C15F

N.M. Oil Cons. DIV. Dist. 2
1301 W. Grand Ave.
Artesia, NM 88210

Form 3160-3
(August 1999)

FORM APPROVED
OMB No. 1004-0136
Expires November 30, 2000

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

SEP 2001
RECEIVED
OCD - ARTESIA

5. Lease Serial No.
LC-028936D

6. If Indian, Allottee or Tribe Name

1a. Type of Work: ☒ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.
28859

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

8. Lease Name and Well No.
Big Tank "33" Federal #1

2. Name of Operator
Southwestern Energy Prod. Co. 148111

9. API Well No.
30-015-31995

3a. Address
2350 N. Sam Houston Pkwy. East, Ste. 300
~~Houston, TX 77032~~

3b. Phone No. *(include area code)*
(281) 618-4733

10. Field and Pool, or Exploratory
~~Exploratory~~ Und Morrow

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface 1980' FSL, 1380' FEL
At proposed prod. zone Unit J

11. Sec., T., R., M., or Blk. and Survey or Area
Sec. 33, T17S-R30E

14. Distance in miles and direction from nearest town or post office*
~~Roswell Controlled Water Basin~~

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
1380' FEL	320	320
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
	11,900'	ES0051
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3600' GL	early September	40 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	Name *(Printed/Typed)*	Date
Cathy Rowan	Cathy Rowan	08/16/01
Title: Sr. Engineering Tech.		
Approved by *(Signature)*: /s/ LESLIE A. THEISS	Name *(Printed/Typed)*: /s/ LESLIE A. THEISS	Date: SEP 12 2001
Title: FIELD MANAGER	Office: CARLSBAD FIELD OFFICE	

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

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

(Instructions on reverse)

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

APPROVAL FOR 1 YEAR

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II
P.O. Drawer DD, Artesia, NM 88211-0719

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 15, 2000
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name

Property Code	Property Name	Well Number
	BIG TANK "33" FEDERAL	1

OGRID No.	Operator Name	Elevation
148111	SOUTHWESTERN ENERGY PRODUCTION CO.	3600

Surface Location

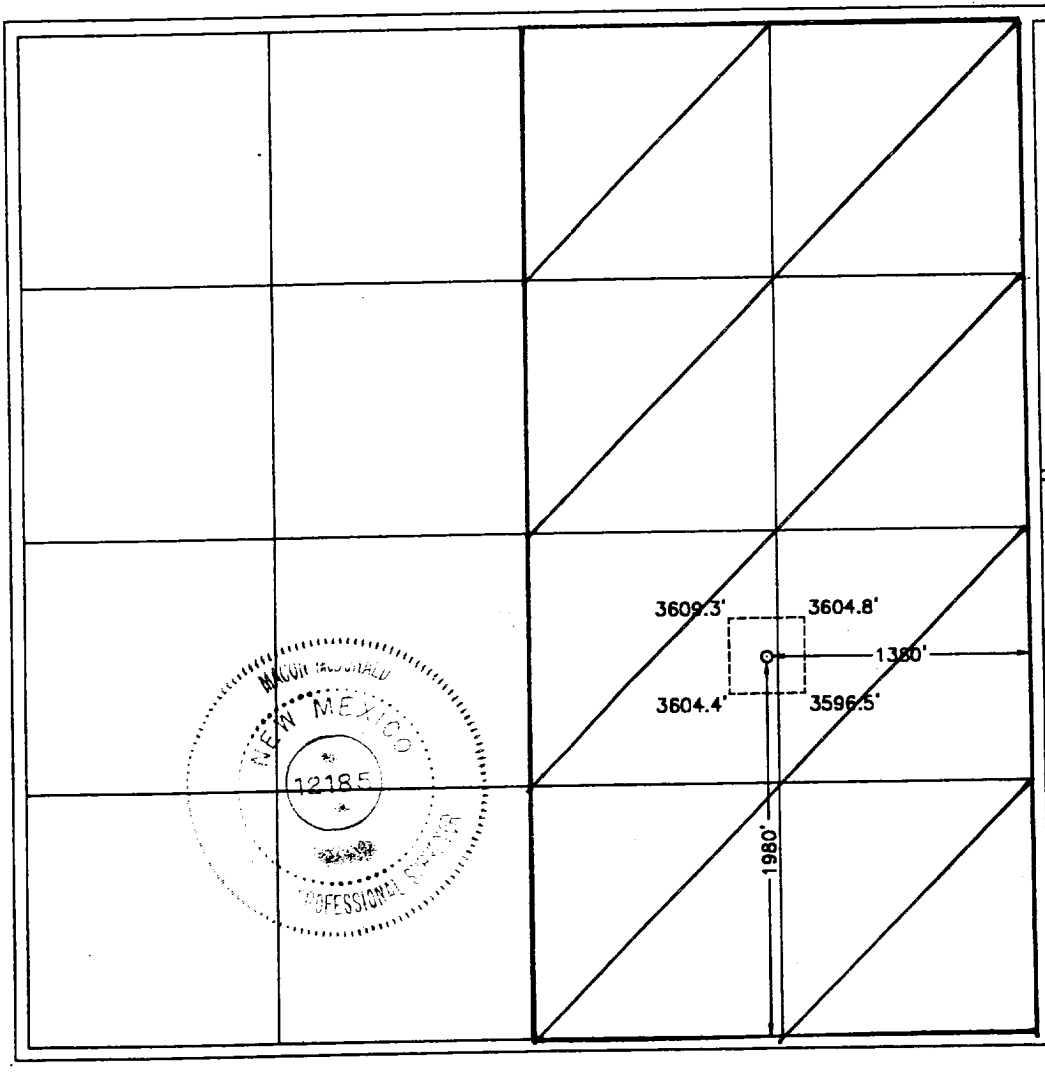
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	33	17 S	30 E		1980	SOUTH	1380	EAST	EDDY

Bottom Hole Location If Different From Surface

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

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320			

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



OPERATOR CERTIFICATION

I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.

