

E-40

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

C19F

Form 3160-3
(August 1999)

338

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

5. Lease Serial No.
NM-4847

6. If Indian, Allottee or Tribe Name

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

8. Lease Name and Well No.
Empire Deep "29" Federal #2

9. API Well No.
30-015-32252

10. Field and Pool, or Exploratory
Empire Morrow S

11. Sec., T., R., M., or Bk. and Survey or Area
Sec 29-T17S-R29E

12. County or Parish
Eddy

13. State
NM

1a. Type of Work: ☒ DRILL ☐ REENTER

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

2. Name of Operator
Southwestern Energy Production Company

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

3b. Phone No. (include area code)
281-618-4739

4. Location of Well (Report location clearly and in accordance with any State requirements.)

At surface 660' FSL, 660' FWL of Sec 29
At proposed prod. zone

14. Distance in miles and direction from nearest town or post office*

15. Distance from proposed* location to nearest property or lease line, ft. 660' FSL, 660' FWL
(Also to nearest drig. unit line, if any)

16. No. of Acres in lease
320

17. Spacing Unit dedicated to this well
320

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

19. Proposed Depth
11,000'

20. BLM/BIA Bond No. on file
ES0051

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3605'

22. Approximate date work will start*
03/20/02

23. Estimated duration
40

24. Attachments

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

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

25. Signature
[Signature]

Name (Printed/Typed)
Vonnie J. Cermin

Date
02/21/02

Title
Production Analyst

Approved by (Signature)
/s/ JOE G. LARA

Name (Printed/Typed)
/s/ JOE G. LARA

Date
MAR 22 2002

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.

APPROVAL FOR 1 YEAR

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)

Revised Controlled Water Basin

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS AND
SPECIAL STIPULATIONS
ATTACHED

101 JOE G. LARA

RECEIVED
2002 FEB 25 AM 10:42
SMT

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

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
Fec Lease - 3 Copies

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

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

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

DISTRICT IV
2040 South Pacheco, Santa Fe, NM 87506

☐ AMENDED REPORT

30-015-32252 WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-32252		Pool Code 96099	Pool Name Cisco- SWD	
Property Code 317066	Property Name EMPIRE DEEP "29" FED. COM.			Well Number 2
OGRID No. H9305	Operator Name SOUTHWESTERN ENERGY PRODUCTION COMPANY			Elevation 3605

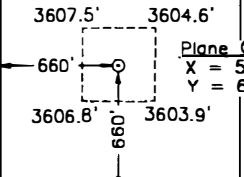
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	29	17 S	29 E		660	SOUTH	660	WEST	EDDY

