Form 3160-3
(August 1999)

K-04-15 DSP

New Mexico Oil Conservation Division, District I
1625 N. French Drive
Hobbs, NM 88240

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NM-080262

6. If Indian, Allottee or Tribe Name:

1a. Type of Work: ☑ DRILL ☐ REENTER — 34342

7. If Unit or CA Agreement, Name and No.: Lea Federal Unit, Well No. 20

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

8. Lease Name and Well No.:

2. Name of Operator: Samson Resources 20165

9. API Well No.: 30-025-37012

3a. Address: Samson Plaza–Two W. 2nd St. Tulsa, OK 74103

3b. Phone No. *(include area code)*: (918) 591-1822

10. Field and Pool, or Exploratory: Lea, Penn (GAS) 80040

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

At surface 990' FNL & 1750' FEL

At proposed prod. zone same UL "B"

Capitan Controlled Water Basin

11. Sec., T., R., M., or Blk. and Survey or Area: Sec. 14-T20S-R34E

14. Distance in miles and direction from nearest town or post office*: 50 miles northeast of Carlsbad, NM

12. County or Parish: Lea

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
430'	120	160

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
N/A	13,325'	NM-2037

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3649' GL	January 5, 2005	5 weeks

RECEIVED
Hobbs OCD
DEC 2004

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
George R. Smith	George R. Smith	

Title: Agent for Samson Resources

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
/S/ RUSS SORENSEN	/S/ RUSS SORENSEN	DEC 10 2004

Title	Office
ACTING FIELD MANAGER	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 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)*

Lease Responsibility Statement: Samson Resources accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted on the leased land or portion thereof.

George R. Smith, agent

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS AND
SPECIAL STIPULATIONS
ATTACHED

KZ

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 and Natural Resources Department

OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised JUNE 10, 2003
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
30-025-37012	80040	Lea; Penn (gas)

Property Code	Property Name	Well Number
34342	LEA FEDERAL UNIT	20

OGRID No.	Operator Name	Elevation
20165	SAMSON RESOURCES	3649'

Surface Location

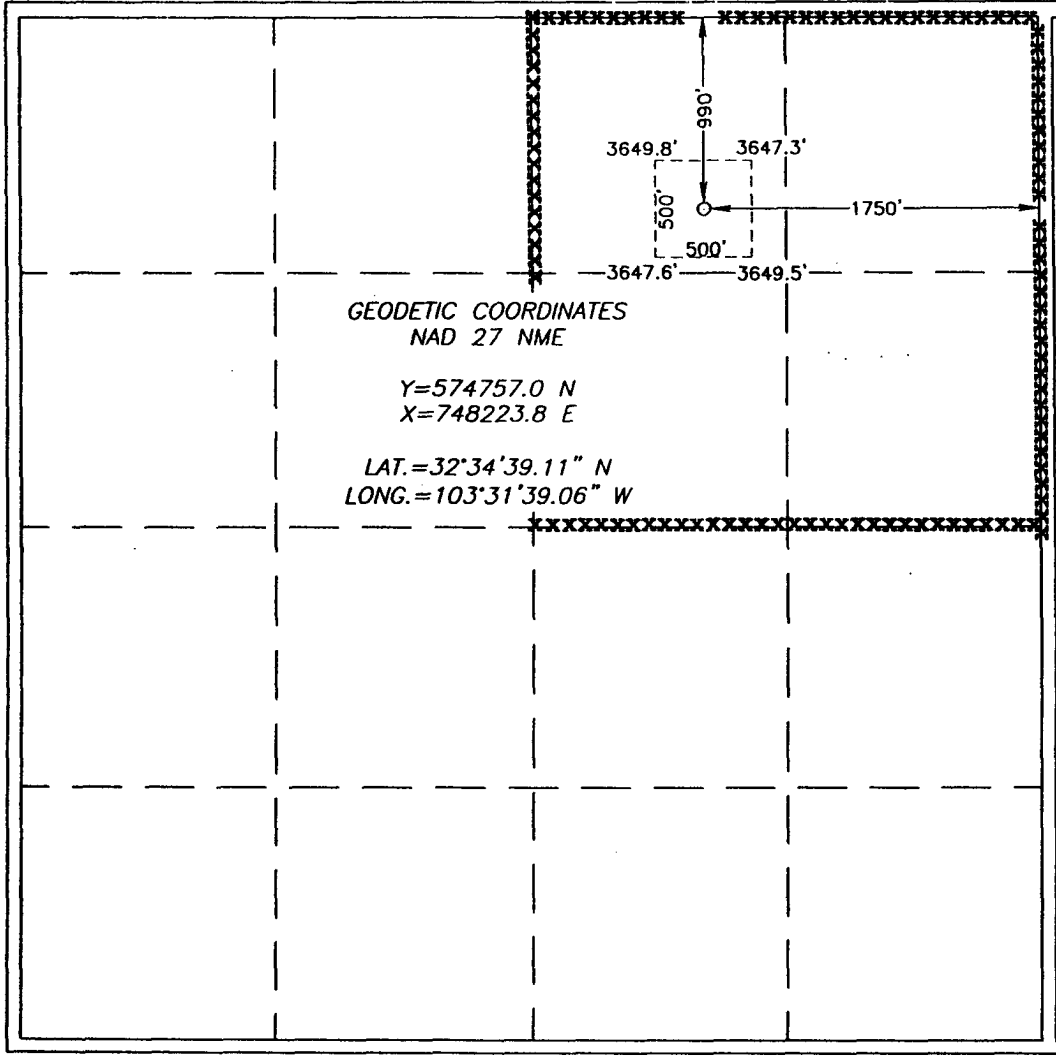
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	14	20-S	34-E		990'	NORTH	1750'	EAST	LEA

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.
160		Unit	

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.

