STATE OF NEW MEXICO
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES
OIL CONSERVATION DIVISION

IN THE MATTER OF THE APPLICATION OF EOG RESOURCES, INC. FOR APPROVAL OF A PILOT WATERFLOOD PROJECT IN THE NORTH RED HILLS UNIT, LEA COUNTY, NEW MEXICO.

CASE NO. #12399

APPLICATION

EOG Resources, Inc. ("EOG"), by its undersigned attorneys, Campbell, Carr, Berge & Sheridan, P. A., seeks approval of a pilot waterflood project in its Red Hills Unit Area, by the injection of water into the Bone Spring formation, Red Hills-Bone Spring Pool , and in support of its application states:

1. By companion application, EOG Resources, Inc. seeks the approval of the North Red Hills Unit which is a voluntary unit comprised of 3478.30 acres, more or less, of Federal and State lands, which, among other things, authorizes the implementation of secondary recovery operations in the unit area.

2. Based on its study of the geological and reservoir engineering data on this reservoir, EOG has concluded that the ultimate recovery of oil may be increased from the Blinebry formation within the proposed North Red Hills Unit through the implementation of secondary recovery efforts by waterflooding.

5. Accordingly, EOG Resources, Inc. desires to initiate a pilot project for an injection of water into the Bone Spring formation through its Vaca "13" Federal Well No. 2 located 660 feet

from the North line and 1980 feet from the East line of Section 13, Township 25 South, Range 33 East, NMPM, Lea County, New Mexico. A copy of EOG Resources, Inc.'s Application For Authorization to Inject (Division Form C-108) is attached to this application and incorporated herein.

6. The Project Area for the pilot project within the North Red Hills Unit Area will be the N/2 of Section 13 and the S/2 of Section 12, Township 25 South, Range 33 East, NMPM, Lea County, New Mexico.

7. The approval of the proposed pilot waterflood project within the North Red Hills Unit Area will not violate correlative rights because the North Red Hills Unit Agreement has established an equitable method for the allocation of Bone Spring production to all interest owners within the unit.

8. Approval of this application is in the best interest of conservation, the prevention of waste and the protection of correlative rights.

WHEREFORE, EOG Resources, Inc. requests that this application be set for hearing on May 4, 2000 before a duly appointed Examiner of the Oil Conxservation Division and that after notice and hearing as required by law, the Division enter its order granting this application.

Respectfully submitted,

CAMPBELL, CARR, BERGE &
SHERIDAN, P.A.

By: William F. Carr
William F. Carr

ATTORNEYS FOR EOG RESOURCES, INC.

LEGAL ADVERTISEMENT:

Case 12349 Application of EOG Resources, Inc. for approval of a Pilot Waterflood Project in the North Red Hills Unit, Lea County, New Mexico. Applicant seeks approval of a pilot project for the injection of water into the Bone Spring formation, Red Hills-Bone Spring Pool through one injection well in its proposed North Red Hills Unit Area. The Project Area for this pilot waterflood project is the following area:

TOWNSHIP 25 SOUTH, RANGE 33 EAST, NMPM	
Section 12:	S/2
Section 13:	N/2

This area is located approximately 21 miles west by north of Jal, New Mexico.

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL
RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 SOUTH PACHECO
SANTA FE, NEW MEXICO 87505

Case 12399

FORM C-108
Revised 4-1-98

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____Secondary Recovery __XX__Pressure Maintenance _____Disposal _____Storage
Application qualifies for administrative approval? __XX__Yes _____No

II. OPERATOR: EOG Resources, Inc.

ADDRESS: 4000 N. Big Spring Ste. 500; P.O. Box 2267 Midland, Texas 79705

CONTACT PARTY: Randy Cate PHONE: (915)686-3600

III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? _____Yes __XX__No
If yes, give the Division order number authorizing the project: _____

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

ILLEGIBLE

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

*X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).

*XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: Randy S. Cate TITLE: Project Reservoir Engineer

SIGNATURE: _____ DATE: April 10, 2000

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: X: Submitted January 1994

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

Side 2

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; Location by Section, Township and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name

ILLEGIBLE

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the well.

(4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.

(5) Give the depth to and the name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

(1) The name, address, phone number, and contact party for the applicant;

(2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;

(3) The formation name and depth with expected maximum injection rates and pressures; and,

(4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

APPLICATION FOR AUTHORIZATION TO INJECT
VACA "13" FEDERAL NO.2

III. WELL DATA

A. (1) Lease Name: Vaca "13" Federal
Well No.: 2
Location: Section 13-T25S-R33E
660' FNL & 1980' FEL
Total Depth: 12,600'

(2)Surface Casing: 14-3/4" Hole
11-3/4" 42# H-40 ST&C set @ 657'
351sx CL "C"
Circulated 52sx of cement to pit

Intermediate Casing: 11" Hole
8-5/8" 32# S-80/K-55 ST&S set @ 5,035'
1487sx PSL/CL "C"
Circulate 195sx of cement to pit

Production Casing: 7-7/8" Hole
5-1/2" 17# P110 LT&C set @ 12,475'
2225sx 50/50 POZ/CL "H"
TOC @ 3,800' (temp. svy.)