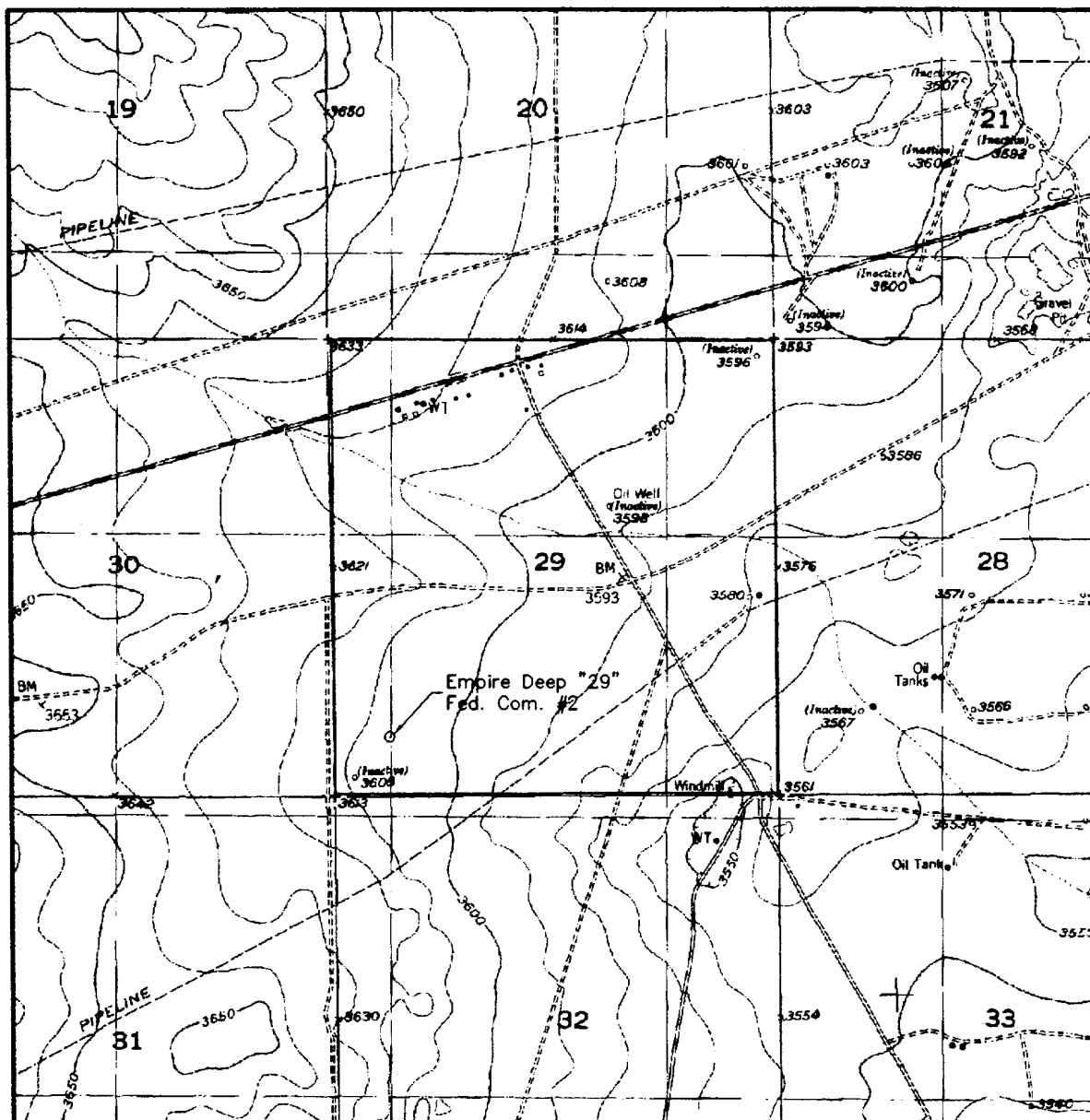
Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres 320	Joint or Infill	Consolidation Code	Order No.						

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>I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.</i>  Signature Vonnie J. Cermin Printed Name Production Analyst Title 02/21/02 Date
				SURVEYOR CERTIFICATION <i>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.</i> February 18, 2002
 <u>Plane Coordinate</u> X = 570,800.0 Y = 654,826.1				Date Surveyed Signature & Seal of Professional Surveyor  W.O. Num. 2002-0070-S Certificate No. MACON, McDONALD 12185

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL: 10'
RED LAKE SE

SEC. 29 TWP. 17-S RGE. 29-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 660' FSL & 660' FWL

ELEVATION 3605

OPERATOR SOUTHWESTERN ENERGY
PRODUCTION CO.

LEASE EMPIRE DEEP "29" FED. COM.

