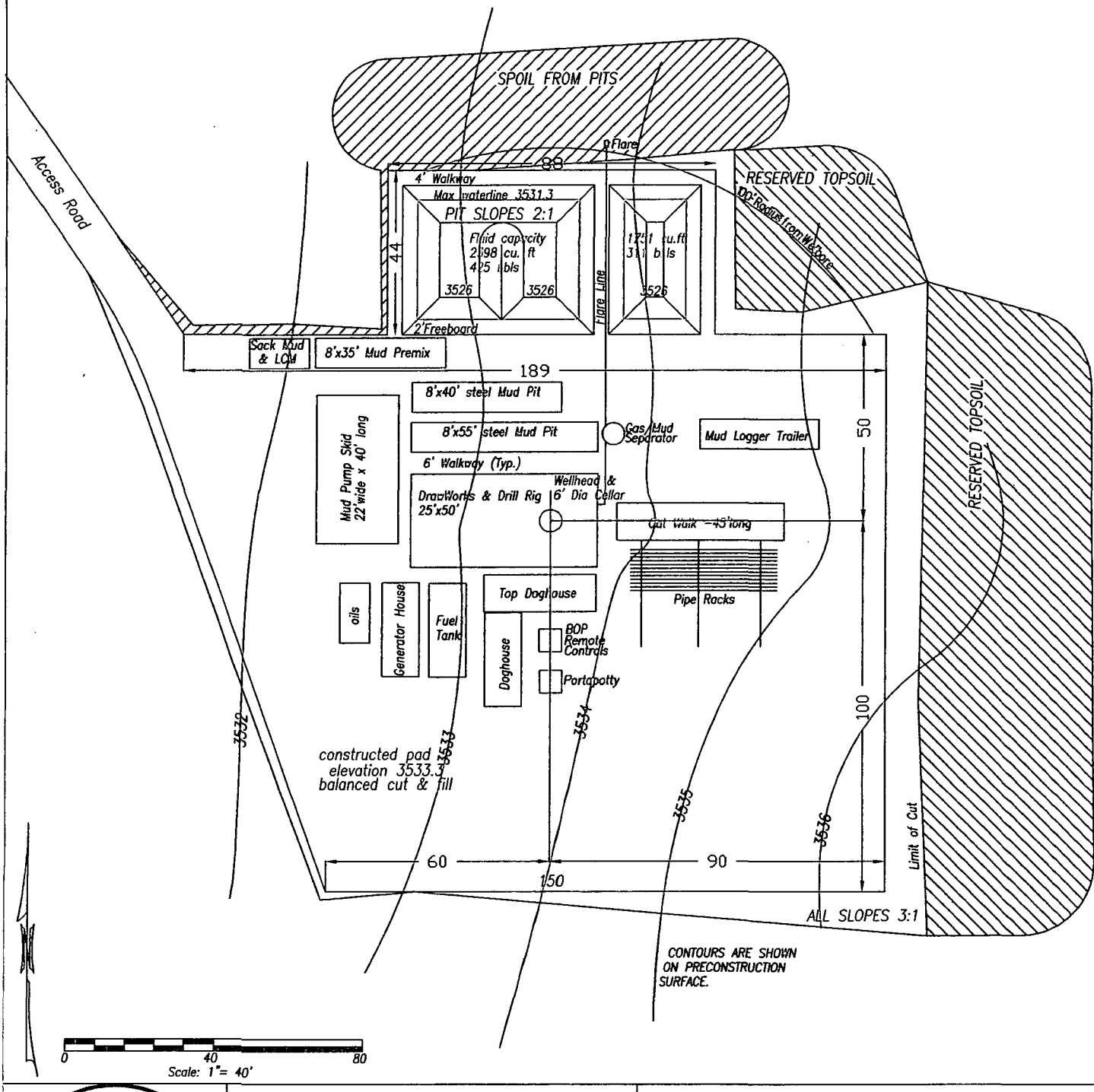
P. R. PATTON
STATE OF
6913
NEW MEXICO
REGISTERED PROFESSIONAL ENGINEER

P.R. Patton & Associates
Consulting Engineers
Surveyors
Petroleum Bldg.
Roswell, N.M. 88203
575 / 622-9106

Read & Stevens, Inc.

HOT DOG 23 FED. No. 4
990 FSL 330 FWL, Sec. 23
T16S, R27E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

EXHIBIT D1 -- PAD DIAGRAM --DRILLING WELL



P. R. PATTON STATE OF NEW MEXICO 6913 REGISTERED PROFESSIONAL ENGINEER

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Surveyors
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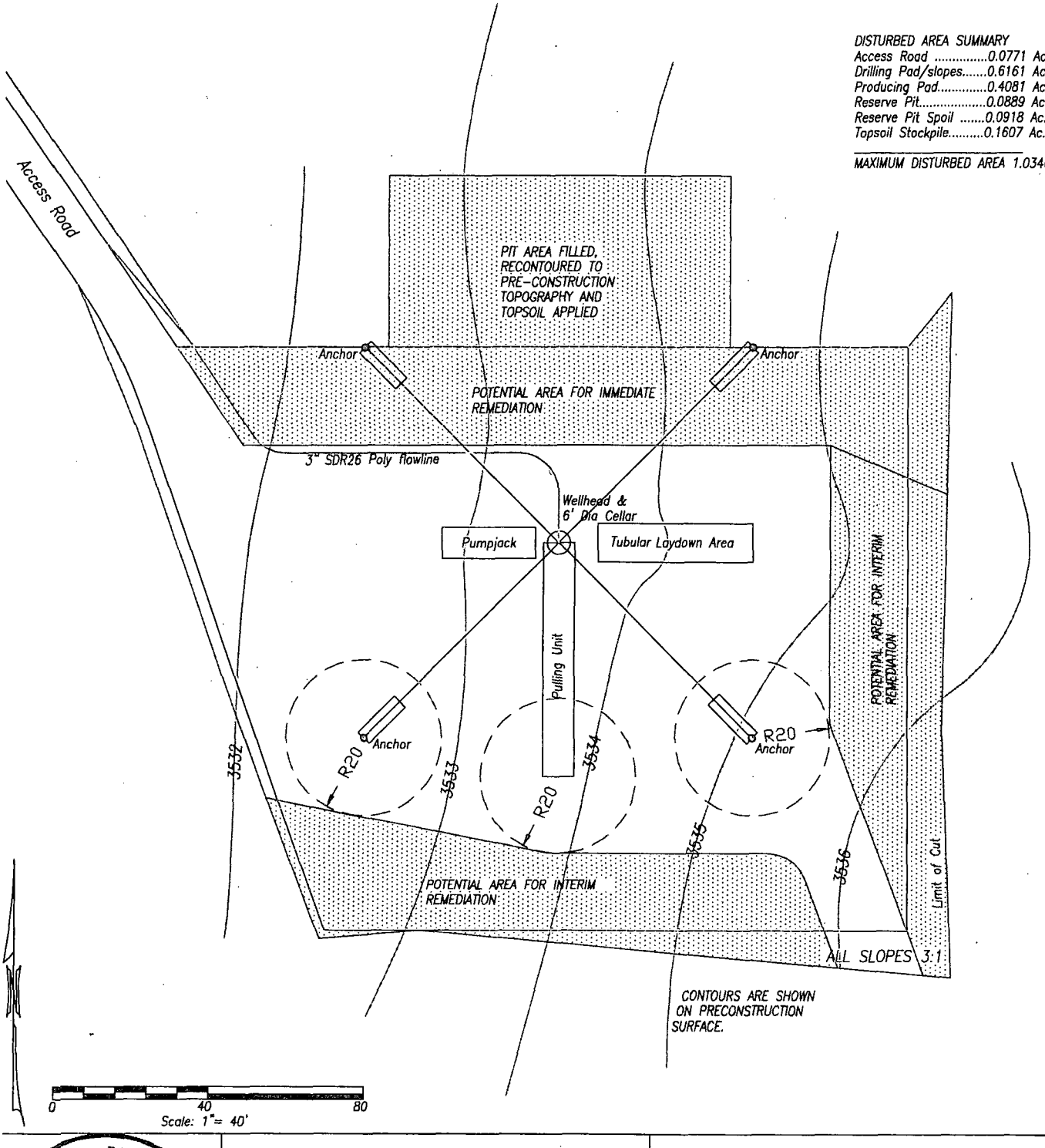
575 / 622-9106

Read & Stevens, Inc.

HOT DOG 23 FED. No. 4
990 FSL 330 FWL, Sec. 23
T16S, R27E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

EXHIBIT D2 -- PAD DIAGRAM --PRODUCING WELL



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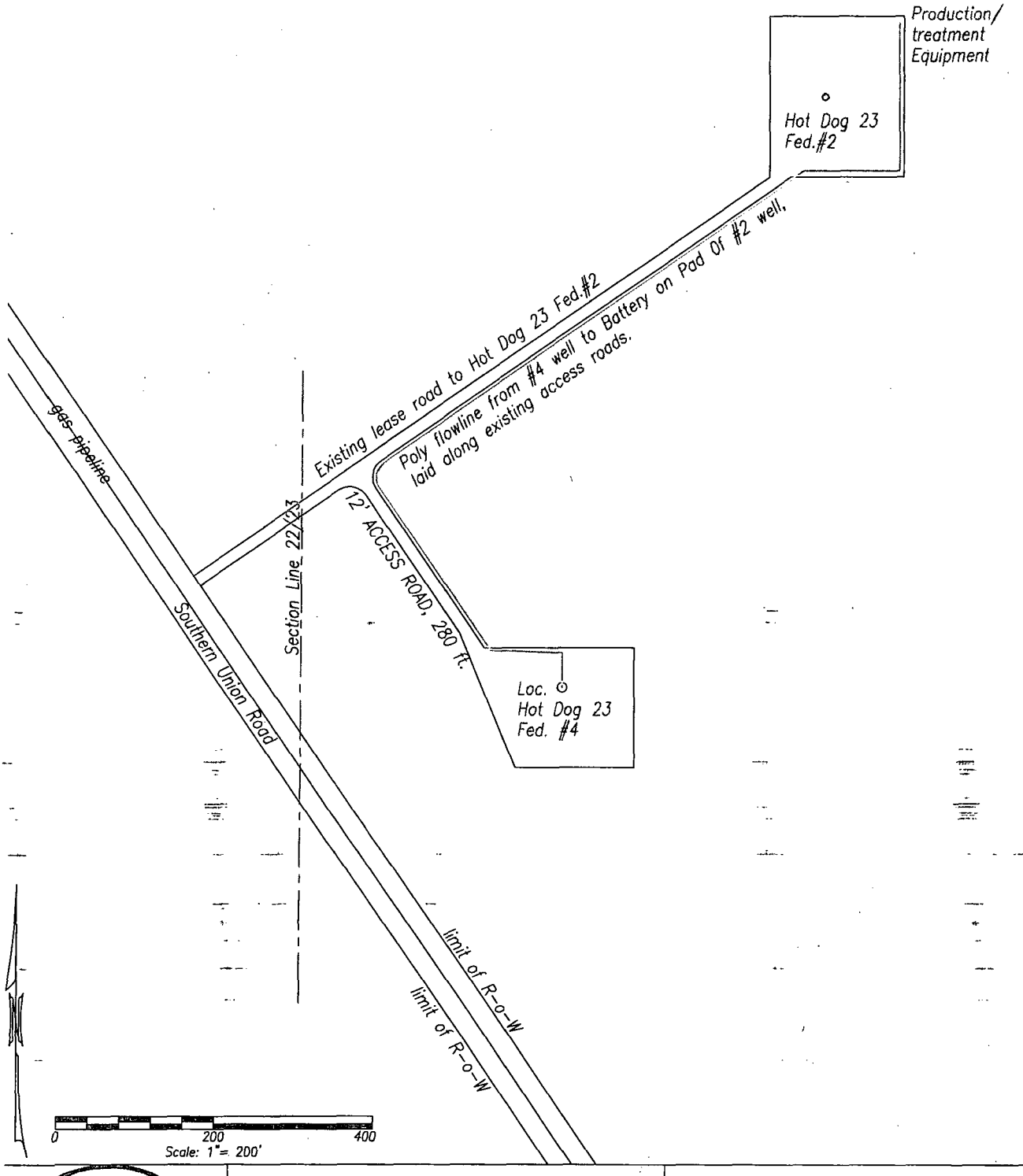
HOT DOG 23 FED. No. 4
990 FSL 330 FWL, Sec. 23
T16S, R27E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

EXHIBIT D3 -- FLOWLINE TO EXISTING BATTERY



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P.R. Patton & Associates
Consulting Engineers
Surveyors
Petroleum Bldg.
Roswell, N.M. 88203
575 / 622-9106

Read & Stevens, Inc.

HOT DOG 23 FED. No. 4
990 FSL 330 FWL, Sec. 23
T16S, R27E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

Wildcat Measurement Service
P.O.Box 1836
416 East Main Street
Artesia, NM 88211-1836

4/23/2010 5:29 PM
Phone: 575-746-3481
888-421-9453
Fax: 575-748-9852
dnorman@wildcatms.com

GAS ANALYSIS REPORT

Analysis For: READ & STEVENS, INC.
Field Name:
Well Name: HOT DOG "22" #1
Station Number:
Purpose: SPOT
Sample Deg. F: 60.0
Volume/Day:
Formation:
Line PSIG: 10.0
Line PSIA: 23.2

Run No: 2100423-13
Date Run: 04/23/2010
Date Sampled: 04/22/2010
Producer: READ & STEVENS, INC.
County: EDDY
State: NM
Sampled By: CHANDLER MONTGOMERY
Atmos Deg. F: 72

GAS COMPONENTS		MOL%	GPM
Oxygen	O_2:	0.0000	
Carbon Dioxide	CO_2:	0.1367	
Nitrogen	N_2:	51.1210	
Hydrogen Sulfide	H_2S:	0.0000	
Methane	C1:	39.5795	
Ethane	C2:	4.6290	1.2309
Propane	C3:	2.5060	0.6865
Iso-Butane	IC4:	0.3472	0.1130
Nor-Butane	NC4:	0.7643	0.2396
Iso-Pentane	IC5:	0.2231	0.0811
Nor-Pentanes	NC5:	0.2063	0.0744
Hexanes Plus	C6+:	0.4868	0.2105
Totals		100.0000	2.6360

Pressure Base: 14.650
Real BTU Dry: 622.107
Real BTU Wet: 611.186

Calc. Ideal Gravity: 0.8506
Calc. Real Gravity: 0.8516
Field Gravity:
Standard Pressure: 14.696
Ideal BTU Dry: 623.118
Ideal BTU Wet: 612.276
Z Factor: 0.9985
Average Mol Weight: 24.6369
Average CuFt/Gal: 73.2996
26 lb. Product: 0.5737
Ethane+ GPM: 2.6360
Propane+ GPM: 1.4050
Butane+ GPM: 0.7186
Pentane+ GPM: 0.3660

Remarks:
H2S IN GAS STREAM ON LOCATION: NONE DETECTED

Analysis By: Don Norman

Exhibit F
Read & Stevens, Inc.
Hot Dog 23 Federal Well No.4
990 FSL 330 FEL, Sec.23, T16S, R27E

DRILLING PLAN

READ & STEVENS, INC.

Hot Dog 23 Federal, Well No.4
990'FSL & 330' FWL Sec. 23- 16S-R27E
Eddy County, New Mexico
Lease No.: NM-93469
(Development Well)

In conjunction with Form 3160-3, Application for Permit to Drill, Read & Stevens, Inc. submits the following items of pertinent information.

1. The geologic surface formation is Permian age Artesia Group redbeds, which have weathered to form what is described by the Soil Conservation Service "Eddy Area" soil survey as the "Reeves-Gypsum Land Complex" soil type.

2. The estimated tops of geologic markers are as follows

Gypsum-Redbeds	Surface
Yates	120
Seven Rivers	500
Queen	690
Grayburg	1070
Premier Sand	1420
TD	1600

3. The estimated depths at which water, oil or gas formations are anticipated to be encountered are:

Water: No fresh water is anticipated. The Mud Log of the Hot Dog 23 Federal Well #3, located 1866 feet to the Northeast encountered bedded salt at a depth of 50 feet (depth at which logging was commenced) and continuing to just above the potential pay zone. The NMSEO Waters Database lists two wells within a 2 mile radius of this location. Of those, according to the source files in the Roswell district office of the NMSEO, one is mislocated at 1 township too far south, and the other is a dry hole drilled to a depth of 450 feet to supply rig water, and is located about 1980 FNL and 1850 FWL of this same section.

Oil: Possible in the Premier below 1,450'

Gas: Gas is expected to be encountered in the Queen formation at a depth of about 690 feet. It will be at or slightly above expected hydraulic gradient pressure, and is also expected to be a high nitrogen composition gas, which has historically been non-commercial, even though quite flammable.

4. CASING PROGRAM

All New API certified casing will be used, with properties as shown below:

Casing String designation	Cased Interval	Hole Dia.	Casing Dia	Grade	Casing Wt/ft	Condi-tion	Collar OD	Collar Type	Collapse FS	Burst FS	Tension FS
Surface	0 to 350	12-3/4"	8-5/8	J-55	24.00	NEW	9.625	STC	17	37.4	27.7
Production	0 to 1600	7-7/8"	5-1/2"	J-55	14.00	NEW	6.050	STC	2.12	4.67	7.1

A. Surface Protection String Commentary

It is believed that there is no water, fresh or otherwise, in the upper part of this well overlying the Yates Formation. Accordingly, the primary function of this casing then becomes providing an anchor for the BOP. There is a potential uplift of the casing due to the bottom hole pressure if the hole were to be evacuated and a gas or oil zone were encountered and the casing were not set deep enough. This casing will be subject to bottom hole pressures associated with a depth of up to 1600 feet, and it is necessary to ascertain a casing depth which will accomplish that. Applying the equations of statics, the potential uplift force is given by the (area of the casing) x (bhp at surface, psi.). This must be balanced by the weight of the casing and cement, and any friction developed by the cement interacting with the formation. From the 2003 ICC building code, we are given a maximum allowable skin friction value for piles of 500 psf, which equates to 1668 lbs/ft of embedment (depth). If we assume a maximum BHP = depth x pressure gradient of saturated brine (0.52 lbs/ft), it yields a gas casinghead pressure of 832 psi for a completely evacuated hole of 1600 feet in depth. Setting this to a static equilibrium,

Casing area x BHP = uplift force = (weight of casing +Cement+ skin friction) x required depth
51.492 sqin x 832psi = 42,841 lbs = (24.00 lbs/ft+56.84 lbs/ft+1668lb/ft) x D ft
solving for D yields a depth of 24.5 ft.
At a depth of 200 ft, the adequacy of the casing as a BOP anchor is exceeded by a factor of 8.