(3)Injection Tubing String: 2-3/8" 4.7# J-55 EUE 8rd set @ 12,200'
tubing to be internally plastic coated

(4)Injection Packer: 5-1/2" Baker AD-1 packer set @ 12,200'
packer to be plastic coated

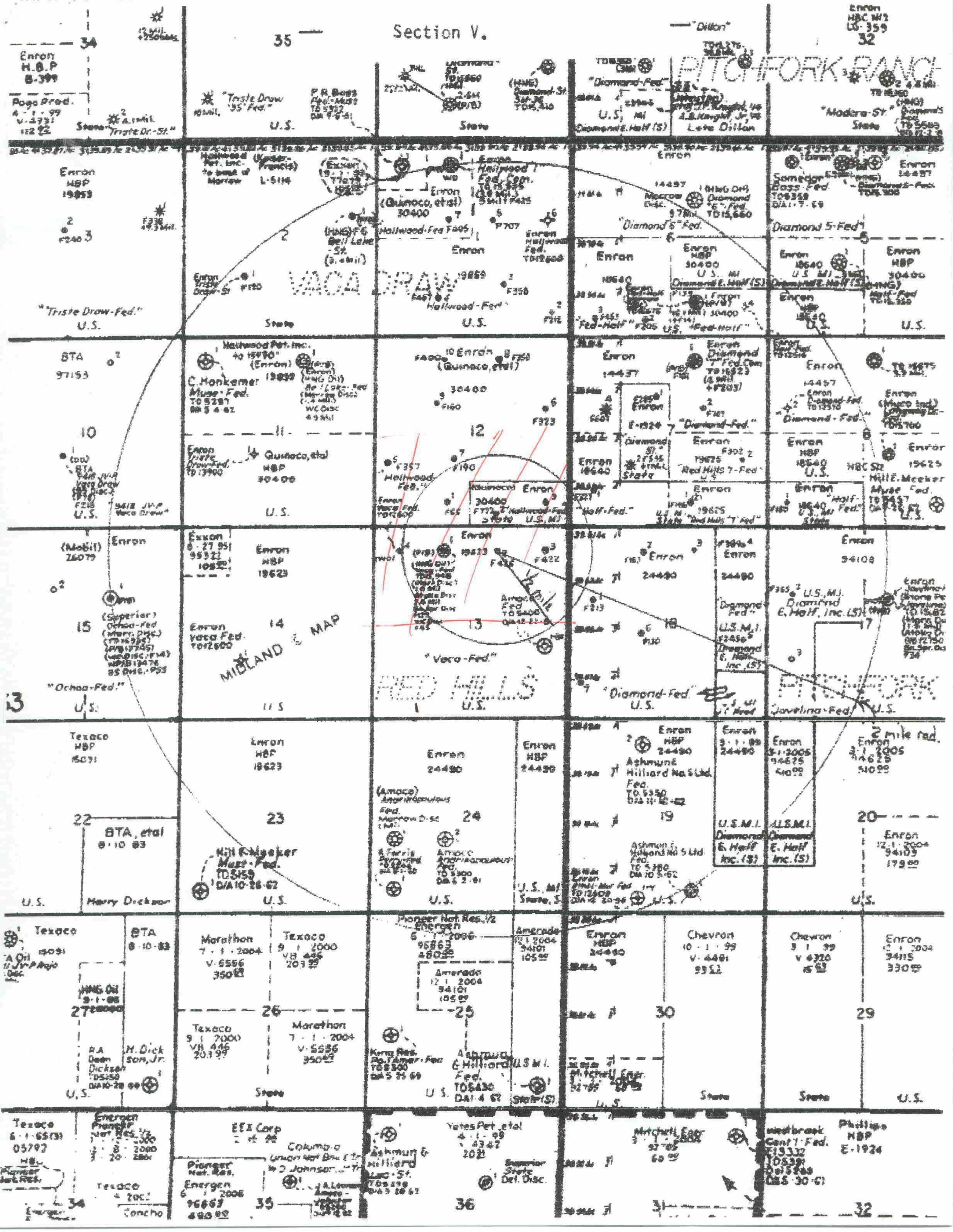
B. (1)Name of Injection Formation: 3rd Bone Spring
Pool or Field Name: Red Hills

(2) Injection Interval: 12,240' - 12,264'
Perforated or Open Hole: Perforated

(3) Original Purpose of Drilling Well: Bone Spring Test

(4) Other Perforations: None

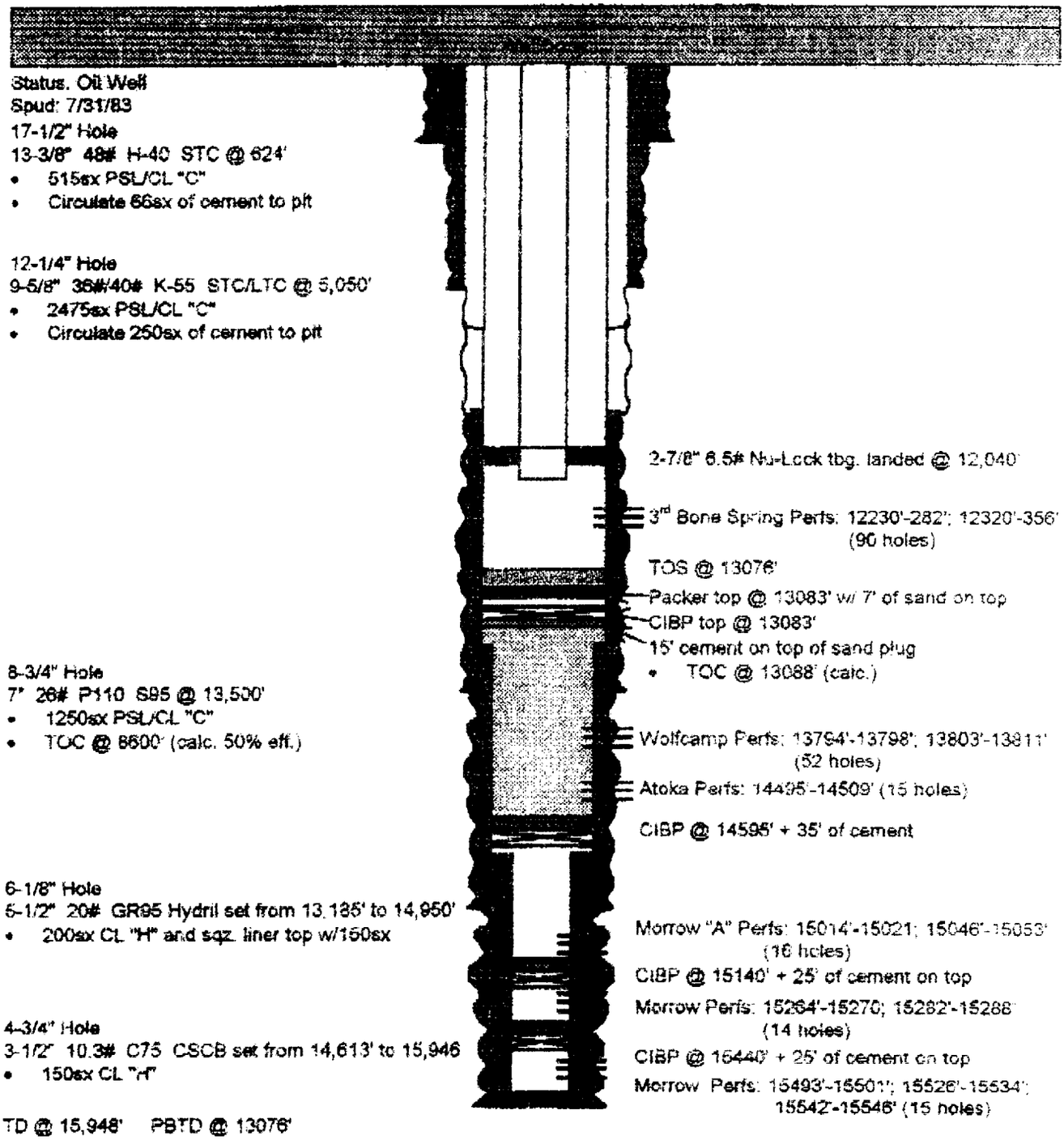
(5) Oil or Gas Productive Zones:
Next Higher: Delaware (5,183'-9,260')
Next Lower: Wolfcamp (12,284'-=13,800')