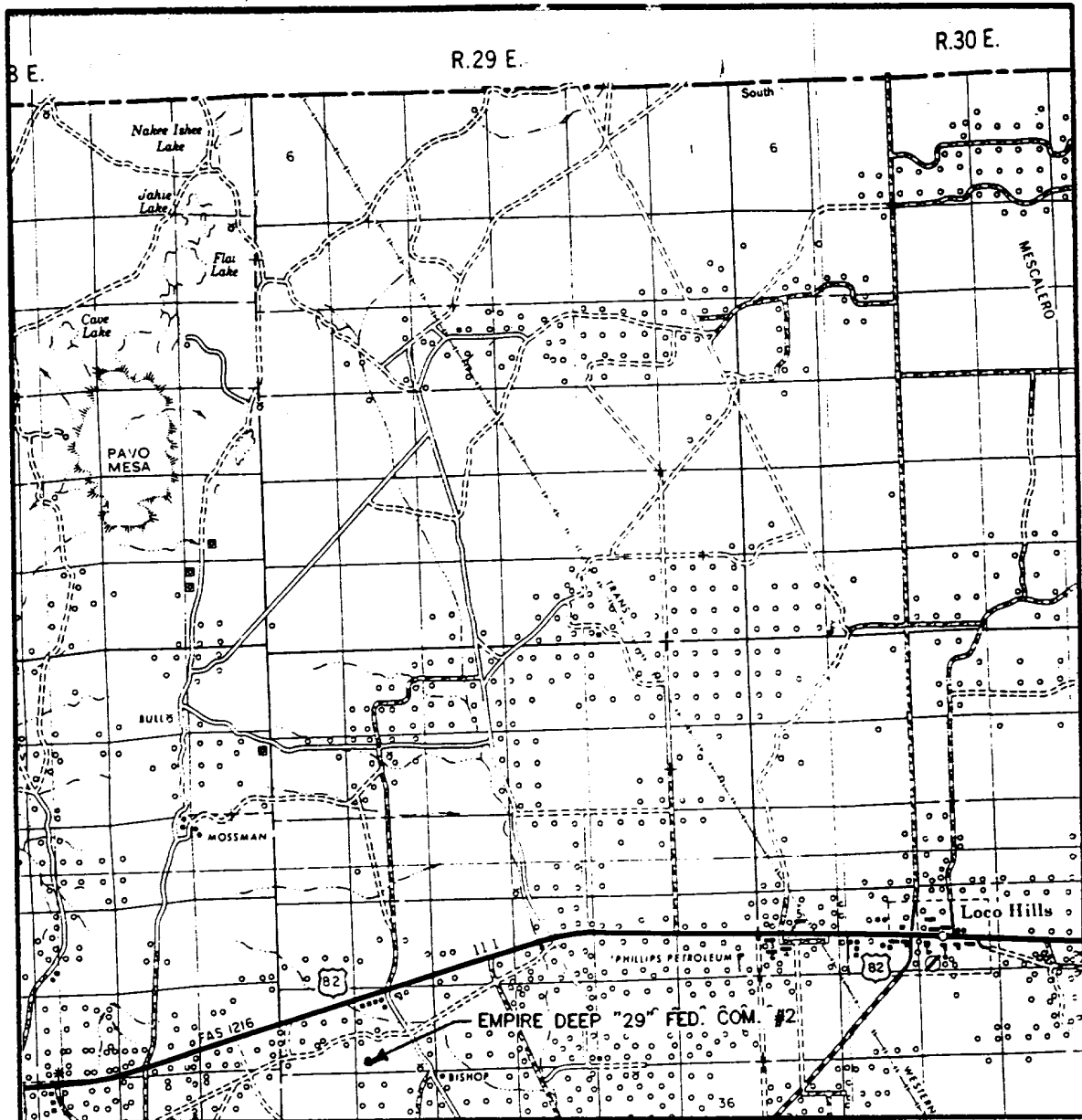
U.S.G.S. TOPOGRAPHIC MAP
RED LAKE SE, N.M.



**WEST
COMPANY**
of Midland, Inc.

110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(915) 687-0865 - (915) 687-0868 FAX

VICINITY MAP



SEC. 29 TWP. 17-S RGE. 29-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 660' FSL & 660' FWL