George R. Smith
Signature

George R. Smith, agent for
Printed Name

Samson Resources
Title

August 31, 2004
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.

JUNE 21, 2004
Date Surveyed LA

Signature & Seal of Professional Surveyor

Gary L. Eidson 6/29/04

04.11.0765

Certificate No. GARY EIDSON 12641

APPLICATION FOR DRILLING

SAMSON RESOURCES
Lea Federal Unit, Well No. 20
990' FNL & 1750' FEL, Sec. 14-T20S-R34E
Lea County, New Mexico
Lease No.: NM-0631
(Development Well)

In conjunction with Form 3160-3, Application for Permit to Drill subject well, Samson Resources Co. submits the following items of pertinent information in accordance with BLM requirements:

1. The geologic surface formation is recent Permian with quaternary alluvium and other surficial deposits.

2. The estimated tops of geologic markers are as follows:

Rustler	1,710'	2nd BS Sand	10,070
Top of Salt	1,810'	3rd BS Sand, Shale	10,810'
Base of salt	3,130'	Wolfcamp	11,070'
Yates	3,500'	Strawn	12,085'
Capitan Reef	3,830'	Atoka	12,330'
Queen	4,860'	Morrow	12,870'
Delaware	5,820	Barnett Shale	13,225'
Bone Spring	8,203	T.D.	13,325'

3. The estimated depths at which water, oil or gas formations are anticipated to be encountered:
   Water: Surface water between 100' - 300'.
   Oil: Possible in the Delaware 5820'- 6200', Bone Spring 8203'- 10,810'
   Gas: Possible in the Morrow 12,870'- 13,200'

4. **Proposed Casing Program:**

HOLE SIZE	CASING SIZE	WEIGHT	GRADE	JOINT	SETTING DEPTH	QUANTITY OF CEMENT
17 1/2"	13 3/8"	54.5#	J-55	BT&C	0" - 1,735'	Circ. 1700 sx. "C" to surface
12 1/4"	9 5/8"	40.0#	N-80	BT&C	0' - 5,820'	Circ. 1500 sx C & H
8 3/4"	5 1/2"	20.0#	P110	LT&C	0' - 13,325'	1330 sx Zoneseal &430sx super H TOC @ 5,600'

5. **Minimum Specifications for Pressure Control Equipment:**
An NU 13 5/8" 10,000 psi WP Shaffer, LWS Double Gate BOP over single 13 5/8" 5M Hydrill annular preventer will be installed on the 13 3/8" before drilling 12.1/4" and 8 3/4"holes and operated as a 5000 psi system. Perform 3M test before drilling 12.1/4" hole and 5M test before drilling 8 3/4" hole

6. MUD PROGRAM:		MUD WEIGHT	VIS.	W/L CONTROL
0' - 1,695':	Fresh water mud:	8.4 - 9.2 ppg	28 - 29	No W/L control
1,695' - 5,600':	Brine mud:	10.0 - 10.4 ppg	26 - 29	No W/L control
	Fresh water if lost circulation encountered.			
5,600' - 12,100':	Cut brine:	9.8 - 10.0 ppg	26 – 29	No W/L control
10,900' - 12,100':	Cut brine:	8.8 - 9.6 ppg	26 - 29	No W/L control
12,100' - 13,325':	Cut brine/XCD polymer:	10.5 - 11.5 ppg	29 - 42	W/L control <10 cc +/-

7. **Auxiliary Equipment**: Blowout Preventer, flow sensors and stabbing valve.

8. Testing, Logging, and Coring Program:

Drill Stem Tests: None unless conditions warrant.
Logging: 5,820' to T.D.: CNL-DNL w/GR-Cal.
5,820' to Surface: CNL-GR
Coring: Rotary sidewall if dictated by logs.

9. 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. Estimated evacuated BHP = 5863 psi and surface pressure of 2932 psi with a temperature of 193°.

10. H_2S: None expected. None in existing wells in close vicinity, but the Mud Log Unit will be cautioned to use a gas trap to detect H_2S and if any is detected the mud weight will be increased along with H_2S inhibitors sufficient to control the gas.

11. Anticipated starting date: January 5, 2005.
Anticipated completion of drilling operations: Approximately 5 weeks.

MULTI POINT SURFACE USE AND OPERATIONS PLAN

SAMSON RESOURCES
Lea Federal Unit, Well No. 20
990' FNL & 1750' FEL, Sec. 14-R20S-R34E
Lea County, New Mexico
Lease No.: NM-080262
(Development Well)

This plan is submitted with 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 environmental effects associated with the operations.