Section V.
PITCHFORK RANCH
VACA DRAW
RED HILLS
MIDLAND MAP
PITCHFORK
"Triste Draw-Fed."
"Ochoa-Fed."
"Vaca-Fed."
"Diamond-Fed."
"Diamond 6" Fed."
"Diamond 5-Fed"
"Javelina-Fed."
"Madera-St."
Hallwood-Fed
C. Honkamer Muse-Fed.
Hill & Meeker Muse-Fed.
Ashmun & Hilliard
Enron
HBP
Texaco
Marathon
Chevron
Amerada
Energen
Yates Pet. etal
Mitchell Egy.
Phillips
BTA
EEX Corp
2 mile rad.
U.S.
State

EOGRESOURCES, INC.
660' FNL & 1880' FEL
Sec.13-T25S-R33E

VACA "13" FEDERAL NO. 1
LEA COUNTY, NEW MEXICO
APRIL 4, 2000

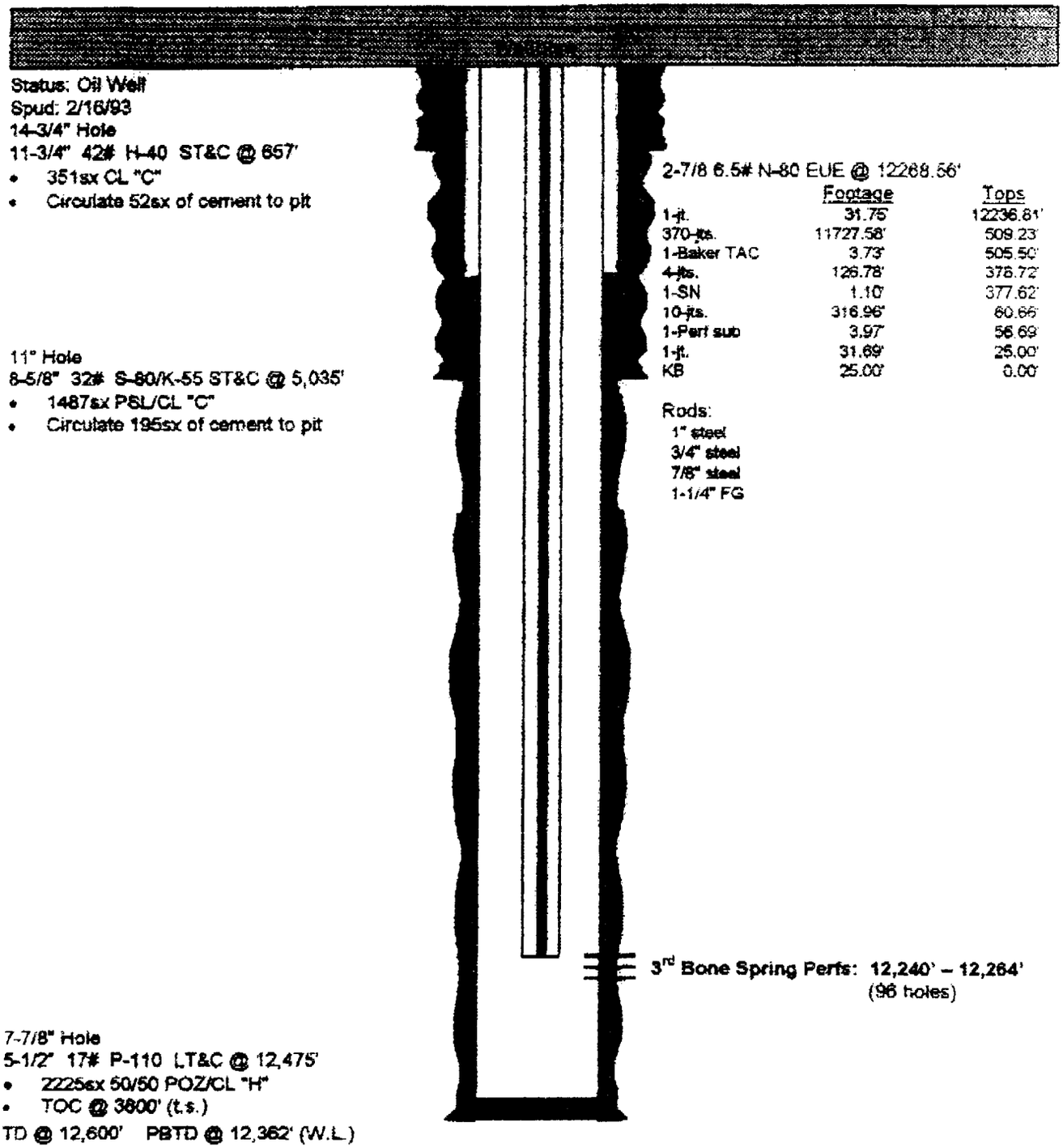
WELL SCHEMATIC



EOG RESOURCES, INC.
660' FNL & 1980' FEL
Sec.13-T25S-R33E

VACA "13" FEDERAL NO. 2
LEA CO., NEW MEXICO
MARCH 31, 2000