Signature

Cathy Rowan
Printed Name

Sr. Engineering Tech.
Title

07/25/01
Date

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 supervison and that the same is true and correct to the best of my belief.

July 11, 2001
Date Surveyed LVA

Signature & Seal of Professional Surveyor

W.O. Num. 2001-0735

Certificate No. MACON McDONALD 12185

APPLICATION FOR PERMIT TO DRILL
SOUTHWESTERN ENERGY PRODUCTION COMPANY
BIG TANK "33" FEDERAL #1
1980' FSL & 1380' FEL
Sec. 33, T17S-R30E

In conjunction with Form 3160-3, Application for Permit to Drill, Southwestern Energy Production Company submits the following items of pertinent information in accordance with Onshore Oil & Gas Order Nos. 1 & 2, and with all other applicable federal and state regulations.

1. The geologic surface formation is of Permian Age.

2. Estimated tops of geologic markers are as follows:

Yates	1,505'
Seven Rivers	1,400'
Queen	2,475'
San Andres	3,315'
Glorieta	4,785'
1st Bone Spring	6,285'
2nd Bone Spring	7,035'
3rd Bone Spring	7,985'
Wolfcamp	8,185'
Cisco	8,835'
U. Strawn	10,305'
L. Strawn	10,485'
Atoka	10,785'
Atoka/Morrow Ls	11,035'
Morrow Clastics	11,335'
L. Morrow	11,535'
L. Morrow Sd	11,635'
Missippian	11,735'

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

* - Water:	150' & 300'	
* - Oil or gas:	Cisco-Canyon:	8,835'
	Morrow:	11,635'
	Atoka:	10,785'

* Groundwater to be protected by 13-3/8" surface casing with cement circulated to the surface.

** Potentially productive horizons to be protected by 5-1/2" production casing with cement tied back to approximately 4,500'.

4. Proposed Casing Program: See Exhibit F.

5. Pressure Control Equipment: See Exhibit E.

6. Mud Program: See Exhibit G.

7. Auxiliary Equipment: Upper Kelly Cock, Full Opening Stabbing Valve, Flow Sensor, PVT.

8. Testing, Logging, and Coring Programs:

Possible DST's:	1 in Cisco-Canyon 1 in Atoka 1 in Morrow
Logging:	2-Man Mudlogging unit from 1500' to TD Density Porosity Log
Electric Logs:	Dual Induction Laterolog Neutron Porosity Log Gamma Ray/Caliper Log

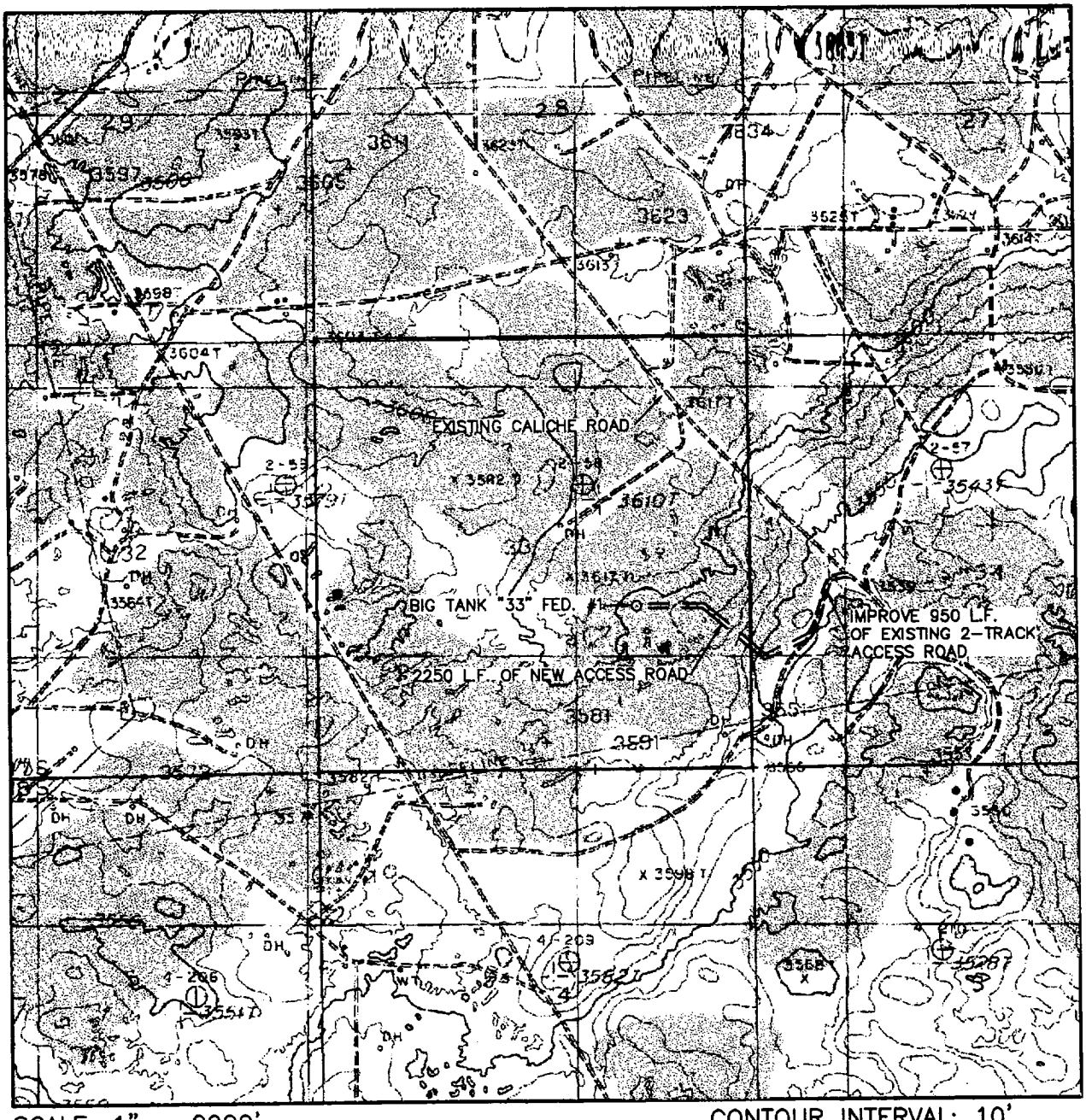
No Coring is anticipated.