1. EXISTING ROADS:

A. Exhibit "A" is a portion of a USGS/BLM Topo map showing the location of the proposed well as staked. The well site location is approximately 50 road miles northeast of Carlsbad, New Mexico. Traveling east from Carlsbad there will be approximately 48.7 miles of paved highway and 1.1 miles of gravel ranch/oilfield roads.

B. Directions: Travel east from Carlsbad, NM on U.S. Highway 62/180 for approximately 46 miles to Marathon Road. Turn south on Marathon Road for 3.5 miles. Turn west toward Lea Federal Unit storage tank battery crossing a cattle guard, and continue west for .4 mile to a road turning south. Turn south for .5 mile to the Lea Federal Unit #14 well pad. The proposed access road will start on the southwest corner of this well site and will run west/southwest for approximately 800 feet to the northeast corner of the proposed well site.

2. PLANNED ACCESS ROAD:

A. Length and Width: The proposed access road is approximately 800 feet in length and 12 foot in width. The access road is color coded in red on Exhibit "A ".

B. Construction: The proposed access road will be constructed by grading and topping with compacted caliche and will be properly drained.

C. Turnouts: There will be no turnouts.

D. Culverts: None required.

E. Cuts and Fills: Some cuts and fills required on small dunes and deflation basins.

F. Gates, Cattle guards: None required.

G. Off Lease R/W: None required.

3. LOCATION OF EXISTING WELLS:

A. Existing wells within a two-mile radius are shown on Exhibit "C".

4. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES;

A. Samson Resources has no production facilities on the lease at this time.

B. If the well proves to be commercial, the necessary production facilities, gas production-process equipment, and tank battery, if required, will be installed on the drilling pad.

5. LOCATION AND TYPE OF WATER SUPPLY:

A. It is planned to drill the proposed well with fresh water that will be obtained from private or commercial sources and will be transported over the existing and proposed access roads.

6. SOURCE OF CONSTRUCTION MATERIALS:

A. Caliche for the access road and well site pad will be obtained on location, if available, or from an approved private pit located in the NE4SE4 of Sec. 35-T20S-R34E. No surface materials will be disturbed except those necessary for actual grading and construction of the drill site and access road.

7. METHODS OF HANDLING WASTE DISPOSAL:

A. Drill cuttings will be disposed of in the reserve pits.

B. Drilling fluids will be allowed to evaporate in the reserve pits until the pits are dry.

C. All pits will be fenced with normal fencing materials to prevent livestock and wildlife from entering the area.

D. Water produced during operations will be collected in tanks until hauled to an approved disposal system, or a separate disposal application will be submitted to the BLM for approval.

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

F. Current laws and regulations pertaining to the disposal of human waste will be complied with.

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

8. ANCILLARY FACILITIES:

A. None required.

9. WELL SITE LAYOUT:

A. Exhibit "D" shows the relative location and dimensions of the well pad, reserve pits, and major rig components. The pad and pit area has been staked and flagged, 500' X 500'.

B. Mat Size: 340' X 225', plus 175' X 175' mud pits. The pits will be on the southwest.

B. Cut & Fill: There will be a 3-foot cut on the south and east with fill to the north and west.

D. The surface will be topped with compacted caliche and the mud pits will be plastic lined.

10. PLANS FOR RESTORATION OF THE SURFACE:

A. After completion of drilling and/or completion operations, all equipment and other material not required for operations will be removed. Pits will be filled and the location cleaned of all trash and junk to leave the well site in an aesthetically pleasing a condition as possible

B. Any unguarded pits containing fluids will be fenced until they are filled.

C. If the proposed well is non-productive, all rehabilitation and/or vegetation requirements of the Bureau of Land Management will be complied with and will be accomplished as expeditiously as possible. All pits will be filled and leveled as soon as they are dry enough to work after abandonment.

11. OTHER INFORMATION:

A. Topography: The proposed well site and access road is located in an area of undulating sand dunes and deflation basins, which is part of the Querecho Plains. The location has a northeast slope of .2% from an elevation of 3649'.

B. Soil: The topsoil on the well site and access road is light reddish brown colored fine sand. The soil is of the Kermit soils and Dune Land fine sands series.

C. Flora and Fauna: The vegetation at the well site is a sparse grass cover of three-awn, dropseed, bluestem, muhly and other miscellaneous native grasses along with plants of mesquite, yucca, sage, shinnery oak brush, broomweed, cacti, and miscellaneous weeds and wildflowers. The wildlife consists of rabbits, coyotes, rattlesnakes, lizards, dove, quail and other wildlife typical of the semi-arid desert land.

D. Ponds and Streams: None.

E. Residences and Other Structures: None, but existing oil field facilities.

F. Land Use: Cattle grazing.

G. Surface Ownership: The proposed well site and access road are on Federal surface and minerals.

H. There is no evidence of archaeological, historical or cultural sites in the staked area. Archaeological Survey Consultants, P.O. Box 2285, Roswell, NM 88202 is conducting an archaeological survey and their report will be submitted to the appropriate government agencies.