WELLBORE SCHEMATIC



Status: Oil Well
Spud: 2/16/93
14-3/4" Hole
11-3/4" 42# H-40 ST&C @ 657'
- 351sx CL "C"
- Circulate 52sx of cement to pit

11" Hole
8-5/8" 32# S-80/K-55 ST&C @ 5,035'
- 1487sx PSL/CL "C"
- Circulate 195sx of cement to pit

7-7/8" Hole
5-1/2" 17# P-110 LT&C @ 12,475'
- 2225sx 50/50 POZ/CL "H"
- TOC @ 3600' (t.s.)

TD @ 12,600' PBTD @ 12,362' (W.L.)

2-7/8 6.5# N-80 EUE @ 12268.56'

	Footage	Tops
1-jt.	31.75'	12236.81'
370-jts.	11727.58'	509.23'
1-Baker TAC	3.73'	505.50'
4-jts.	126.78'	378.72'
1-SN	1.10'	377.62'
10-jts.	316.96'	60.66'
1-Perf sub	3.97'	56.69'
1-jt.	31.69'	25.00'
KB	25.00'	0.00'

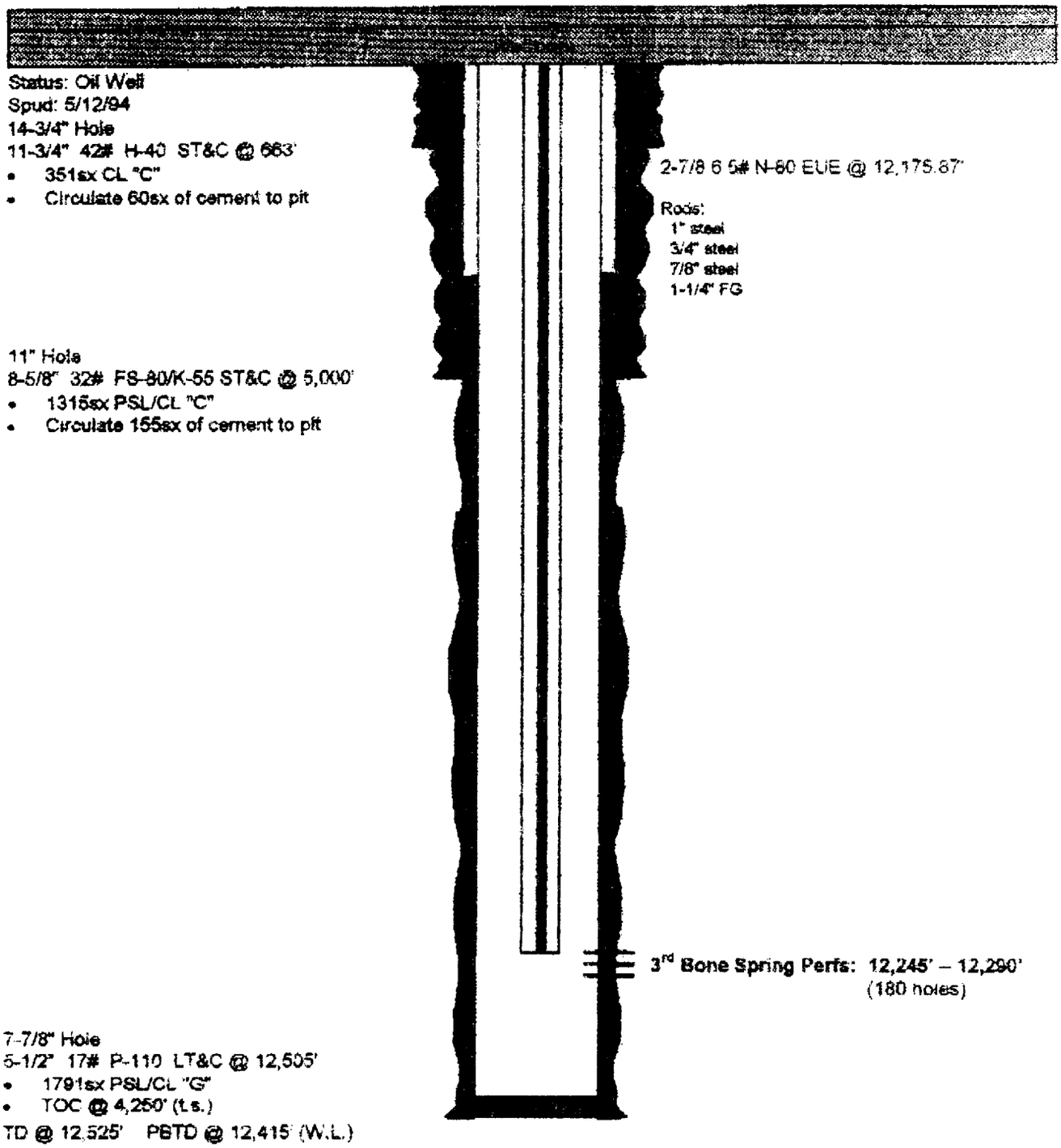
Rods:
1" steel
3/4" steel
7/8" steel
1-1/4" FG