ELEVATION 3605

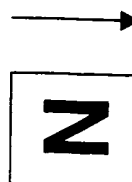
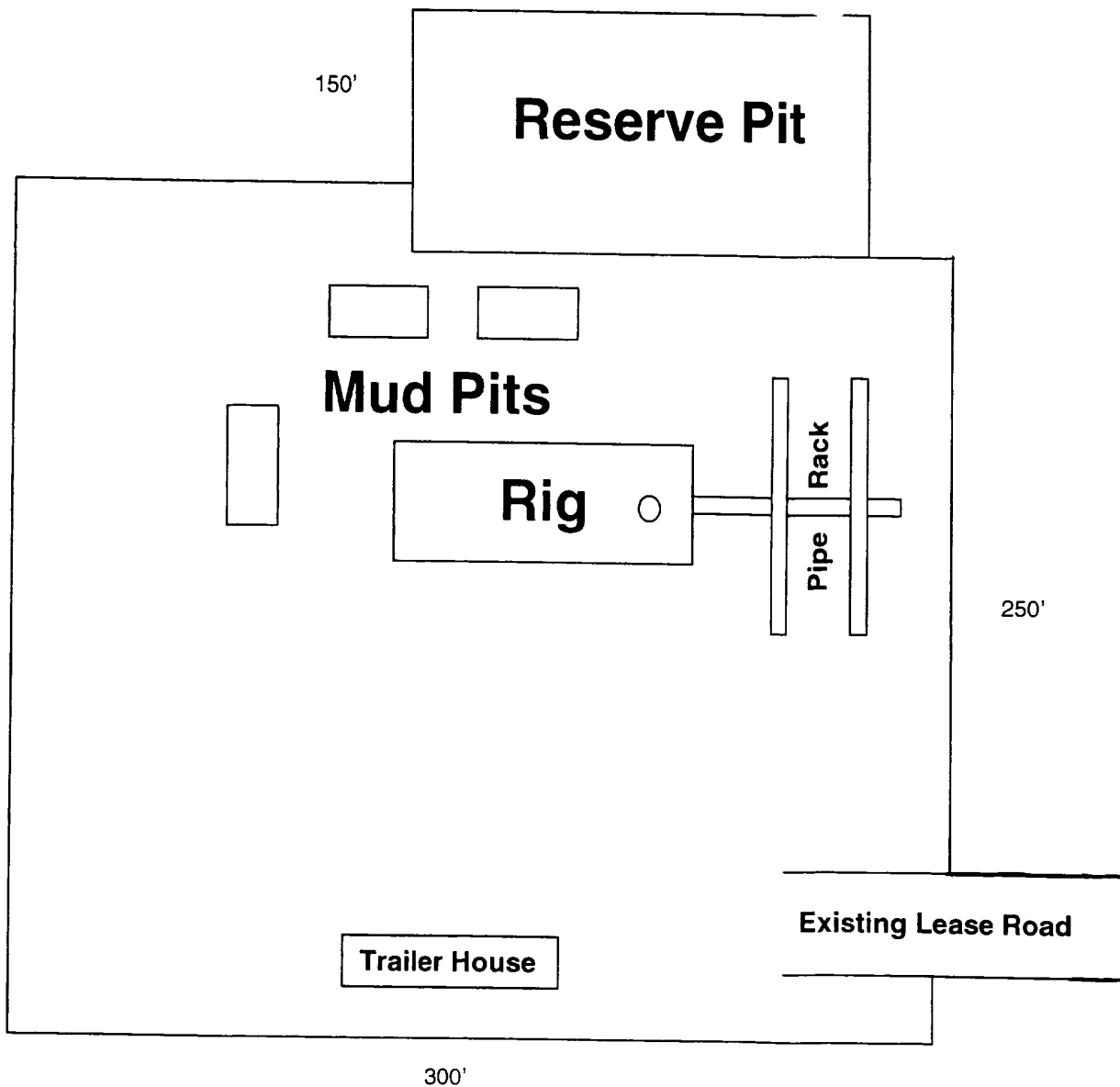
OPERATOR SOUTHWESTERN ENERGY PRODUCTION CO.

LEASE EMPIRE DEEP '29' FED. COM.



**WEST
COMPANY**
of Midland, Inc.

110 W. LOUISIANA, STE. 110
MIDLAND TEXAS, 79701
(915) 687-0865 - (915) 687-0868 FAX



DRILLING RIG LAYOUT

Southwestern Energy Production Company
 Empire Deep "29" Fed Com #2
 660' FSL, 660' FWL
 Sec 29-T17S-R29E
 Eddy County, New Mexico

EXHIBIT "B"

APPLICATION FOR PERMIT TO DRILL
SOUTHWESTERN ENERGY PRODUCTION COMPANY
Empire Deep "29" FEDERAL #2
660' FSL & 660' FWL
Sec. 29, T17S-R29E

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:

Seven Rivers	1,100'
Queen	1,690'
San Andres	2,340'
Abo	6,000'
Wolfcamp	7,130'
Cisco	8,780'
Strawn	9870'
Atoka	10,120'
Morrow Clastics	10,615'
L. Morrow	11,535'
L. Morrow Sd	10,745'
Missippian	10,845'

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

- * - Water: 150' & 300'
- * - Oil or gas: Morrow: 10,615'-10,845'

* 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 Morrow
 - Logging: 2-Man Mudlogging unit from 8500' 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: March 2002.