The Hydrostatic force gradients are based on a
cement weight of 15.8 lbs/gal ==========> 0.8207 psi/ft
fresh water weight of 8.342 lbs/gal =======> 0.4675 psi/ft
near saturated brine weight of 10.01 lbs/gal. ===> 0.5200 psi/ft

While drilling to 350 feet, the formation will be subject to a maximum force of 350 x 0.52 = 182 psi
While cementing the Surface Casing, the formation will be subject to a maximum force of 350 x 0.8207 = 287 psi

While cementing, the casing will be subject to a U tube effect, first being filled with cement while surrounded by brine, and then being filled with fresh water while surrounded by cement. This results in
Burst Pressure = 350 x (0.8207-0.52) = 105 psi ==========> 2250/105 = Safety Factor = 21.4
Casing collapse = 350 x (0.8702-0.4674) = 141 psi ======> 1370/141 = Safety factor = 9.71

Casing tension will be maximum when full of cement in a hole full of drilling mud;
350ft x (24lb/ft+(2.6749gal/ft x (15.8-8.34)))= 15.38 kips ========> 244/15.38 = Safety Factor =15.8

Casing Collar --- Borehole clearance is 1.5625 inches, which is greater than the required 0.422 inches.

Centralizers will be installed on each collar of the bottom three joints of casing starting with the shoe joint collar, and every third joint thereafter.

B. Production String Commentary

This casing serves to isolate all fluids to the zone in which they occur, and to prevent any commingling. It is believed that there may be gas or a gas/air mix in the Queen Formation, and hopefully, oil in the Premier Sand. All water zones, irrespective of salinity, will be reported prior to running casing.

This casing will be subject to bottom hole pressures associated with a depth of up to 1600 feet. If we assume a maximum BHP = depth x pressure gradient of saturated brine (0.52 lbs/ft), it yields a gas casinghead pressure of 832 psi for a completely evacuated hole of 1600 feet in depth at a projected temperature of 76° F.

The Hydrostatic force gradients are based on a

cement weight of 15.8 lbs/gal ==========> 0.8207 psi/ft
fresh water weight of 8.342 lbs/gal =======> 0.4675 psi/ft
near saturated brine weight of 10.01 lbs/gal. ===> 0.5200 psi/ft

While drilling to 1600 feet, the formation will be subject to a maximum force of 1600 x 0.52 = 832 psi
While cementing the Production string, the formation will be subject to a maximum force of 1600 x 0.8207 = 1313 psi at TD

While cementing, the casing will be subject to a U tube effect, first being filled with cement while surrounded by brine, and then being filled with fresh water while surrounded by cement. This results in

Burst Pressure = 1600 x (0.8207-0.52) = 481 psi ==========> 2250/481 = Safety Factor = 4.67
Casing collapse = 1600 x (0.8702-0.4674) = 645 psi =========> 1370/645 = Safety factor = 2.12

Casing tension will be maximum when full of cement in a hole full of drilling mud;
1600ft x (14lb/ft+(1.0249gal/ft x (15.8-8.34)))= 34.34 kips =======> 244/34.33 = Safety Factor =7.1

Casing Collar --- Borehole clearance is 0.8875 inches, which is greater than the required 0.422 inches.

Centralizers will be installed on each collar of the bottom three joints of casing, at the collar immediately below the pay, at the collar immediately above the pay, and every third joint thereafter to surface.

5. CEMENTING PROGRAM

Casing String	Interval	TOC	Cement Type/ Class	Additives /sack	Calc. Vol Req'd (cu.ft)	Yield Cu.ft/ sk	% of Req'd	Cement Req'd for % excess
Surface	0-350	Surf	C	5# salt, 1.5# Flo-cele	96.18	1.32	150%	193 sx
Production	0-1600	Surf	C	3# salt, 1.5# Flo-cele, 2% Bentonite	321.18	1.51	125%	266 sx

A. Cementing Procedures

1. Casing will be cemented by the "Pump and Plug" method. A bottom plug will be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry. A top plug will be used to reduce contamination of cement by displacement fluid

1. The surface casing shall be cemented back to surface either during the primary cement job or by remedial cementing.
2. All waiting on cement times shall be adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out, or a minimum of 18 hrs, whichever is greater.

B. Cement Testing
1. All casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string length or 1500 psi, whichever is greater, but not to exceed 70 percent of the minimum internal yield. If pressure declines more than 10 percent in 30 minutes, the cement job shall be deemed unacceptable, and corrective action taken.
2. All of the above described tests will be recorded in the drilling log.

6. MUD PROGRAM

Drilling Interval	Fluid Type	Weight lbs/gal	Vis. (cp)	Additives
0 – 350	Brine	9 – 11.5	30	Bentonite, Torq-Buster, LCM as needed
350 – 1600	Brine	9 - 14.5	30	Bentonite, Torg-Buster, LCM as needed

It is believed that there is no water, fresh or otherwise, in the upper part of this well overlying the Yates Formation. Fresh water, if used, is anticipated to severely wash out the borehole as the lithology is very thin stringers of gypsum / anhydrite as evidenced by the mudlog attached as part of the NMOCD C-144 attached hereto. In adjacent wells the use of fresh water resulted in an exorbitant amount of cement to obtain circulation. For that reason, it is proposed to use brine as the circulating fluid base from grassroots down. The mud program and related drilling procedures as proposed is designed to prevent the loss of well control and produce a borehole ready to receive casing and allow efficacious cementing of the casing. This will be accomplished by:

A Source of circulating fluid and makeup fluid will be produced water from nearby wells and which will be stored in the reserve and drilling pits onsite.

B. There will be onsite a minimum of three wellbore volumes (calculated at Td, exclusive of casing) of water for circulating fluid makeup in the event it is needed to control lost circulation

C. ufficient quantities of mud (Mixed and unmixed) and Lost Circulation materials shall be maintained or readily accessible for the purpose of assuring continuous well control.

D. Mud monitoring equipment shall be in place to visually detect volume changes indicating loss or gain of circulating fluid volume.

E. Testing and Record Keeping
1. Slow pump speed will be recorded on daily drilling report after mudding up.
2. A mud test shall be performed at least every 24 hours after mudding up to determine density, viscosity, gel strength, filtration, and pH.
3. These will be recorded on daily drilling report every time they are taken.

F. Gas detecting equipment shall be installed in the mud return system, and hydrocarbon gas shall be monitored for pore pressure changes.

G. A mud-gas separator (gas buster) will be installed and operable beginning at the bottom of the surface casing

H. A flare system shall be designed to gather and burn all gas. The flare line(s) discharge shall be located not less than 100 feet from the well head, having straight lines unless turns are targeted with running tees, and shall be positioned downwind of the prevailing wind direction and shall be anchored. The flare system shall have an effective method for ignition. Where noncombustible gas is likely or expected to be vented, the system shall be provided supplemental fuel for ignition and to maintain a continuous flare.

7. Well Control

A. A blowout preventer (BOP) and related equipment (BOPE) will be installed, used, maintained, and tested in manner necessary to assure well control and shall be in place and operational prior to drilling the surface

casing shoe The anticipated surface pressure, assuming a fully evacuated hole with a pressure gradient of 0.52 psi/ft. at a TD of 1600 ft is 832 psi. This is well within the capabilities of the 2M system proposed to be used. That system consists of:

- Rotating Head
- A 2M 11" Annular preventer installed on the 8-5/8" surface casing
- kill line (2 inch minimum)
- 1 kill line valve (2 inch minimum)
- 1 choke line valve
- 2 chokes (refer to diagram in Exhibit "**E**")
- Upper kelly cock valve with handle available on drill floor
- Safety valve and subs to fit all drill strings in use
- Pressure gauge on choke manifold
- 2 inch minimum choke line/s
- Fill-up line above the uppermost preventer.

B. Choke Manifold Equipment.

i. All choke lines shall be straight lines unless turns use tee blocks or are targeted with running tees, and shall be anchored to prevent whip and reduce vibration.

ii. Choke manifold equipment configuration shall be as indicated on the example diagram shown in Exhibit "E"

iii. All valves (except chokes) in the kill line choke manifold, and choke line are a type that does not restrict the flow (full opening) and that allows a straight through flow

iv. Pressure gauges in the well control system are a type designed for drilling fluid service

C. The 2M system accumulator has sufficient capacity to close all BOP's and retain 200 psi above precharge, using nitrogen bottles that meet manufacturer's specifications.

D. A precharge pressure test will be conducted prior to connecting the closing unit to the BOP stack The accumulator pressure will be adjusted with nitrogen gas to be within the operating limits as shown

Pressure rating	Operating Pressure	Precharge Pressure Desired	Maximum	Minimum
1,500 psi	1,500 psi	750 psi	800 psi	700 psi
2,000 psi	2,000 psi	1,000 psi	1,100 psi	900 psi
3,000 psi	3,000 psi	1,000 psi	1,100 psi	900 psi

E. Power for the closing unit pumps shall be available to the unit at all times so that the pumps shall automatically start when the closing valve manifold pressure has decreased to the pre-set level.

F. The BOP closing unit shall be equipped with sufficient number and sizes of pumps so that, with the accumulator system isolated from service, the pumps shall be capable of opening the hydraulically-operated gate valve plus closing the annular preventer on the smallest size drill pipe to be used within 2 minutes, and obtain a minimum of 200 psi above specified accumulator precharge pressure.

G. A manual locking device (i.e., hand wheels) or automatic locking devices shall be installed. A valve is installed in the closing line as close as possible to the annular preventer to act as a locking device. This valve will be maintained in the open position and shall be closed only when the power source for the accumulator system is inoperative.

H. TESTS AND TESTING SCHEDULE

1. The annular preventer shall be tested to 50 percent of rated working pressure. Pressure shall be maintained at least 10 minutes or until provisions of test are met, whichever is longer. This test shall be performed:
   a. when initially installed:
   b. whenever any seal subject to test pressure is broken:
   c. following related repairs: and
   d. at 30-day intervals.

2. Valves shall be tested from working pressure side during BOPE tests with all down stream valves open.

3. When testing the kill line valve(s), the check valve shall be held open or the ball removed.

4. Annular preventers shall be functionally operated at least weekly.

5. A BOPE pit level drill shall be conducted weekly for each drilling crew.

6. Pressure tests shall apply to all related well control equipment.

7. All of the above described tests and/or drills shall be recorded in the drilling log.

8. Testing, Logging, and Coring Program:

See COA

Drill Stem Tests:		None anticipated.
Logging:	T.D thru pay:	Schlumberger PEX-HRLA.
	T.D. to surface:	GR-Neutron
Coring:		None anticipated.
Mud Log	Base of Conductor to TD	

9. ABNORMAL PRESSURE PROGNOSIS

No abnormal pressures or temperatures are anticipated. In the event abnormal pressures are encountered, the proposed mud program will be modified to increase the mud weight. The estimated evacuated BHP = 832 psi with a temperature of 76°F.

10. H_2S PROGRAM:

H2S is not expected to be encountered. None has been encountered in the previous drilling of wells in this area from these formations.. See attached Gas Analysis Report, Exhibit "**F**". which demonstrates that no H2S gas was detected in the Hot Dog 22 Federal, Well No. 1.

11. OTHER INFORMATION

Anticipated starting date: Immediately upon approval.
Anticipated completion of drilling operations: Approximately 3 Weeks after spudding well. .

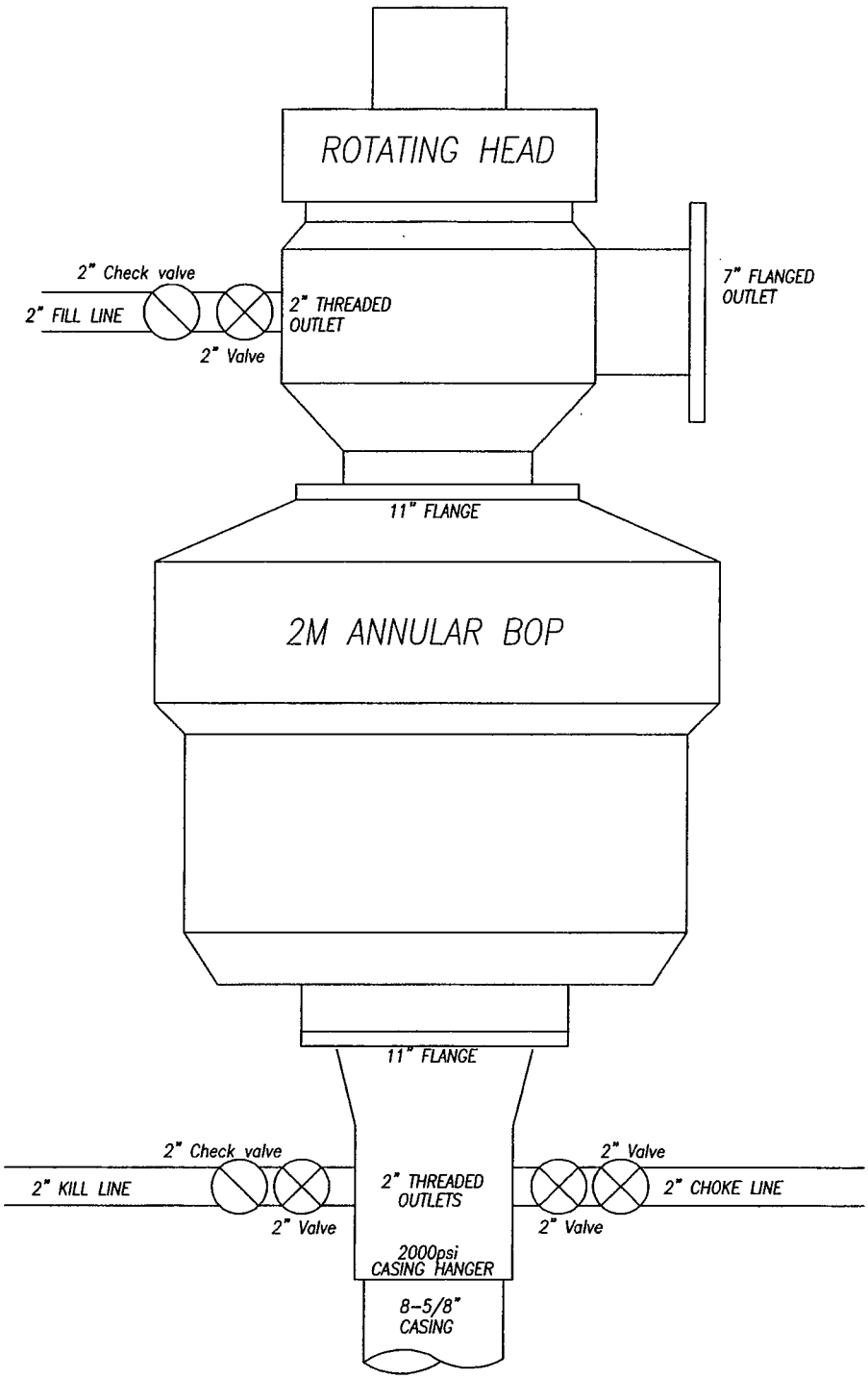


EXHIBIT E-1
Read & Stevens, Inc
Hot Dog 23 Federal Well No. 4
990 FSL 330 FEL, Sec. 23, T16S, R27E

2M CHOKE MANIFOLD EQUIPMENT--CONFIGURATION OF CHOKES MAY VARY

EXHIBIT E-2
Read & Stevens, Inc
Hot Dog 23 Federal Well No. 4
990 FSL 330 FEL, Sec. 23, T16S, R27E

Plates

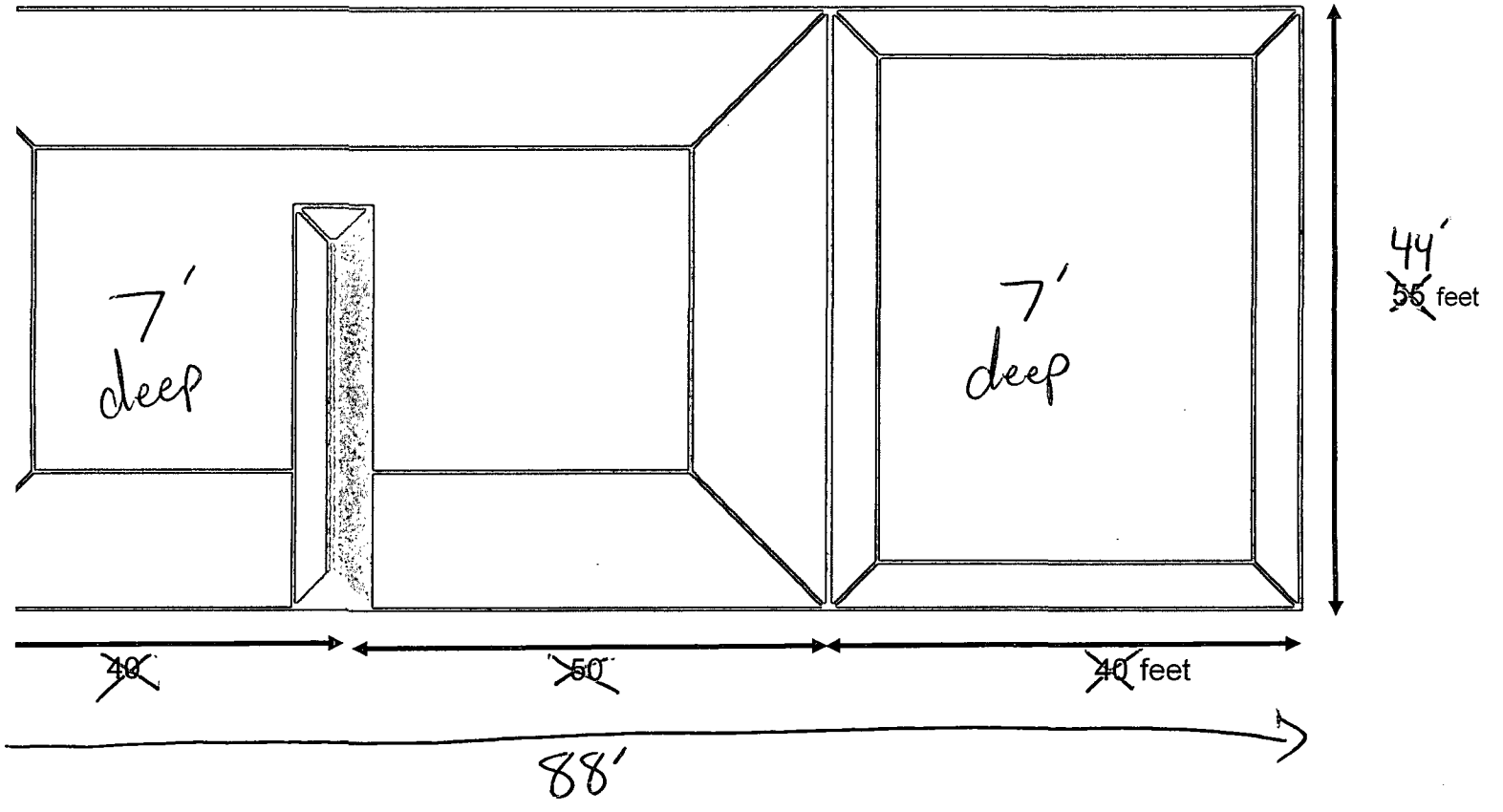
R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