3rd Bone Spring Perfs: 12,240' – 12,264'
(96 holes)

EOG RESOURCES, INC.
660' FNL & 660' FEL
Sec.13-T25S-R33E

VACA "13" FEDERAL NO. 3
LEA CO., NEW MEXICO
APRIL 3, 2000

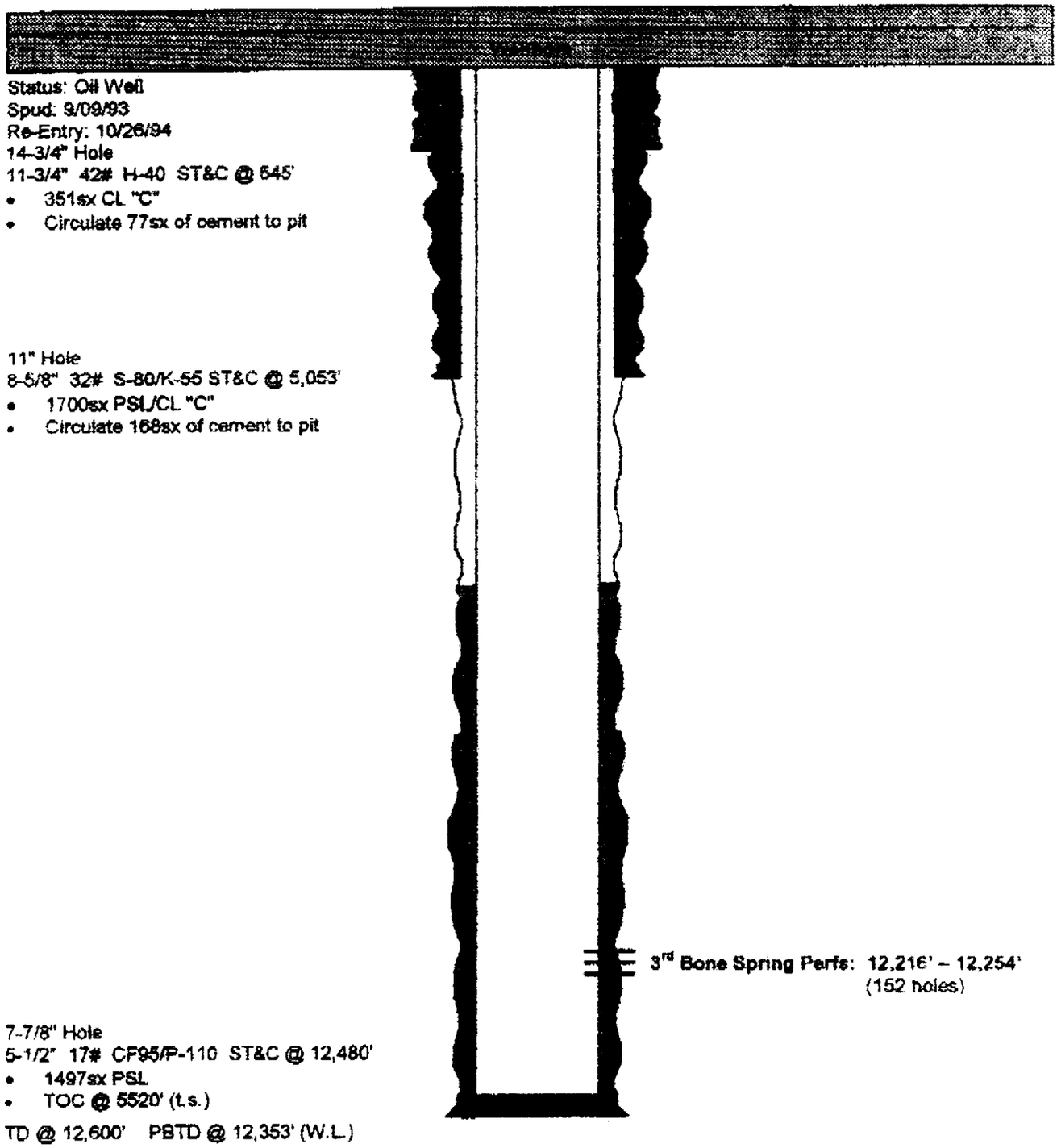
WELLBORE SCHEMATIC



EOG RESOURCES, INC.
660' FNL & 660' FWL
Sec.13-T25S-R33E

VACA "13" FEDERAL NO. 4
LEA CO., NEW MEXICO
APRIL 3, 2000

WELLBORE SCHEMATIC



Status: Oil Well
Spud: 9/09/93
Re-Entry: 10/26/94
14-3/4" Hole
11-3/4" 42# H-40 ST&C @ 645'
- 351sx CL "C"
- Circulate 77sx of cement to pit

11" Hole
8-5/8" 32# S-80/K-55 ST&C @ 5,053'
- 1700sx PSL/CL "C"
- Circulate 168sx of cement to pit

3rd Bone Spring Perfs: 12,216' – 12,254'
(152 holes)