EXHIBIT F

Southwestern Energy Production Company Empire Deep "29" Fed. #2 660' FSL & 660' FWL Sec. 29, T17S-R29E

Drilling, Drill Stem Tests, Casing and Cementing Program

1. Drill 17-1/2" hole to $\pm$ 450'.
2. Cement 13-3/8", 54.5#, J-55 casing with 450 sx 15:85 Poz:Class C + 0.25 pps D29 + 2% S1 + 2% D20. 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 3,000'. 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, 1100 sx 35:65 Poz:Class C + 6% D20 + 0.25 pps D29. Tail with 250 sx Class C + 2% S1 + 0.25 pps D29. Run guide shoe and insert float on bottom joint, and 3-6 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 11,000'. A fresh water mud system will be used to $\pm$ 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 – 8,780'; Atoka – 10,120'; Morrow – 10,700'. DST flow periods and shut-in time will be determined on location. A mud logging unit will be on location at 8,500' to assist in evaluating samples and shows for exact drill stem test intervals. Run Formation Density-Compensated Neutron – Gamma Ray log, Dual Lateralog-Microlateral, and Rotary Sidewall Cores.
8. Run 5-1/2", 17#, N-80 casing and cement with 1900 sx 50:50 Poz:Class H + 6% D44 + 2% D20 + 0.4% D59. 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
Empire Deep "29" Fed. #2
660' FSL & 660' FWL
Sec. 29, T17S-R29E**

- 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

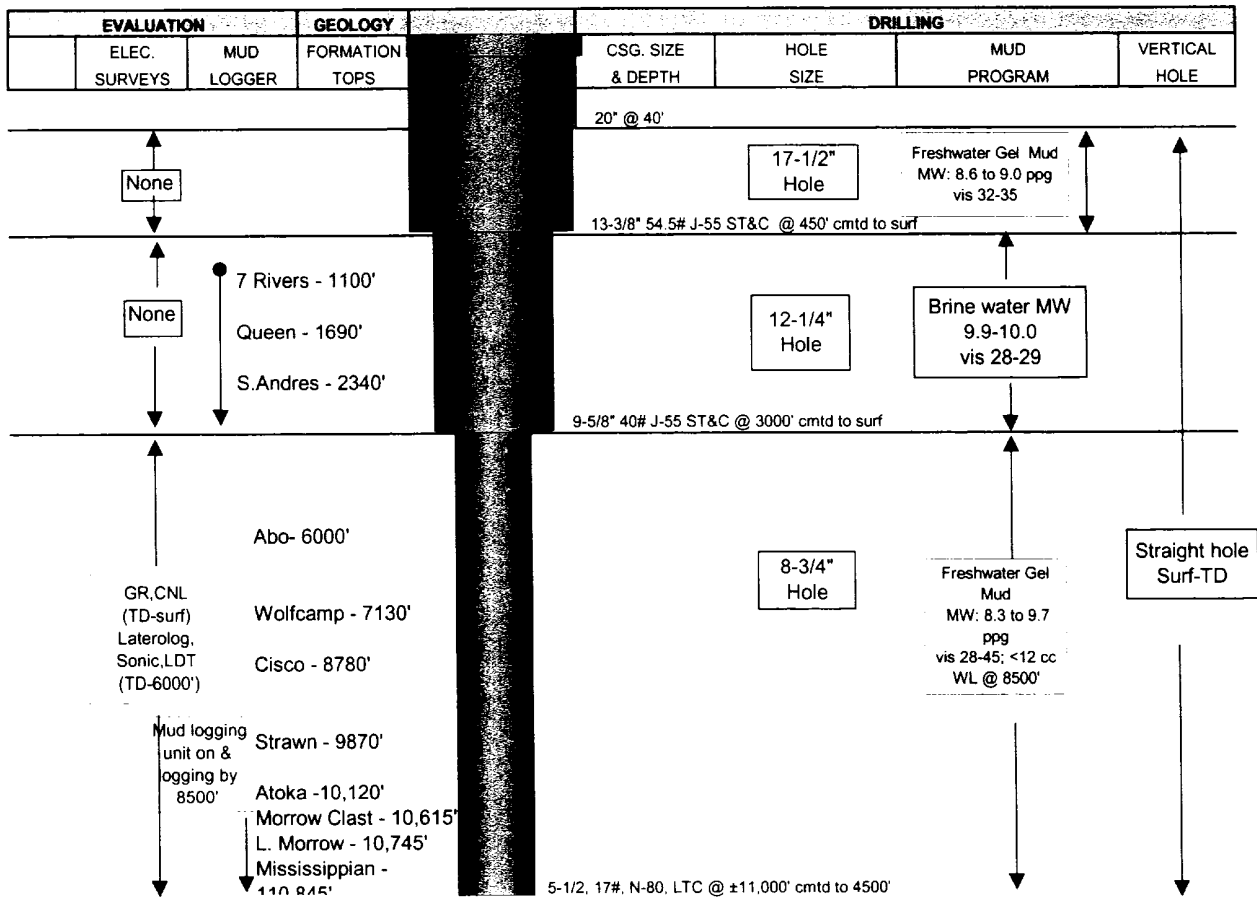
WELL NAME: Empire Deep "29" Fed. Com. #2