12. OPERATOR'S REPRESENTATIVE:

A. The field representative responsible for assuring compliance with the approved surface use and operations plan is as follows:

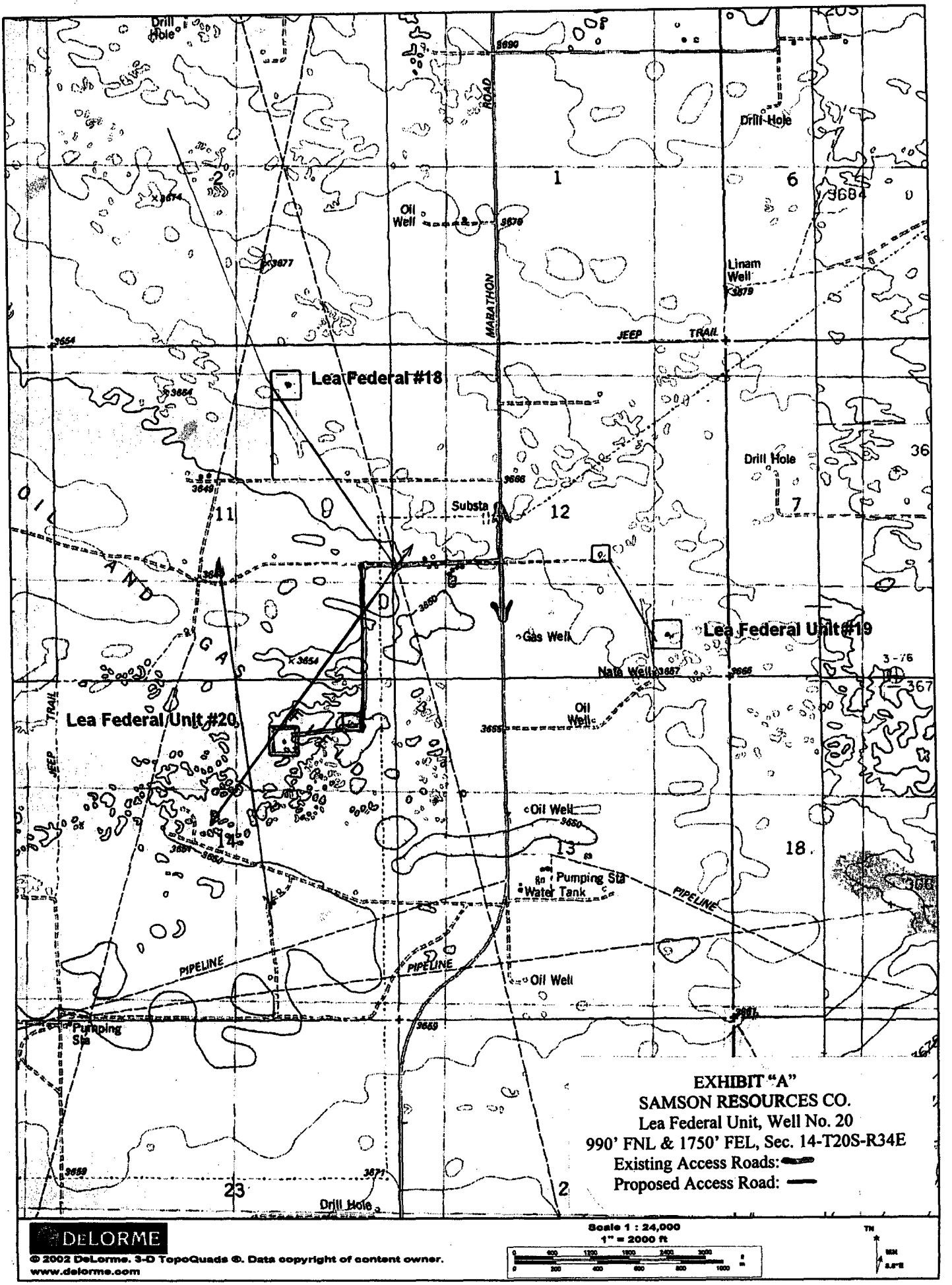
Todd Wiley
Samson Resources
Samson Plaza-Two West Second St.
Tulsa, OK 74103-3103
Office Phone: (918) 591-1531