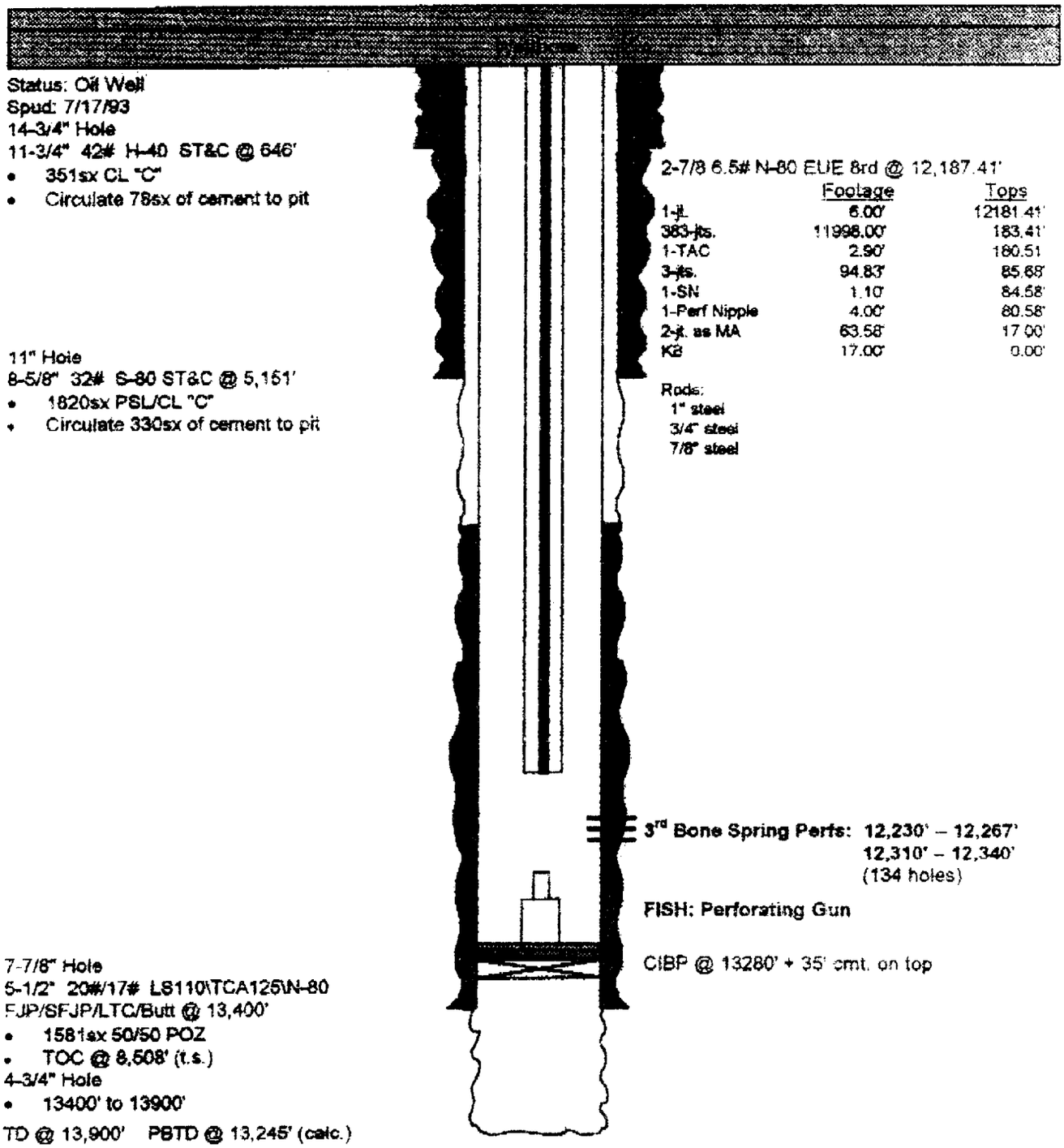
7-7/8" Hole
5-1/2" 17# CF95/P-110 ST&C @ 12,480'
- 1497sx PSL
- TOC @ 5520' (t.s.)

TD @ 12,600' PBTD @ 12,353' (W.L.)

EOG RESOURCES, INC.
660' FSL & 1980' FWL
Sec.12-T25S-R33E

HALLWOOD "12" FEDERAL NO. 1
LEA CO., NEW MEXICO
APRIL 3, 2000

WELLBORE SCHEMATIC



Status: Oil Well
Spud: 7/17/93
14-3/4" Hole
11-3/4" 42# H-40 ST&C @ 646'
- 351sx CL "C"
- Circulate 78sx of cement to pit

11" Hole
8-5/8" 32# S-80 ST&C @ 5,151'
- 1820sx PSL/CL "C"
- Circulate 330sx of cement to pit

7-7/8" Hole
5-1/2" 20#/17# LS110\TCA125\N-80
FJP/SFJP/LTC/Butt @ 13,400'
- 1581sx 50/50 POZ
- TOC @ 8,508' (t.s.)

4-3/4" Hole
- 13400' to 13900'

TD @ 13,900' PBTD @ 13,245' (calc.)

2-7/8 6.5# N-80 EUE 8rd @ 12,187.41'

	Footage	Tops
1-jt.	6.00'	12181.41'
383-jts.	11998.00'	183.41'
1-TAC	2.90'	180.51'
3-jts.	94.83'	85.68'
1-SN	1.10'	84.58'
1-Perf Nipple	4.00'	80.58'
2-jt. as MA	63.58'	17.00'
KB	17.00'	0.00'

Rods:
1" steel
3/4" steel
7/8" steel

3rd Bone Spring Perfs: 12,230' – 12,267'
12,310' – 12,340'
(134 holes)

