

VACUUM UPPER PENN FIELD
VACUUM WOLFCAMP FIELD
VACUUM ABO NORTH FIELD

PRESSURE MAINTENANCE PROJECT
APPLICATION FOR AUTHORIZATION TO INJECT WATER

ATTACHMENT III TO FORM C-108

Attached is a description of the three wells proposed for injection for this project.. For each well a wellbore schematic is included.

ATTACHMENT V TO FORM C-108

Attached are two maps of the project area. The first shows all wells drilled in the project area within two miles of the proposed injectors. The second map shows all wells drilled through to the injection interval. The red circles are one-half mile radius around each proposed injector to identify the area of review.

ATTACHMENT VI TO FORM C-108

Attached is a listing of all wells that have penetrated the injection interval in the area of review of the proposed injectors. Also included are wellbore schematics of the wells.

ATTACHMENT VII TO FORM C-108
DATA ON PROPOSED OPERATION

Proposed average and maximum daily rate for the project:

Average Daily Rate:	3000 BWPD (1000 BWPD/well)
Maximum Daily Rate:	6000 BWPD (2000 BWPD/well)

The injection system is closed.

The proposed average and maximum* surface injection pressures are:

Average injection pressure	1800 PSIG
Maximum injection pressure	2200 PSIG

* Until a fracture gradient is determined, maximum injection pressure will be based on a 0.2 psi/ft gradient.

The source of injection water will be produced water from the Glorieta and Paddock Formations. This will be supplied from the Vacuum Glorieta West Unit injection system. As shown on the attached water analysis of Wolfcamp produced water and the above mentioned sources, the waters are compatible.

ATTACHMENT VIII TO FORM C-108

FORMATION DESCRIPTION

The Abo formation is a microcrystalline dolomite deposited in a back reef environment. The structure is a southeasterly dipping stratigraphic trap with permeability pinchouts in all directions. The Abo is in the Paleozoic era, Permian System, Leonard Age. The top of the Abo is found at approximately 8300' and is approximately 1000 feet thick.

The Wolfcamp formation is a massive limestone interbedded with shale stringers. The structure is an anticline with permeability pinchouts in all directions. The Wolfcamp is in the Paleozoic era, Permian System, Wolfcamp Age. The top of the Wolfcamp is approximately 9300' and is approximately 800' thick.

The Upper Penn is Paleozoic era, Pennsylvanian System, Cisco Group. The structure is an anticline with an undefined oil-water contact in all directions. The top of the Upper Penn is approximately 10100' and is approximately 200' thick.

No known faults cut through these formations that may act as conduits for gas, oil, or injection fluids to seep into fresh water aquifers above the injection zone within the proposed injection project. There are water injection projects above the Abo in the Paddock-Glorieta formations (Vacuum Glorieta West Unit) and the Grayburg-San Andres (Central Vacuum Unit). The productive formation below the Penn is the Devonian. No contamination of the Ogallala through faults cutting these shallower zones has been observed.

Listed below are the formations and depths of oil productive zones in this area.

Grayburg-San Andres	4300'
Glorieta-Paddock	5900'
Blinbery	6500'
Drinkard	7450'
Abo	8300'
Wolfcamp	9300'
Penn Reef	10100'
Devonian	12000'

ATTACHMENT IX TO FORM C-108

PROPOSED STIMULATION PLAN FOR A TYPICAL INJECTION WELL

All injection wells will be cased hole completions selectively perforated. The stimulation programs were initially medium sized acid jobs using 15% HCL. As the project matures restimulation with larger acid treatments may be required.

ATTACHMENT X TO FORM C-108

WELL LOGS

Logs on New Mexico "O" State NCT-1 No. 38 and State BA Nos. 6 and 8 have previously been sent to the Division.

ATTACHMENT XI TO FORM C-108

CHEMICAL ANALYSIS OF FRESH WATER WITHIN ONE MILE OF INJECTION WELLS

The attached map shows the location of four fresh water wells in the vicinity of the proposed pressure maintenance project which have chemical analysis. Attached are the attendant water analyses. Water is from the Ogallala at a depth of 200 feet.

ATTACHMENT XII TO FORM C-108

Texaco has examined available geological and engineering data and finds no evidence of open faults or any other hydrologic connection between the injection zone and any underground source of drinking water.

ATTACHMENT XIII TO FORM C-108

NOTIFICATION OF SURFACE OWNERS AND OPERATORS

Texaco has notified by certified letter the surface owner and offset operators of the intent to inject.

See the attached list of Offset Operators. The surface owner is the State of New Mexico.

INJECTION WELL DATA SHEET

OPERATOR Texaco Exploration and Production Inc. LEASE State BA

WELL NO. 660' FNL and 860 FWL

FOOTAGE LOCATION 36 SECTION 17S TOWNSHIP 34E RANGE

Schematic

Well Construction Data

Surface Casing

Size 13 3/8 Cemented with 400 sx.

TOC surface feet determined by Cement Circ

Hole Size 17 1/2"

Intermediate Casing

Size 9 5/8 Cemented with 2080 sx.

TOC 110 feet determined by Temp Survey

Hole Size 12 1/4"

Long String

Size 7 Cemented with 850 sx.

TOC 5675 feet determined by Temp Survey

Hole Size 8 3/4"

Total Depth 12,110'

Injection Interval

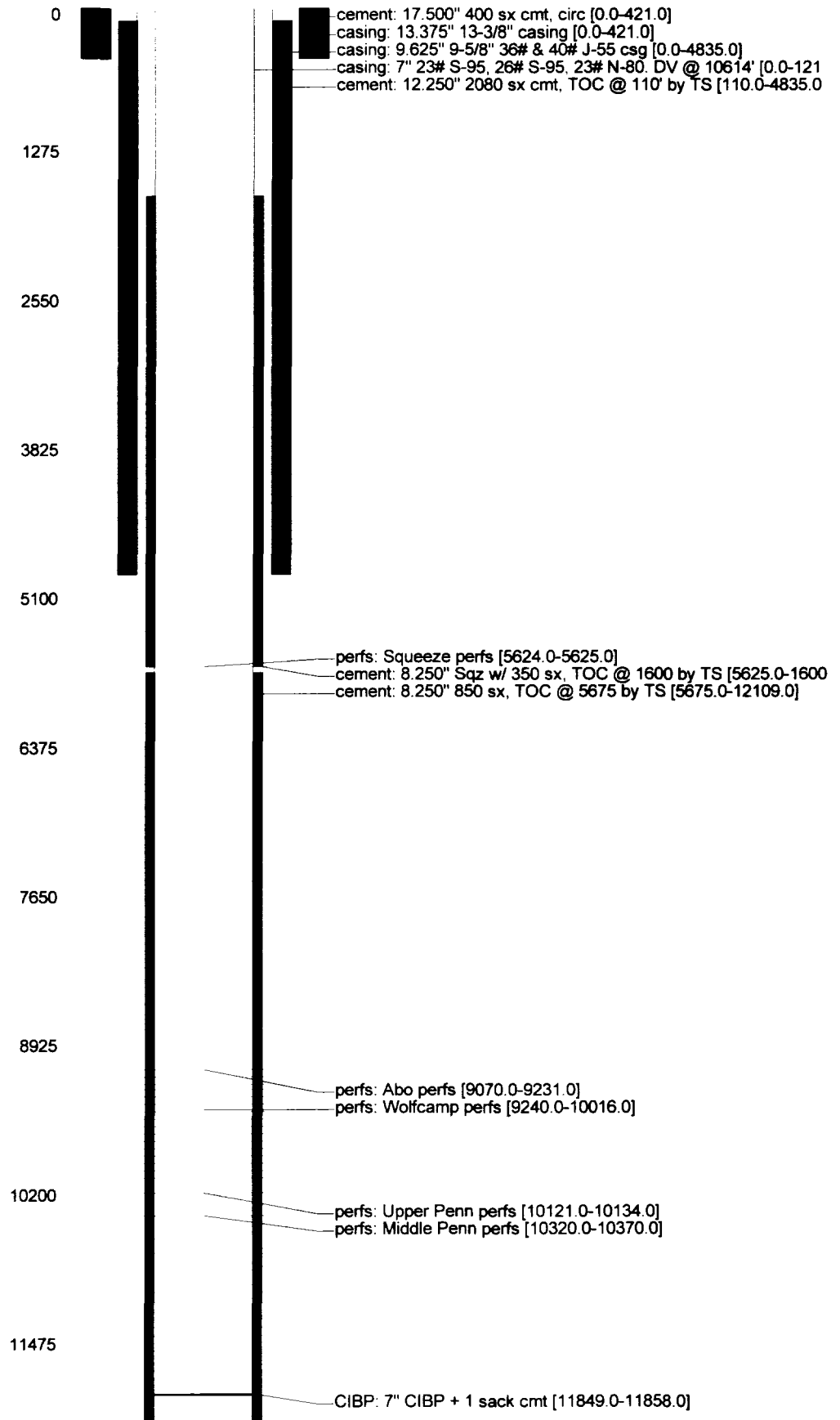
9070 feet to 10,134 feet

(perforated or open-hole; indicate which)

ATTACHMENT III

TO

FORM C-108



INJECTION WELL DATA SHEET

Side

OPERATOR Texaco Exploration and Production Inc. LEASE State BAWELL NO. 8 766' FNL and 2086' FEL SECTION 36 TOWNSHIP 17-S RANGE 34-E

FOOTAGE LOCATION

Schematic

Well Construction Data

Surface Casing

Size 13 3/8 Cemented with 350 sx.TOC Surface feet determined by CMT CircHole Size 17 1/2"

Intermediate Casing

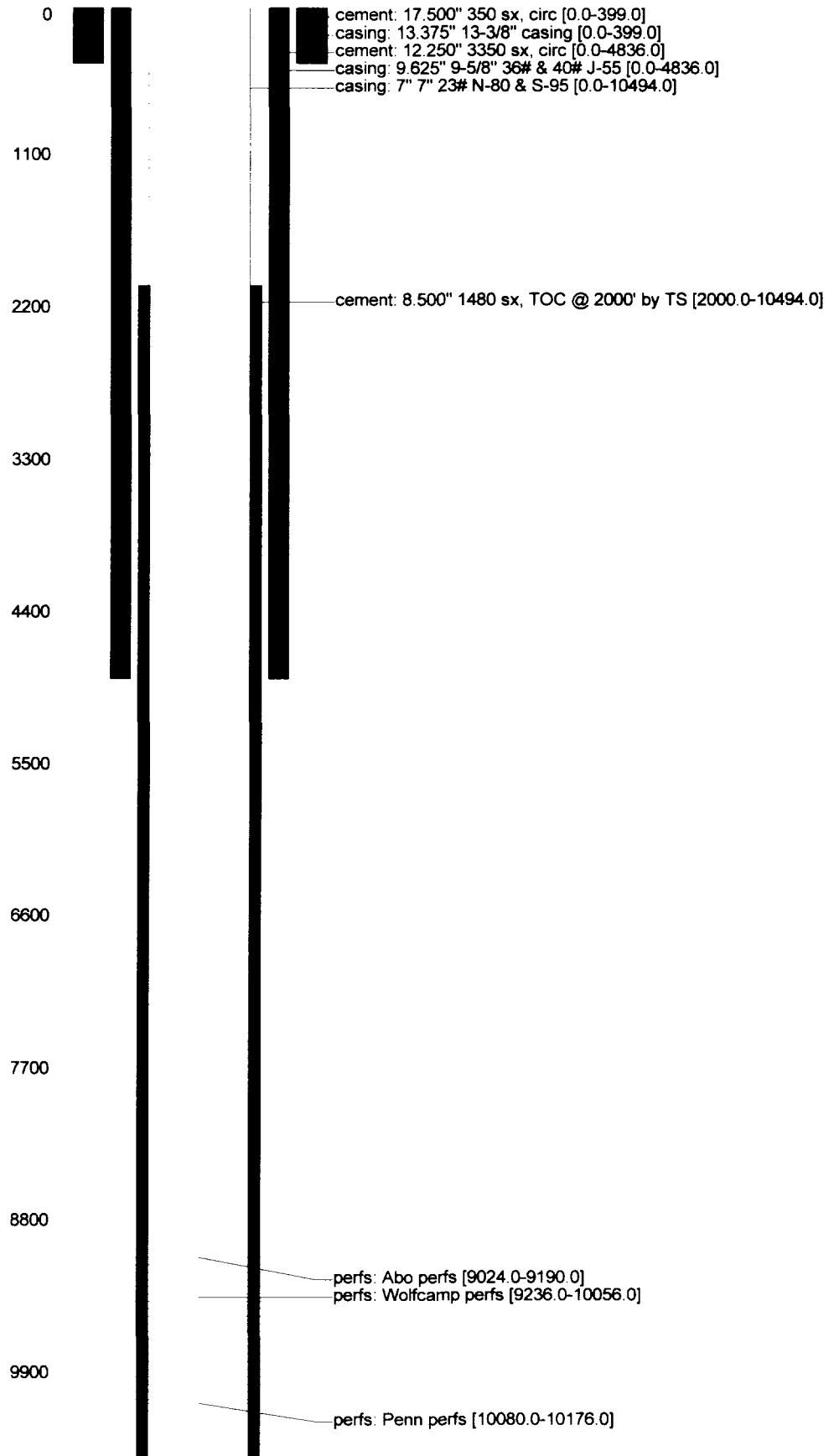
Size 9 5/8 Cemented with 350 sx.TOC Surface feet determined by CMT CircHole Size 12 1/4"