9. Abnormal Pressures, Temperatures, or Other Hazards:
   - Lost circulation is possible in the intermediate interval of the hole in the San Andres formation and in the production interval of the hole in the Cisco formation.
   - No abnormally pressured zones are expected.

10. Anticipated Starting Date: September 2001.

LOCATION VERIFICATION MAP

EXHIBIT A



SCALE: 1" = 2000'

CONTOUR INTERVAL: 10'
LOCO HILLS, NM

SEC. 33 TWP. 17-S RGE. 30-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 1980' FSL & 1380' FEL

ELEVATION 3600

OPERATOR SOUTHWESTERN ENERGY PRODUCTION CO.

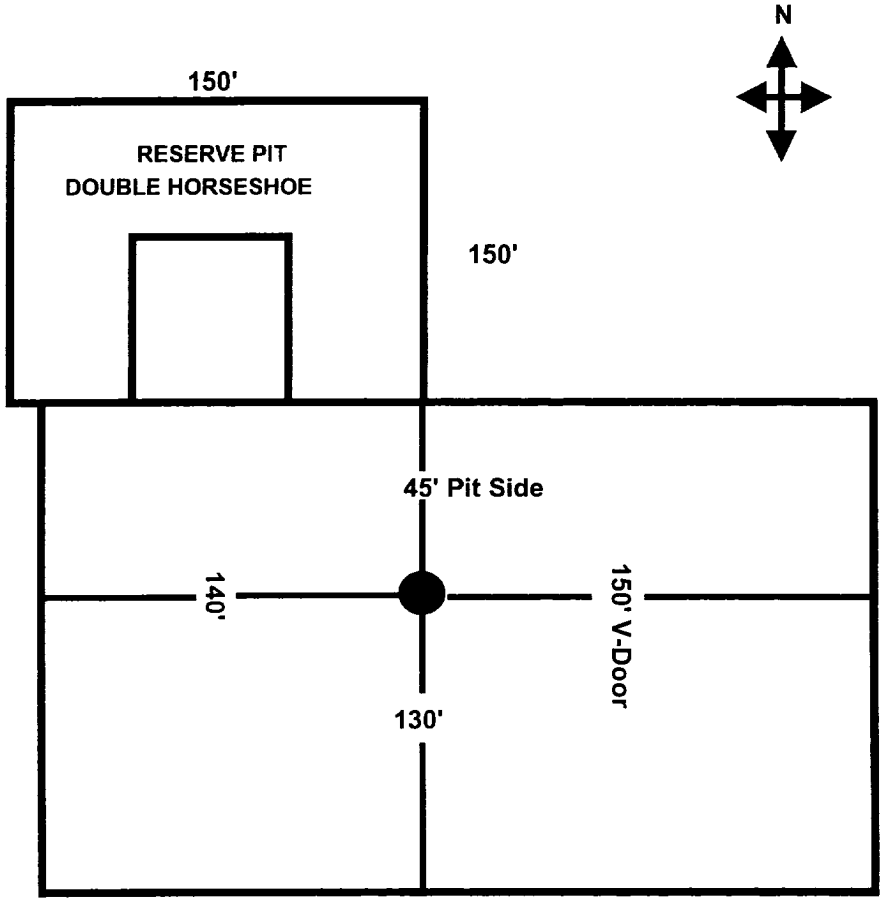
LEASE BIG TANK "33" FED.

U.S.G.S. TOPOGRAPHIC MAP
LOCO HILLS, N.M.

WEST COMPANY of Midland, Inc.
110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(915) 687-0865 - (915) 687-0868 FAX

EXHIBIT "B"

SOUTHWESTERN ENERGY PRODUCTION COMPANY
DRILLING RIG LAYOUT
BIG TANK "33" FED. #1
1980' FSL 1380' FEL
SECTION 33, T17S, R30E
EDDY COUNTY, NEW MEXICO