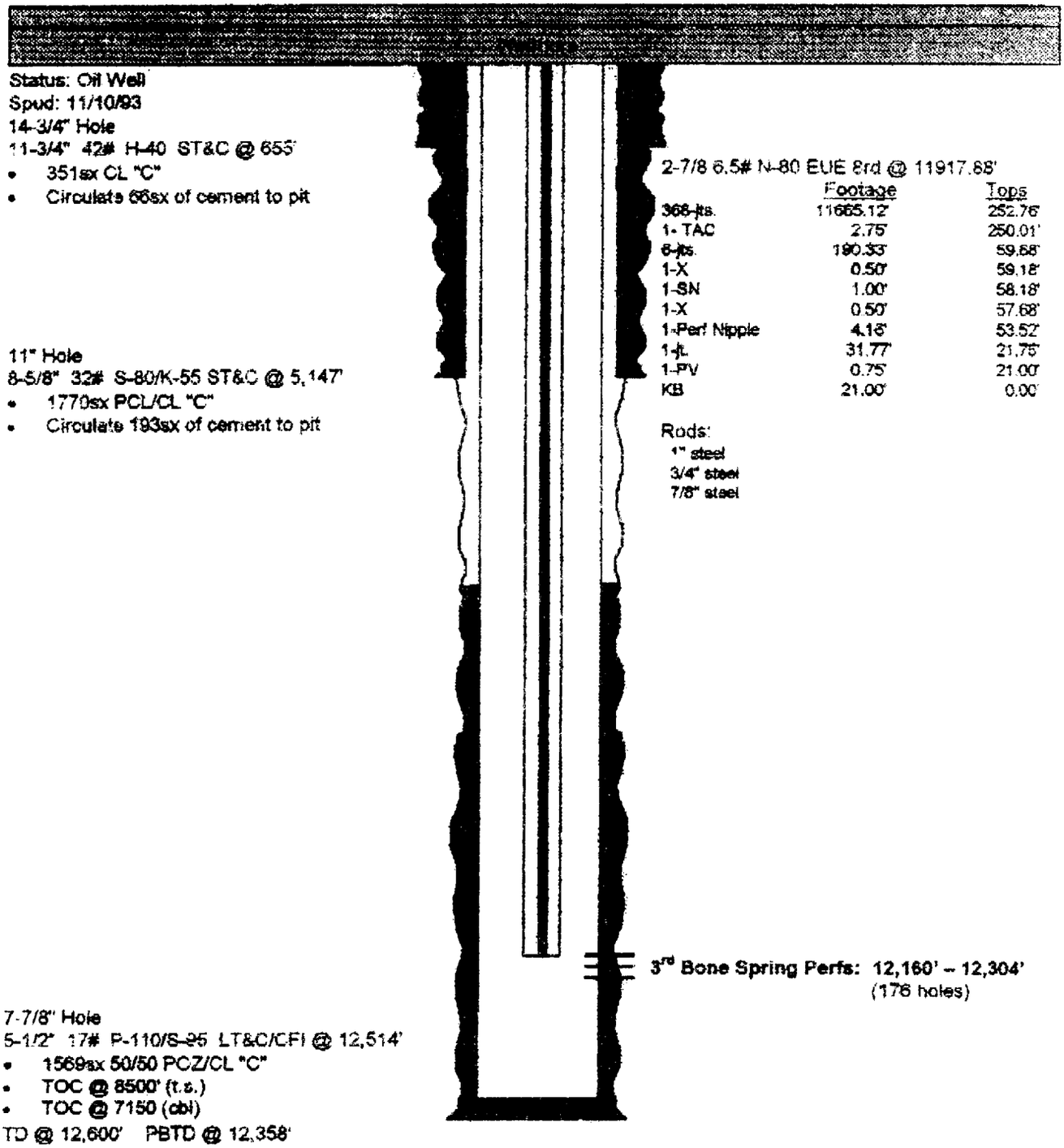
FISH: Perforating Gun

CIBP @ 13280' + 35' cmt. on top

EOG RESOURCES, INC.
330' FSL & 1980' FEL
Sec.12-T25S-R33E

HALLWOOD "12" FEDERAL NO. 2
LEA CO., NEW MEXICO
APRIL 3, 2000

WELLBORE SCHEMATIC



Status: Oil Well
Spud: 11/10/93
14-3/4" Hole
11-3/4" 42# H-40 ST&C @ 655'
- 351sx CL "C"
- Circulate 66sx of cement to pit

11" Hole
8-5/8" 32# S-80/K-55 ST&C @ 5,147'
- 1770sx PCL/CL "C"
- Circulate 193sx of cement to pit

7-7/8" Hole
5-1/2" 17# P-110/S-95 LT&C/CFI @ 12,514'
- 1569sx 50/50 PCZ/CL "C"
- TOC @ 8500' (t.s.)
- TOC @ 7150 (cbl)

TD @ 12,600' PBTD @ 12,358'

2-7/8 6.5# N-80 EUE 8rd @ 11917.88'

	Footage	Tops
368-jts.	11665.12'	252.76'
1- TAC	2.75'	250.01'
6-jts.	190.53'	59.68'
1-X	0.50'	59.18'
1-SN	1.00'	58.18'
1-X	0.50'	57.68'
1-Perf Nipple	4.18'	53.52'
1-jt.	31.77'	21.75'
1-PV	0.75'	21.00'
KB	21.00'	0.00'