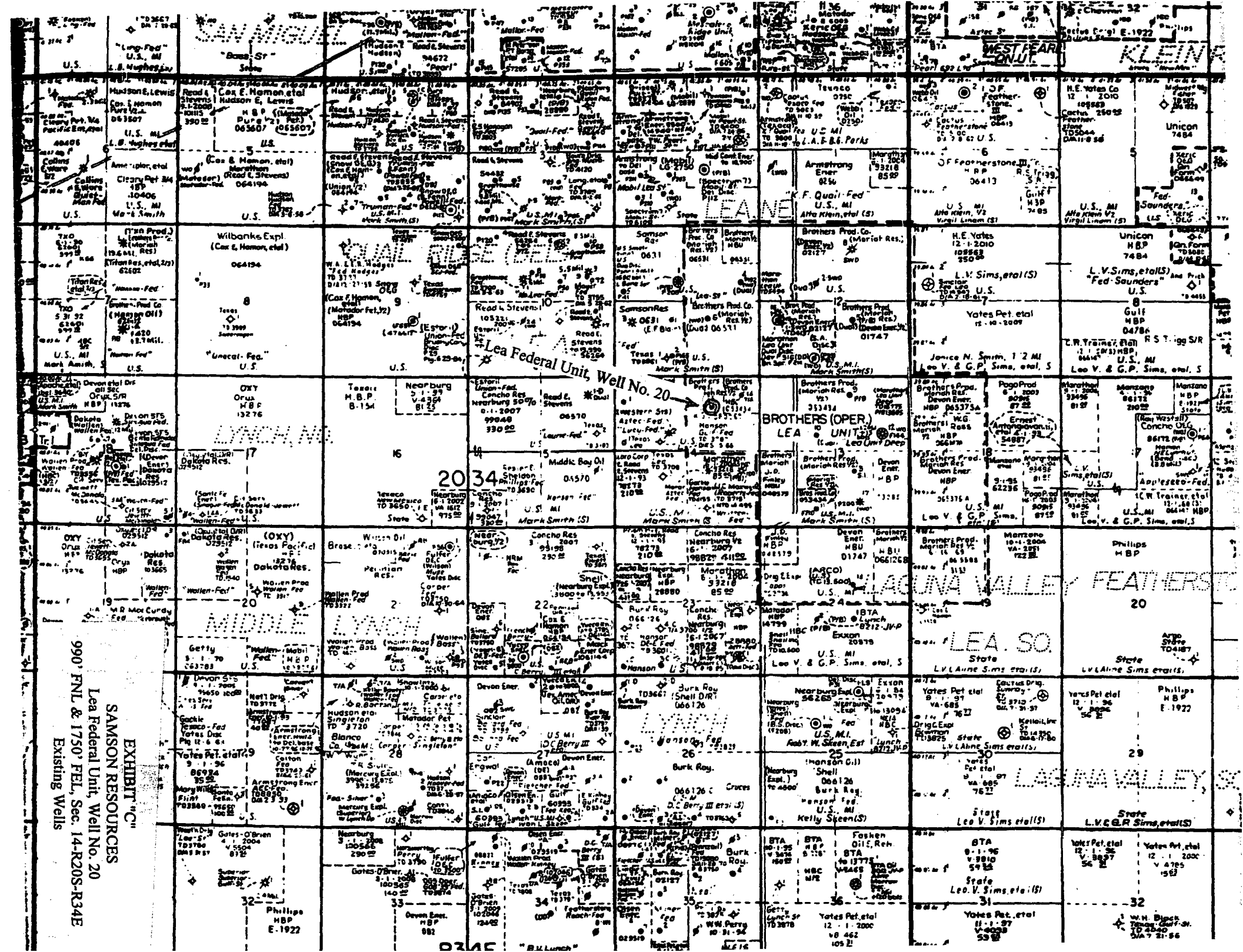
13. CERTIFICATION:

I hereby certify that I have inspected the proposed drill site and access route; that I am familiar with the conditions which presently exist; that the statements made in the 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 Samson Resources and its contractors and 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.

August 30, 2004

George R. Smith
Agent for: Samson Resources


Drill Hole
Oil Well
Linam Well
Drill Hole
Lea Federal #18
Drill Hole
Substa
Gas Well
Lea Federal Unit #19
Nata Well
Lea Federal Unit #20
Oil Well
Oil Well
Pumping Sta
Water Tank
PIPELINE
PIPELINE
PIPELINE
Oil Well
Pumping Sta
Drill Hole
MARATHON
ROAD
JEEP
TRAIL
OIL AND GAS
EXHIBIT "A"
SAMSON RESOURCES CO.
Lea Federal Unit, Well No. 20
990' FNL & 1750' FEL, Sec. 14-T20S-R34E
Existing Access Roads:
Proposed Access Road:
DELORME
© 2002 DeLorme. 3-D TopoQuads ®. Data copyright of content owner.
www.delorme.com
Scale 1 : 24,000
1" = 2000 ft


Lea Federal Unit, Well No. 20
BROTHERS (OPER.)
LEA UNIT
MIDDLE LYNCH
LYNCH
LEA
LEA SO.
LAGUNA VALLEY FEATHERSTONE
LAGUNA VALLEY
WEST PEARL ON U.L.
KLEIN
EXHIBIT "C"
SAMSON RESOURCES
Lea Federal Unit, Well No. 20
990' FNL & 1750' FEL, Sec. 14-R20S-R34E
Existing Wells