ıe after stabilization = hole

	3.5	=	2,229	82.56	39

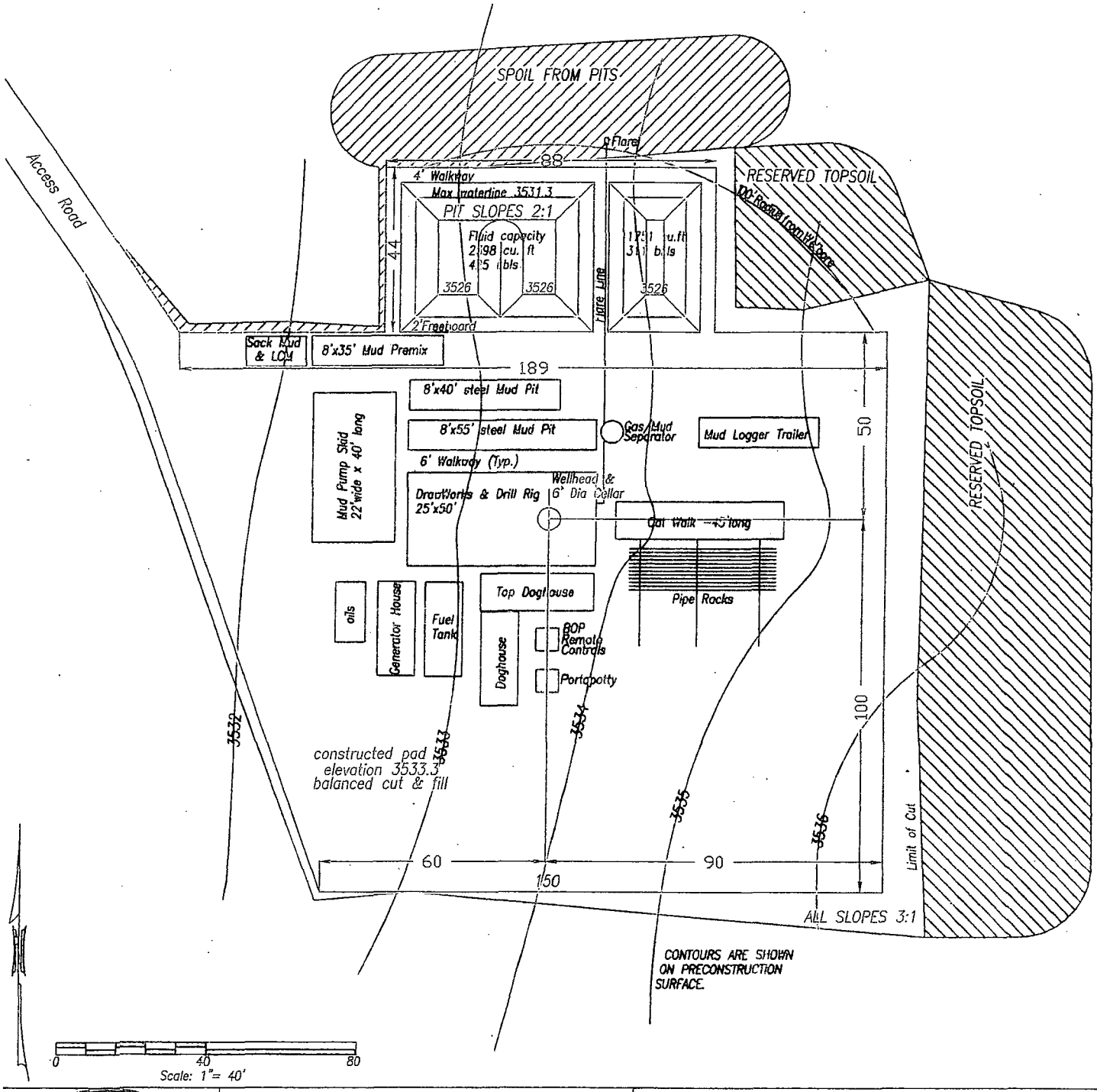
ıcity of drilling pit	1,500	bbls
ıpacity (2-ft freeboard)	1477	bbls
ırilling pit	2970	bbls

ge cell of drilling pit	55	feet	Slopes	2H:1V
e cell of drilling pit	50	feet	Slopes	2H:1V
cell of drilling pit	55	feet	Slopes	2H:1V
;ell of drilling pit	40	feet	Slopes	2H:1V
ıe cell of drilling pit	5			
;ell of drilling pit	6			
'ench/workover pit	55		Slopes	1H:1V
ınch/workover pit	40		Slopes	1H:1V
;nch/workover pit	6			



] of volume for cuttings at 4-feet
ırial trench 473 ft3

EXHIBIT D1 -- PAD DIAGRAM --DRILLING WELL



P. R. PATTON
STATE OF NEW MEXICO
6913
REGISTERED PROFESSIONAL ENGINEER

P.R. Patton & Associates
Consulting Engineers
Surveyors
Petroleum Bldg.
Roswell, N.M. 88203
575 / 622-9106

Read & Stevens, Inc.

HOT DOG 23 FED. No. 4
990 FSL 330 FWL, Sec. 23
T16S, R27E, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

Appendix SSI-1

Photo-documentation

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

Appendix SSI-2
Mud Log Hot Dog 23 Federal #3

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

SELMAN AND ASSOCIATES, LTD.
GEOLOGICAL CONSULTING / SURFACE LOGGING SERVICES
P.O. BOX 61150
CORPUS CHRISTI, TEXAS | MIDLAND, TEXAS 79711 | ROCK SPRINGS, WYOMING
OFFICE (432) 563 0084 — 24 HOURS (800) 578 1006

Company:	READ & STEVENS, INC		
Well:	HOT DOG 23 FEDERAL #3		
Field:	DOG CANYON;GRAYBURG		
API:	30-015-39190		
Location:	2310' FSL & 1650' FWL, SEC.23, T-16-S,R-27-E		
County:	EDDY	**State:**	NEW MEXICO
Logger:	G. GORMAN		
Interval:	0'	**To:**	1699'
Date:	9/6/2011	**To:**	9/7/2011
Unit:	41		
Well#:	6417	**Kelly Bushing:**	0
Phone:	432-385-4441	**Ground Level:**	3564

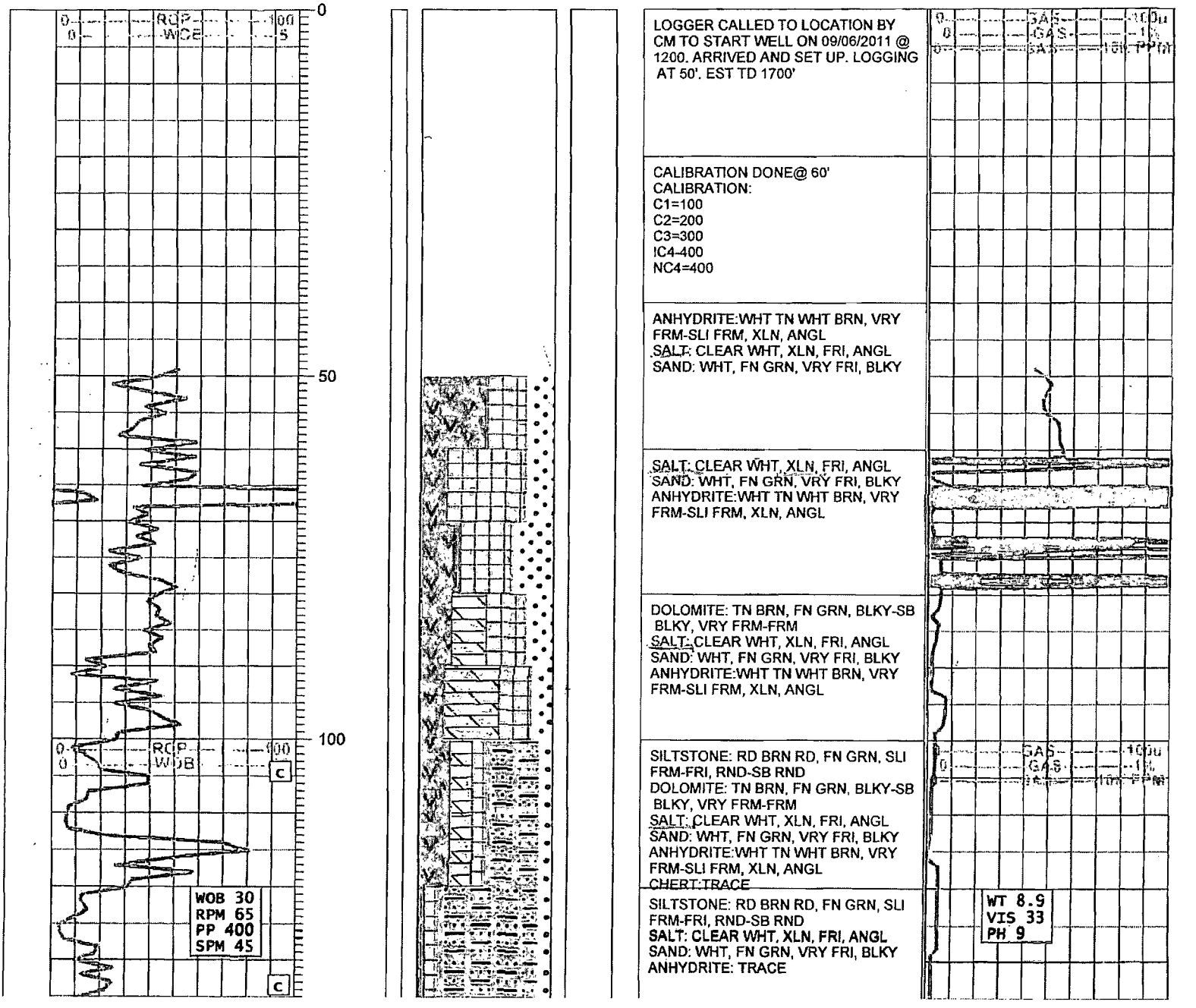
ANHYDRITE | CHERT | COAL
CONGLOMERATE | DOLOMITE | GRANITE
GRANITE WASH | LIMESTONE | SALT
SAND | SHALE | SILTSTONE

POROSITY - % CUT - FLUOR
TRACE | FAIR | GOOD

C-1 METH (PURPLE) | C-4 BUT (BROWN)
C-2 ETH (PINK)
C-3 PROP (DK BLUE) | CO2 (DK PURPLE)

TOTAL GAS (RED)
0 ----- FLARE ----- 100

Drill Rate (min) Wob (kLbs) | DEPTH | POR | CUTTINGS | %Cut Fluor | LITHOLOGY | GAS ANALYSIS (UNIT)



LOGGER CALLED TO LOCATION BY CM TO START WELL ON 09/06/2011 @ 1200. ARRIVED AND SET UP. LOGGING AT 50'. EST TD 1700'

CALIBRATION DONE@ 60'
CALIBRATION:
C1=100
C2=200
C3=300
IC4-400
NC4=400

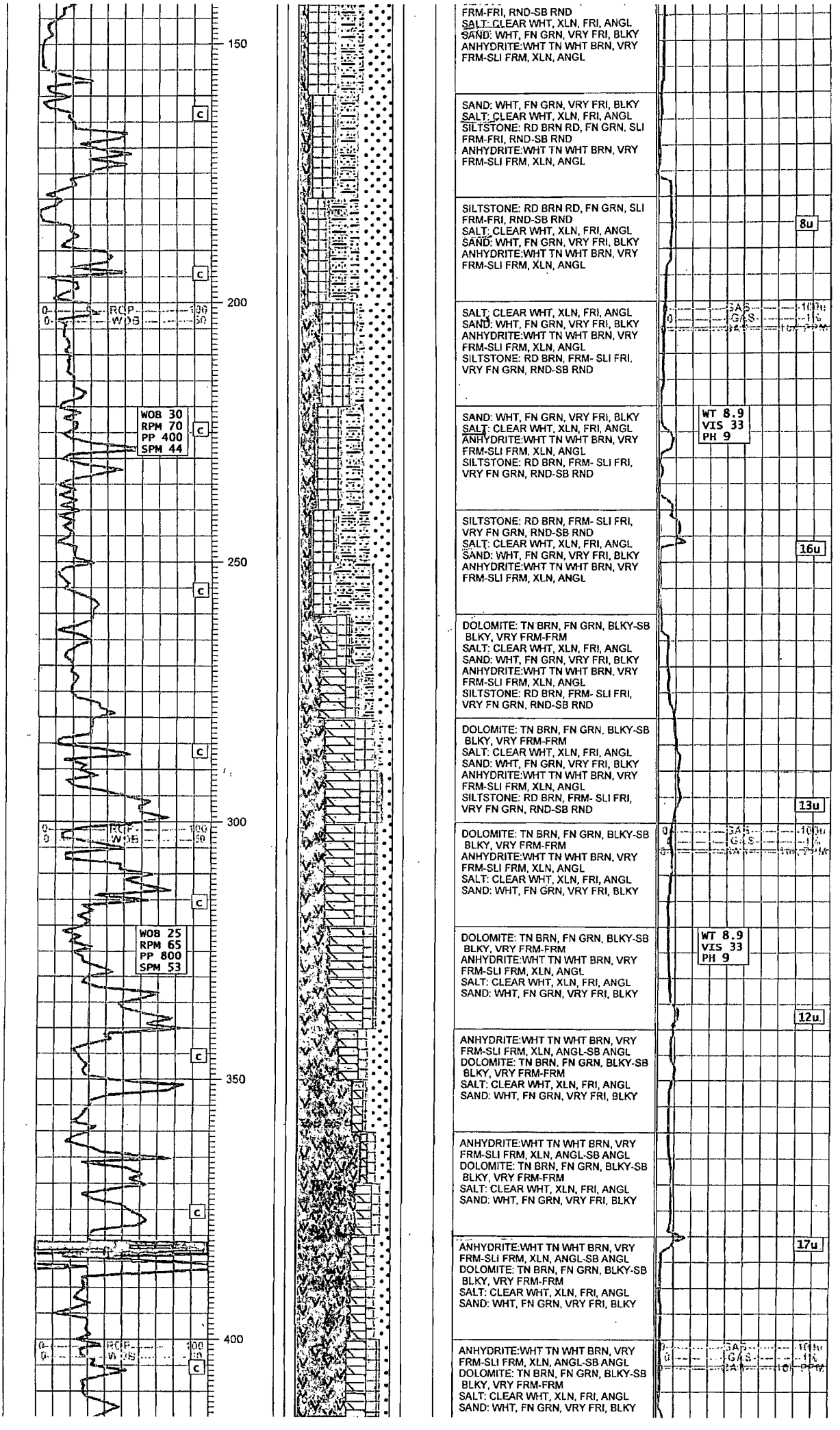
ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY

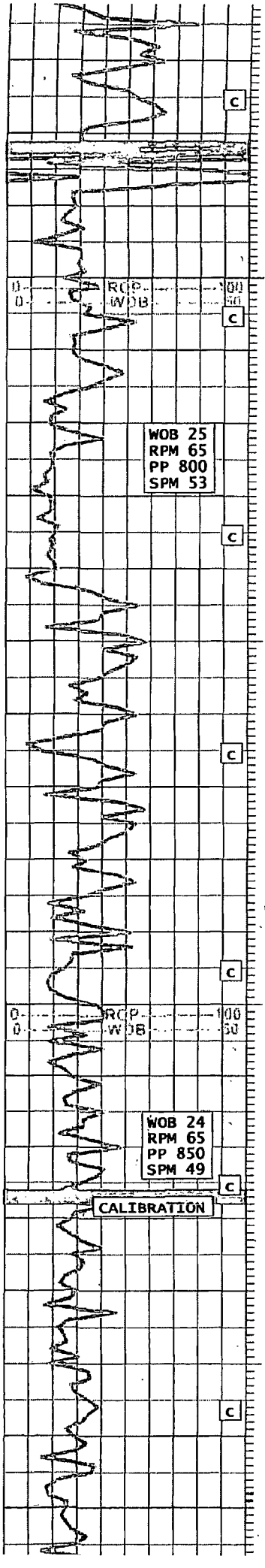
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY
ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL

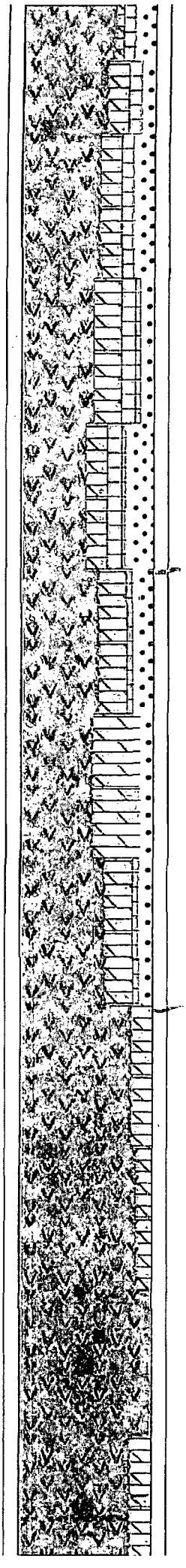
DOLOMITE: TN BRN, FN GRN, BLKY-SB BLKY, VRY FRM-FRM
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY
ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL

SILTSTONE: RD BRN RD, FN GRN, SLI FRM-FRI, RND-SB RND
DOLOMITE: TN BRN, FN GRN, BLKY-SB BLKY, VRY FRM-FRM
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY
ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL
CHERT:TRACE

SILTSTONE: RD BRN RD, FN GRN, SLI FRM-FRI, RND-SB RND
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY
ANHYDRITE: TRACE


150
200
250
300
350
400
ROP
WOB
WOB 30
RPM 70
PP 400
SPM 44
WOB 25
RPM 65
PP 800
SPM 53
FRM-FRI, RND-SB RND
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY
ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY
SALT: CLEAR WHT, XLN, FRI, ANGL
SILTSTONE: RD BRN RD, FN GRN, SLI FRM-FRI, RND-SB RND
ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL
SILTSTONE: RD BRN RD, FN GRN, SLI FRM-FRI, RND-SB RND
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY
ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL
8u
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY
ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL
SILTSTONE: RD BRN, FRM- SLI FRI, VRY FN GRN, RND-SB RND
SAS
GAS
100u
1%
WT 8.9
VIS 33
PH 9
SAND: WHT, FN GRN, VRY FRI, BLKY
SALT: CLEAR WHT, XLN, FRI, ANGL
ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL
SILTSTONE: RD BRN, FRM- SLI FRI, VRY FN GRN, RND-SB RND
16u
SILTSTONE: RD BRN, FRM- SLI FRI, VRY FN GRN, RND-SB RND
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY
ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL
DOLOMITE: TN BRN, FN GRN, BLKY-SB BLKY, VRY FRM-FRM
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY
ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL
SILTSTONE: RD BRN, FRM- SLI FRI, VRY FN GRN, RND-SB RND
DOLOMITE: TN BRN, FN GRN, BLKY-SB BLKY, VRY FRM-FRM
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY
ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL
SILTSTONE: RD BRN, FRM- SLI FRI, VRY FN GRN, RND-SB RND
13u
DOLOMITE: TN BRN, FN GRN, BLKY-SB BLKY, VRY FRM-FRM
ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY
DOLOMITE: TN BRN, FN GRN, BLKY-SB BLKY, VRY FRM-FRM
ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY
WT 8.9
VIS 33
PH 9
12u
ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL-SB ANGL
DOLOMITE: TN BRN, FN GRN, BLKY-SB BLKY, VRY FRM-FRM
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY
ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL-SB ANGL
DOLOMITE: TN BRN, FN GRN, BLKY-SB BLKY, VRY FRM-FRM
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY
17u
ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL-SB ANGL
DOLOMITE: TN BRN, FN GRN, BLKY-SB BLKY, VRY FRM-FRM
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY





ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL-SB ANGL
DOLOMITE: TN BRN, FN GRN, BLKY-SB BLKY, VRY FRM-FRM
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY

ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL-SB ANGL
DOLOMITE: TN BRN, FN GRN, BLKY-SB BLKY, VRY FRM-FRM
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY

17u

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DOLOMITE: TN BRN, FN GRN, BLKY-SB BLKY, VRY FRM-FRM
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY

ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL-SB ANGL
DOLOMITE: TN BRN, FN GRN, BLKY-SB BLKY, VRY FRM-FRM
SALT: CLEAR WHT, XLN, FRI, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY

WT 8.9
VIS 33
PH 9

29u

ANHYDRITE:WHT TN WHT BRN, VRY FRM-SLI FRM, XLN, ANGL-SB ANGL
DOLOMITE: TN BRN, FN GRN, BLKY-SB BLKY, VRY FRM-FRM
SAND: WHT, FN GRN, VRY FRI, BLKY
SALT: TRACE

ANHYDRITE: TRANS WHT, VRY FRM-SLI FRM, FN XLN, ANGL
DOLOMITE: TN WHT, BLKY-SB BLKY, FRM-SLI FRM, VRY FN GRN
SAND: WHT, FN GRN, VRY FRI, BLKY-RD

ANHYDRITE: TRANS WHT, VRY FRM-SLI FRM, FN XLN, ANGL
DOLOMITE: TN WHT, BLKY-SB BLKY, FRM-SLI FRM, VRY FN GRN
SAND: WHT, FN GRN, VRY FRI, BLKY-RD
SALT: TRACE

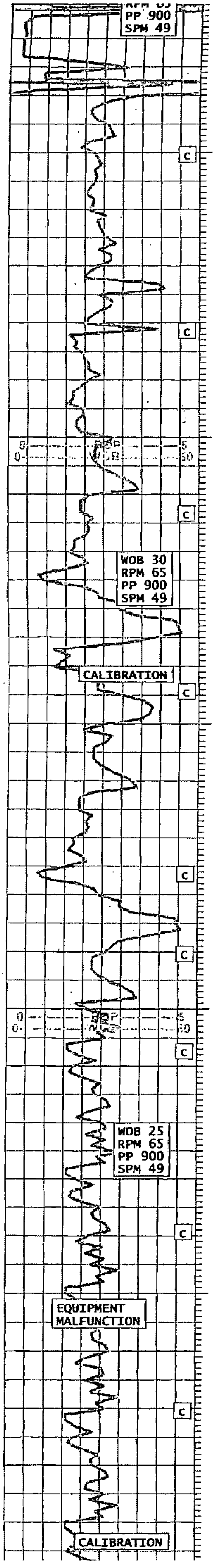
ANHYDRITE: TRANS WHT, VRY FRM-SLI FRM, FN XLN, ANGL
DOLOMITE: TN WHT, BLKY-SB BLKY, FRM-SLI FRM, VRY FN GRN

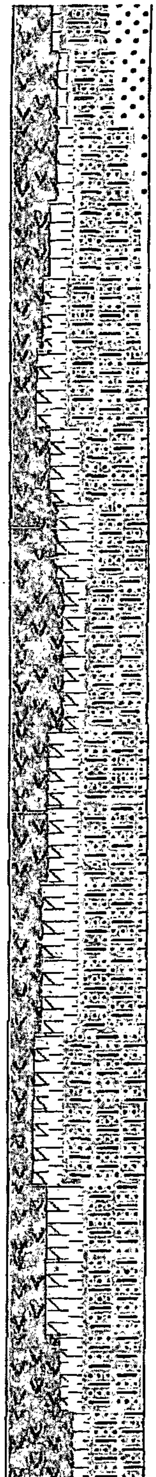
WT 8.9
VIS 33
PH 9

ANHYDRITE: TRANS WHT, VRY FRM-SLI FRM, FN XLN, ANGL
DOLOMITE: TN WHT, BLKY-SB BLKY, FRM-SLI FRM, VRY FN GRN

ANHYDRITE: TRANSWHT LT BRN AMBER, VRYFRM-FRM, FNXLN, ANGL

ANHYDRITE: TRANS WHT, VRY FRM-SLI FRM, FN XLN, ANGL
DOLOMITE: TN WHT, BLKY-SB BLKY, FRM-SLI FRM, VRY FN GRN





SLI FRM, RND
ANHYDRITE: TRANS WHT, VRY FRM-SLI FRM, FN XLN, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY
SHALE: TRACE

SILTSTONE: RD BRN, FN GRN, FRM-SLI FRM, RND
ANHYDRITE: TRANS WHT, VRY FRM-SLI FRM, FN XLN, ANGL
SAND: WHT, FN GRN, VRY FRI, BLKY
SHALE: LT GRY GRY, SLIFRM-FRI, FLKY, SB ANGL

SILTSTONE: RD BRN, FN GRN, FRM-SLI FRM, RND
ANHYDRITE: TRANS WHT, VRY FRM-SLI FRM, FN XLN, ANGL
SHALE: LT GRY GRY, SLIFRM-FRI, FLKY, SB ANGL
DOLOMITE: TN WHT, BLKY-SB BLKY, FRM-SLI FRM, VRY FN GRN

SILTSTONE: RD BRN, FN GRN, FRM-SLI FRM, RND
ANHYDRITE: TRANS WHT, VRY FRM-SLI FRM, FN XLN, ANGL
SHALE: LT GRY GRY, SLIFRM-FRI, FLKY, SB ANGL
DOLOMITE: TN WHT, BLKY-SB BLKY, FRM-SLI FRM, VRY FN GRN

SILTSTONE: RD BRN, FN GRN, FRM-SLI FRM, RND
ANHYDRITE: TRANS WHT, VRY FRM-SLI FRM, FN XLN, ANGL
SHALE: LT GRY GRY, SLIFRM-FRI, FLKY, SB ANGL
DOLOMITE: TN WHT, BLKY-SB BLKY, FRM-SLI FRM, VRY FN GRN

SILTSTONE: RD BRN, FN GRN, FRM-SLI FRM, RND
ANHYDRITE: TRANS WHT, VRY FRM-SLI FRM, FN XLN, ANGL
SHALE: LT GRY GRY, SLIFRM-FRI, FLKY, SB ANGL
DOLOMITE: TN WHT, BLKY-SB BLKY, FRM-SLI FRM, VRY FN GRN

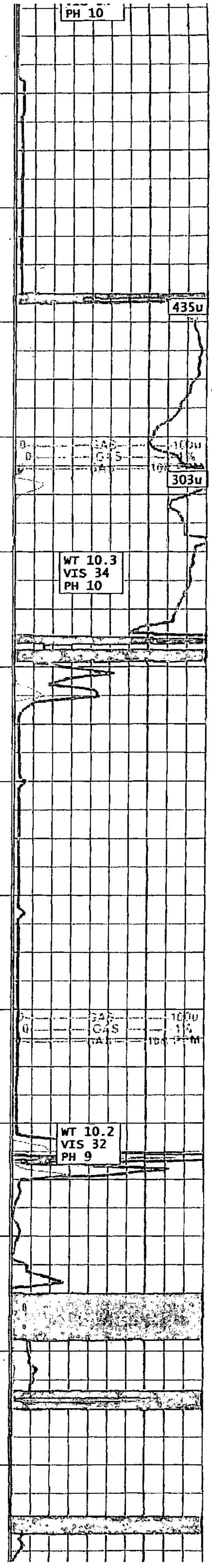
SILTSTONE: RD BRN, FN GRN, FRM-SLI FRM, RND
ANHYDRITE: TRANS WHT, VRY FRM-SLI FRM, FN XLN, ANGL
SHALE: LT GRY GRY, SLIFRM-FRI, FLKY, SB ANGL
DOLOMITE: TN WHT, BLKY-SB BLKY, FRM-SLI FRM, VRY FN GRN

SILTSTONE: RD BRN, FN GRN, FRM-SLI FRM, RND
ANHYDRITE: TRANS WHT, VRY FRM-SLI FRM, FN XLN, ANGL
SHALE: LT GRY GRY, SLIFRM-FRI, FLKY, SB ANGL
DOLOMITE: TN WHT, BLKY-SB BLKY, FRM-SLI FRM, VRY FN GRN

SILTSTONE: RD BRN, FN GRN, FRM-SLI FRM, RND
ANHYDRITE: TRANS WHT, VRY FRM-SLI FRM, FN XLN, ANGL
SHALE: LT GRY GRY, SLIFRM-FRI, FLKY, SB ANGL
DOLOMITE: TN WHT, BLKY-SB BLKY, FRM-SLI FRM, VRY FN GRN

SILTSTONE: RD BRN, FN GRN, FRM-SLI FRM, RND
ANHYDRITE: TRANS WHT, VRY FRM-SLI FRM, FN XLN, ANGL
SHALE: LT GRY GRY, SLIFRM-FRI, FLKY, SB ANGL
DOLOMITE: TN WHT, BLKY-SB BLKY, FRM-SLI FRM, VRY FN GRN

KICK IN HOLE SHAKER UNABLE TO USE. NO DATA AVAILABLE. HAD TO RERUN LINE AND RECALIBRATE. NO DETAIL INFORMATION OR LITHOLIGY FORTHIS PERIOD.



Appendix SSI-3

Surface Owner Notification

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

Generic Plans for Temporary Pits

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

Temporary Pit Design Plan

Plates 1 and 2 within the Site Specific Information Section show the layout of the temporary pits proposed for this project. However, field conditions will determine the final configuration of the pits.

The operator will ensure that the temporary storage of fluids, fluid reuse or fluid disposal will be conducted in a manner approved by the division that prevents the contamination of fresh water and protects public health and the environment.

Design Plan– Operator Instructions

1. The design will contain liquids and solids and prevent contamination of fresh water and protect public health and the environment.
2. The design prevents run-on of surface water.
3. The operator will post an upright sign in compliance with 19.15.16.8 NMAC. The operator will post the sign in a manner and location such that a person can easily read the legend. The sign will provide the following information: the operator's name; the location of the site by quarter-quarter or unit letter, section, township and range; and emergency telephone numbers.
4. The pit will be completely fenced at all times excluding drilling and workover operations. During drilling or workover operations, the operator is not required to fence the edge of the pit adjacent to the drilling or workover rig.
5. The operator will maintain the fences in good repair from beginning of pit use to the time of pit closure.
6. Work with the drilling and lining contractor and provide for devices to protect the liner from any fluid force or mechanical damage at any point of discharge into or suction from the lined temporary pit.
7. The operator or operator's representative will inspect the pit before and after lining to ensure that construction the temporary pit
    a. Has not penetrated any solution features such as fissures, tubes or caves
    b. prevents unauthorized releases and ensure the confinement of liquids
    c. is consistent with the design criteria of Plates 1 and 2 or any agreed alteration to meet field conditions
    d. meets the prescriptive mandates outlined below

Construction Plan– Construction Contractor Instructions

A. Prior to constructing the pit the qualified contractor will examine Plates 1 and 2 and provide the operator (or operator's representative) with an affirmation of their understanding of the design.
B. The contractor will strip and stockpile the topsoil for use as the final cover or fill at the time of closure.
C. The temporary pit will have a properly constructed foundation and interior slopes consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear.
D. The slopes of the pit will be no steeper than 2 horizontal feet to 1 vertical foot (2H:1V).
E. Pit walls will be walked down by a crawler type tractor following construction.

F. As necessary, a berm or ditch will surround the temporary pit to prevent run-on of surface water.
G. Because solution cavities may be present at the site, the contractor will
    a. Inspect the excavation for voids, cavities, caves or similar features
    b. Notify the operator or the operator's representative if such features are encountered
H. As an addition engineering control to address any concerns relating to the presence of karst and associated instability, during construction of the pit the contractor will compact the earth material that forms the foundation for the pit liner. An expected proctor density of greater than 90% will be achieved by
    a. adding water to the earth material as appropriate,
    b. compacting the earth by walking a crawler-type tractor down the sides and bottom of the pit
    c. repeating this process with a second 6-inch lift of earth material if necessary

Construction Plan– Liner Contractor Instructions

I. Install a geomembrane liner.
II. The geomembrane liner will consist of 20-mil string reinforced LLDPE or equivalent liner material that the appropriate division district office approves. The geomembrane liner will be composed of an impervious, synthetic material that is resistant to petroleum hydrocarbons, salts and acidic and alkaline solutions. The liner material will be resistant to ultraviolet light. Liner compatibility will comply with EPA SW-846 method 9090A.
III. Minimize liner seams and orient them up and down, not across a slope.
IV. Use factory welded seams where possible.
V. Prior to any field seaming, the contractor will overlap liners four to six inches and orient seams parallel to the line of maximum slope, *i.e.*, oriented along, not across, the slope. The contractor will minimize the number of welded field seams in corners and irregularly shaped areas. Field seams will be welded by qualified personnel.
VI. Avoid excessive stress-strain on the liner.
VII. Geotextile will be placed under the liner where needed to reduce localized stress-strain or protuberances that may otherwise compromise the liner's integrity.
VIII. Anchor the edges of all liners in the bottom of a compacted earth-filled trench. The anchor trench will be at least 18 inches deep.
IX. Inspect any devices used to ensure that the liner is protected from any fluid force or mechanical damage at any point of discharge into or suction from the lined temporary pit.
X. Fence the pit in a manner that prevents unauthorized access. The contractor will fence the pit to exclude livestock with a four foot fence that has at least four strands of barbed wire evenly spaced in the interval between one foot and four feet above ground level.

Operating and Maintenance Plan

The operator will operate and maintain the pit to contain liquids and solids. The operator will maintain the integrity of the liner to prevent contamination of fresh water and protect public health and the environment as described below.

1. If feasible, the operator will recycle, reuse or reclaim of all fluids in the temporary pit in a manner approved by division rules that prevents the contamination of fresh water and protects public health and the environment.
2. If re-use is not possible, fluids will be sent to disposal at division-approved facility.
3. The operator will not discharge into or store any hazardous waste in the pit.
4. If any pit liner's integrity is compromised, or if any penetration of the liner occurs above the liquid's surface, then the operator will notify the appropriate division district office within 48 hours (phone or email) of the discovery and repair the damage or replace the liner.
5. If the pit develops a leak or if any penetration of the pit liner occurs below the liquid's surface, then the operator will remove all liquid above the damage or leak line within 48 hours, notify the district office within 48 hours (phone or email) of the discovery and repair the damage or replace the pit liner.
6. The injection or withdrawal of liquids from the pit will be accomplished through a header, diverter or other hardware that prevents damage to the liner by erosion, fluid jets or impact from installation and removal of hoses or pipes.
7. The operator will install diversion ditches and berms around the pit as necessary to prevent the collection of surface water run-on.
8. The operator will immediately remove any visible layer of oil from the surface of the temporary pit and maintain on site an oil absorbent boom to contain and remove oil from the pit's surface.
9. Only fluids used or generated during the drilling or workover process will be discharged into the temporary pit.
10. The operator will maintain the temporary pit free of miscellaneous solid waste or debris.
11. Immediately after cessation of stimulation, the operator will remove any visible or measurable layer of oil from the surface of a pit, in the manner described above.
12. The operator will maintain at least two feet of freeboard for the temporary pit.
13. The operator will inspect the temporary pit containing fluids at least daily during stimulation to ensure compliance with this plan.
14. After stimulation operations, the operator will inspect the temporary pit weekly so long as free liquids remain in the temporary pit.
15. The operator will maintain a log of such inspections and make the log available for the district office's review upon request.
16. The operator will file a copy of the log with the appropriate division district office when the operator closes the temporary pit.
17. The operator will remove all free liquids from the temporary pit within 30 days from the date that the operator releases the stimulation rig – unless granted an extension of time by the District Office. The operator will note the date of the stimulation rig's release on form C-105 or C-103 upon well completion.