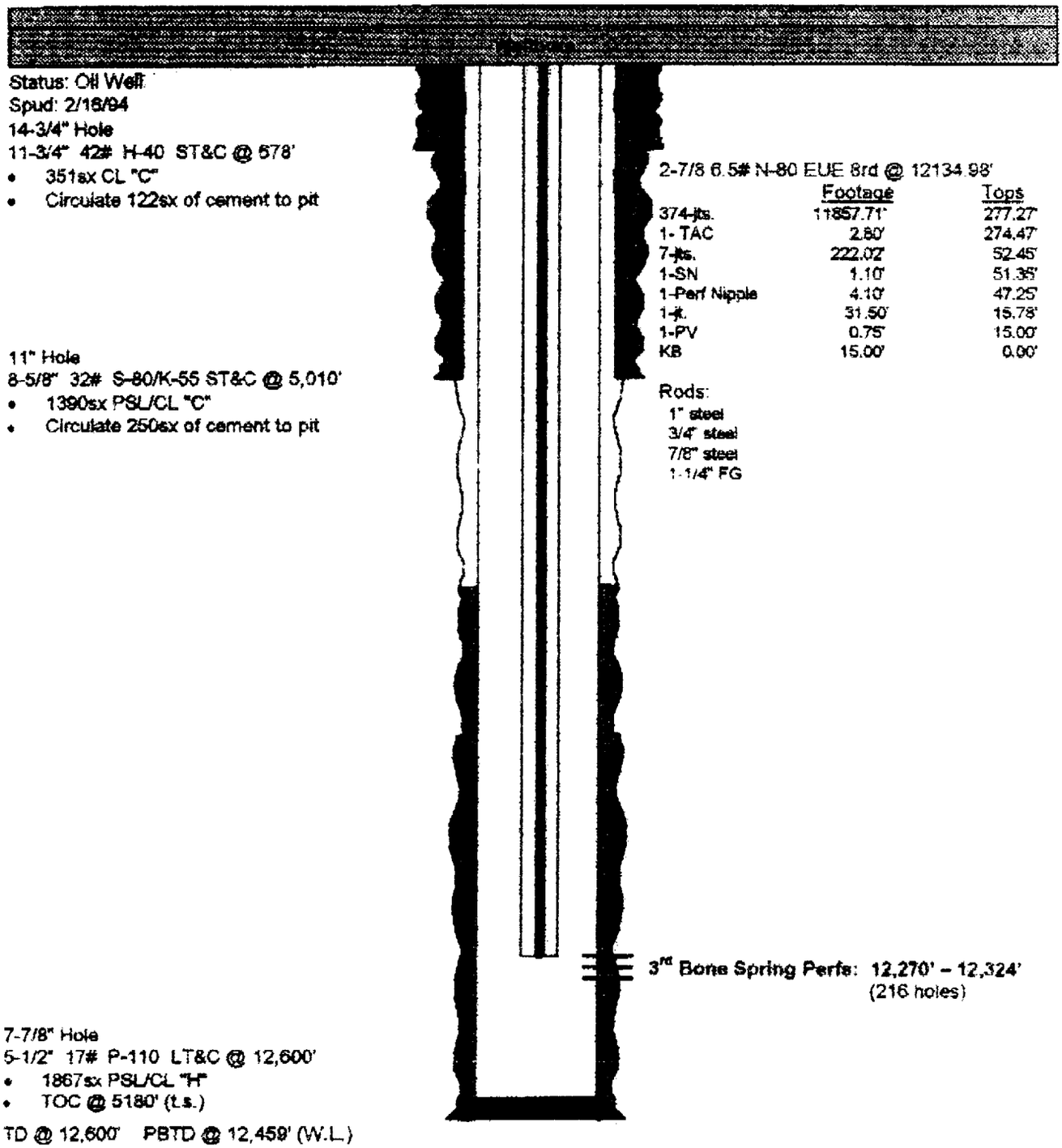
Rods:
1" steel
3/4" steel
7/8" steel

3rd Bone Spring Perfs: 12,160' – 12,304'
(176 holes)

EOG RESOURCES, INC.
660' FSL & 660' FEL
Sec.12-T25S-R33E

HALLWOOD "12" FEDERAL NO. 3
LEA CO., NEW MEXICO
APRIL 3, 2000

WELLBORE SCHEMATIC



Status: Oil Well
Spud: 2/16/94
14-3/4" Hole
11-3/4" 42# H-40 ST&C @ 578'
- 351sx CL "C"
- Circulate 122sx of cement to pit

11" Hole
8-5/8" 32# S-80/K-55 ST&C @ 5,010'
- 1390sx PSL/CL "C"
- Circulate 250sx of cement to pit

7-7/8" Hole
5-1/2" 17# P-110 LT&C @ 12,600'
- 1867sx PSL/CL "H"
- TOC @ 5180' (t.s.)

TD @ 12,600' PBTD @ 12,459' (W.L.)

2-7/8 6.5# N-80 EUE 8rd @ 12134.98'

	Footage	Tops
374-jts.	11857.71'	277.27'
1- TAC	2.80'	274.47'
7-jts.	222.02'	52.45'
1-SN	1.10'	51.35'
1-Perf Nipple	4.10'	47.25'
1-jt.	31.50'	15.75'
1-PV	0.75'	15.00'
KB	15.00'	0.00'

Rods:
1" steel
3/4" steel
7/8" steel
1-1/4" FG

3rd Bone Spring Perfs: 12,270' – 12,324'
(216 holes)

APPLICATION FOR AUTHORIZATION TO INJECT
VACA "13" FEDERAL NO.2

VII PROPOSED OPERATION

(1) Proposed Average Daily Rate and Volume: 200 BPD
Proposed Maximum Daily Rate and Volume: 500 BPD

(2) Open or Closed System: Closed

(3) Proposed Average Injection Surface Pressure: 3000 psi.
Proposed Maximum Injection Surface Pressure: 3700 psi.
Note: Original Bone Spring formation BHP 9500 psi.

(4) Produced Bone Spring formation water: 250-300 BPD from Red Hills Field (Bone Spring) (see attached analysis)

(5)N/A

VIII. GEOLOGIC DATA ON INJECTION ZONE

Injection Zone: 3rd Bone Spring

Lithologic Detail: Fine grain sandstone

Geological Name: 3rd Bone Spring

Thickness: Bone Spring - 3,204'
3rd Bone Spring - 384'

Depth: Bone Spring 9,260' to 12,284'
3rd Bone Spring 11,900' to 12,284

Underground Sources of Drinking Water:
Geological Name: Triasic
Base: 600'

IX. PROPOSED STIMULATION PROGRAM

2500 gals. of 15% HCL acid

X. LOGGING AND TESTING DATA ON INJECTION WELL

Previously submitted (DLL,MLL,GR,CZDN)

XI. CHEMICAL ANALYSIS OF WATER FROM FRESH WATER WELLS WITHIN ONE MILE OF INJECTION WELL

No chemical analysis or fresh water wells within one mile of the proposed injection well can be found (as per phone conversation with Fred McMinn of the State Engineers Offices, State of New Mexico @ 3:55 p.m. on 4/4/2000).

XII. I have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the injection zone and any underground source of drinking water.

XIII. See attached proof.