Long String

Size 7 Cemented with 1480 sx.TOC 2000 feet determined by Temp SurveyHole Size 8 3/4"Total Depth 10,494'

Injection Interval

9024 feet to 10,176' feet perforated
(perforated or open-hole; indicate which)



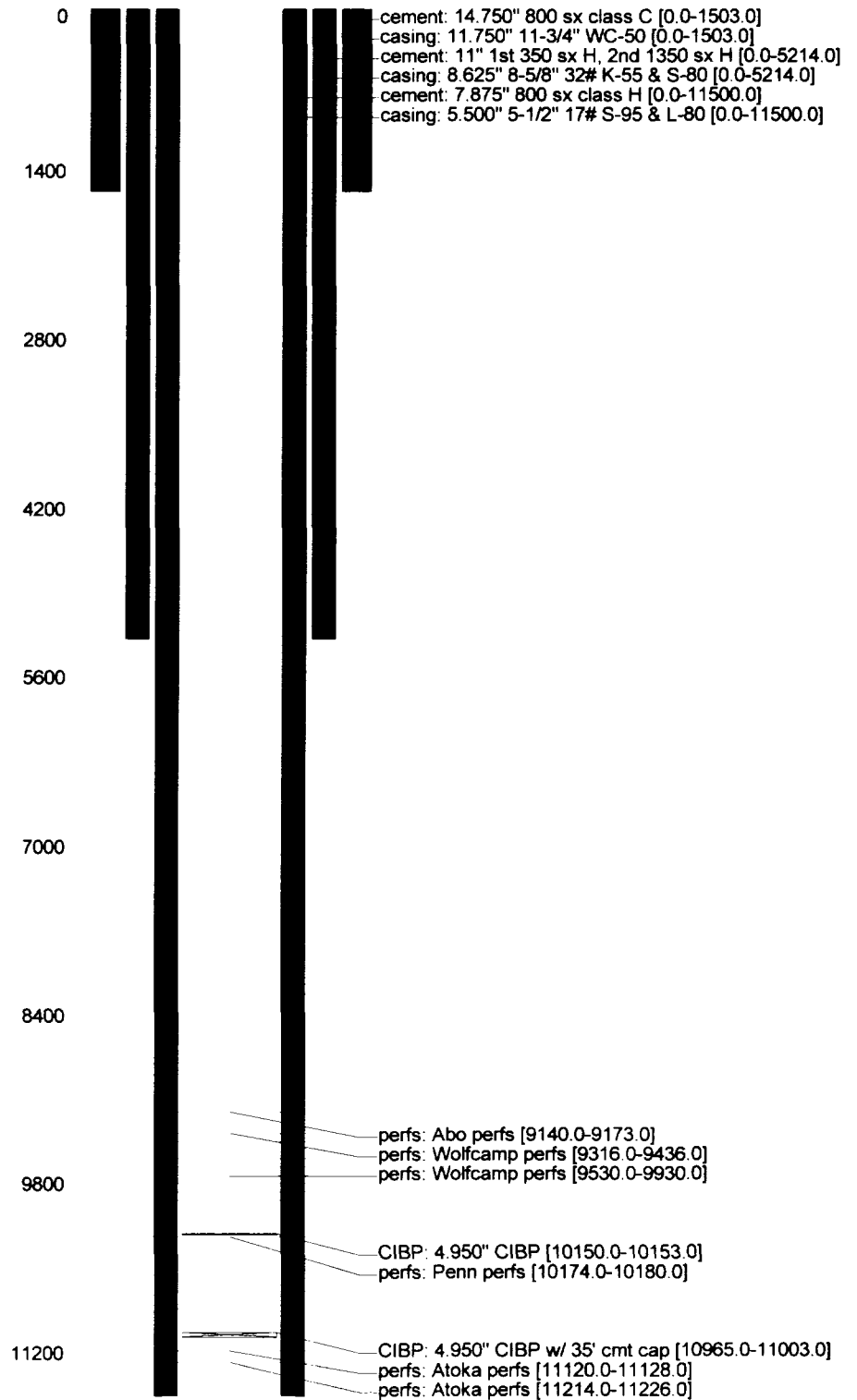
INJECTION WELL DATA SHEET

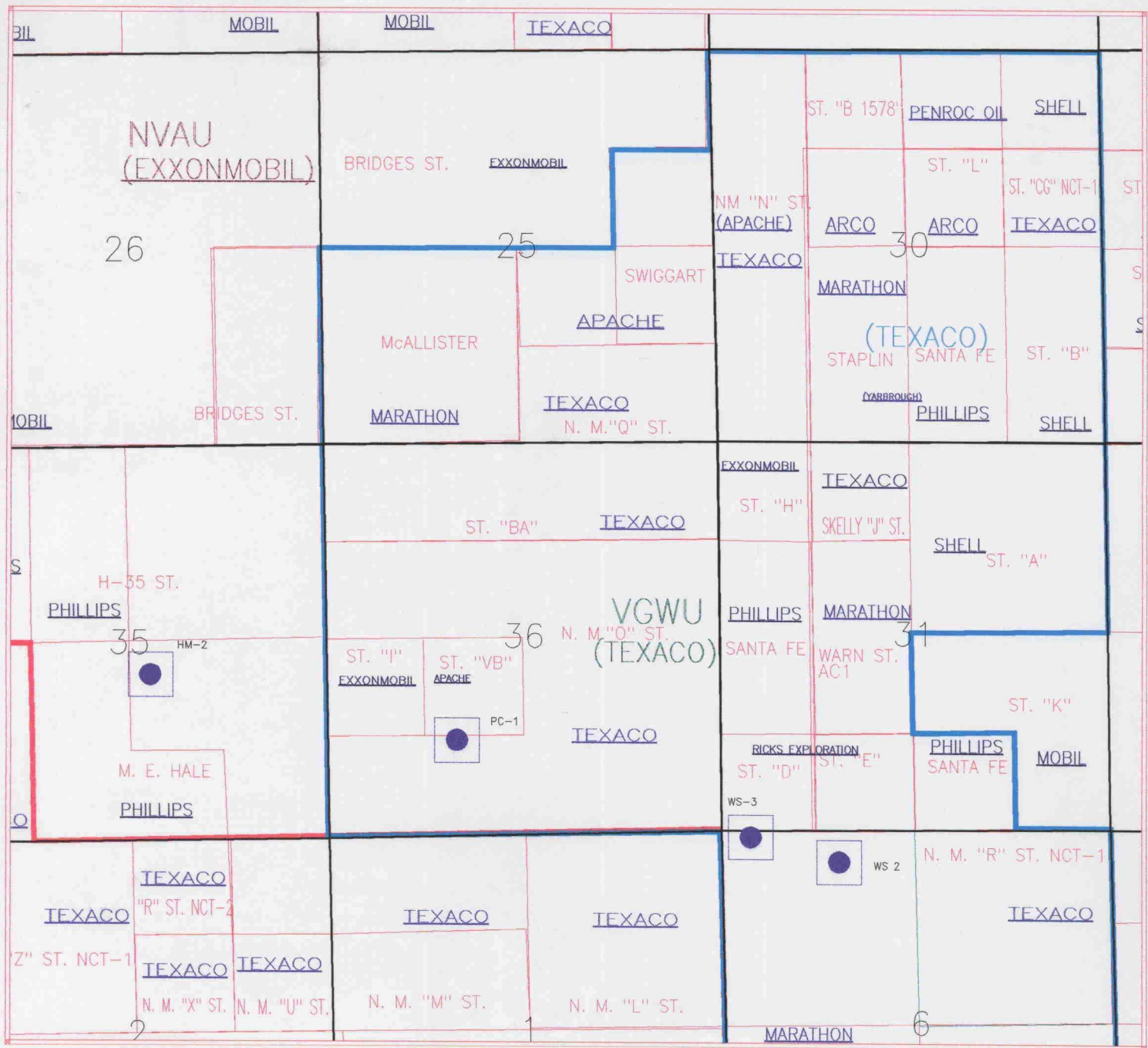
Side 1

OPERATOR Texaco Exploration and Production Inc. LEASE New Mexico O State NCT-1WELL NO. ³⁸ 20851 FSL and 710' FEE SECTION 36 TOWNSHIP 17-S RANGE 34-E

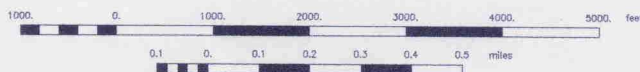
FOOTAGE LOCATION

SchematicWell Construction DataSurface CasingSize 11³/₄ Cemented with 800 SX.TOC surface feet determined by CMT circHole Size 14³/₄"Intermediate CasingSize 8⁵/₈ Cemented with 1700 SX.TOC surface feet determined by CMT circHole Size 11³/₄"Long StringSize 5¹/₂ Cemented with 1900 SX.TOC surface feet determined by CMT circ, 2 stgsHole Size 7⁷/₈"Total Depth 14500'Injection Interval9140 feet to 10182 feet perforated
(perforated or open-hole; indicate which)





Scale 1:24000.



Texaco Inc.		
VACUUM FIELD FRESH WATER WELLS		
Hickey, Kevin		2/13/01
Scale 1:24000		



LEGEND	
●	PRODUCER
◐	DUAL
⊗	TRIPLE
△	DRY HOLE
+	PLUGGED

ATTACHMENT XI
TO
FORM C-108

UNICHEM

Division of S.J. Services Company

Lab Test No : 9461

Phillips

Sample Date : 3/26/96

Lab Date In : 3/28/96

Lab Date Out : 3/28/96

Water Analysis

Listed below please find water analysis report from : Potash

#1

Specific Gravity : 1.000

Total Dissolved Solids : 265

pH :

Conductivity (uohms):

Ionic Strength : 0.008

Cations: mg/l

Calcium (Ca++): 59

Magnesium (Mg++): 23

Sodium (Na+): 0

Iron (Fe++): 0.07

Dissolved Iron (Fe++):

Barium (Ba++): 0.40

Strontium (Sr):

Manganese (Mn++): 0.39

Resistivity:

Anions:

Bicarbonate (HCO3-):

Carbonate (CO3--):

Hydroxide (OH-): 0

Sulfate (SO4--): 43

Chloride (Cl-): 140

Gases: ppm

Carbon Dioxide (CO2):

Oxygen (O2):

Hydrogen Sulfide (H2S):

Scale Index (positive value indicates scale tendency) a blank indicates some tests were not run

Temperature	CaCO3 SI	CaSO4 SI
86F 30.0C		
104F 40.0C		
122F 50.0C		
140F 60.0C		
168F 70.0C		
176F 80.0C		

Comments :

If you have any questions or require further information, please contact us.