Closure Plan- General Conditions

The preferred closure alternative is in-place closure. If the residual solids in the temporary pit do not meet the criteria for in-place closure but meet the criteria for trench burial, the operator will proceed with trench burial.

Protocols and Procedures

The operator will use the following procedures and protocols to implement the closure:

- The operator will notify the landowner, prior to closure, that the operator plans to close the temporary pit by certified mail, return receipt requested.
- The operator of the temporary pit will notify the division district office verbally or by email at least 72 hours, but not more than one week, prior to any closure operation. The notice will include the operator's name and the location to be closed by unit letter, section, township and range, well's name, number, the API number.
- The operator of the temporary pit will remove all liquids from the temporary pit prior to closure and either:
    - Dispose of the liquids in a division-approved facility, or
    - Recycle, reuse or reclaim the liquids in a manner approved by the district office.
- The operator shall remove all free liquids from the temporary pit within 30 days from the date that the operator released the rig. The operator shall note the date of the rig's release on form C-105 or C-103 upon well completion. The operator will request an extension of up to three months from the appropriate division district office if necessary to allow for water re-use.
- The operator will close the temporary pit within six months of the date that the operator releases the rig. An extension not to exceed three months may be requested of the district office.
- The operator will close the pit by an earlier date that the division requires because of imminent danger to fresh water, public health or the environment.
- Within 60 days of closure completion, the operator will submit a closure report on form C-144, with necessary attachments to document all closure activities including sampling results; information required by 19.15.17 NMAC; a plot plan; and details on back-filling, capping and covering, where applicable.
- In the closure report, the operator will certify that all information in the report and attachments is correct and that the operator has complied with all applicable closure requirements and conditions specified in the approved closure plan.
- The operator will provide a plat of the pit location on form C-105 with the closure report within 60 days of closing the temporary pit.

Additional Protocols and Procedures for On-Site Closure

- The operator has provided the surface owner notice of the operator's proposal of an on-site closure (see Appendix SSI-3 for proof of notice to the landowner) as required in 19.15.17.13.F(1)(b).
- Upon receipt of NMOCD approval for on-site closure, the operator will notify the surface owner by certified mail, return receipt requested, that the operator plans to close the pit

and where the operator has approval for on-site closure. Evidence of mailing of the notice will demonstrate compliance with this requirement.

- The operator will place a steel marker at the center of an on-site burial if on-site burial occurs for the temporary pit. The steel marker will be not less than four inches in diameter and will be cemented in a three-foot deep hole at a minimum. The steel marker will extend at least four feet above mean ground level and at least three feet below ground level. The operator name, lease name and well number and location, including unit letter, section, township and range, and that the marker designates an on-site burial location will be welded, stamped or otherwise permanently engraved into the metal of the steel marker.
- The operator will report the exact location of any on-site burial on form C-105 filed with the division.
- The operator will file a deed notice identifying the exact location of any on-site burial with the county clerk in the county. The exact location of any on-site burial will be transmitted to the surface owner by copy of the form C-105 discussed above.

In-place closure is the preferred closure alternative for the temporary pit .

- If waste sampling results suggest that standards for in-place closure are not met, the operator will implement excavation and removal

Site Reclamation Plan

After the operator has closed the pit, the operator will reclaim the pit location and all areas associated with the pit, including associated access roads to a safe and stable condition that blends with the surrounding undisturbed area. The operator will substantially restore the impacted surface area to the condition that existed prior to oil and gas operations by placement of the soil cover as provided in Subsection H of 19.15.17.13 NMAC, recontour the location and associated areas to a contour that approximates the original contour and blends with the surrounding topography and re-vegetate according to Subsection I of 19.15.17.13 NMAC.

Soil Cover Design Plan

If the operator removes the pit contents or remediates any contaminated soil to the division's satisfaction the soil cover will consist of the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater.

The soil cover for the in-place burial will consist of a minimum of four feet of compacted, non-waste containing, earthen material. The soil cover will include either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater.

The operator will construct the soil cover to the site's existing grade and prevent ponding of water and erosion of the cover material.

Re-vegetation Plan

1. The first growing season after the operator closes the pit, including access roads, the operator will seed or plant the disturbed areas.
2. The operator will accomplish seeding by drilling on the contour whenever practical.
3. The operator will obtain vegetative cover that equals 70% of the native perennial vegetative cover (un-impacted by overgrazing, fire or other intrusion damaging to native vegetation).

4. The operator will follow surface owner mandates for the seed mixture and maintain that cover through two successive growing seasons.
5. During the two growing seasons that prove viability, there will be no artificial irrigation of the vegetation.
6. The operator will repeat seeding or planting until it successfully achieves the required vegetative cover.
7. If conditions are not favorable for the establishment of vegetation, such as periods of drought, the operator may request that the division allow the operator to delay seeding or planting until soil moisture conditions become favorable or may require the operator to use additional cultural techniques such as mulching, fertilizing, irrigating, fencing or other practices.
8. The operator will notify the division when it has seeded or planted and when it successfully achieves re-vegetation.

In-place Closure Plan

In the event that sampling of the solids in the temporary pit demonstrates that the pit meets the criteria for in-place closure, the operator will proceed with in-place closure

Siting Criteria Compliance Demonstration for In-Place Burial

The Siting Criteria Compliance Demonstration for the temporary pit (see Site Specific Information) show that the requirements of 19.15.17.10 NMAC are met for in-place closure.

Waste Material Sampling Plan for In-place Burial

Because the groundwater is more than 100 feet below the bottom of the buried waste (see above), the operator will collect at a minimum, a five point, composite sample of the contents of the temporary pit after treatment or stabilization.

The purpose of the sampling the waste material is to demonstrate that after stabilization with three parts clean fill:

- Benzene, as determined by EPA SW 846 method 8021B or 8260B, does not exceed 0.2 mg/kg;
- Total BTEX, as determined by EPA SW-846 method 8021B or 8260B, does not exceed 50 mg/kg;
- The GRO and DRO combined fraction, as determined by EPA SW-846 method 8015M, does not exceed 500 mg/kg;
- TPH, as determined by EPA method 418.1 does not exceed 2,500 mg/kg;
- Chloride, as determined by EPA method 300.1, does not exceed 1,000 mg/kg or the background concentration, whichever is greater.

Protocols and Procedures for In-Place Burial

In addition to the General Conditions Protocols and Procedures and the Additional Protocols and Procedures for On-site Closure listed above, the operator will execute the following steps for in-place closure of the pit.

A. The operator will measure the distance between the top of any solids in the pit and existing grade to determine if stabilized waste (see stabilization methods, below) will be at least 4-feet below existing grade to allow installation of the soil cover (see soil cover design, above).

B. The operator will stabilize or solidify the contents of the pit to a bearing capacity sufficient to support the temporary pit's final cover. However, the operator will not mix the pit contents with soil or other material at a mixing ratio of greater than 3:1, (3 parts soil or other material to 1 part temporary pit solids).
C. Cover the geomembrane lined, filled, temporary pit with compacted, non-waste containing, earthen material; construct a division-prescribed soil cover; recontour and re-vegetate the site as described in this plan. Specifically, a 4-foot thick soil cover consistent with NMOCD Rules will be placed over the stabilized waste.
D. Any excess liner above the stabilized waste will be removed for re-use or disposal.

On-Site Trench Burial Plan

Siting Criteria Compliance Demonstration for In-Place Burial

The Siting Criteria Compliance Demonstration for the temporary pit (see Site Specific Information) show that the requirements of 19.15.17.10 NMAC are met for trench burial.

Protocols and Procedures for On-Site Trench Burial

In addition to the General Conditions Protocols and Procedures listed above, the operator will employ the following steps for On-Site Trench Burial of the pit.

1. The pit liner will be removed above the mud level for re-use if possible. We will use a utility knife and manual power to remove the liner.
2. The operator will stabilize the waste to permit transfer from the pit to the separate trench.
3. The operator will further stabilize or solidify the contents to a bearing capacity sufficient to support the final cover.
4. The operator will not mix the contents with soil or other material at a mixing ratio of greater than 3:1, (3 parts soil or other material to 1 part drilling waste). Specifically, the drilling waste will be stabilized in the pit by adding no more than 3 parts clean fill derived from the excavation of the pit to 1 part drilling waste.
5. After stabilization such that the waste material will support the soil cover, the mixture will be sampled pursuant to NMOCD Rules (see below) and placed in the burial trench.

Construction/Design of Burial Trench

The operator will design and construct on-site trench for closure as specified in 19.15.17.13B.(2) NMAC. Specifically:

I. The operator will excavate a separate trench to an appropriate depth that allows for the installation of the geomembrane bottom liner, burial of the drilling waste, geomembrane liner cover and the division-prescribed soil cover required pursuant to 19.15.17.13.H NMAC.
II. The on-site trench will have a properly constructed foundation and side walls consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear.
III. Geotextile will be placed under the liner where needed to reduce localized stress-strain or protuberances that may otherwise compromise the liner's integrity.

IV. The on-site trench will be constructed with a geomembrane liner that consists of a 20-mil string reinforced LLDPE liner
V. The geomembrane liner is composed of an impervious, synthetic material that is resistant to petroleum hydrocarbons, salts and acidic and alkaline solutions. The liner material will be resistant to ultraviolet light. Liner compatibility will comply with EPA SW-846 method 9090A.
VI. The contractor for the operator will minimize liner seams and orient them up and down, not across a slope. The operator will use factory welded seams where possible. Prior to field seaming, the operator will overlap liners four to six inches and orient liner seams parallel to the line of maximum slope, *i.e.*, oriented along, not across, the slope. The operator will minimize the number of field seams in corners and irregularly shaped areas.
VII. Qualified personnel will perform field seaming. The contractor will weld field liner seams.
VIII. The contractor for the operator will install sufficient liner material to reduce stress-strain on the liner.
IX. The operator will ensure that the outer edges of all liners are secured for the placement of the excavated waste material into the drilling pit (on-site trench).
X. The contractor for the operator will fold the outer edges of the drilling pit (on-site trench) liner to overlap the waste material in the pit (on-site trench) prior to the installation of the geomembrane cover.
XI. The contractor for the operator will install a geomembrane cover over the waste material in the lined trench. The operator will install the geomembrane cover in a manner that prevents the collection of infiltration water in the lined trench and on the geomembrane cover after the soil cover is in place.
XII. The geomembrane cover will consist of a 20-mil string reinforced LLDPE liner. The geomembrane cover will be composed of an impervious, synthetic material that is resistant to petroleum hydrocarbons, salts and acidic and alkaline solutions. Cover compatibility will comply with EPA SW-846 method 9090A.

Waste Material Sampling Plan for On-Site Trench Burial

Because the ground water is more than 100 feet below the bottom of the buried waste (see previously submitted Supplemental Documentation to C-144), the operator will collect at a minimum, a five point, composite sample of the contents of the portion of the temporary pit scheduled for trench burial after treatment or stabilization. The purpose of the sampling after the waste material is stabilized is to demonstrate that:

- The TPH concentration, as determined by EPA method 418.1 or other EPA method that the division approves, does not exceed 2500 mg/kg.
- Using EPA SW-846 method 1312
    - The chloride concentration, as determined by EPA method 300.1 or other EPA method that the division approves, does not exceed 3,000 mg/L or the background concentration, whichever is greater,
    - The concentrations of the inorganic water contaminants specified in Subsection A of 20.6.2.3103 NMAC as determined by appropriate EPA methods do not exceed the standards specified in Subsection A of 20.6.2.3103 NMAC or the background concentration, whichever is greater, and

- The concentrations of the organic water contaminants specified in Subsection A of 20.6.2.3103 NMAC as determined by appropriate EPA methods do not exceed the standards specified in Subsection A of 20.6.2.3103 NMAC, unless otherwise specified by NMOCD Rules

Confirmation Sampling Plan for On-Site Trench Burial

The operator will test the soils beneath the temporary pit after excavation and prior to trench burial to determine whether a release has occurred. To determine if a release has occurred, the operator and/or qualified contractor will collect, at a minimum:

- A five point, composite sample;
- Individual grab samples from any area that is wet, discolored or showing other evidence of a release.

The operator or qualified contractor will analyze these samples using NMOCD approved EPA methods for:

- Benzene,
- Total BTEX,
- TPH,
- The GRO and DRO combined fraction and
- Chloride

The purpose of this sampling is to demonstrate that:

1. Benzene, as determined by EPA SW-846 method 8021B or 8260B does not exceed 0.2 mg/kg;
2. Total BTEX, as determined by EPA SW-846 method 8021B or 8260B does not exceed 50 mg/kg;
3. The GRO and DRO combined fraction, as determined by EPA SW-846 method 8015M, does not exceed 500 mg/kg;
4. The TPH, as determined by EPA method 418.1 does not exceed 2,500 mg/kg; and
5. Chloride, as determined by EPA method 300.1, does not exceed 1,000 mg/kg or the background concentration, whichever is greater.

Reporting

The operator shall notify the division of its results of on form C-141. If the operator or the division determines that a release has occurred, then the operator will comply with 19.15.29 NMAC and 19.15.30 NMAC, as appropriate.

Excavation and Removal Closure Plan

IF THE CRITERIA FOR ON-SITE CLOSURE ARE NOT MET, THE OPERATOR WILL ADHERE TO NMOCD RULES AND IMPLEMENT THE FOLLOWING ACTIONS:

Protocols and Procedures for Excavation and Removal

The operator will close the temporary pit by excavating all contents and any synthetic pit liners that cannot be re-used and transferring those materials to one of the division-approved facilities listed below:

Controlled Recovery, Inc.	NM-01-0006
Lea Land, LLC	NM-01-0035

If the sampling program described below demonstrates that a release has not occurred or that any release does not exceed the concentrations specified in Subparagraph (b.ii) of Paragraph (1) of Subsection B of 19.15.17.13 NMAC, then the operator will:

1. Backfill the temporary pit excavation with compacted, non-waste containing, earthen material;
2. Construct a division-prescribed soil cover to existing grade as described in the Soil Cover Plan (above);
3. Recontour and re vegetate the site as described in the Revegetation Plan (above).

Confirmation Sampling Plan for Excavation and Removal

The operator will test the soils beneath the temporary pit after excavation to determine whether a release has occurred. To determine if a release has occurred, the operator and/or qualified contractor will collect, at a minimum:

- A five point, composite sample and;
- Individual grab samples from any area that is wet, discolored or showing other evidence of a release

The purpose of this sampling is to demonstrate that:

- Benzene, as determined by EPA SW-846 method 8021B or 8260B does not exceed 0.2 mg/kg;
- Total BTEX, as determined by EPA SW-846 method 8021B or 8260B does not exceed 50 mg/kg;
- The GRO and DRO combined fraction, as determined by EPA SW-846 method 8015M, does not exceed 500 mg/kg;
- The TPH, as determined by EPA method 418.1 does not exceed 2,500 mg/kg; and
- Chloride, as determined by EPA method 300.1, does not exceed 1,000 mg/kg or the background concentration, whichever is greater.

Reporting

The operator shall notify the division of its results of on form C-141. If the operator or the division determines that a release has occurred, then the operator will comply with 19.15.29 NMAC and 19.15.30 NMAC, as appropriate.

R. T. HICKS CONSULTANTS, LTD.
901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

March 7, 2012

Mr. Mike Bratcher
NMOCD District 2
811 S. First Street
Artesia, New Mexico 88210
Via E-mail

RE: Hot Dog 23 Federal #4
Read and Stevens, Inc.

Dear Mike:

For the above-referenced temporary pit, the complete C-144 package is attached. The Power of Attorney form naming Randy Hicks as the agent for Read and Stevens has been previously submitted to NMOCD.

BLM is currently reviewing the APD and we have submitted a copy of this C-144 to BLM. This letter is copied to the BLM and serves as our notice to the surface owner that on-site burial is anticipated at this location.

Note that this package includes a set of "generic plans" that will accompany all future drilling pit permits for Read and Stevens. These generic plans are based upon NMOCD-approved plans for the Marbob 5H well (approved by you and Brad Jones) and the Frio #1 well (approved by Ed Martin of District 4). I am confident that you will find these generic plans are consistent with the approved submissions. The only part of the permit that is unique to this Hot Dog well is the Site Specific Information and the C-144, both of which are at the front of the permit package.

Please pay attention to our proposal for a cell of the temporary pit that is separate from the reserve pit. We named this cell of the temporary pit a workover pit in the submission for lack of a better term. This cell, which is meant to hold make-up water for drilling and stimulation and hold flow-back water from the stimulation, may not be used. Although the preferred closure is in-place, trench burial may be necessary. We propose to convert the workover cell to a burial trench. Any such conversion would be done in a manner consistent with NMOCD Rules and we would not proceed with trench burial until we notify District 2 and obtain permission for such a conversion. Please call me with any questions.