LOCATION: Section 29-17S-29E
1980' FSL & 1380' FEL
Eddy County, New Mexico

PROSPECT: Empire Deep

OBJECTIVE: Morrow

EST. ELEVATION: 3623' GL



SURFACE USE PLAN

Southwestern Energy Production Company Empire Deep "29" Fed. #2 660' FSL & 660' FWL Sec. 29, T17S-R29E

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 Hwy. 285 & Hwy. 82 in Artesia, go east along Hwy. 82 for 17.6 miles to County Road 211. Turn right and go southeast for 0.5 miles on CR 211 to an east/west road. Turn right and go westerly on said road for approximately 0.5 miles to a caliche road heading south. Turn left and go south 0.3 miles to location.
 - C. PLANNED ACCESS ROADS – No new access road is planned. Will use existing caliche road.
2. 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"
3. 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.

6. 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.
- D. 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.

7. ANCILLARY FACILITIES

No camps or airstrips will be constructed.

8. 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 unlined, 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.

9. 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 recontoured 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.

10. 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.

11. 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:

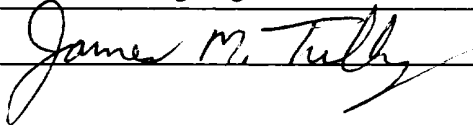
Bruce Drummond
Diamond "M" Production Company
4459 S. FM 1606
Snyder, TX 79549
(915) 573-0725

12. 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: February 20, 2002

TITLE: Staff Drilling Engineer

SIGNATURE: 

	SOUTHWESTERN ENERGY	
	PRODUCTION COMPANY	
EMPIRE DEEP "29" FEDERAL #1		
EDDY COUNTY, NEW MEXICO		
1 Mile Radius		
LAND MAP		
EXHIBIT "C"		
INTERP. BY: CATHY ROWAN		DATE: 21-FEB-91
DRAFTED BY: S.D.F.		CADFILE: empiredp_2mi_radius Sz11