Sincerely,



Laboratory Technician

cc: Jay Brown

Joe Hay

UNICHEM

A Division of BJ Services Company

Lab Test No : 9464

Phillips

Sample Date : 3/26/96

Lab Date In : 3/28/96

Lab Date Out : 3/28/96

Water Analysis

Listed below please find water analysis report from : Halo Mable

S.O. #2

Specific Gravity : 1.000

Total Dissolved Solids : 198

pH :

Conductivity (uohms):

Ionic Strength : 0.006

Cations:		mg/l
Calcium	(Ca++):	50
Magnesium	(Mg++):	19
Sodium	(Na+):	10
Iron	(Fe++):	0.40
Dissolved Iron	(Fe++):	
Barium	(Ba++):	0.20
Strontium	(Sr):	
Manganese	(Mn++):	0.07
Resistivity :		

Anions:

Bicarbonate	(HCO3-):	
Carbonate	(CO3--):	
Hydroxide	(OH-):	0
Sulfate	(SO4--):	50
Chloride	(Cl-):	90

Gases:

Carbon Dioxide	(CO2):	ppm
Oxygen	(O2):	
Hydrogen Sulfide	(H2S):	

Scale Index (positive value indicates scale tendency) a blank indicates some tests were not run

Temperature	CaCO3 SI	CaSO4 SI
86F	30.0C	
104F	40.0C	
122F	50.0C	
140F	60.0C	
168F	70.0C	
176F	80.0C	

Comments :

If you have any questions or require further information, please contact us.

Sincerely,

John Paul Gonzalez

Laboratory Technician

cc: Jay Brown
Joc Hay

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**Western Unichem**

Unichem International

707 North Leech

P.O.Box 1499

Hobbs, New Mexico 88240

Company : Texaco Inc.
 Date : 10-31-1994
 Location: CVU - WSW #2 (on 10-26-1994)

Specific Gravity:
 Total Dissolved Solids:
 pH:
 IONIC STRENGTH:

Sample 1

1.000

597

6.50

0.014

=====

CATIONS:		me/liter	mg/liter
Calcium	(Ca+2)	4.70	94.0
Magnesium	(Mg+2)	3.30	40.1
Sodium	(Na+1)	1.93	44.5
Iron (total)	(Fe+2)	0.007	0.200

ANIONS:			
Bicarbonate	(HCO3-1)	2.60	159
Carbonate	(CO3-2)	0	0
Hydroxide	(OH-1)	0	0
Sulfate	(SO4-2)	0	0
Chloride	(Cl-1)	7.33	260

=====

SCALING INDEX (positive value indicates scale)

Temperature		Calcium Carbonate	Calcium Sulfate
86[F	30[C	-0.84	-18
110[F	43[C	-0.11	-18
130[F	54[C	0.24	-18
140[F	60[C	0.42	-18
160[F	71[C	0.82	-18

Comments:
 cc: Jay Brown
 Joe Hay

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Unichem International

707 North Leach

P.O.Box 1499

Hobbs, New Mexico 88240

Company : Texaco Inc.
 Date : 10-31-1994
 Location: CVU - WSW #3 (on 10-26-1994)

Specific Gravity:
 Total Dissolved Solids:
 pH:
 IONIC STRENGTH:

Sample 1
 1.001
 1944
 6.70
 0.043

=====

CATIONS:		me/liter	mg/liter
Calcium	(Ca+2)	9.00	180
Magnesium	(Mg+2)	6.60	80.2
Sodium	(Na+1)	17.7	406
Iron (total)	(Fe+2)	0.014	0.400

ANIONS:			
Bicarbonate	(HCO3-1)	2.20	134
Carbonate	(CO3-2)	0	0
Hydroxide	(OH-1)	0	0
Sulfate	(SO4-2)	3.31	159
Chloride	(Cl-1)	27.8	984

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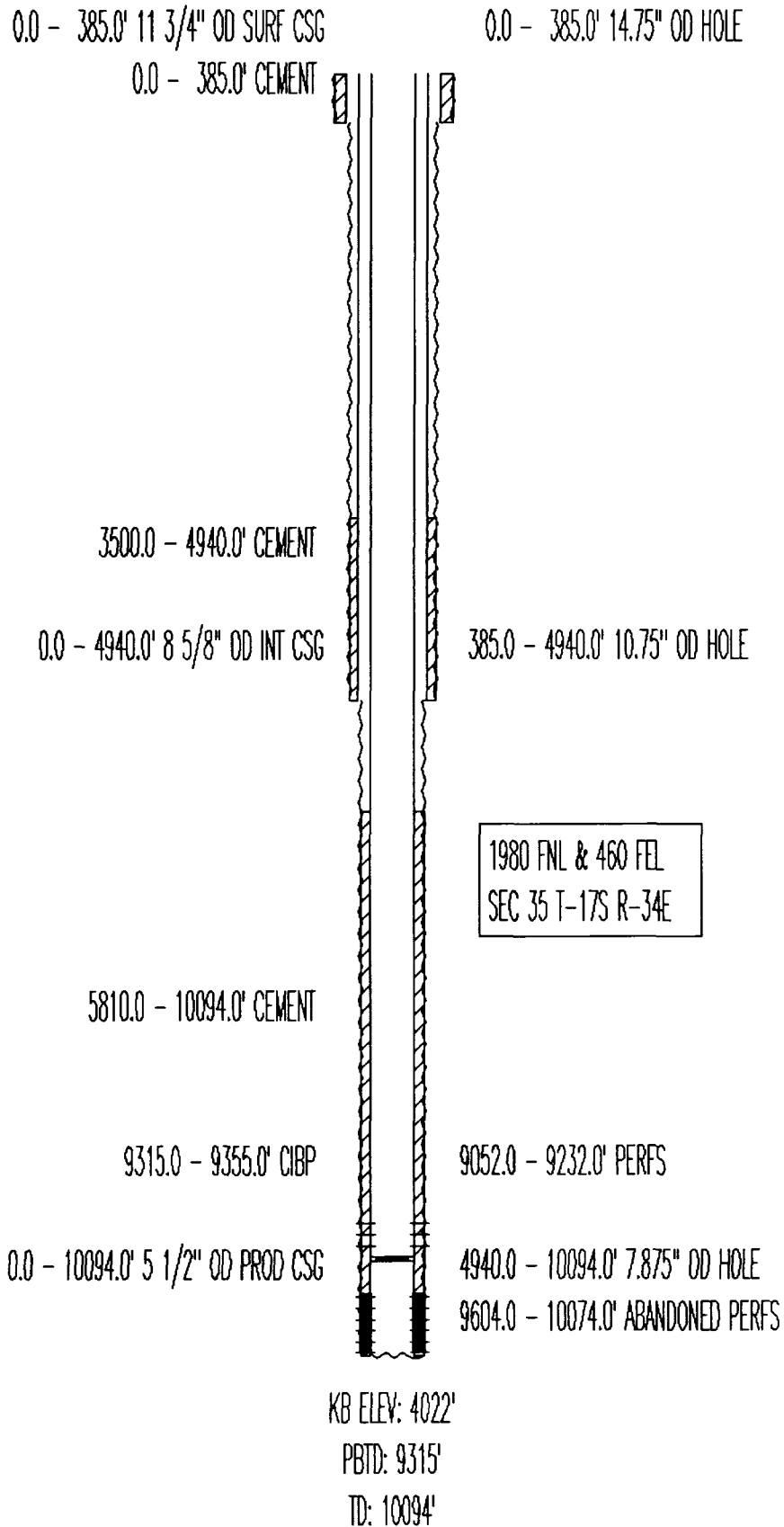
SCALING INDEX (positive value indicates scale)

Temperature		Calcium Carbonate	Calcium Sulfate
86[F	30[C	-0.55	-14
110[F	43[C	0.18	-14
130[F	54[C	0.52	-14
140[F	60[C	0.71	-14
160[F	71[C	1.1	-14