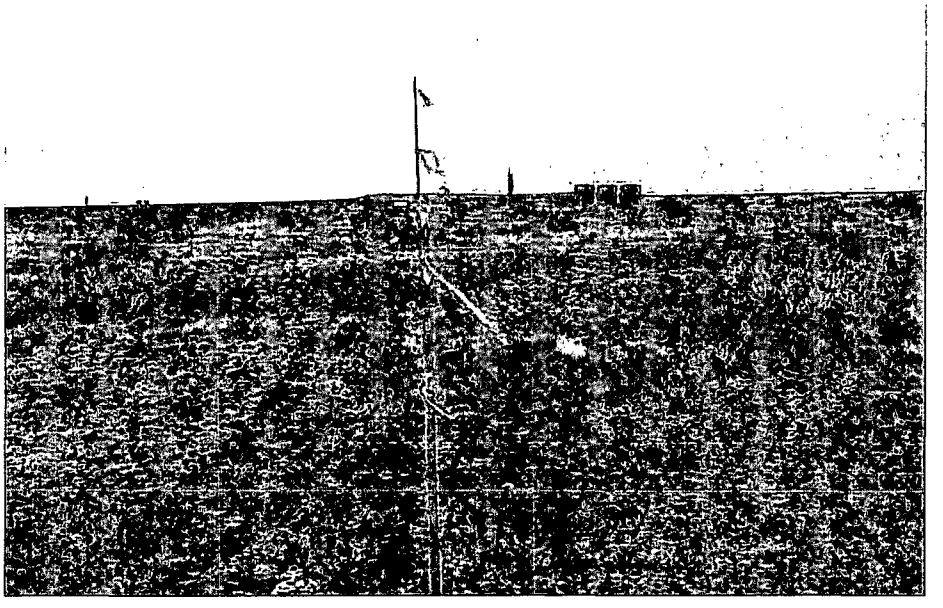
Sincerely,
R.T. Hicks Consultants

Randall Hicks

Copy: Tim Collier, Read and Stevens
BLM Carlsbad District Office

March 2012

C-144 Permit Package for Hot Dog 23 Federal #4 Section T R Eddy County NM



Prepared for
Read and Stevens, Inc.
Roswell, New Mexico

Prepared by
R.T. Hicks Consultants, Ltd.
Albuquerque, New Mexico

C-144 and Site Specific Information for Drilling Pit

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

Hydrogeologic Report

The information identified in item 10, "Siting Criteria" of the C-144 is attached as: are:

1. Figure 1 – Groundwater Geologic Map with depth to groundwater data from the OSE and USGS databases. Please note
   a. The location of the temporary pits is in the center of the red, orange, **yellow** and green distance circles
   b. Water wells in the OSE database are shown as blue squares with their OSE permit number, depth to groundwater and date of measurement – some OSE wells are mis-located in the WATERS database and new data from the WATERS database are presented in Table 1.
   c. Most OSE wells do not include a depth to groundwater
   d. The USGS has no data for the area.
2. Figure 2- USGS topographic map of the area. These maps show
   a. locations of any significant watercourses (blue lines in some drainages),
   b. surface water (in blue), which are stock ponds
   c. the location of the temporary pits in the center of the colored distance circles
   d. the location of the Dog Canyon well in the southeast corner of the Figure.
3. Figure 3a – 2008 aerial photograph showing
   a. Surface water as presented in Figure 2
   b. The pipeline and oil field roads as present in 2008
   c. windmill turbines (lower left of photograph)
   d. stock ponds (compare with Figure 2)
   e. the absence of other structures
4. Figure 3b is a 2011 Google Earth image of the same area as Figure 3a.
5. Figure 4 - is a map that also shows the location of the nearest incorporated municipal boundary (Artesia), about 10 miles southwest of the temporary pit location
6. Figure 5 – from http://107.20.228.18/Wetlands/WetlandsMapper.html# showing that wetlands are identified as not being in the area directly surrounding the site.
7. Figure 6 – shows the location of the nearest identified mines (quarries), which are shown as green circles. No subsurface mines were identified in the area.
8. Figure 7 – shows the area in relation to identified unstable areas, identified as the purple karst area on the bottom of the map
9. Figure 8 FEMA map – The full-scale index map states defines area around the pit as Zone X, unshaded, indicating the area is a minimal flood risk.

Siting Criteria Compliance Demonstration

As designated in the C-144 the location of the pit and on-site closure meet the criteria of NMOCD Rules. We believe the data presented in Figures 1-8 and Appendix SSI-1 demonstrate that the following statements are true:

1. Groundwater is GREATER than 100 feet below the bottom of the temporary pit and on-site closure method

The PRRC database of OSE and USGS wells presents several data points in the area of interest. The OSE well RA-02550 could not be located in the field at the reported location. Review of the water rights file in the Roswell District Office of the NMSEO shows the correct location to be in

Township 15 South, rather than 16 South as reported on the log, thus indicating that this well is mis-located on the WATERS database and thus mis-plotted on Figure 1. According to the OSE water rights records, well RA-02550 is in Section 27 T15S R27E, about 6 miles north of the location plotted on Figure 1.

Well RA-04176 provides reasonable data for the area. This permit is for an exploratory water well that was meant to supply water for drilling nearby oil wells. The paper files at the Roswell Office of the OSE show that the well was drilled to a depth of 450 feet and discovered no water. The USGS filed log for the oil test drilled at this location states that there are no "Water Bearing Formations" encountered. The fact that RA-04176 encountered no water is not surprising when one looks at the mud log for the Hot Dog 23 Federal #3, (which is only 1000 ft SSW of RA-04176), and which is in the same Section as the proposed temporary pits. The mud log (Appendix SSI-2) shows salt (halite) is present throughout most of the shallow section and the shallow geology is dominated by anhydrite, siltstone and dolomite.

At the Hot Dog 23 Federal #4, groundwater (as defined by New Mexico Rules) is not present.

2. **The pit, excavated material and on-site closure is NOT within 300 feet of a continuously flowing watercourse, or within 200 feet of any other significant watercourse or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).**

Figures 2 and Appendix SSI-1 confirm this statement. The topographic map of Figure 2 shows an identified drainage (blue dashed line) about 2000 feet northwest of the location.

3. **The pit, excavated material and on-site closure is NOT within 300 feet of a permanent residence, school, hospital, institution, or church in existence at the time of initial application.**

Figures 2-3 and Appendix SSI-1 confirm this statement.

4. **The pit, excavated material and on-site closure is NOT within 500 feet of a private, domestic fresh water well or spring used by less than five households for domestic or stock watering purposes, it is NOT within 1,000 feet of any other fresh water well or spring.**

Figures 1-3 and Appendix SSI-1 support this statement.

5. **The pit, excavated material and on-site closure is NOT within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended.**

Figure 4 confirms this statement.

6 **The pit, excavated material and on-site closure is NOT within 500 feet of a wetland.**

Figure 5 and Appendix SSI-1 confirm this statement.

7. **The pit, excavated material and on-site closure is NOT within an area overlying a subsurface mine.**

Figure 6 confirms this statement. All of the mines shown on Figure 6 are surface mines and are typically caliche pits.

8. The pit, excavated material and , on-site closure is NOT within an unstable area. Although Figure 7 shows that site lies within a Karst area indicated by the lavender color on the map, many oil wells and drilling pits have operated in this area without incident. When one compares the mapped karst feature with the New Mexico geologic map, the karst is coincident with the outcrop of the Artesia Group, which is characterized by evaporates (salt, anhydrite) and dolomite, both of which are subject to solution features. Although the lavender color suggests that fissures, tubes and caves can exist, these features have not impaired the development of oil and gas wells in the area, the use and closure of drilling pits, or the use of large water ponds for hydraulic fracturing.

Because the evidence suggests the possible presence of solution feature, the design of the pit calls for engineering features to minimize the potential that such solution features will compromise the integrity of the temporary pit.

9. The pit, excavated material and on-site closure is NOT within a 100-year floodplain. Our site visit confirms this statement. We saw no geologic evidence of flooding (see Appendix SSI-1). The FEMA map shows the site is located in Zone X, indicating the area is minimal flood hazard.

Design of Temporary Pit

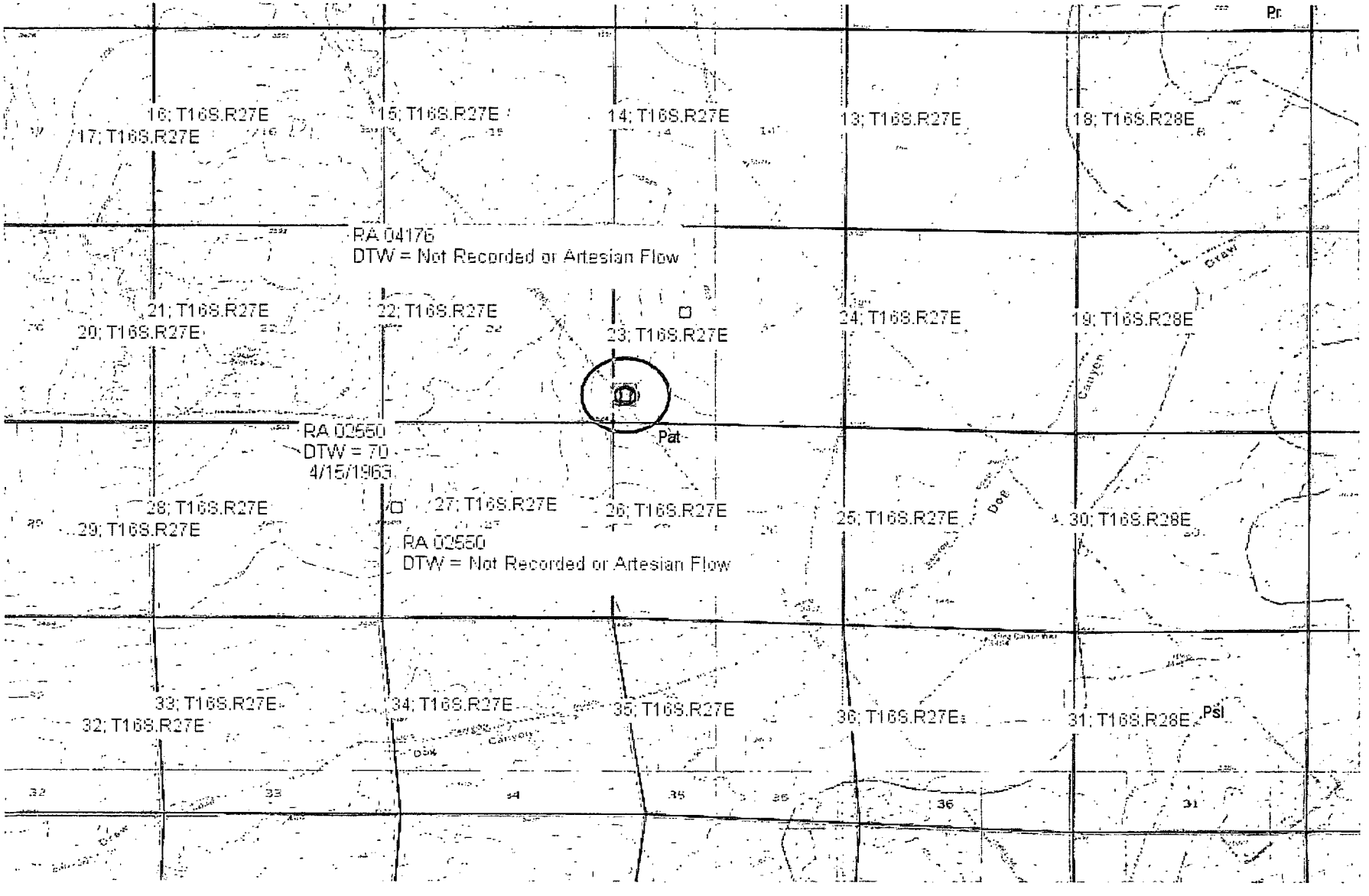
Plates SSI-1 and SSI-2 show the design features of the temporary pit. The Design and Construction Plan is included in this submission.

Note that the plan calls for a drilling pit and what is labeled as a "workover pit", for lack of a better term. This pit, if installed, will hold make up water for drilling and stimulation and flow-back water from the stimulation.

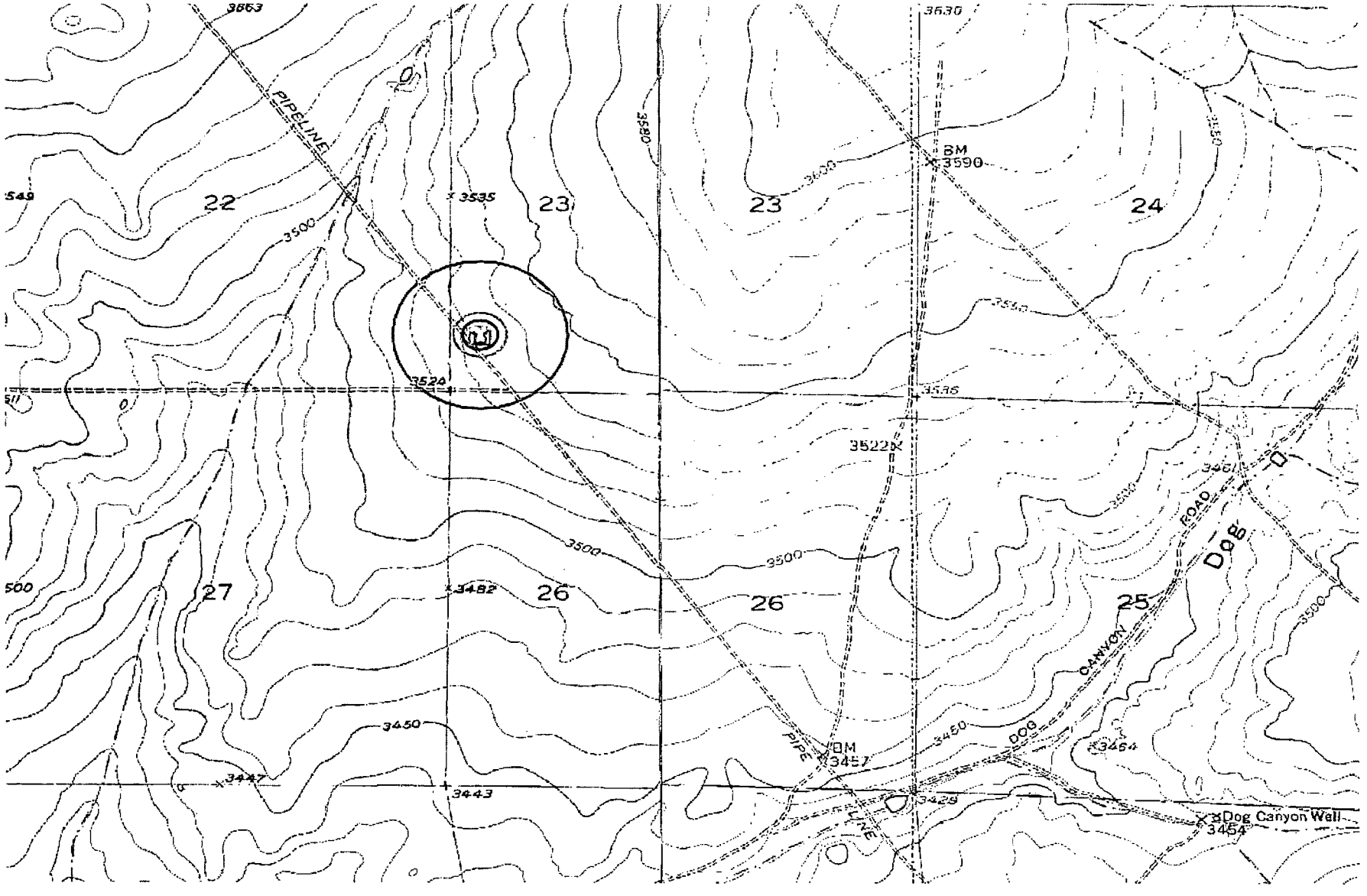
This pit is also called a burial trench in Plate SSI-1. If trench burial is necessary at this site, this pit will be converted to a burial trench in conformance with NMOCD Rules. Because the closure plan calls for in-place closure, we will notify NMOCD prior to converting this pit to a burial trench and will proceed with trench burial only after NMOCD approval.

Figures

R.T. Hicks Consultants, Ltd.
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104



Petroleum Recovery Research Center	Geology and Depth to Water	Figure: 1
	Read and Stevens - Hot Dog 23 Fed #4	Feb 16, 2012



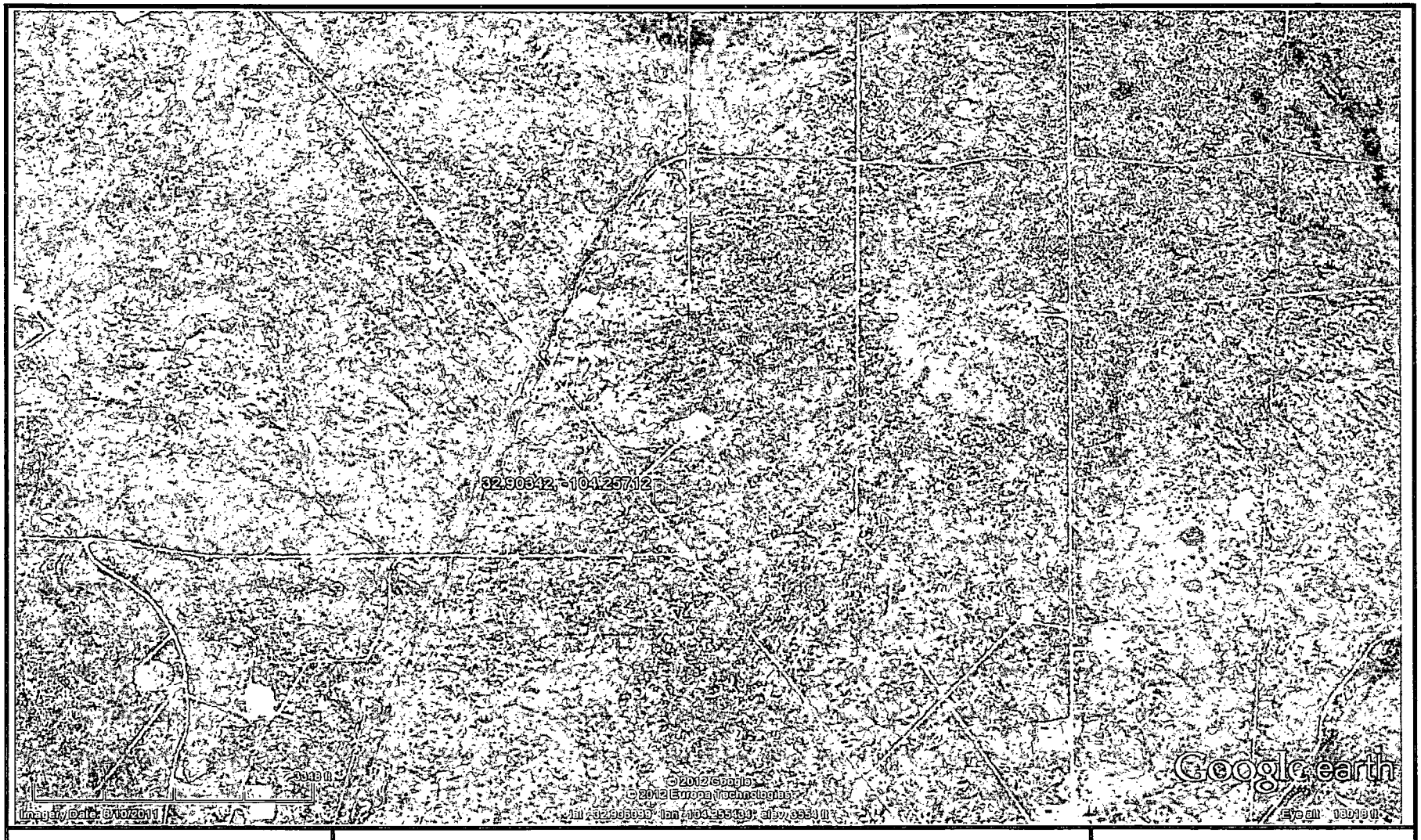
Petroleum Recovery Research Center	Topograhpy and Surface Water	Figure: 2
	Read and Stevens - Hot Dog 23 Fed #4	Feb 16, 2012