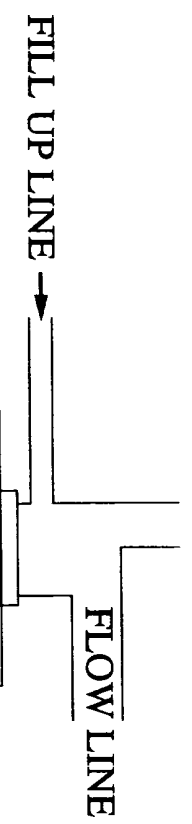
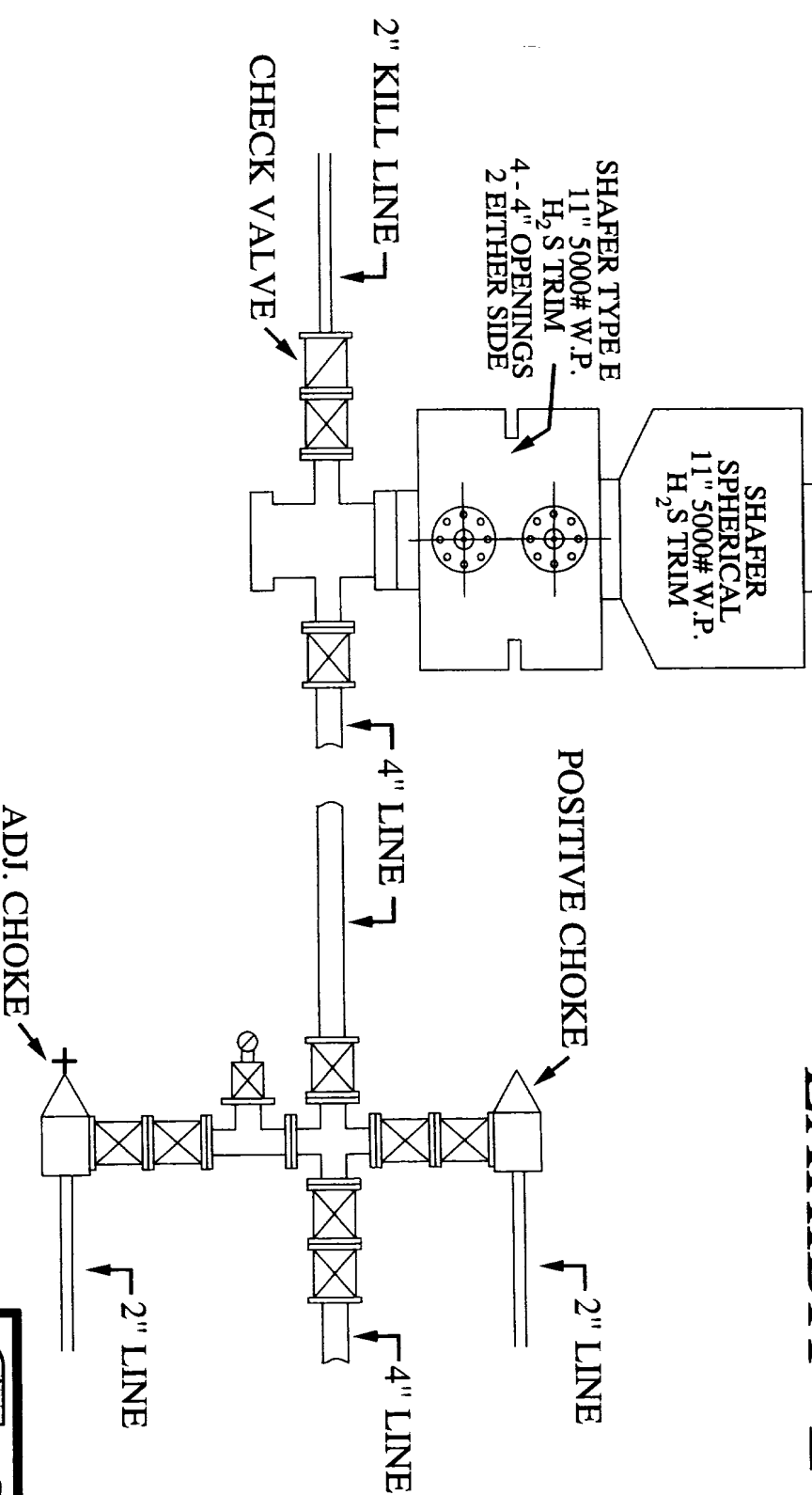