Comments:
 cc: Jay Brown
 Joe Hay

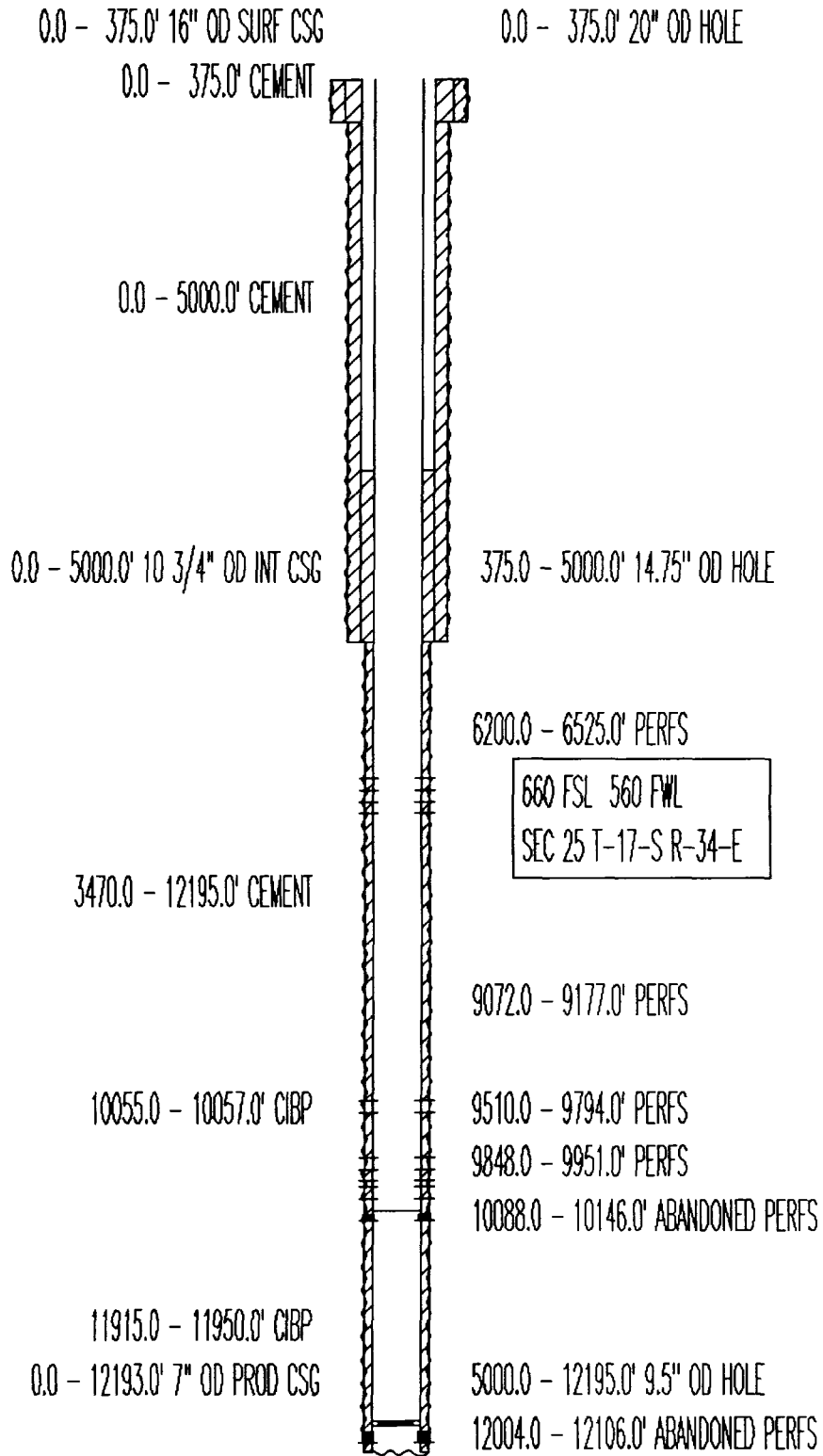
I

STATE H-35 NO. 9
 PHILLIPS PET
 API# 3002520228



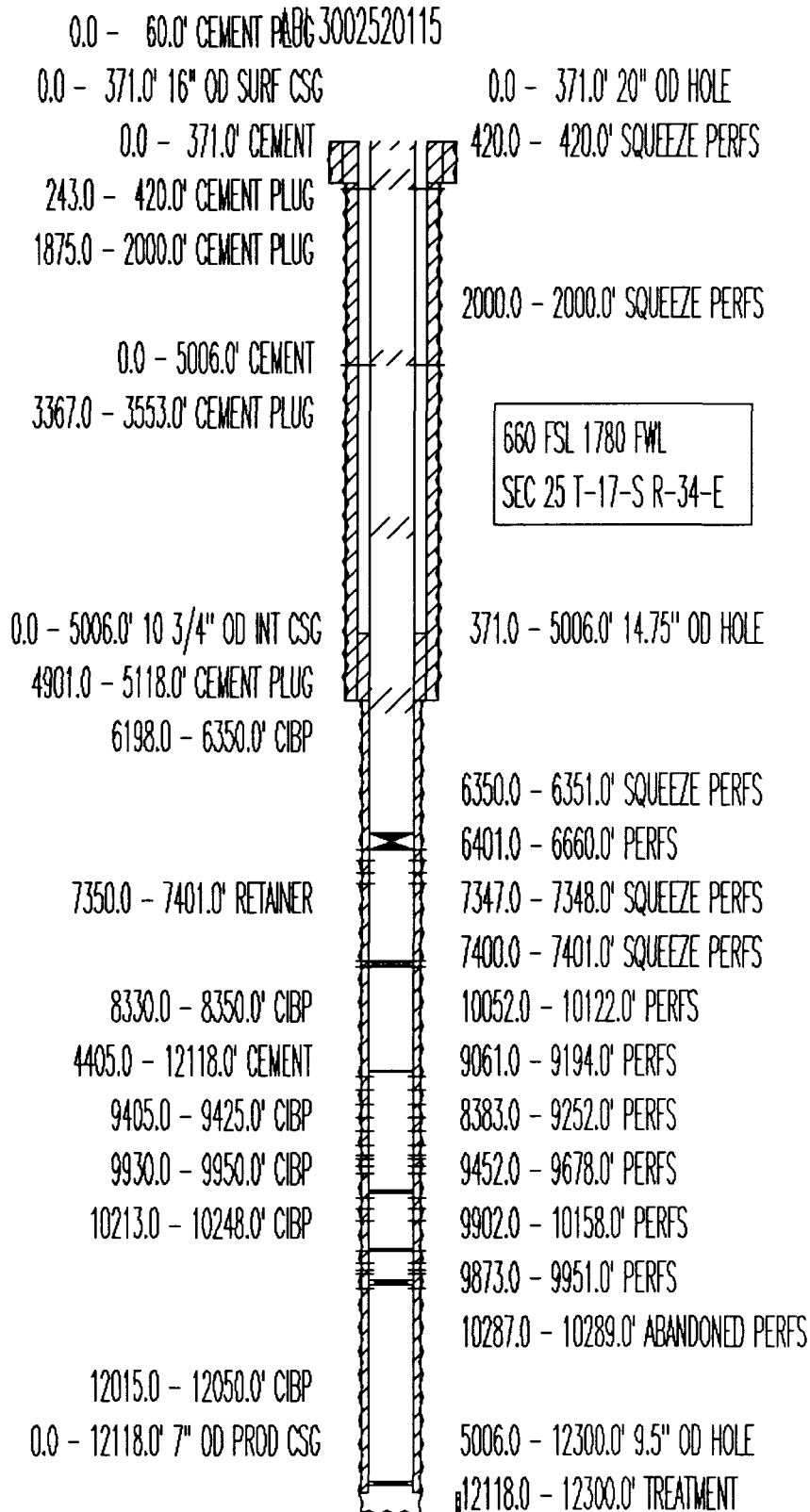
ATTACHMENT VI
 TO
 FORM C-108

MARATHON OIL CO.
MCCALLISTER ST. NO. 5
API 3002520116



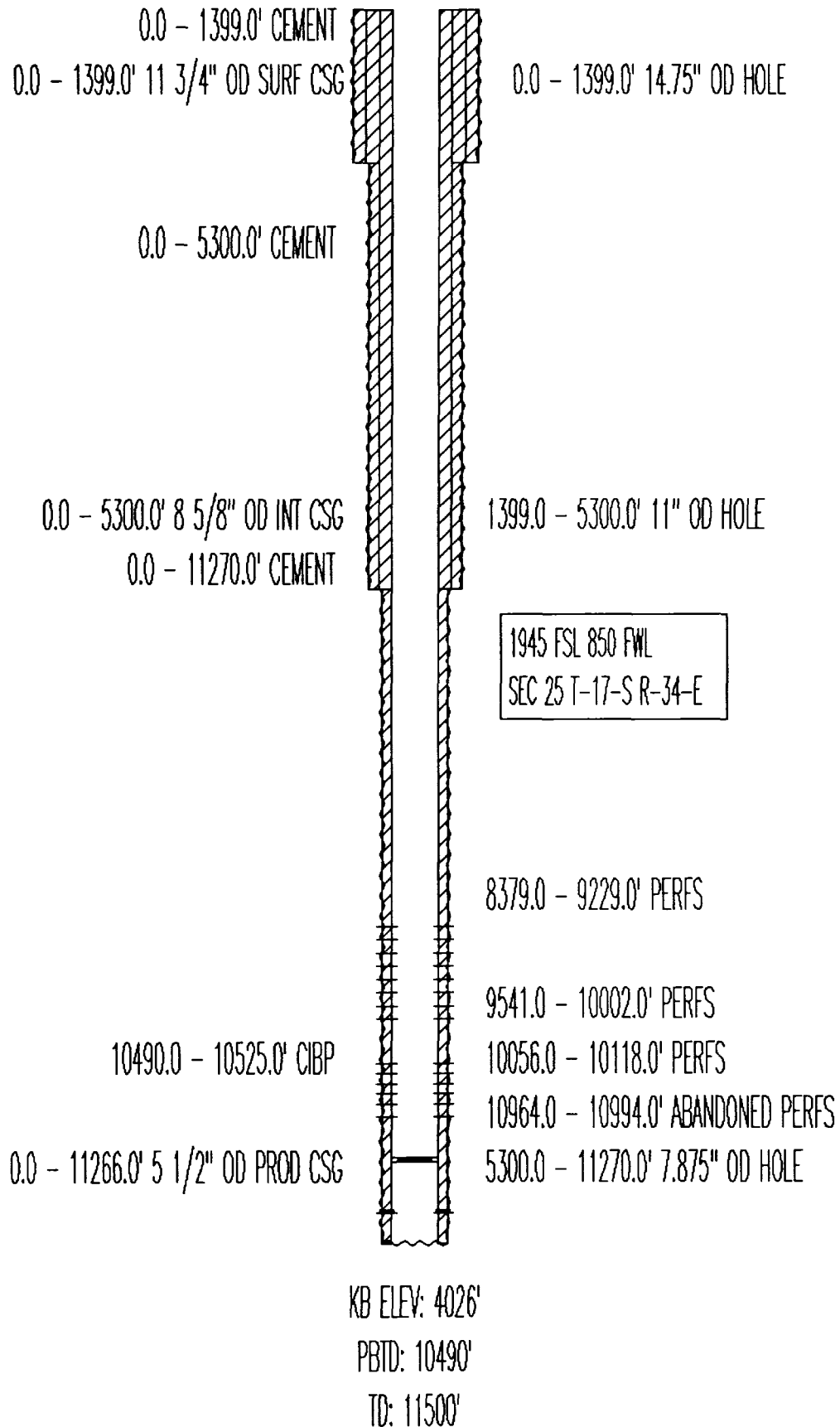
KB ELEV: 4017'
PBD: 12195'
TD: 12195'

MARATHON OIL CO.
MCCALLISTER ST. NO. 7



KB ELEV: 4017'
PBD: 12125'
TD: 12125'

MARATHON OIL CO.
MCCALLISTER ST. NO. 12
API 3002533954



NORTH VACUUM ABO UNIT NO. 95

EXXONMOBIL

API# 3002502128

0.0 - 358.0' 13 3/8" OD SURF CSG

0.0 - 358.0' CEMENT

0.0 - 358.0' 17.5" OD HOLE

0.0 - 4400.0' CEMENT

0.0 - 4400.0' 9 5/8" OD INT CSG

358.0 - 4400.0' 12.25" OD HOLE

860 FSL & 660 FEL
SEC 26 T-17S R-34E

0.0 - 13816.0' CEMENT

8620.0 - 8625.0' CIBP

8360.0 - 8520.0' PERFS

8362.0 - 9451.0' SQUEEZE PERFS

9070.0 - 9197.0' SQUEEZE PERFS

9518.0 - 9986.0' SQUEEZE PERFS

8149.0 - 12500.0' CEMENT

11905.0 - 11910.0' PACKER

11112.0 - 11122.0' SQUEEZE PERFS

11865.0 - 11900.0' CIBP

8149.0 - 12500.0' 5 1/2" OD LINER

12024.0 - 12199.0' ABANDONED PERFS

12450.0 - 12500.0' CEMENT PLUG

12500.0 - 12505.0' CIBP

0.0 - 13816.0' 7" OD PROD CSG

4400.0 - 13816.0' 8.5" OD HOLE

13698.0 - 13750.0' ABANDONED PERFS

KB ELEV: 4003'

PBTD: 8620'

TD: 13816'

EXXON MOBIL

STATE CC COM NO. 1 0.0 - 715.0' CEMENT PLUG

API# 30 025 20872 0.0 - 715.0' CEMENT PLUG

0.0 - 360.0' 16" OD SURF CSG

0.0 - 360.0' 20" OD HOLE

0.0 - 360.0' CEMENT

0.0 - 4967.0' CEMENT

0.0 - 4967.0' 10 3/4" OD INT CSG

0.0 - 12080.0' CEMENT

9115.0 - 9185.0' PERFS

9442.0 - 10032.0' PERFS

1980 FSL & 860 FWL

SEC 36, TWN 17 S, RANGE 34 E

ELEVATION: 4001 ES

COMPLETION DATE: 8-12-64

COMPLETION INTERVALS: 11972-12028 (DVNN)

9115 - 9185 (ABO)

9962 - 10032 (WFMP)

0.0 - 10222.0' 4.500" OD 11.60#/ft TBG

0.0 - 12080.0' 2.875" OD 6.40#/ft TBG

0.0 - 12080.0' 2.875" OD 6.40#/ft TBG

9115.0 - 9185.0' ABANDONED PERFS

4967.0 - 12080.0' 9.55" OD HOLE

11972.0 - 12028.0' ABANDONED PERFS

KB ELEV: 4001'

TD: 12080'

FORMERLY ST. DD COM. NO. 1

TEXACO
CENTRAL VACUUM UNIT NO. 250
API# 30 025 20862

0.0 - 370.0' 13 3/8" OD SURF CSG

0.0 - 350.0' 17.5" OD HOLE

0.0 - 350.0' CEMENT

0.0 - 5000.0' CEMENT

4578.0 - 4580.0' BRIDGE PLUG

0.0 - 5000.0' 9 5/8" OD INT CSG

4903.0 - 5047.0' CEMENT PLUG

5531.0 - 5709.0' CEMENT PLUG

7385.0 - 7420.0' CIBP

5600.0 - 10553.0' CEMENT

9365.0 - 9400.0' CIBP

9188.0 - 9223.0' CIBP

10435.0 - 10523.0' ABANDONED PERFS

9875.0 - 10019.0' ABANDONED PERFS

10085.0 - 10100.0' ABANDONED PERFS

0.0 - 10553.0' 7" OD PROD CSG

10136.0 - 10175.0' SQUEEZE PERFS

10005.0 - 10040.0' CIBP

10317.0 - 10352.0' CIBP

510 FNL & 535 FWL

SEC 31, T14N 17 S, RANGE 35 E

ELEVATION: 4001 ES

COMPLETION DATE: 12-18-64

COMPLETION INTERVALS: 9287-9320 (ABO)