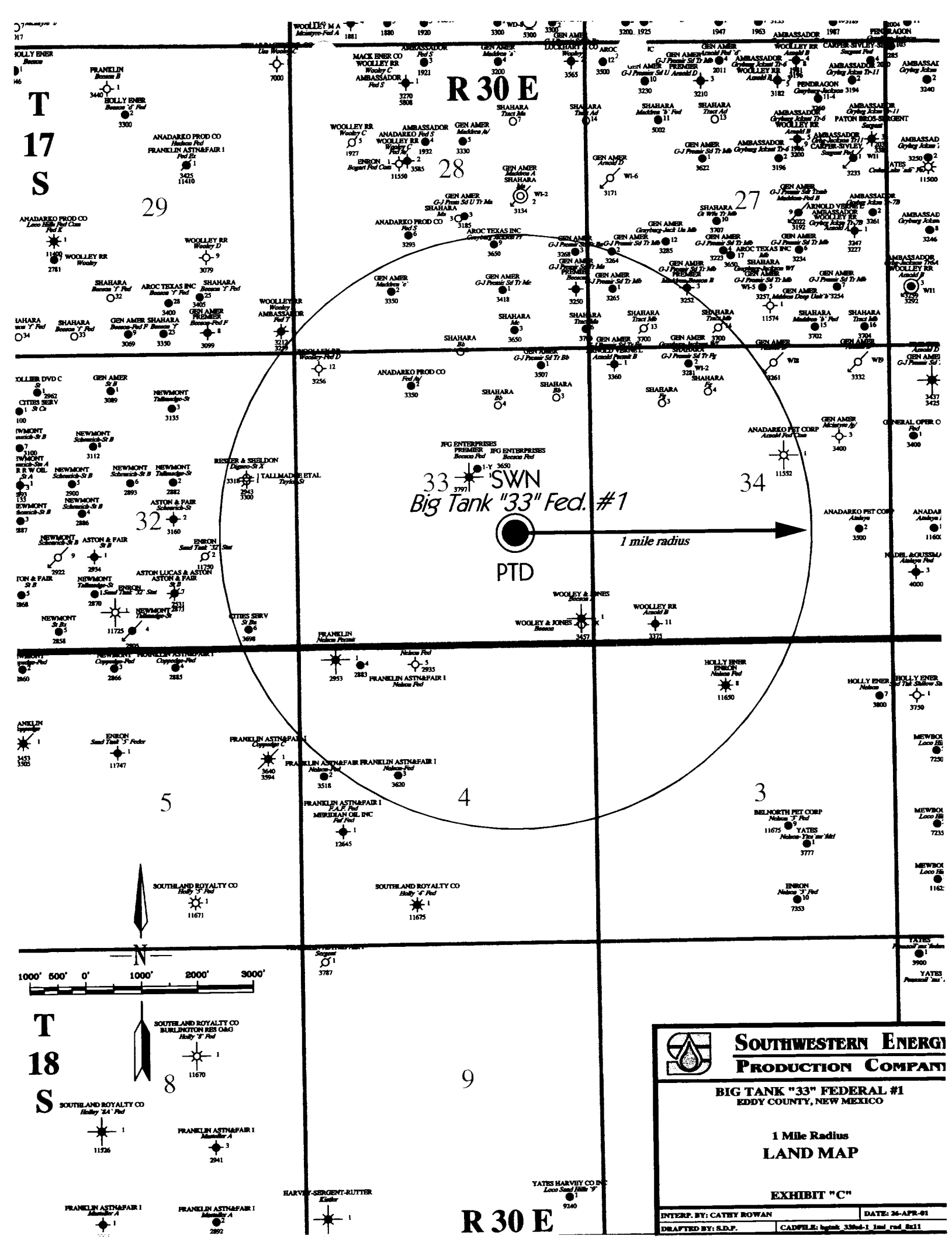
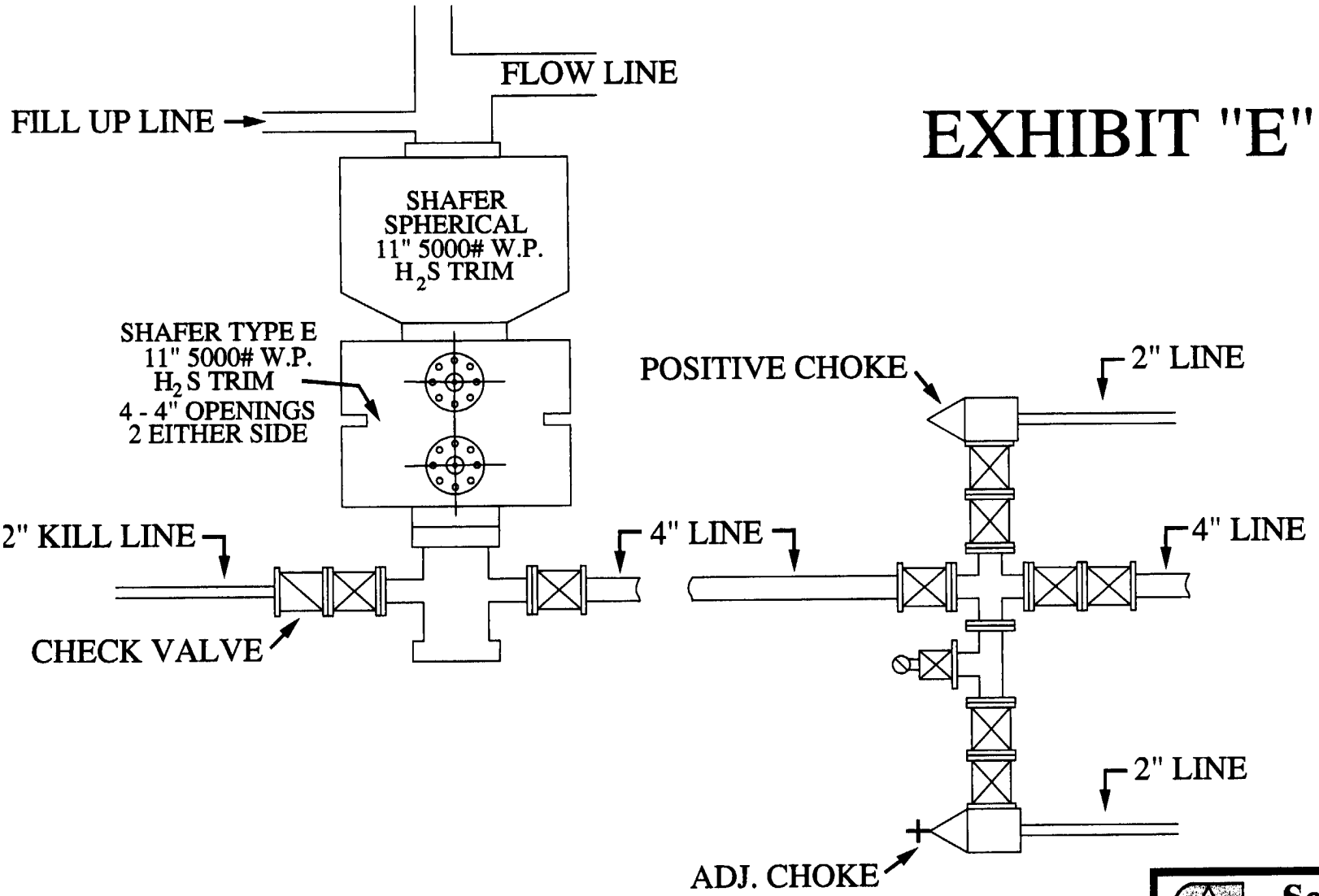