EXHIBIT "E" 1 of 2



SOUTHWESTERN ENERGY
PRODUCTION COMPANY

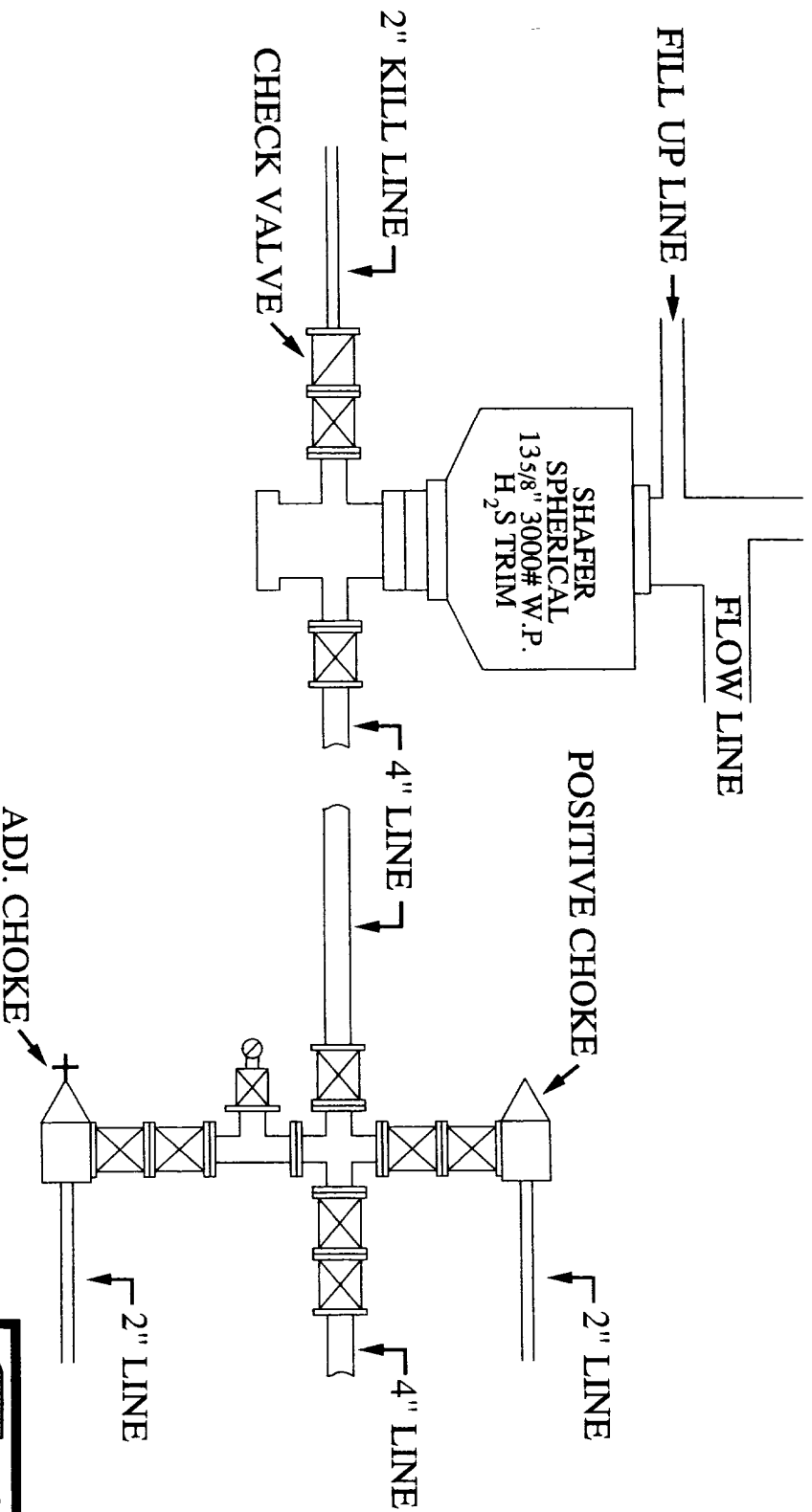
EMPIRE DEEP "29" FEDERAL #2
 EDDY COUNTY, NEW MEXICO

7 7/8" Hole Section
3000' - 11,000'

EXHIBIT "E" 1 of 2

INTERP. BY: CATHY ROWAN	DATE: 21-FEB-02
DRAFTED BY: S.D.P.	CADFILE: nres_emple2_1

EXHIBIT "E" 2 of 2



SOUTHWESTERN ENERGY
PRODUCTION COMPANY

EMPIRE DEEP "29" FEDERAL #2
EDDY COUNTY, NEW MEXICO

11" Hole Section
450' - 3000'

EXHIBIT "E" 2 of 2

INTERP. BY: CATHY ROWAN		DATE: 21-FEB-01	
DRAFTED BY: S.D.P.		CADFILE: xitee_sample_2	
100% COMPLETE		REVISED BY: S.D.P.	

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 of 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.: NM-4847

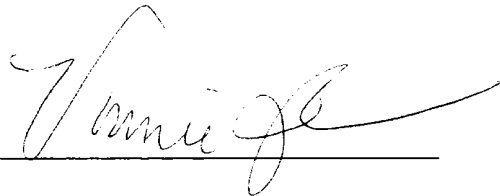
Legal Description of land: Sec. 29, T17S-R29E

Formation(s) (if applicable): Morrow

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

BLM bond File No.: ES0051

Authorized Signature: _____



Title: _____

Production Analyst

Date: _____

3/5/02