N.D.U.S.A. RIG 329 LAYOUT WITH TOPDRIVE

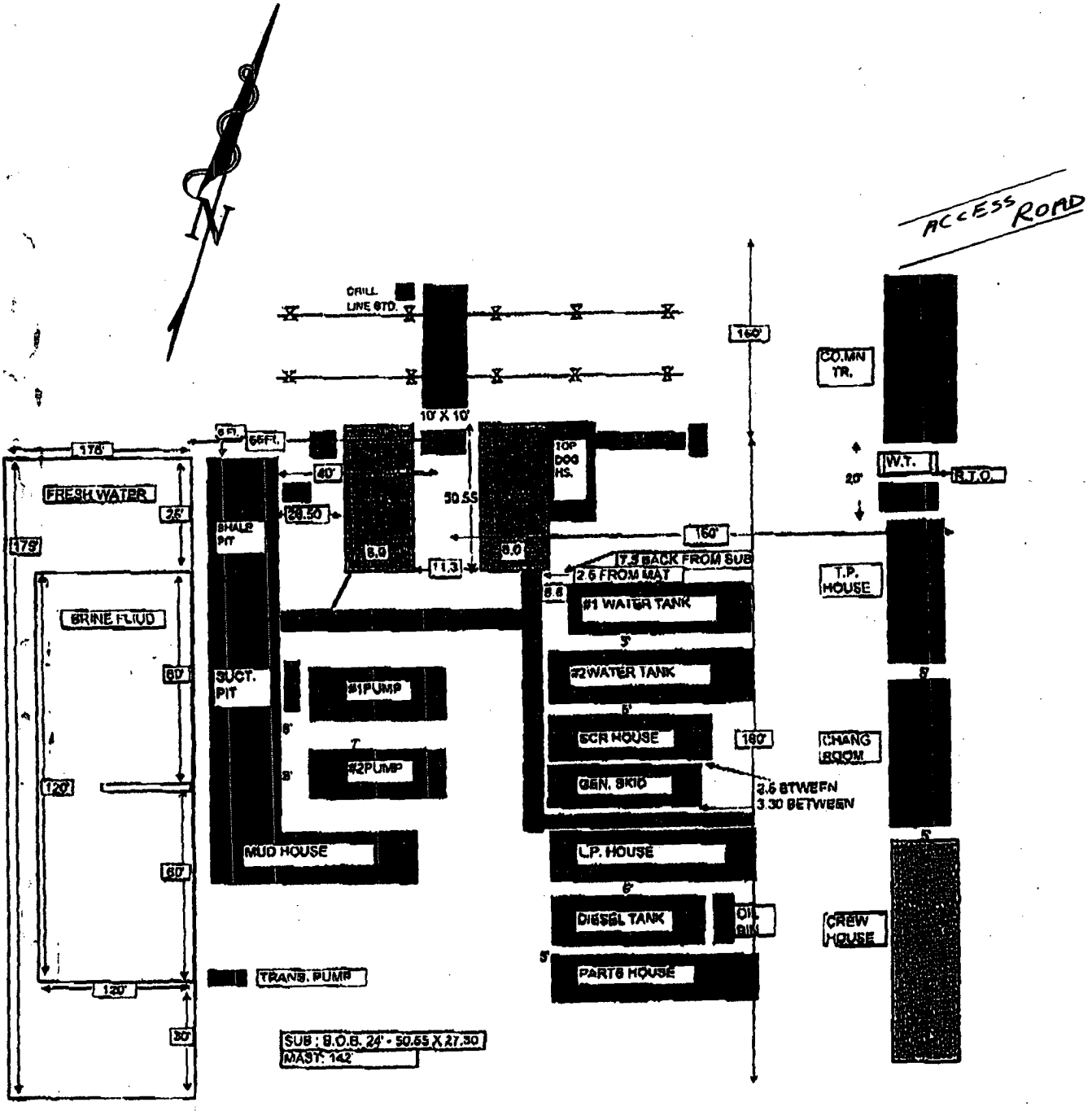