4398.0 - 4459.0' PERFS

4652.0 - 4780.0' ABANDONED PERFS

350.0 - 5000.0' 12.25" OD HOLE

7501.0 - 7742.0' ABANDONED PERFS

9287.0 - 9320.0' ABANDONED PERFS

9875.0 - 10019.0' ABANDONED PERFS

10088.0 - 10175.0' ABANDONED PERFS

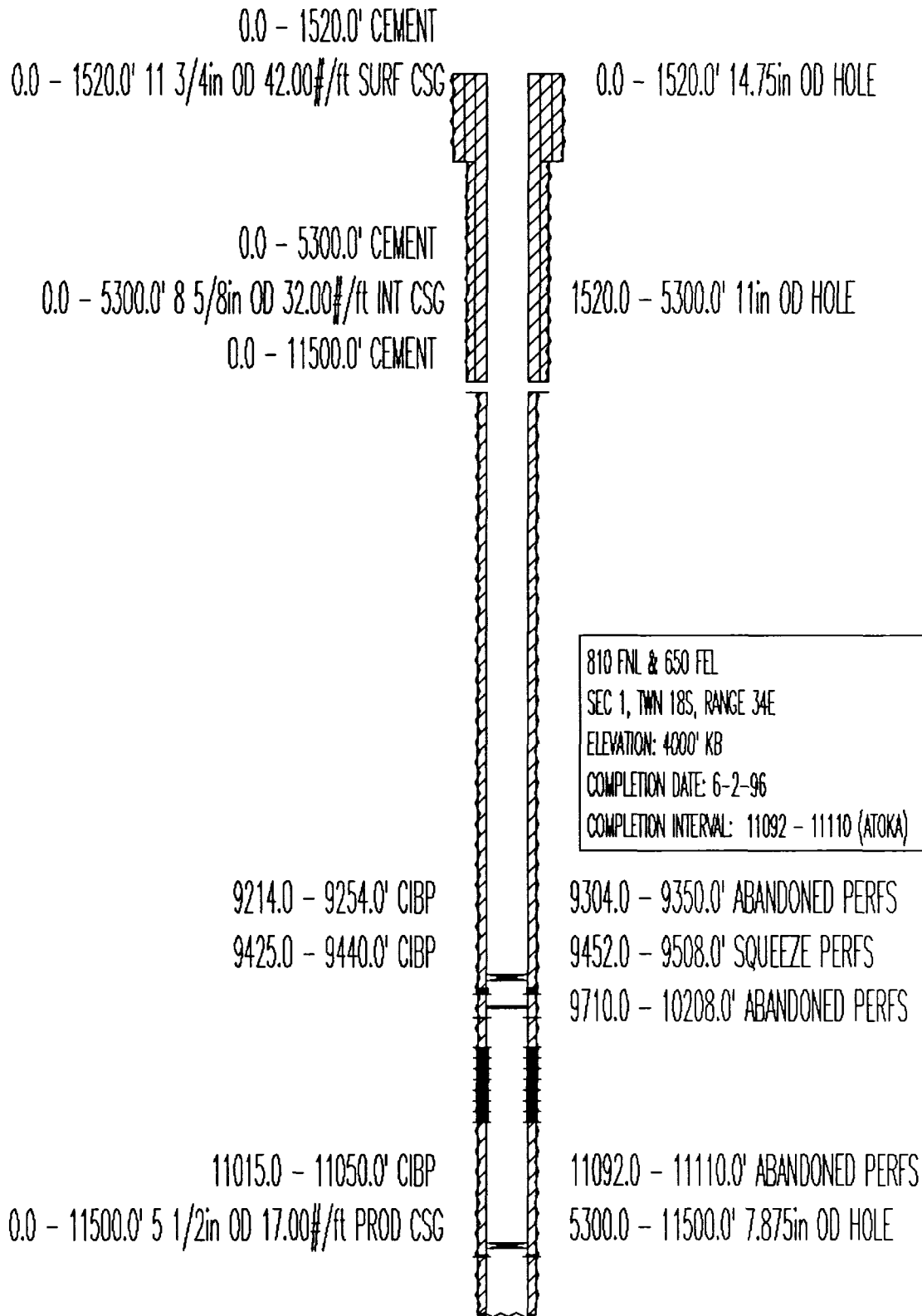
5000.0 - 10553.0' 8.75" OD HOLE

10479.0 - 10521.0' ABANDONED PERFS

KB ELEV: 4001'

TD: 10553'

TEXACO E&P INC.
NEW MEXICO L ST. NO. 18
API# 30-025-33301



KB ELEV: 4000'

PBTD: 11327'

TD: 11500'

TEXACO E&P INC.
NM "O" STATE NCT-1 No. 11
API# 30 025 20382

0.0 - 350.0' 13 3/8" OD 48.00#/ft SURF CSG

0.0 - 350.0' 17.5" OD HOLE

0.0 - 350.0' CEMENT BL

1500.0 - 4800.0' CEMENT

0.0 - 4800.0' 9 5/8" OD 36.00#/ft INT CSG

8408.0 - 8564.0' PERFS

8660.0 - 9002.0' PERFS

9265.0 - 9574.0' PERFS

6550.0 - 12155.0' CEMENT

11162.0 - 11272.0' ABANDONED PERFS

12091.0 - 12111.0' SQUEEZE PERFS

1980 FNL & 1780 FNL

SEC 36, TWN 17 S, RANGE 34 E

ELEVATION: 4004 GR

COMPLETION DATE: 3-30-63

COMPLETION INTERVALS: 12091- 12211 (DVNN)

10331- 10386 (U PENN)

9938 - 9974 (WFMP)