R 30 E
T 17 S
T 18 S
R 30 E
29
28
27
33
34
32
5
4
3
8
9
SWN
Big Tank "33" Fed. #1
1 mile radius
PTD
1000' 500' 0' 1000' 2000' 3000'
N
SOUTHWESTERN ENERGY PRODUCTION COMPANY
BIG TANK "33" FEDERAL #1
EDDY COUNTY, NEW MEXICO
1 Mile Radius
LAND MAP
EXHIBIT "C"
INTERP. BY: CATHY ROWAN
DATE: 26-APR-01
DRAFTED BY: S.D.P.
CADFILE: bigtnk_33fed-1_1mi_rad_8x11

EXHIBIT "E" 1 of 2



SOUTHWESTERN ENERGY PRODUCTION COMPANY

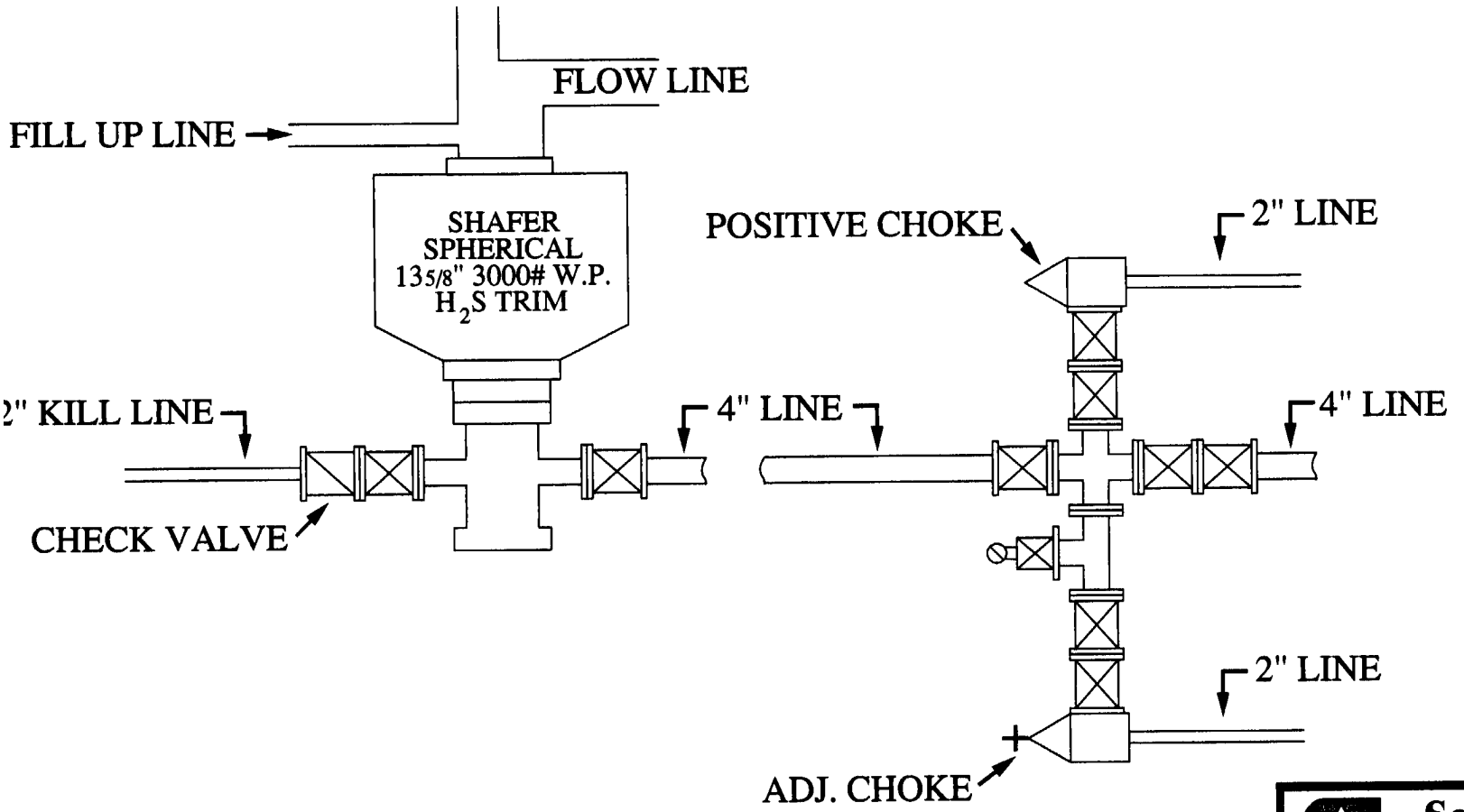
BIG TANK "33" FEDERAL #1
EDDY COUNTY, NEW MEXICO