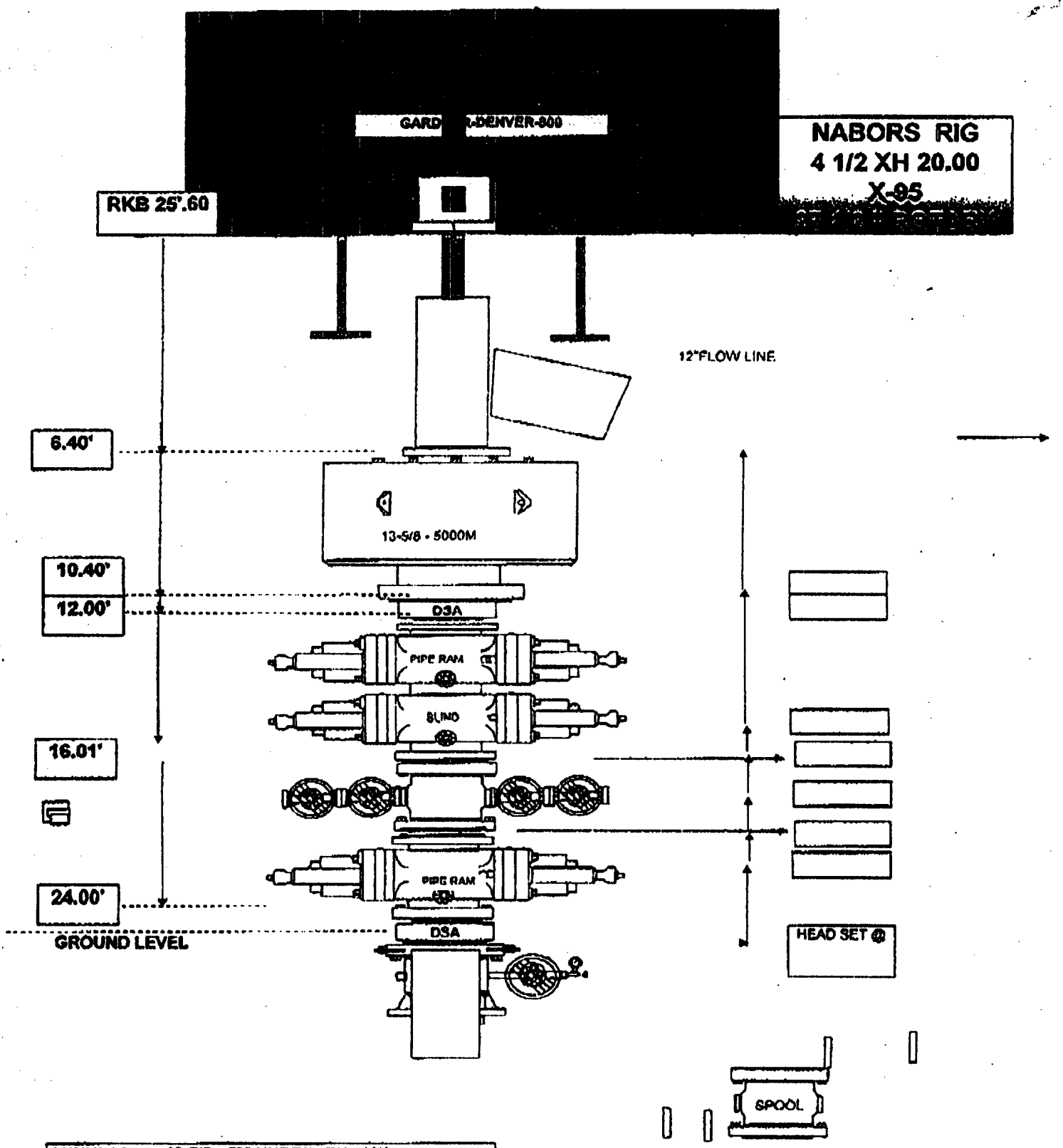