0.0 - 10317.0' 2.875" OD 6.40#/ft TBG

0.0 - 10317.0' 4.500" OD 11.60#/ft TBG

0.0 - 11200.0' 2.875" OD 6.40#/ft TBG

350.0 - 4800.0' 12.25" OD HOLE

10260.0 - 10270.0' CIBP

10180.0 - 10210.0' CIBP

9139.0 - 9243.0' PERFS

9140.0 - 9241.0' PERFS

9601.0 - 9896.0' PERFS

9938.0 - 9974.0' PERFS

10003.0 - 10170.0' PERFS

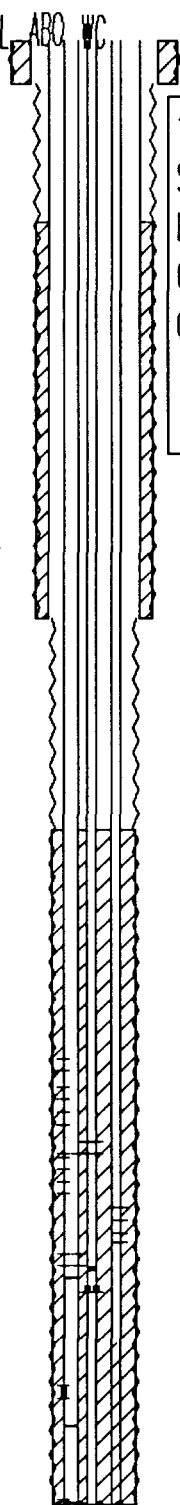
10331.0 - 10386.0' ABANDONED PERFS

4800.0 - 12152.0' 8.75" OD HOLE

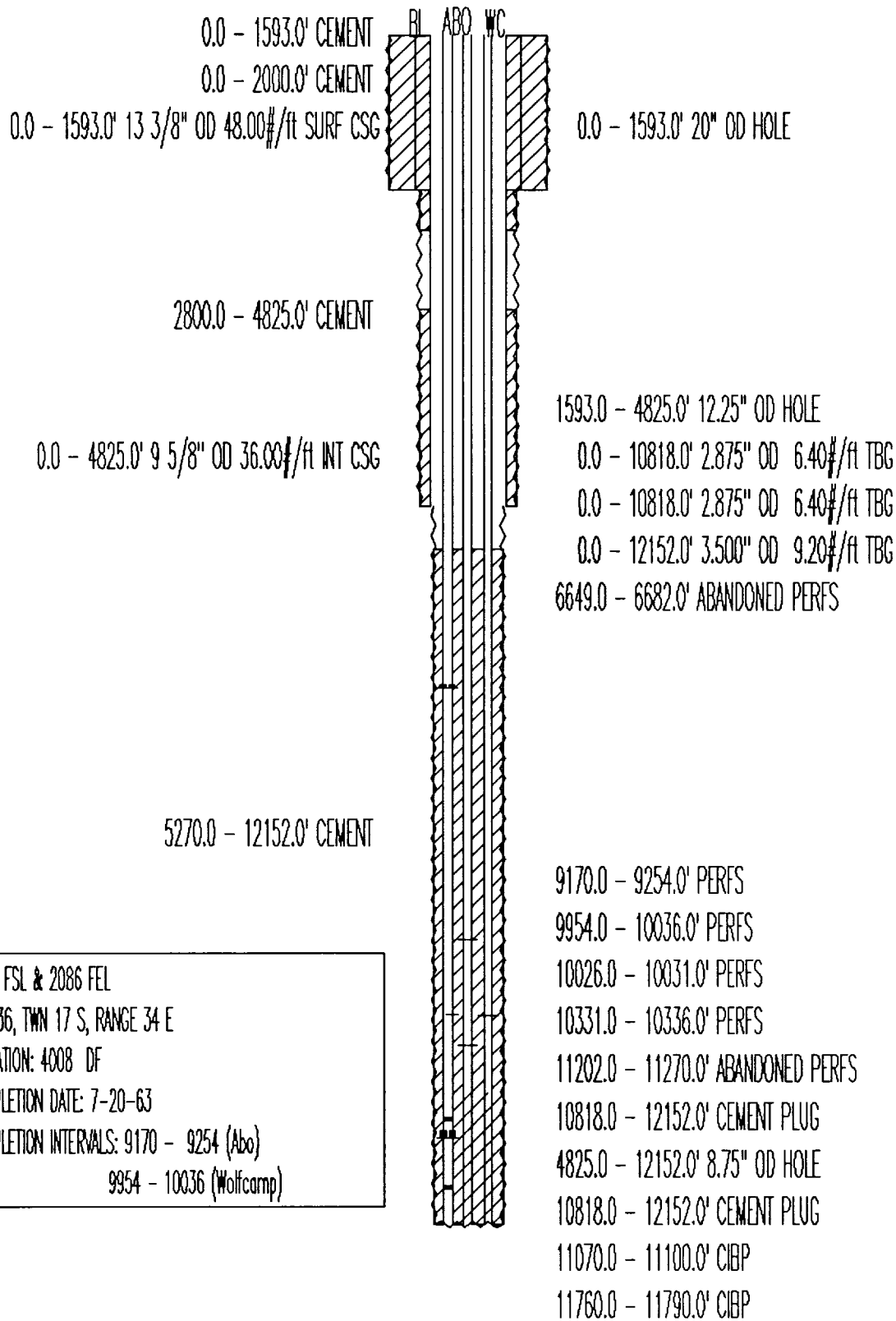
10818.0 - 12152.0' CEMENT PLUG

11500.0 - 11510.0' CIBP

12135.0 - 12145.0' RETAINER

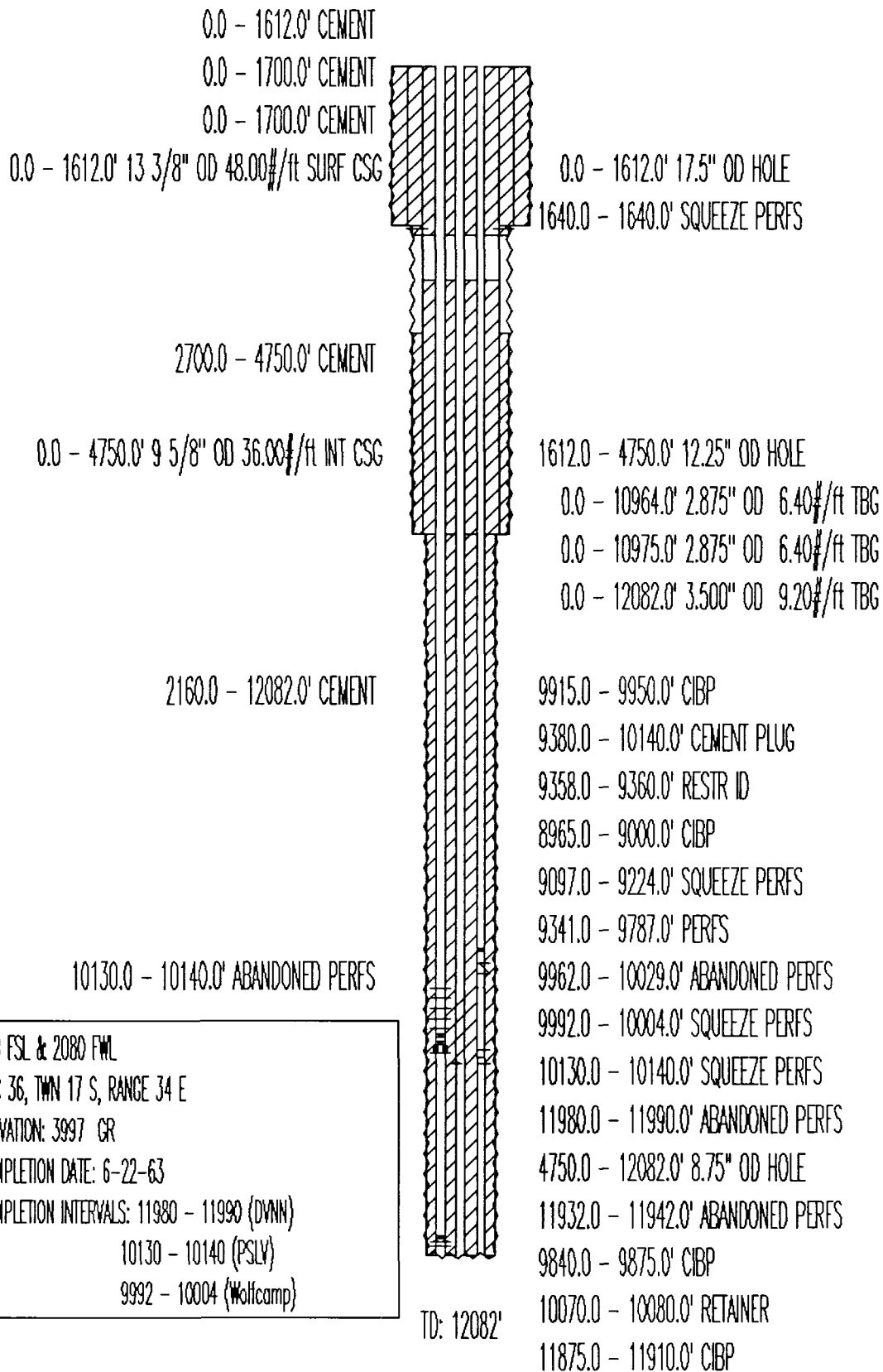


TEXACO E&P INC.
 NM "O" STATE NCT-1 No. 14
 API# 30 025 20008



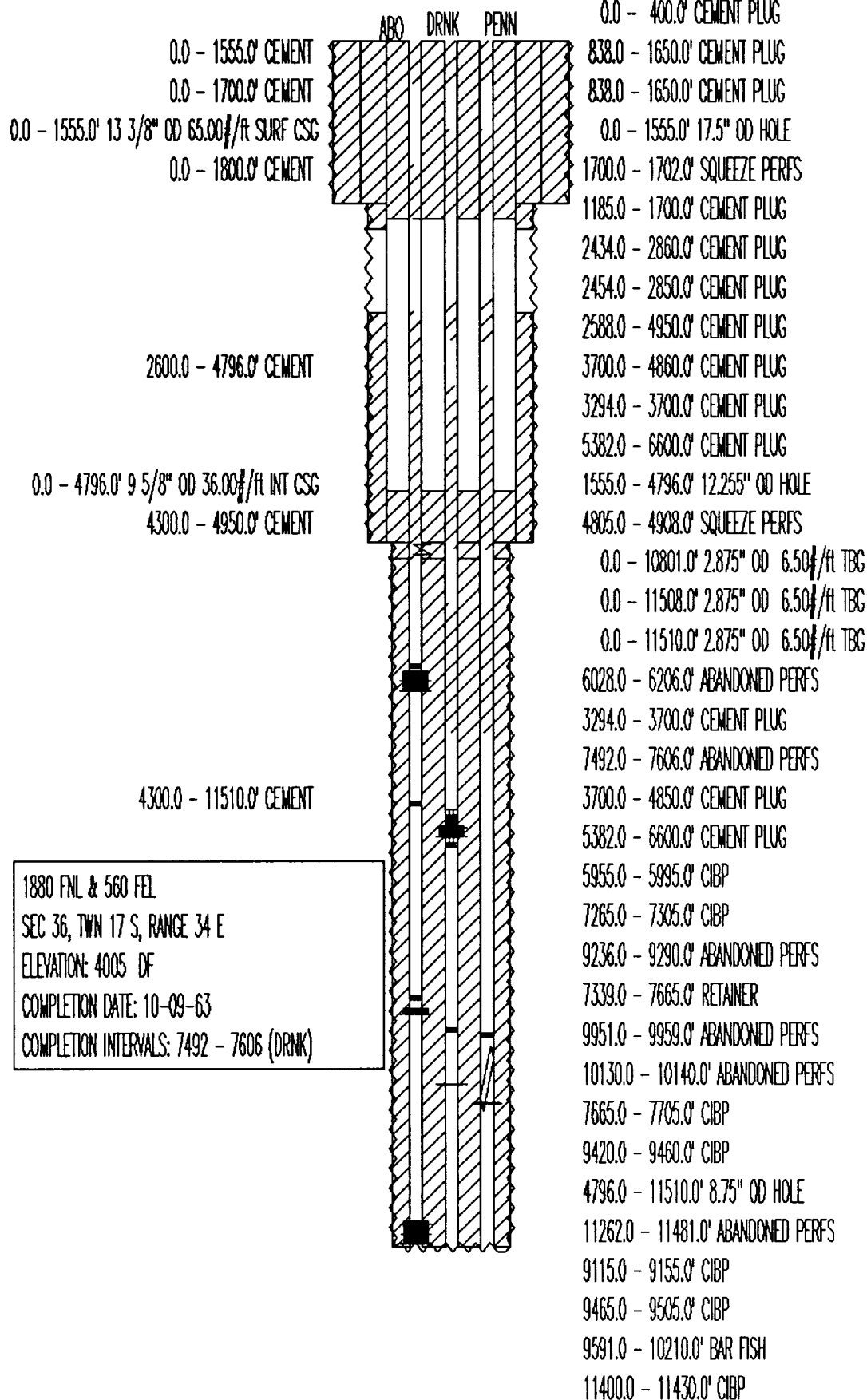
1874 FSL & 2086 FEL
 SEC 36, T17N 17S, RANGE 34 E
 ELEVATION: 4008 DF
 COMPLETION DATE: 7-20-63
 COMPLETION INTERVALS: 9170 - 9254 (Abo)
 9954 - 10036 (Wolfcamp)

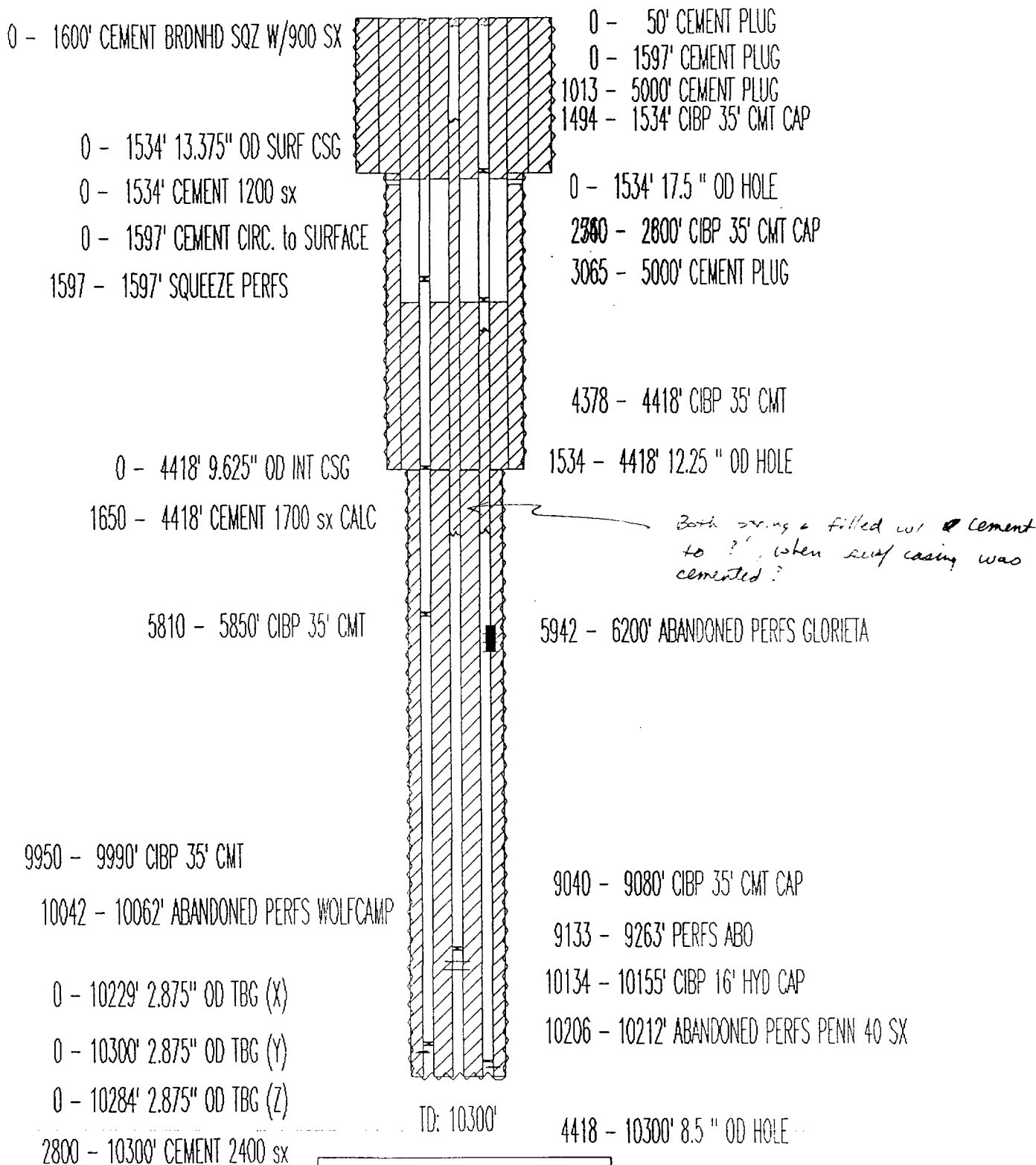
TEXACO E&P INC.
 NM "O" STATE NCT-1 No. 17
 API# 30 025 20125



P&A: 6-23-95

TEXACO E&P INC.
NM "O" STATE NCT-1 No. 18
API# 30 025 20274





860 FSL & 660 FEL
SEC 36 , TWN 17 S, RANGE 34 E
ELEVATION: 3995 KB
COMPLETION DATE: 07-04-64

TEXACO E&P INC.
NEW MEXICO O ST. NO. 38
API# 30-025-33148

0.0 - 1503.0' CEMENT

0.0 - 1503.0' 11.750" OD 42.00#/ft WC-40 SURF CSG

0.0 - 5300.0' CEMENT

0.0 - 1520.0' 14.750" OD HOLE

0.0 - 11500.0' CEMENT

0.0 - 5300.0' 8.625" OD 32.00#/ft K-55 INT CSG

1520.0 - 5300.0' 11.000" OD HOLE

2085 FSL & 710 FEL
SEC 36 T1N 17S, RANGE 34E
ELEVATION: 4000' KB
COMPLETION DATE: 1-1-96
COMPLETION INTERVAL: 11120 - 11226 (ATOKA)