8 3/4" Hole Section
4000' - 11,900'

EXHIBIT "E" 1 of 2

INTERP. BY: CATHY ROWAN	DATE: 26-JUL-01
DRAFTED BY: S.D.P.	CADFILE: xtree_bgtnk-33fed1
LOC: f:\home\patterse\cathy	SCALE: 1"=2000'

EXHIBIT "E" 2 of 2



SOUTHWESTERN ENERGY PRODUCTION COMPANY

BIG TANK "33" FEDERAL #1
EDDY COUNTY, NEW MEXICO

12 1/4" Hole Section
660' - 4000'

EXHIBIT "E" 2 of 2

INTERP. BY: CATHY ROWAN	DATE: 26-JUL-01
DRAFTED BY: S.D.P.	CADFILE: xtree_empire_2
LOC: f:\home\patterns\cathy	SCALE: 1"=2000'

EXHIBIT F

Southwestern Energy Production Company
Big Tank "33" Fed. #1
1980' FSL & 1380' FEL
Sec. 33, T17S-R30E

Drilling, Drill Stem Tests, Casing and Cementing Program

1. Drill 17-1/2" hole to ± 660'.

2. Cement 13-3/8", 54.5#, J-55 casing with 700 sx Class C + 2% calcium chloride. Run Texas Pattern Guide Shoe, with an insert float valve in top of shoe joint.

3. Nipple up and install BOP's. Test casing to 600 psi after 18 hours and drill out cement.

4. Drill 12-1/4" hole to 4,000'. Anticipate possible lost circulation zone with possibility of dry drilling. This interval to be drilled with 9.9 – 10.0 ppg saturated brine.

5. Cement 9-5/8", 40#, J-55 casing with lead, 770 sx 35:65 Poz:Class C + 5 lb/sk sodium chloride + 0.25% cello flake + 5 lb/sk LCM + 6% bentonite. Tail with 190 sx Class C + 1% calcium chloride. Run guide shoe and insert float on bottom joint, and 6 centralizers. Weld first few joints of casing.

6. Nipple up and install BOP's. Test casing to 1500 psi for 30 minutes after WOC 18 hours and drill out cement after 24 hours.

7. Drill 8-3/4" hole to TD at 11,900'. A fresh water mud system will be used to +/- 8,500'. At that point the system will be mudded up to 9.3 – 9.6 ppg to obtain good samples. See attached Mud Program for details. Pit levelers and flowline sensors will be utilized on the pits. Drill stem tests are possible in the following zones: Cisco-Canyon – 8,835'; Atoka – 10,785'; Morrow – 11,635'. DST flow periods and shut-in time will be determined on location. A mud logging unit will be on location at 1,500' to assist in evaluating samples and shows for exact drill stem test intervals. Run Formation Density-Compensated Neutron – Gamma Ray log, Dual Induction-Laterlog, and possibly Rotary Sidewall Cores.

8. Run 5-1/2", 17#, N-80 casing and cement with 1315 sx Poz:Class C:CSE + 1% potassium chloride + 8 lb/sk LCM + .6% salt tolerant fluid loss additive + 0.64% water soluble fluid loss additive. Use guide shoe and float collar, and 12-15 centralizers where necessary. Use top and bottom rubber plugs, displace cement with clean, fresh water treated with 2% KCL.

9. Perforations, acid job, and additional stimulation to be determined after completion.

EXHIBIT G

Southwestern Energy Production Company
Big Tank "33" Fed. #1
1980' FSL & 1380' FEL
Sec. 33, T17S-R30E

Surface: Spud with a conventional gel/lime "spud mud". Utilize native solids to maintain sufficient viscosity to clean the hole. Mix paper as needed to control seepage loss. Severe loss may require dry drilling to casing point.

Intermediate: Drill out below surface casing with brine. Circulate through the inside portion of the reserve pit for maximum gravitational solids removal. Use sweeps of paper as needed to control seepage loss and for additional hole cleaning. Maintain pH using lime.

Production: Drill out below intermediate casing with fresh water. Circulate through the remaining portion of the reserve pit for gravitational solids removal. Continue to maintain pH using lime and paper sweeps to control seepage loss and prevent excessive cuttings build-up.

Prior to the top of the Cisco, around 8,500', displace the hole with brine and use additions of fresh water to adjust weight as hole conditions dictate. (Wells in this vicinity have used mud weights from 8.9 – 9.7 ppg down to 10,800'.)

Confine circulation to the steel pits. Discontinue lime and begin using caustic soda to maintain pH. Mix XCD Polymer for viscosity and Starlose for filtration control. Add Xcide-102 to the system to preserve the XCD Polymer. Small quantities of S-10 (defoamer) may be needed while mixing through the hopper. Begin at mud-up with a filtrate of 10-12 cc and lower to 6-8 cc prior to penetrating the Morrow