Distance (ft): 200 300 500 1000

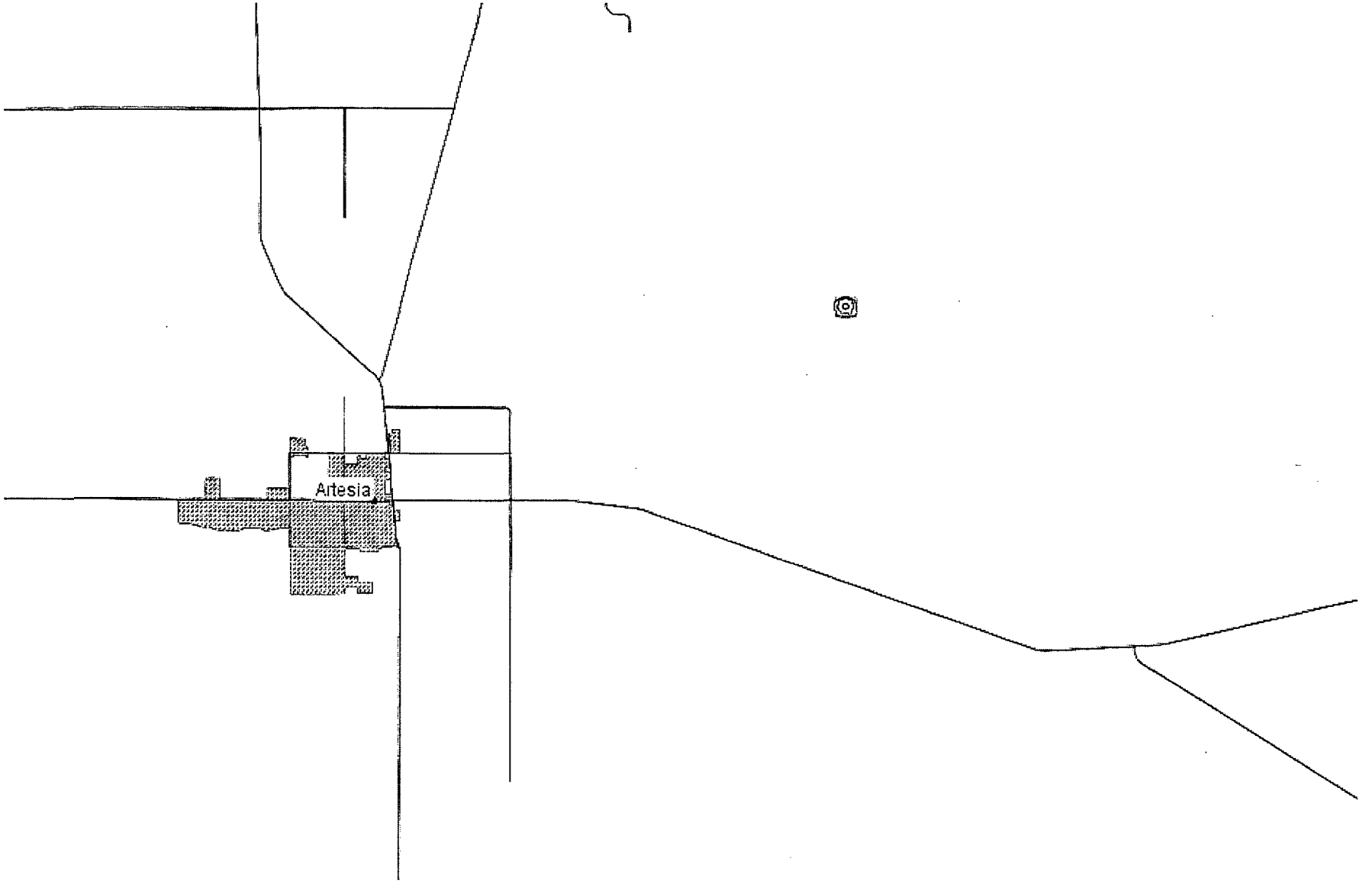
0 500 1000ft

N W E S

Petroleum Recovery Research Center	2005-2006 Air Photo	Figure: 3a
	Read and Stevens - Hot Dog 23 Fed #4	Feb 16, 2012



R.T. Hicks Consultants Albuquerque, NM	Google Earth Image - 2011	Figure 3b
	Read and Stevens Hot Dog 23 Federal #4	Feb-12



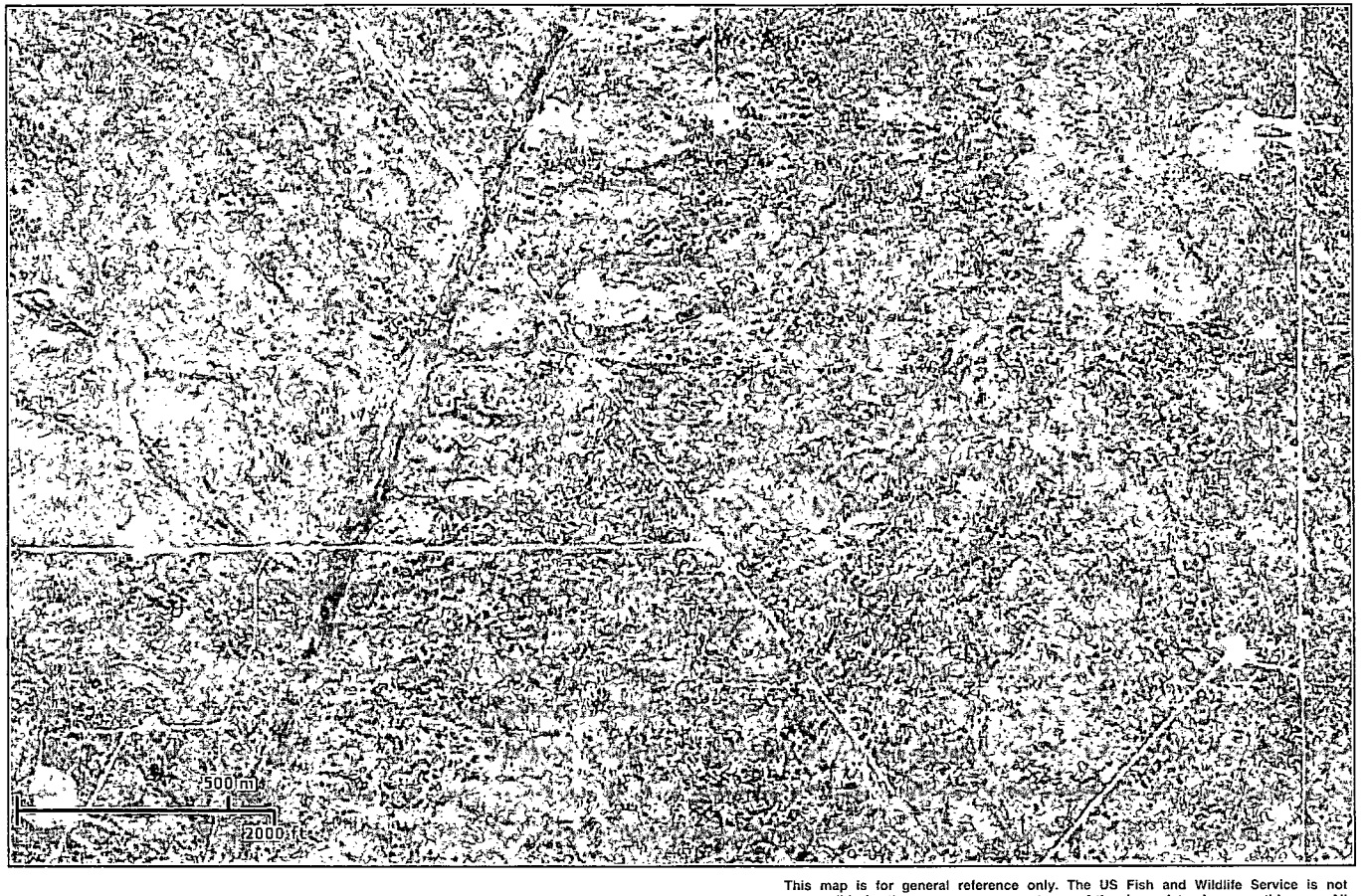
Petroleum Recovery Research Center	Nearest Incorporated Municipality	Figure: 4
	Read and Stevens - Hot Dog 23 Fed #4	Feb 16, 2012

U.S. Fish and Wildlife Service

National Wetlands Inventory

Figure 5: Wetlands Map

Feb 16, 2012



Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

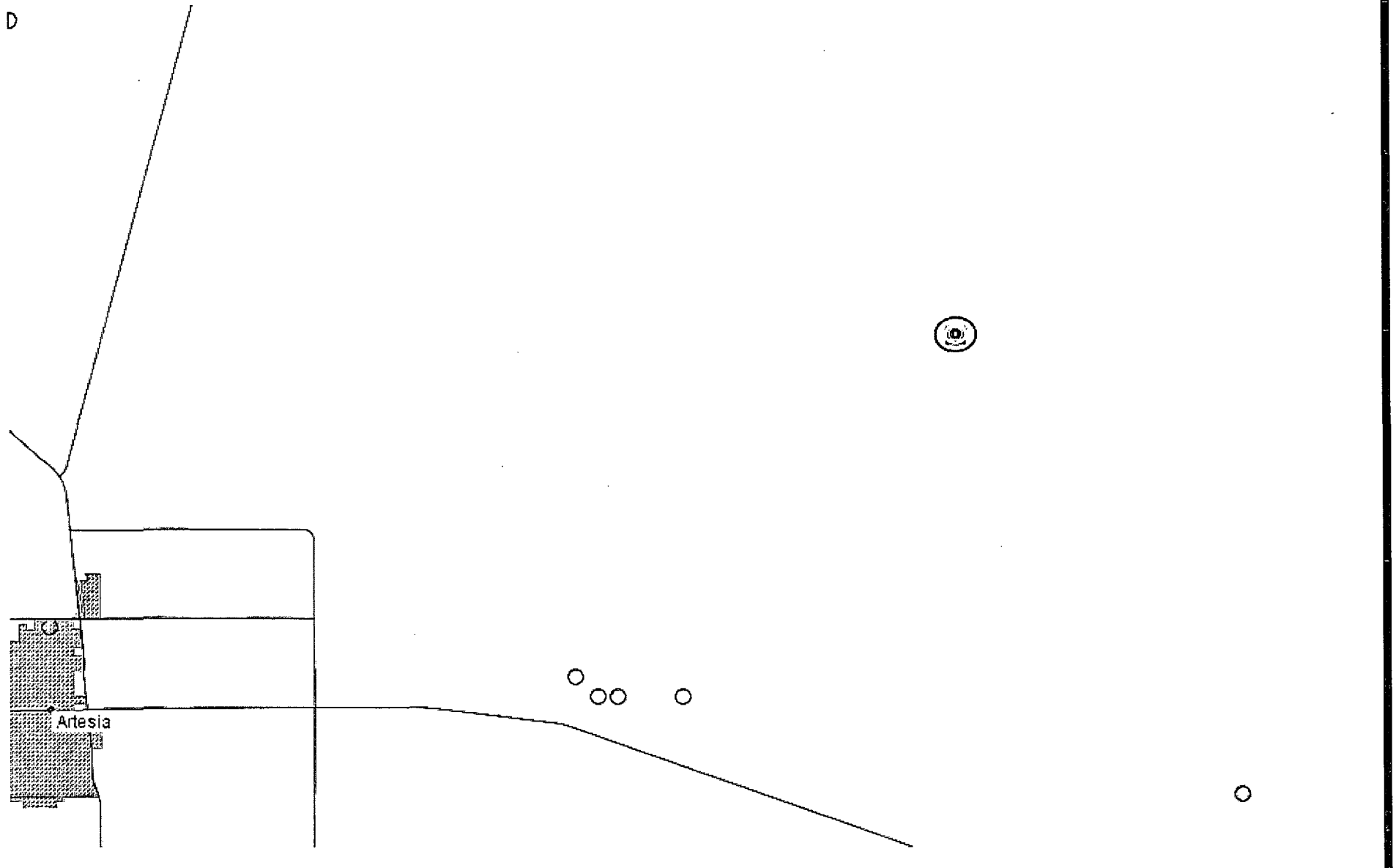
Riparian

- Herbaceous
- Forested/Shrub

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

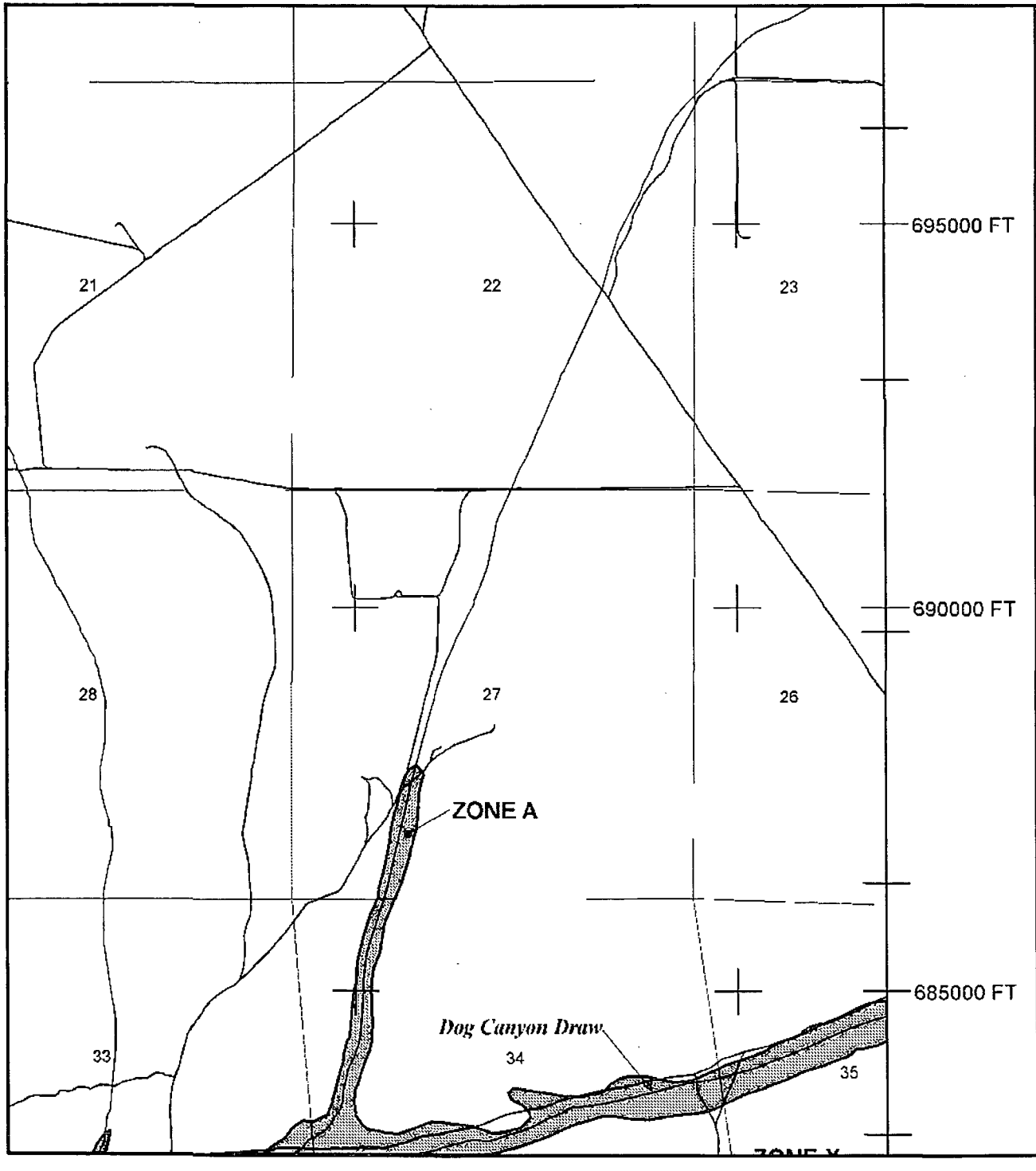
User Remarks:

Read and Stevens - Hot Dog 23 Fed. #4



Petroleum Recovery Research Center	Nearest Mines	Figure: 6
	Read and Stevens - Hot Dog 23 Fed #4	Feb 16, 2012

e Program at 1-800-638-6620.



MAP SCALE 1" = 2000'

0 0 1,000 2,000 3,000 4,000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0125D

FIRM

FLOOD INSURANCE RATE MAP

EDDY COUNTY, NEW MEXICO

AND INCORPORATED AREAS

PANEL 125 OF 2000

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EDDY COUNTY, UNINCORPORATED AREAS	350120	0125	D

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
35015C0125D

EFFECTIVE DATE
JUNE 4, 2010

Federal Emergency Management Agency

SURFACE USE PLAN OF OPERATIONS

READ & STEVENS, INC.

Hot Dog 23 Federal, Well No.4
990'FSL & 330' FWL Sec. 23- 16S-R27E
Eddy County, New Mexico
Lease No.: NMNM-93469
(Development Well)

This plan is submitted to accompany the Application for Permit to Drill the above described well. The purpose of the plan is to describe the location of the proposed well, the proposed construction activities and operations plan to be followed in rehabilitating the surface and environmental effects associated with the operations.

A. EXISTING ROADS:

1. Exhibit "**A**" is a portion of the Eddy County Road Atlas, showing the proposed well location and the road status

2. The well site location is approximately 20 road miles northeast of Artesia, NM. Traveling east of Artesia on U.S. Hwy 82, there will be approximately 9 miles of existing paved road and 8 miles of gravel oil field roads

3. Directions: Travel east of U.S. Hwy 285 in Artesia on U.S. 82 for 9 miles to CR 202, "Southern Union" at the power station. Turn north for 2.9 miles and then turn right, northeast, for 1.2 miles to a pipeline road running northwest, and the end of CR202. Continue northwest for 3.7 miles to the existing access road on the right for the Hot Dog 23 Federal, Well No.2 well site. Turn right, travel 250 feet, and turn right again (southeast) onto the new access road. Travel 280 feet on this new road to the northwest corner of the new well pad.