9140.0 - 9296.0' PERFS

9316.0 - 9426.0' PERFS

9542.0 - 9930.0' PERFS

9980.0 - 10118.0' PERFS

10168.0 - 10262.0' ABANDONED PERFS

10150.0 - 10155.0' CIBP

10190.0 - 10195.0' CIBP

10985.0 - 11000.0' CIBP

11120.0 - 11226.0' ABANDONED PERFS

0.0 - 11500.0' 5.500" OD 17.00#/ft L-80 PROD CSG

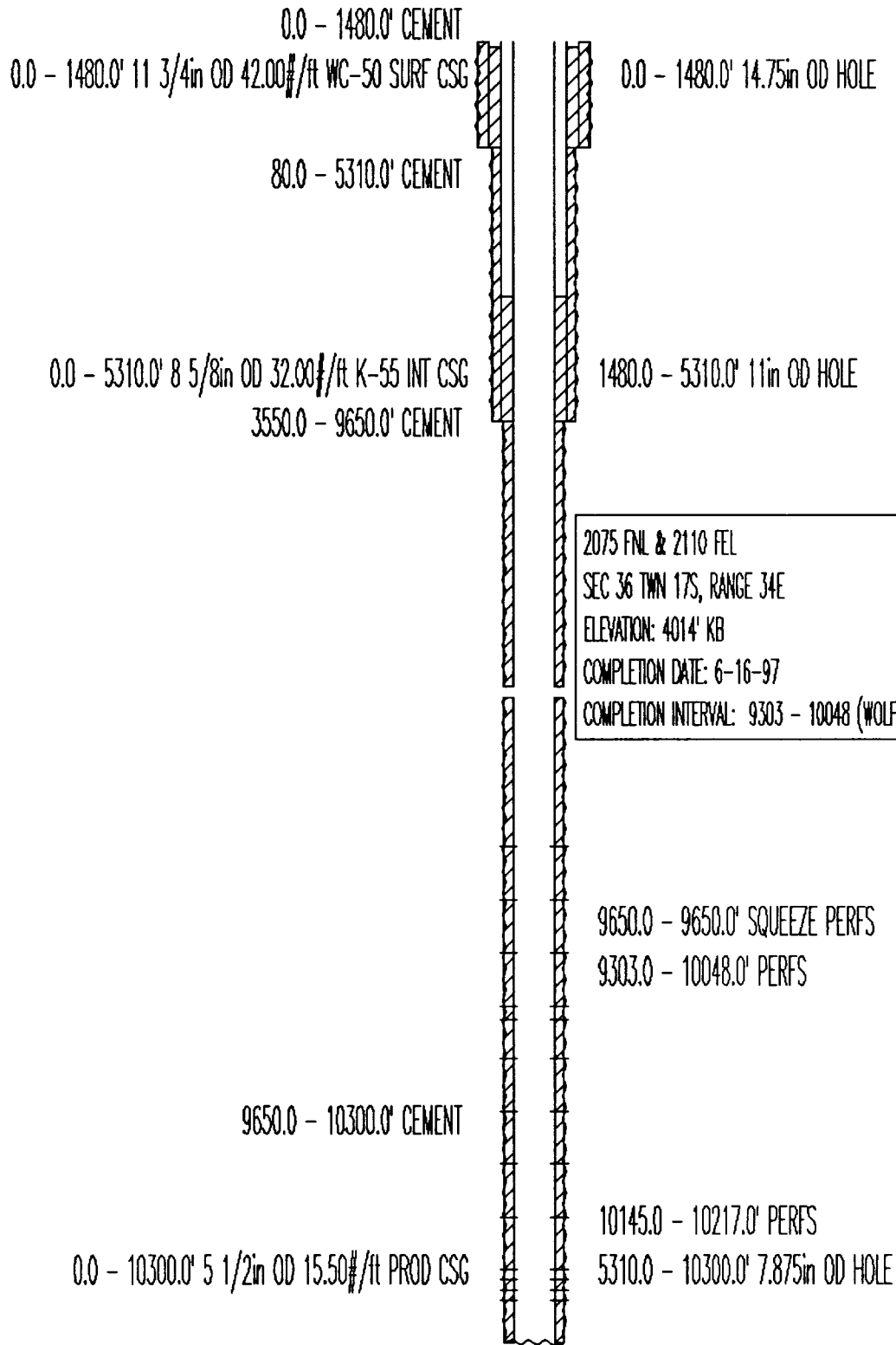
5300.0 - 11500.0' 7.875" OD HOLE

KB ELEV: 4000'

PBTD: 11480'

TD: 11500'

TEXACO E&P INC.
 NEW MEXICO O ST. NCT-1 NO. 39
 API# 30-025-33569



2075 FNL & 2110 FEL
 SEC 36 T11N 17S, RANGE 34E
 ELEVATION: 4014' KB
 COMPLETION DATE: 6-16-97
 COMPLETION INTERVAL: 9303 - 10048 (WOLFCAMP)

KB ELEV: 4014'
 PBTD: 10300'
 TD: 10300'

TEXACO E&P INC.
 NM "Q" STATE No. 4
 API# 30 025 20294

0.0 - 385.0' 13 3/8" OD 65.00#/ft SURF CSG
 0.0 - 385.0' CEMENT

ABO Penn WC

0.0 - 385.0' 15" OD HOLE

0 - 385' 15" OD HOLE

0.0 - 4799.0' CEMENT

0.0 - 4799.0' 9 5/8" OD 36.00#/ft INT CSG

385.0 - 4799.0' 12.25" OD HOLE

0.0 - 10150.0' 2.875" OD 6.40#/ft TBG

0.0 - 10176.0' 2.875" OD 6.40#/ft TBG

0.0 - 11468.0' 2.875" OD 6.40#/ft TBG

6100.0 - 11468.0' CEMENT

8420.0 - 8460.0' PERFS

9148.0 - 9251.0' PERFS

10069.0 - 10107.0' PERFS

9627.0 - 9734.0' PERFS

9951.0 - 10005.0' PERFS

10070.0 - 10080.0' PERFS

10150.0 - 11468.0' CEMENT PLUG

10176.0 - 11468.0' CEMENT PLUG

4799.0 - 12285.0' 8.75" OD HOLE

11468.0 - 11650.0' CEMENT PLUG

12181.0 - 12285.0' CEMENT PLUG

500 FSL & 760 FEL

SEC 25, TWN 17 S, RANGE 34 E

ELEVATION: 4003 DF

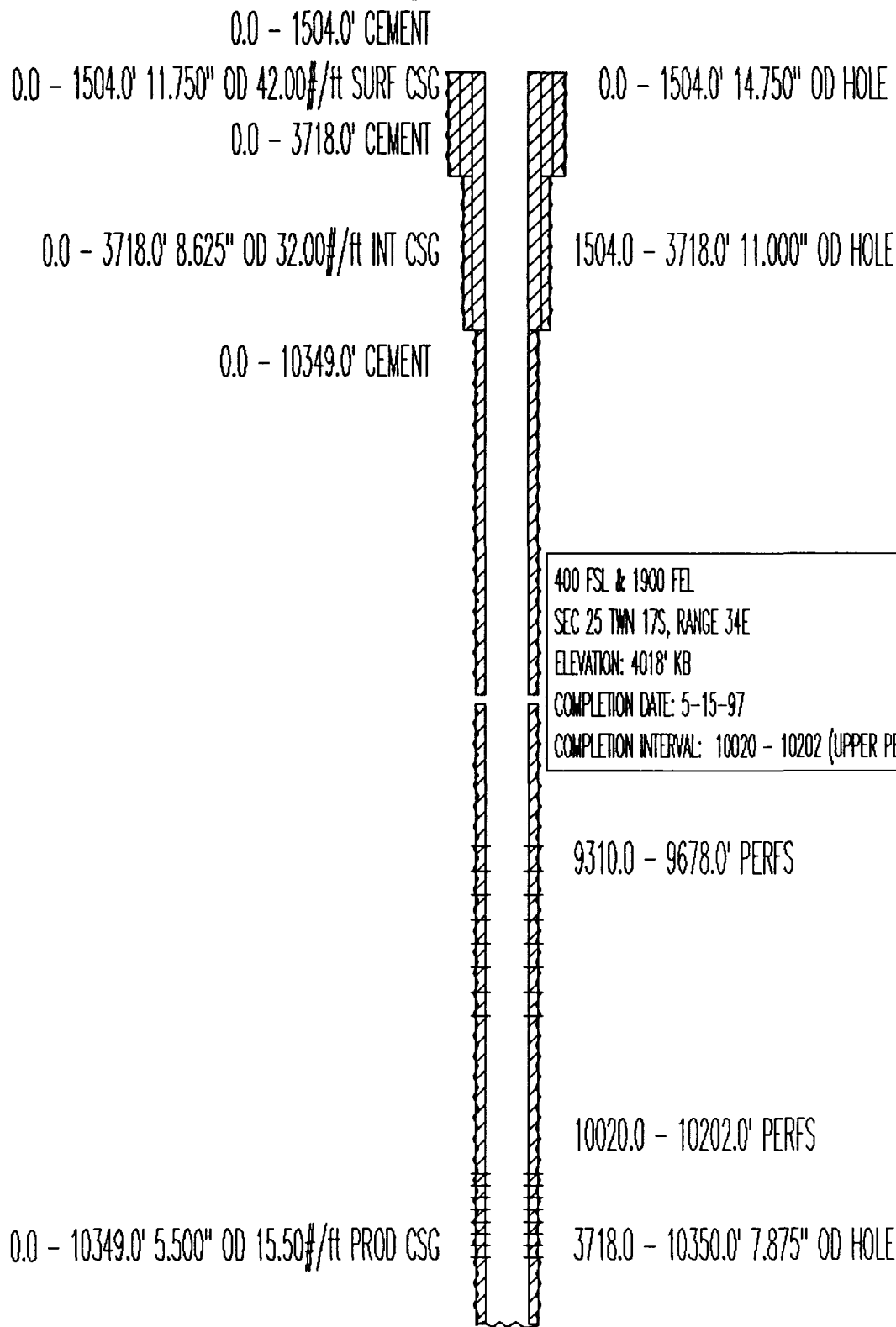
COMPLETION DATE: 11-02-63

COMPLETION INTERVALS: 8420 - 9251 (ABO)

9627 - 10005 (WCMP)

10069 - 10107 (U PEN)

TEXACO E&P INC.
NEW MEXICO Q ST. NO. 12
API# 30-025-33850



KB ELEV: 4018'

PBTD: 10310'

TD: 10350'

API# 30 025 20057

TEXACO E&P INC.

State "BA" No. 6

0.0 - 421.0' 13 3/8" OD 35.60#/ft SURF CSG

0.0 - 421.0' 17-1/2" OD HOLE

0.0 - 421.0' CEMENT

1110.0 - 4835.0' CEMENT

1600.0 - 5625.0' CEMENT

0.0 - 4835.0' 9 5/8" OD 24.00#/ft INT CSG

421.0 - 4835.0' 12-1/4" OD HOLE

5624.0 - 5625.0' SQUEEZE PERFS

660 FNL & 860 FNL

SEC 36, T14N 17S, RANGE 34E

ELEVATION: 4002' GR

COMPLETION DATE: 10-11-63

COMPLETION INTERVALS: 9,070' - 9,231' (ABO)

9,902' - 10,016' (WCMP)

10,121' - 10,134' (PENN)

5675.0 - 12109.0' CEMENT

9070.0 - 9231.0' PERFS

9240.0 - 9870.0' PERFS

9902.0 - 10016.0' PERFS

10121.0 - 10134.0' PERFS

10320.0 - 10370.0' PERFS

4835.0 - 12110.0' 8-3/4" OD HOLE

11835.0 - 11860.0' CIBP

0.0 - 12109.0' 7" OD 23.00#/ft PROD CSG

API# 30 025 20986

TEXACO E&P INC.