DRILLING PROGNOSIS

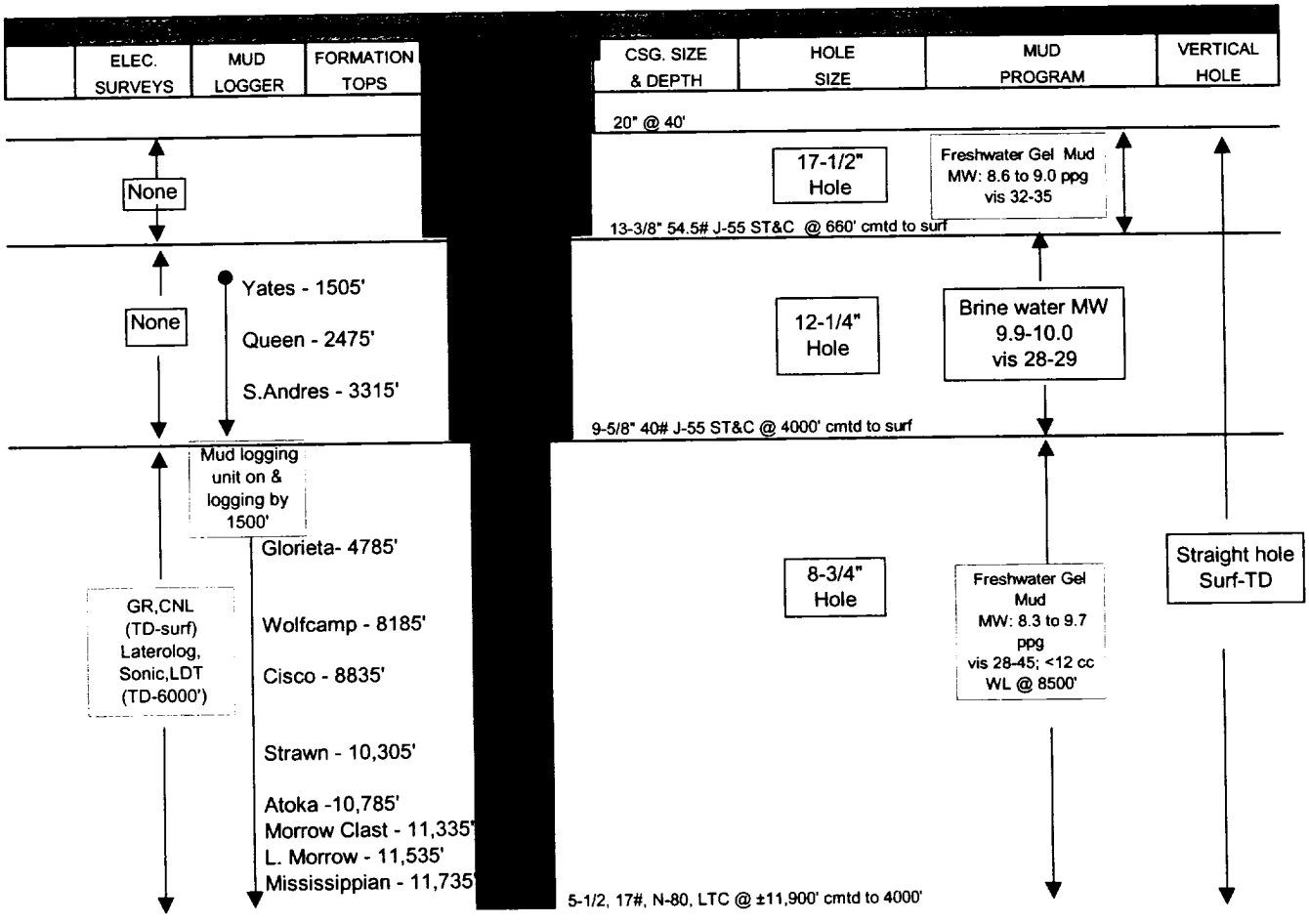
WELL NAME: Big Tank "33" Fed. Com. #1

LOCATION: Section 33-17S-30E
1980' FSL & 1380' FEL
Eddy County, New Mexico

PROSPECT: Big Tank

OBJECTIVE: Morrow

EST. ELEVATION: 3600' GL



UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Roswell Resource Area
P. O. Drawer 1857
Roswell, New Mexico 88202-1857

Statement Accepting Responsibility for Operations

Operator Name:		Southwestern Energy Production Company
Street or Box	:	2350 North Sam Houston Parkway East, Suite 300
City, State	:	Houston, TX
Zip Code	:	77032

The undersigned accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted on the leased land or portion thereof, as described below:

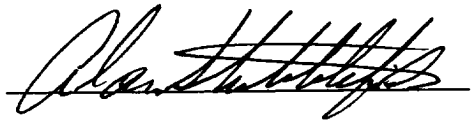
Lease No.: LC-028936D

Legal Description of land: Sec. 33, T17S-R30E

Formation(s) (if applicable): Morrow

Bond Coverage: $150,000 Nationwide Surety Bond, individually bonded.

BLM Bond File No.: ES0051

Authorized Signature: 

Title: Vice-President - Production

Date: July 25, 2001

SURFACE USE PLAN

APPLICATION FOR PERMIT TO DRILL
SOUTHWESTERN ENERGY PRODUCTION COMPANY
BIG TANK "33" FEDERAL #1
1980' FSL & 1380' FEL
Sec. 33, T17S-R30E

1. EXISTING ROADS – Area map, Exhibit "A", is a reproduction of the U.S.G.S. New Mexico 15 minute quadrangle. Existing and proposed roads are shown on the exhibit. All roads shall be maintained in a condition equal that which existed prior to the start of construction.

   A. Exhibit "A" shows the proposed development well site as staked.

   B. From the intersection of US Hwy. 82 & County Road 217 in Loco Hills, New Mexico, go South along CR 217 for 0.45 miles to an intersection with a caliche lease road heading SE. Turn left and go SE on caliche lease road for 1.8 miles to the flagged proposed access road on the right heading SW. The well is SW of this point approximately 0.35 miles.

2. PLANNED ACCESS ROADS – Approximately 2,250' of new access road will be constructed. Approximately 950' of existing 2-track access road will be improved.