EXHIBIT "D"
SAMSON RESOURCES
Lea Federal Unit, Well No. 20
Pad & Pit Layout

RIG MANAGER: MARTIN M. SUAREZ



ANNULAR = 13 5/8 - 5M HYDRIL GK ANN
DOUBLE = 13 5/8 - 10M SHAFFER SL (DBL) BOP
SINGLE = 13 5/8 - 10M SHAFFER SL POSLOK BOP
WELL HEAD = 11" 5M
KILL LINE VALVES = 2.1/16 10M
CHOKE LINE VALVE = 4 1/16 10M

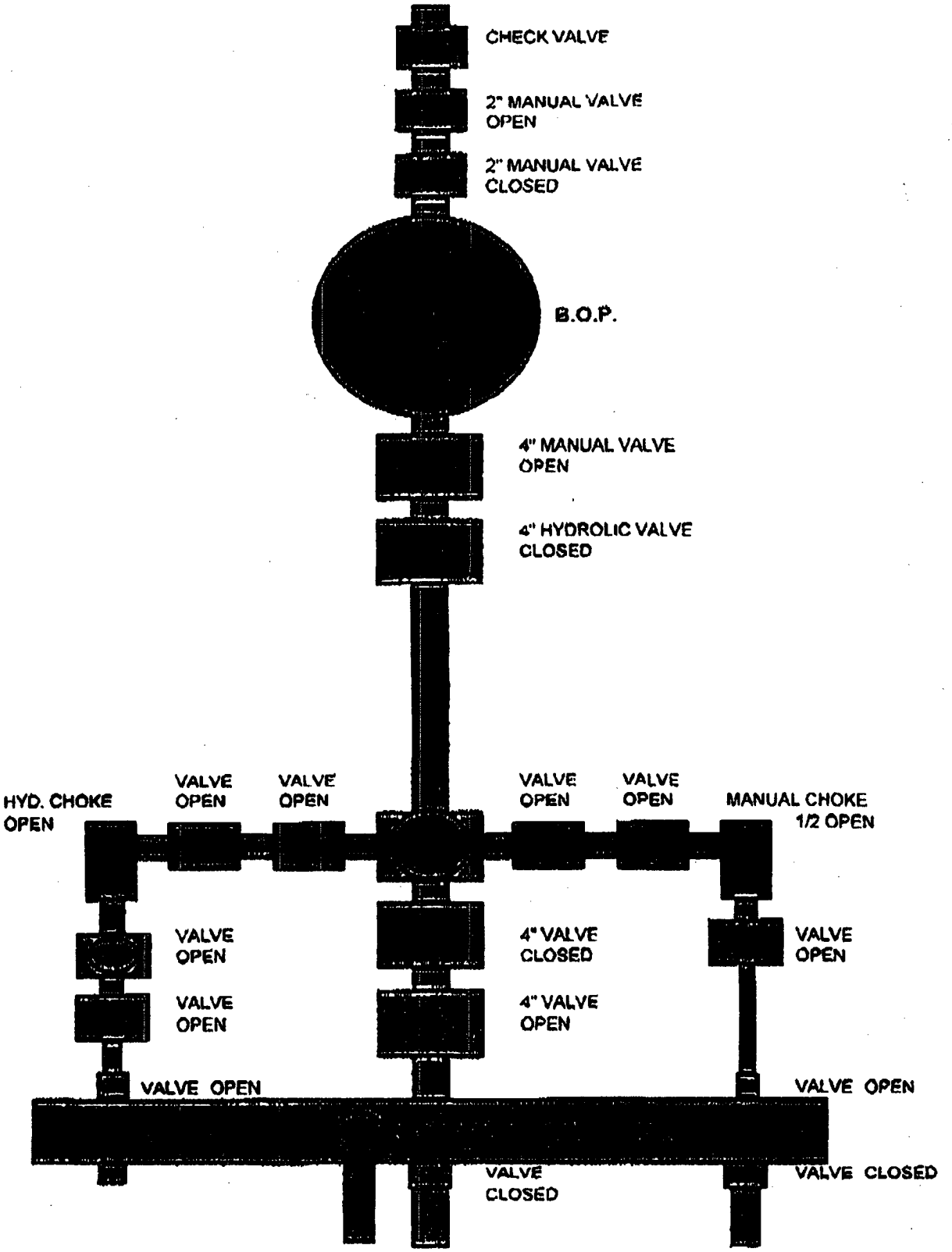
EXHIBIT "E"
SAMSON RESOURCES
Lea Federal Unit, Well No. 20
BOP Specifications

Rig 329

N.D.U.S.A.

MANIFOLD SETUP

NUEVO ENERGY



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

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-144
March 12, 2004

For drilling and production facilities, submit to appropriate NMOCD District Office.
For downstream facilities, submit to Santa Fe office

Pit or Below-Grade Tank Registration or Closure

Is pit or below-grade tank covered by a "general plan"? Yes ☐ No X
Type of action: Registration of a pit or below-grade tank X Closure of a pit or below-grade tank ☐

Operator: Samson Resources Telephone: (918) 591-1531 e-mail address:

Address: Samson Plaza Two W. Second St. Tulsa, OK 74103

Facility or well name: Lea Federal Unit., Well 20 30-025-37012 U/L or Qtr/Qtr NW4NE4 Sec 14 T_20S R34E

County: Lea Latitude 32'34'39.11"_N Longitude 103'31'39.06"_W NAD: 1927 ☐ 1983 ☐ Surface Owner Federal X State ☐ Private ☐ Indian ☐

Pit	**Below-grade tank**	
Type: Drilling X Production ☐ Disposal ☐ Workover ☐ Emergency ☐ Lined X Unlined ☐ Liner type: Synthetic X Thickness 12 mil Clay ☐ Volume 10,000_bbl	Volume: _____bbl Type of fluid: _____ Construction material: _____ Double-walled, with leak detection? Yes ☐ If not, explain why not.	
Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.)	Less than 50 feet 50 feet or more, but less than 100 feet 100 feet or more	(20 points) (10 points) (0 points)
Wellhead protection area: (Less than 200 feet from a private domestic water source, or less than 1000 feet from all other water sources.)	Yes No	(20 points) (0 points)
Distance to surface water: (horizontal distance to all wetlands, playas, irrigation canals, ditches, and perennial and ephemeral watercourses.)	Less than 200 feet 200 feet or more, but less than 1000 feet 1000 feet or more	(20 points) (10 points) (0 points)
	Ranking Score (Total Points)	-0-

If this is a pit closure: (1) attach a diagram of the facility showing the pit's relationship to other equipment and tanks. (2) Indicate disposal location: onsite ☐ offsite ☐ If offsite, name of facility_____. (3) Attach a general description of remedial action taken including remediation start date and end date. (4) Groundwater encountered: No ☐ Yes ☐ If yes, show depth below ground surface_____ft. and attach sample results. (5) Attach soil sample results and a diagram of sample locations and excavations.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. **I further certify that the above-described pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines X, a general permit ☐, or an (attached) alternative OCD-approved plan ☐.**

Date: August 31, 2004

Printed Name/Title George R. Smith, agent Signature George R. Smith

Your certification and NMOCD approval of this application/closure does not relieve the operator of liability should the contents of the pit or tank contaminate ground water or otherwise endanger public health or the environment. Nor does it relieve the operator of its responsibility for compliance with any other federal, state, or local laws and/or regulations.

Approval:

Date: DEC 16 2004

Printed Name/Title PETROLEUM ENGINEER Signature