B. NEW OR RECONDITIONED ACCESS ROADS:

1. The proposed new and existing roads are color coded on both Exhibit "**A**". as well as on Exhibit "**B**"., which is a portion of a USGS topographic quadrangle showing the both the existing pipeline road and the location, and the topography thereof.

2. Access to the wellsite is via existing roadways which are currently in use and which do not require any upgrade or improvement for this proposed use. There will be constructed 280 feet of new road to access the wellpad. This roadway will have a driving surface of 12 feet in width, lie on the existing topography without cut or fill, and have a maximum grade of less than 2% over any 100 ft length. It will be surfaced with compacted caliche laid on the existing topsoil . This eliminates the need to stockpile topsoil, minimizes surface disturbance and facilitates reclamation by only necessitating the removal of the caliche armor. The caliche will be crowned at 0.1 ft from center to edge to provide drainage away from the roadway surface. Because of its short length, there will be no turnouts. There is virtually no elevation change along the roadway alignment, and this eliminates the need for culverts or ditches, as all drainage will be across and away from the roadway, rather than along it. There are no fences which will be newly impacted by this project, and thus no new cattleguards or gates

3. Offlease rights of way are being negotiated to continue to use the existing pipeline road from the end of Eddy County 202 (Southern Union) near the W/4 Cor Sec.6, T17S,R27E, to the edge of this lease, which is the south line of Sec.23, T16S, R27E. This road has been used extensively in the past by both the applicant and others and serves all existing wells in Secs 22 &23. The particulars of this arrangement are shown in paragraph K.

C. LOCATION OF EXISTING WELLS:

Existing wells within a one-mile radius are shown on Exhibit "**C**".

D. LOCATION OF EXISTING AND/OR PROPOSED PRODUCTION FACILITIES:

Read & Stevens, Inc. has production processing and storage facilities for the lease at the No.2 well. If the well proves to be a flowing commercial well as expected, only the minimum necessary production facilities consisting of a wellhead and pressure regulator will be installed on the drilling pad. A 3" on-surface SDR 26 (64 psi working pressure) polyethylene flow line will be run 10' from and parallel to and along the access roads directly to the existing processing equipment and tank battery at the Hot Dog 23 Federal Well No.2., a distance of 1450 ft. It will transport all produced fluids (WOG). This is illustrated by Exhibit **D3**

E. SOURCE AND TYPES OF WATER SUPPLY:

It is planned to drill the proposed well with produced water (brine) that will be obtained from other existing wells in the area, and which will be transported over the existing and proposed access roads by commercial haulers, thereby reusing this resource which would otherwise be wasted. If adequate supplies of produced water are not available, water will be purchased from commercial sources and trucked in.

F. CONSTRUCTION MATERIALS:

Caliche for surfacing the proposed access road and well site pad will be obtained from the existing well pad and access road of the P&A'd Hot Dog 23 Federal Well No. 3 located 2310' FSL & 1650' FWL of this section. This will serve as a start on the remediation of that wellpad and access road. If the salvaged material is insufficient to supply the required amount needed, it will be purchased from commercial sources. No other on lease surface materials will be disturbed except as necessary for actual grading and leveling of the drill site and access road.

G. METHODS FOR HANDLING WASTE:

1. Drill cuttings and liquids will be temporarily stored in lined pits onsite; liquids will be disposed of in an approved manner. Drill cuttings will be disposed of onsite in accordance with the NMOCD rules and regulations as outlined in Form C-144. A copy of that permit / application is attached hereto as **Attachment 1**. The mud pits will be fenced in accordance with BLM and NMOCD requirements.

2. Oil produced during operations will be stored in tanks until sold

3. Current laws and regulations pertaining to the disposal of human waste will be complied with; Specifically, portable toilets will be utilized; furnished and serviced by a toilet rental company. Any living quarters on site will utilize self-contained restroom facilities which will be serviced by the rental company or after removal from the location.

4. Trash, waste paper, garbage and junk will be contained in trash bins to prevent scattering by the wind and will be removed for deposit in an approved sanitary landfill within 30 days after finishing drilling and/or completion operations.

H. ANCILLARY FACILITIES:

None required.at this time; It is anticipated that this will be a flowing well. If that is not the case, it may be necessary to bring in electric power. That issue will be addressed at that time.

I. WELL SITE LAYOUT:

1. Exhibit "**D**" shows the relative location and dimensions of the well pad, and pit system as originally staked and flagged, together with 150 foot azimuth markers on each cardinal direction and a 600' X 600' cultural resource (archaeological) survey area. One foot interval elevation contours of the existing land surface are shown as well.

2. Drilling Pad Size: 150'- 200' X 150' plus 44'x 88' cuttings and reserve/frac pit immediately adjacent to the north. Exhibit "**D1**" shows the relative location and dimensions of the well pad, and pit system while being drilled. Exhibit "**D2**" shows the relative location and dimensions of the partially remediated well pad after being equipped with a pumpjack and anchors as though it was being serviced and tubing being removed or installed, including the presence of a pulling unit to illustrate the needed space for access by vehicles and material.

3. Earthwork:

   a. Topsoil will be removed to a depth of 3-10" and stockpiled on the east side of the pad in a low mound to minimize blowing and erosion.
   b. The pad will be constructed with a balanced cut and fill, as indicated on the pad diagrams.
   c. Pad will be surfaced as needed with compacted caliche
   d. Pits will be excavated to a depth sufficient to provide a minimum of 4 feet of cover when closed.
   e. The spoil from the pit excavation will be stockpiled on the backside of the pit until the pit is reclaimed.
   f. Refer to the attached NMOCD form C-144 for pit construction and closure details.

J. PLANS FOR SURFACE RESTORATION

Upon completion of drilling and stimulation operations, the water in the cuttings and reserve pits will be allowed to decant the suspended solids, and then will be hauled off for reuse or disposal at an approved facility. Once the cuttings have dried enough to support equipment, they will be stabilized by mixing with earth from the spoil pile, encapsulated in a waterproof membrane, and buried with a minimum of four feet of cover. Topsoil (previously reserved) from the site will then be spread and contoured as appropriate to facilitate revegetation. At an auspicious time (seasonally) it will then be planted with an appropriate seed mixture. Please refer to the attached C-144 Pit Permit application for a more detailed discussion of the pit closure and rehabilitation plan. This applies to the North 30 feet of the wellpad as well as the pit.

Please refer to Exhibit "**D2**". Due to the access road being located on the Northwest corner of the wellpad, it is necessary to loop around the pulling unit and anchors to deliver tubulars to the site during a workover operation. In order to turn a truck around to leave the pad, the SE corner of the wellpad must be maintained at the original size, which precludes interim remediation of the southeast corner of the wellpad..

The west end of the south side of the pad is capable of furnishing some material to fill the cut occurring on the east end of the south side and could be covered with topsoil and reseeded without risk of it being buried by subsequent operations. This will be done to the extent possible with the available material.

As a consequence of the wellpad being constructed as a balanced cut and fill, the material to restore the

east (or cut) side of the pad must come from the west (or fill) side of the pad. Required vehicular access precludes any substantial reduction of the west side of the pad. For that reason, the proposed area of interim reclamation shown on the east side may be somewhat optimistic due to a lack of material. Based on your suggestion, we will temporarily store (and seed} the previously stockpiled topsoil in the cut on the east side. Then, at the time of final remediation, the stored topsoil will be pushed east, the fill from the west side of the pad will be pushed into the cut, and the pad recontoured to original conditions. The topsoil will then be redistributed across the former pad, and planted.

K. SURFACE OWNERSHIP

The lease is on public domain lands, administered by the BLM.
The access road from the wellpad crosses the following offlease parcels before attaching to Eddy County Road 202:

Sec.	Twp.	Rge.	Aliquot/s	Owner	Authorization for use
26	16s	27e	N/2, W/2SE/4	United States.	NMNM 092086
26	16s	27e	SE/4SE/4	State of New Mexico	R-o-W No. 10195
35	16s	27e	NE/4	COG.	Letter agreement
36	16s	27e	NW/4	COG	Letter agreement
36	16s	27e	S/2	State of New Mexico	R-o-W No. 10195
1	17s	27e	NE/4	United States.	NMNM 092086
6	17s	28e	W/2	United States	NMNM 092086

L. OTHER INFORMATION

A Cultural Resources Survey has been conducted by Archaeological Survey Consultants and submitted to the Carlsbad Resource Area BLM office under separate cover.

CERTIFICATION:

I hereby certify that I, or someone under my direct supervision, have inspected the proposed drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have knowledge of State and Federal laws applicable to this operation; that the statements made in this 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 USC 1001 for the filing of a false statement.

Executed this 7th day of March, 2012

Tim Collier
Senior Vice President for Drilling & Exploration
Read & Stevens, Inc
P.O. Box 1518
Roswell, NM 88202
575-622-3770 Ext. 316
email: tcollier@read-stevens.com

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Read & Stevens Inc
LEASE NO.:	NM93469
WELL NAME & NO.:	4 Hot Dog 23 Federal
SURFACE HOLE FOOTAGE:	990' FSL & 330' FWL
BOTTOM HOLE FOOTAGE	' FL & ' FL
LOCATION:	Section 23, T.16 S., R.27 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.

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. 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) 234-6235 at least 3 working days prior to commencing construction of the access road and/or well pad.

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

B. TOPSOIL

The operator shall stockpile the topsoil in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 4-6 inches in depth. The topsoil will be used for interim and final reclamation.

C. RESERVE PIT

The pit will be closed in accordance with NMOCD pit rules, with the following additional stipulations:

Construction:
The reserve pit shall be constructed 88' (L) X 44' (W) X **7' (deep)** on the north side of the well pad.

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

The reserve pit will be constructed entirely below ground level (as opposed to pushing up dirt to form the sides of the pit).

All pits that may contain liquid material shall be lined with a 20 ml liner or greater to prevent seepage into the ground. The pit liner shall be maintained in good working condition, with no tears or holes, until the pit is closed. No trash, pipe, barrels, wireline, or metal equipment is permitted in the pit.

Pits shall be constructed to preclude the accumulation of precipitation runoff and maintain a minimum of 2 feet of freeboard between the maximum fluid level and the lowest point of containment. If pit fluids threaten to rise to a level allowing less than 2 feet of freeboard, steps shall immediately be taken to prevent introduction of additional

fluids until sufficient pit capacity has been restored through fluid removal or an alternative containment method is approved and installed.

The reserve pit shall be fenced on three sides prior to drilling activity and closed off on the fourth side after drilling is completed. Fencing shall be adequate to preclude entry by livestock. All corners shall be braced and fence construction shall be maintained in good condition to exclude wildlife and livestock. (Fencing: BLM Manual Handbook H-1741-1, p. 16 or BLM Gold Book)

If any reserve pit is constructed with a slope steeper than 3:1, or if the pit is lined, escape ramps shall be installed every 50 feet along the pit slope and at each corner to allow for escape of livestock and wildlife. [An example: anchored sections of galvanized chain-link fence at least 24 inches wide which extend from the bottom of the pit to the top of the pit slope and across the top edge of the pit liner. The chain link fence should be configured so that sharp edges do not puncture the liner; likewise, the fence anchors should not be installed through the liner material, but rather into unlined soils.]

Maintenance:
Any hydrocarbons (condensate, paraffin, diesel, etc.) introduced to the reserve pit shall be removed within 24 hours.

The operator will avoid any activities that will puncture the liner.

Maintain 2 feet of freeboard on the pit at all times.

Closure:
The pit will be closed in accordance with NMOCD pit closure rules, with the following additional stipulations:

When drilling is completed, the fluids must be drawn off the pit within 30 days and the pit reclaimed within six months. The pit should also be fully enclosed with fencing on 4 sides during the drying process.

The operator will notify a BLM Environmental Protection Specialist three days prior to beginning closure operations.

The BLM may wish to witness the sampling of the pit contents and excavation bottoms. The operator will notify a BLM Environmental Protection Specialist three days prior to sampling pit contents or excavation bottoms.

Only mineral materials can be used to solidify pit contents. The operator is prohibited from using topsoil materials stockpiled on location for this purpose.

If onsite burial is approved by the OCD, the pit liner sides will be folded over the pit contents and a separate liner installed atop the encapsulated pit materials. The top liner must be located four feet below the natural ground surface. Should the pit content level

not meet the four foot minimum depth requirement, the excess contents shall be removed until the required minimum depth of four feet below ground level has been met. The operator shall properly dispose of the excess contents at an authorized disposal site.

If trench burial is elected as a closure method, the trench burial must be located within the confines of the approved pad. The operator should consider where the trench burial will be located in advance of pad and facility construction in order to accommodate this requirement. The trench will be fully lined, the reserve pit materials fully encapsulated, and liner installed over the top of the containment. The top liner must be located four feet below the natural ground surface.

Surface Restoration:

For both onsite and trench burials: clean mineral materials may be used to backfill on top of the liner installation or to backfill excavated pit areas to a backfill level that reaches the natural topsoil depth of the surrounding terrain or 1 foot below surface level, whichever is greater. (In sandy soils, 2 feet of topsoil material is required.) Clean and viable topsoil must be used as the top fill on the excavations and reclamation areas in order to establish vegetation. Topsoil materials must be a good match to that of the surrounding terrain.

The surface of the reserve pit reclamation and/or trench burial should be recontoured to match that of the native terrain.

Erosion control measures must be installed to ensure that reclamation stabilizes and establishes vegetation. If erosion issues develop, the erosion issues must be addressed immediately by bringing in additional backfill material and re-establishing erosion control measures.

The location must be seeded with an appropriate BLM seed mix for the soil type of the area.

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. 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 (12) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty (20) 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.

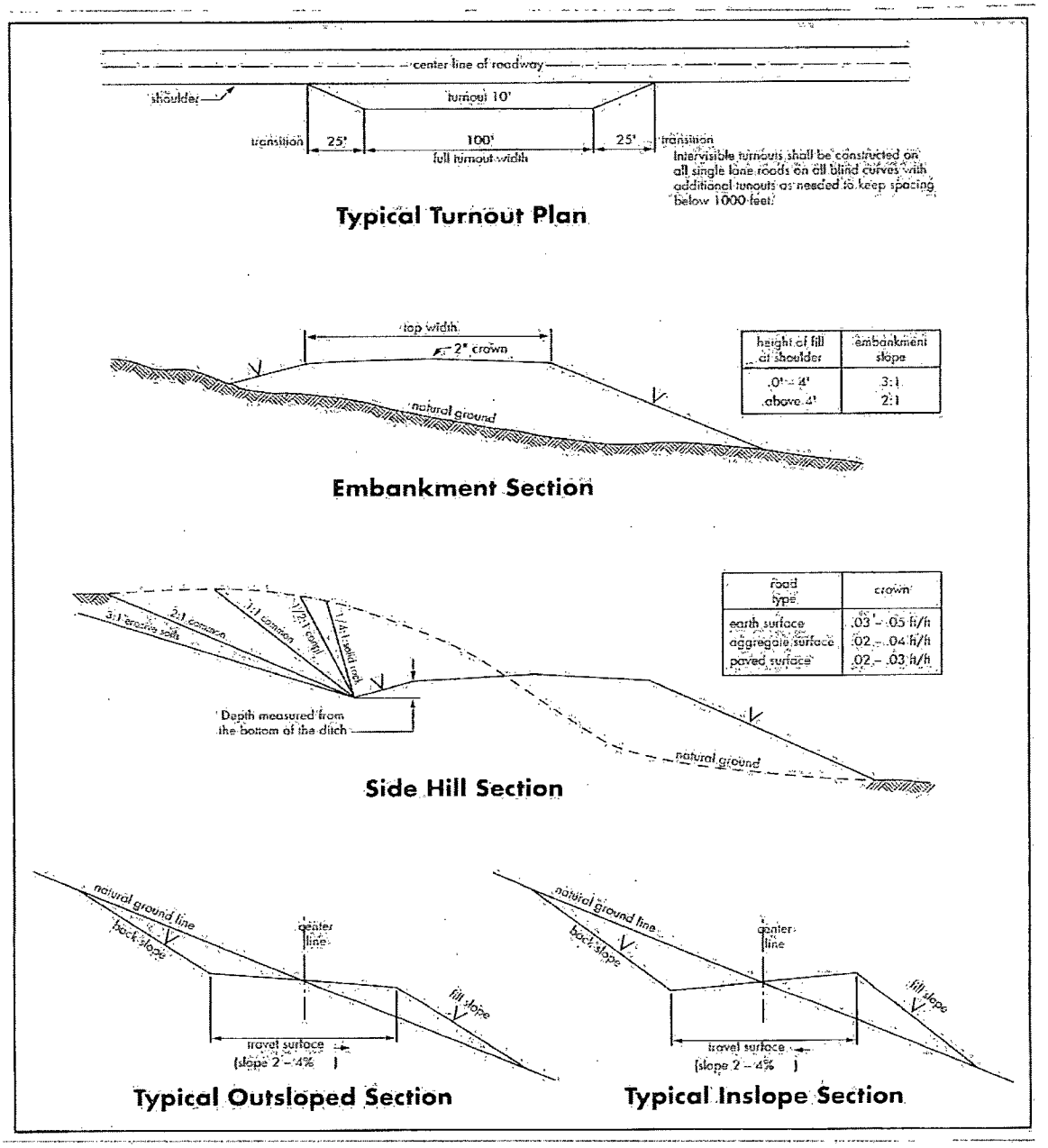
Ditching
Ditching shall be required on both sides of the road.

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

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

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



VI. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

a. Spudding well
b. Setting and/or Cementing of all casing strings
c. BOPE tests

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

1. **Although there are no measured amounts of Hydrogen Sulfide reported, it is always a potential hazard. 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 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.**

4. **Operator to run an Electric Log to determine the presence of fresh water from TD to setting depth of surface casing.**

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. 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.

Medium cave/karst
Possible lost circulation in the Grayburg and San Andres.

1. The **8-5/8** inch surface casing shall be set at approximately **350** feet and cemented to the surface. **Additional cement may be required – excess calculates to 24%.**

    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 **5-1/2** inch production casing is:

    ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

3. 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.

    a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.

3. 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**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

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

    d. 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.**

    e. 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.