   A. The access road will be crowned and ditched to a 12'-00" wide travel surface with a 40' right-of-way.

   B. Gradient on all roads will be less than 5.00%

   C. No turnouts will be necessary.

   D. If needed, road will be surfaced with a minimum of 4" of caliche. This material will be obtained from a local source.

   E. Centerline for the new access road has been flagged. Earthwork will be as required by field conditions.

   F. Culverts in the access road will not be used. The road will be constructed to utilize low water crossings for drainage as required by the topograph.

3. LOCATION OF EXISTING WELLS IN A ONE-MILE RADIUS

   A. Water wells -- None known.

   B. Disposal wells -- None known.

   C. Drilling wells -- None known.

D. Producing wells -- As shown on Exhibit "C"

E. Abandoned wells -- As shown on Exhibit "C"

4. If, upon completion, the well is a producer, Southwestern Energy Production Company, will furnish maps or plats showing On Well Pad facilities and Off Well Pad facilities (if needed) on a Sundry Notice before construction of these facilities starts.

5. LOCATION AND TYPE OF WATER SUPPLY

Water will be purchased locally from a private source and trucked over the access roads or piped in flexible lines laid on top of the ground.

6. SOURCE OF CONSTRUCTION MATERIALS

If needed, construction materials will be obtained from the drill site's excavations or from a local source. These materials will be transported over the access route as shown on Exhibit "A".

7. METHODS FOR HANDLING WASTE DISPOSAL

A. 1. Drill cuttings will be disposed of in the reserve pit.

2. Trash, waste paper, and garbage will either be contained in a fenced trash trailer or in a trash pit, fenced with mesh wire to prevent wind-scattering during storage. When the rig moves out, all trash and debris left at the site will be contained to prevent scattering and will be buried at least 36" deep within a reasonable period of time.

3. Salts remaining after completion of the well will be picked up by the supplier, including broken sacks.

4. Sewage from the trailer houses will drain into holes with minimum depth of 10' 00". These holes will be covered during drilling and backfilled upon completion. A "porta John" will be provided for the rig crews. This will be properly maintained during the drilling operations and removed upon completion of the well.

5. Chemicals remaining after completion of the well will be stored in the manufacturer's containers and picked up by the supplier.

B. Remaining drilling fluids will be allowed to evaporate in the reserve pit until the pit is dry enough for backfilling. In the event drilling fluids will not evaporate in a reasonable period of time, they will be transported by tank truck to a State approved disposal site.

Water produced during testing of the well will be disposed of in the reserve pit. Oil produced during testing of the well will be stored in test tanks until sold and hauled from the site.

8. ANCILLARY FACILITIES

No camps or airstrips will be constructed.

9. WELL SITE LAYOUT

A. Exhibit "B" shows the proposed well site layout.

B. This exhibit indicates proposed location of reserve and trash pits and living facilities.

C. Mud pits in the active circulating system will be steel pits and the reserve pit is proposed to be lined, unless subsurface condition encountered during pit construction indicate that lining is needed for lateral containment of fluids.

D. If needed, the reserve pit is to be lined with PVC or polyethylene liner. The pit liner will be 6 mils thick. Pit liner will extend a minimum, 2'-00" over the reserve pits dikes where the liner will be anchored down.

E. The reserve pit will be fenced on three sides with four strands of barbed wire during drilling and completion phases. The fourth side will be fenced after all drilling operations have ceased. If the well is a producer, the reserve pit fence will be torn down. The reserve pit and those areas of the location not essential to production facilities will be reclaimed and seeded per BLM requirements.

10. PLANS FOR RESTORATION OF SURFACE.

Rehabilitation of the location and reserve pit will start in a timely manner after all drilling operations cease. The type of reclamation will depend on whether the well is a producer or a dry hole.

However, in either event, the reserve pit will be allowed to dry properly, and fluid removed and disposed of in accordance with Article 7.B as previously noted. The pit area will then be leveled and contoured to conform to the original and surrounding area. Drainage systems, if any, will be reshaped to the original configuration with provisions made to alleviate erosion. These may need to be modified in certain circumstances to prevent inundation of the location's pad and surface facilities. After the area has been shaped and contoured, topsoil from the spoil pile will be placed over the disturbed area to the extent possible. Revegetation procedures will comply with BLM standards.

If the well is a dry hole, the pad and road area will be recountered to match the existing terrain. Topsoil will be spread to the extent possible. Revegetation will comply with BLM standards.

Should the well be a producer, the previously noted procedures will apply to those areas, which are not required for production facilities.

11. OTHER INFORMATION

A. The topography is of a rolling terrain with vegetation of sagebrush and native grass. The soils are clayey sand over caliche base.

B. The surface is used to mainly access producing wells in the area and minimal grazing for livestock. There is a federal Grazing Lease Allotment No. 7008 in effect to Williams & Son Cattle Company of Maljimar, NM.

C. An archeological study is being conducted for the location. The report will be submitted separately when completed.

D. There is no building of any kind in the area.

12. OPERATOR'S REPRESENTATIVE – Field representatives for contact regarding compliance with the Surface Use Plan are:

Before and during construction:
Dale Stafford
R. K. Ford & Associates
201 West Wall, Suite 600
Midland, TX 79701
(915) 682-0440

After construction:
Bruce Drummond
Diamond "M" Production Company
4459 S. FM 1606
Snyder, TX 79549
(915) 573-0725

13. CERTIFICATION – I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exist; that the statements made in this plan are to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Southwestern Energy Production Company and its contractors/subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

NAME: James M. Tully

DATE: August 16, 2001

TITLE: Staff Drilling Engineer

SIGNATURE: _____