State "BA" No. 8

0.0 - 399.0' 13 3/8" OD 35.60#/ft SURF CSG

0.0 - 399.0' 17-1/2" OD HOLE

0.0 - 399.0' CEMENT

0.0 - 4836.0' CEMENT

0.0 - 4836.0' 9 5/8" OD 36.00#/ft INT CSG

399.0 - 4836.0' 12-1/4" OD HOLE

2000.0 - 10487.0' CEMENT

766 FNL & 2086 FEL

SEC 36, T14N 17S, RANGE 34E

ELEVATION: 3995' DF

COMPLETION DATE: 7-16-64

COMPLETION INTERVALS: 9,024' - 9,190' (ABO)

9,948' - 9,980' (WCMP)

10,080' - 10,176' (PENN)

9024.0 - 9190.0' PERFS

9236.0 - 9856.0' PERFS

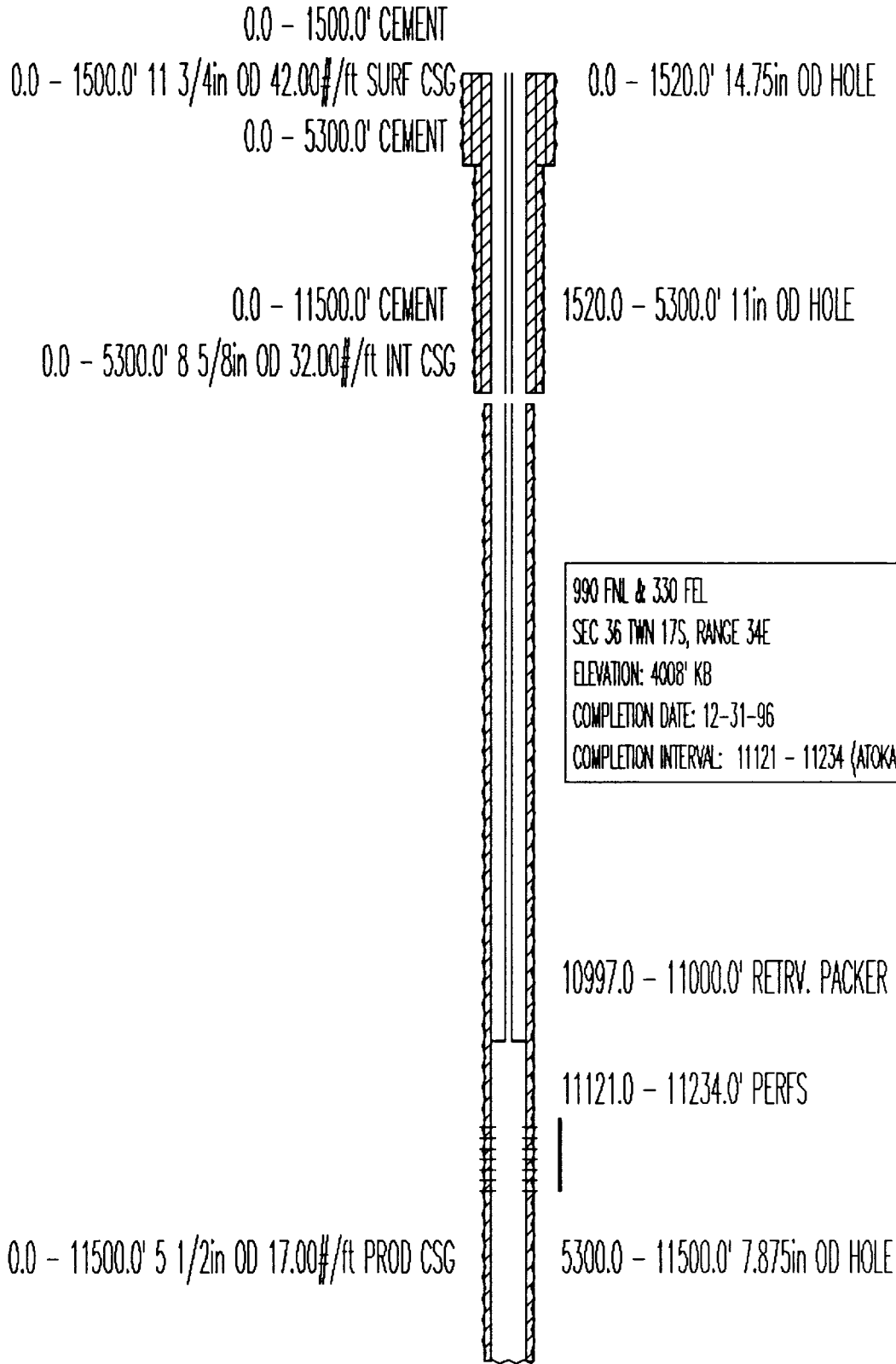
9948.0 - 10056.0' PERFS

4836.0 - 10494.0' 8-1/2" OD HOLE

10080.0 - 10176.0' PERFS

0.0 - 10487.0' 7" OD 23.00#/ft PROD CSG

TEXACO E&P INC.
STATE "BA" NO. 14
API# 30-025-33570

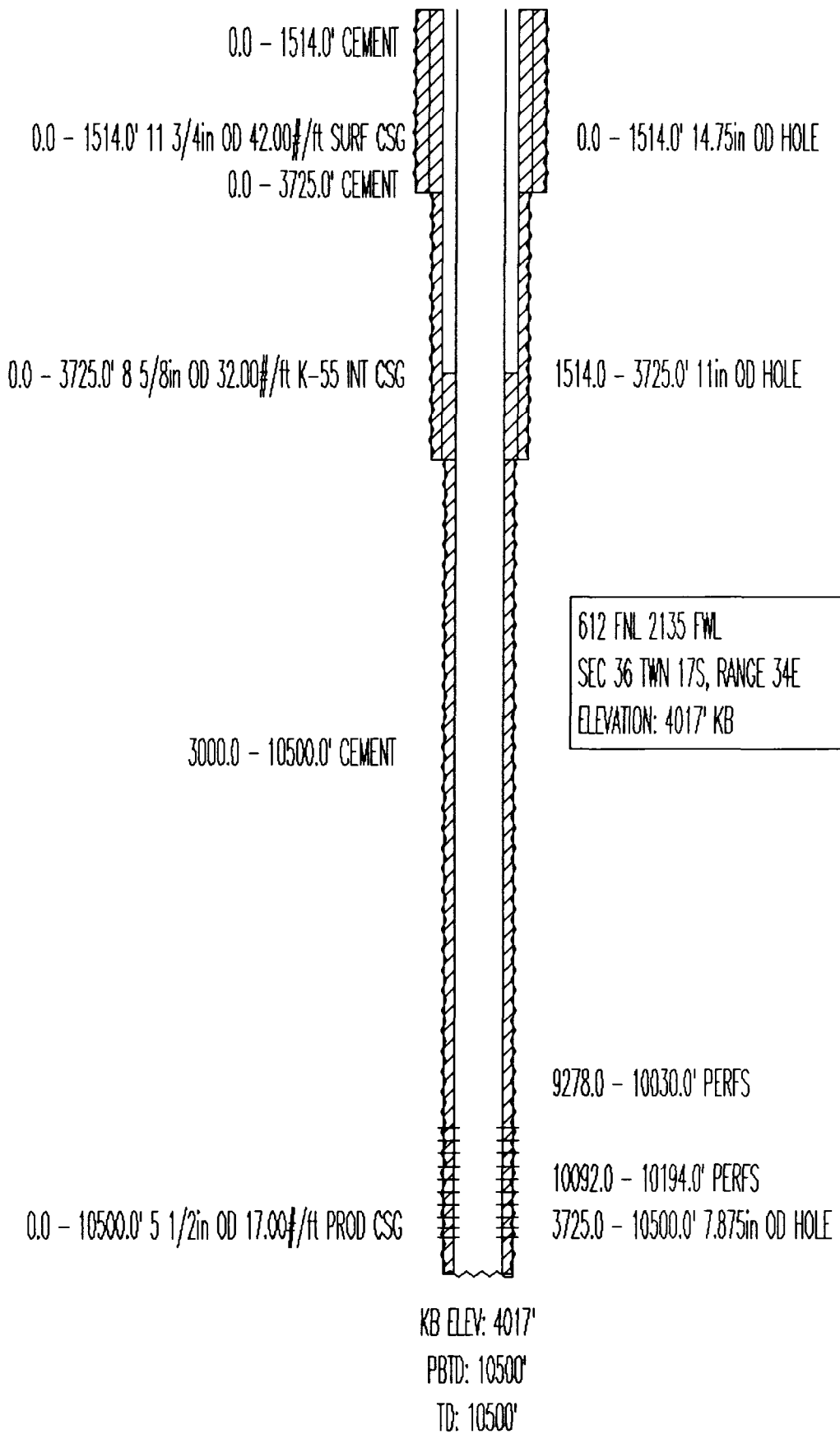


KB ELEV: 4008'

PBTD: 11300'

TD: 11500'

TEXACO E&P INC.
STATE "BA" NO. 15
API# 30-025-34945



APACHE
TEXACO-SHELL ST. COM NO. 1
API# 30 025 20948

0.0 - 390.0' 13 3/8" OD 65.00#/ft SURF CSG

0.0 - 390.0' 15" OD HOLE

0.0 - 390.0' CEMENT



0 - 385' 15" OD HOLE

500.0 - 4800.0' CEMENT

0.0 - 4800.0' 9 5/8" OD 36.00#/ft INT CSG

0.0 - 10200.0' CEMENT

390.0 - 4800.0' 12.25" OD HOLE

0.0 - 10199.0' 2.875" OD 6.40#/ft TBG

0.0 - 10198.0' 2.875" OD 6.40#/ft TBG

0.0 - 10196.0' 2.875" OD 6.40#/ft TBG

1833 FSL & 1845 FEL
SEC 25, T14N 17 S, RANGE 34 E
ELEVATION: 4008 DF
COMPLETION DATE: 05-29-64

COMPLETION INTERVALS: 9056 - 9199 (ABO)
9872 - 9953 (WCMP)
10032 - 10070 (U PEN)

8778.0 - 8788.0' CIBP

8418.0 - 8485.0' ABANDONED PERFS

8400.0 - 8405.0' CIBP

9056.0 - 9199.0' ABANDONED PERFS

9266.0 - 9953.0' PERFS

8793.0 - 8795.0' FISH

4800.0 - 10200.0' 8.75" OD HOLE

10140.0 - 10145.0' FISH

10152.0 - 10155.0' FISH

10032.0 - 10070.0' PERFS

10065.0 - 10068.0' PERFS

KB ELEV: 4008'

TD: 10200'

FORMERLY STATE H-35 NO. 7

TEXACO E&P INC

VGWU NO. 56

0.0 - 375.0' CEMENT PLUG 3002520329

0.0 - 375.0' 13 3/8" OD 48.00#/ft SURF CSG

0.0 - 375.0' 17.5" OD HOLE

0.0 - 1200.0' CEMENT

1200.0 - 1202.0' SQUEEZE PERFS

660 FWL & 1780 FEL
SEC 35, TWN 17 S, RANGE 34 E
ELEVATION: 4029 DF
COMPLETION DATE: 10-21-65

COMPLETION INTERVAL: 5982 - 5996 (GLRT)
TRT: 1500 GALS ACID (5982 - 5996)
IP: 96 BOPD, 0 MCFD, 40 BWPD (PUMPING)

3800.0 - 4950.0' CEMENT

0.0 - 4950.0' 9 5/8" OD 36.00#/ft INT CSG

375.0 - 4950.0' 12.25" OD HOLE

4900.0 - 5000.0' CEMENT

5780.0 - 6100.0' CEMENT

5882.0 - 6030.0' PERFS

6310.0 - 6315.0' CIBP

6100.0 - 6100.0' SQUEEZE PERFS

8557.0 - 8557.0' RESTR ID

8312.0 - 9167.0' ABANDONED PERFS

9156.0 - 9314.0' SQUEEZE PERFS

9620.0 - 10066.0' ABANDONED PERFS

9281.0 - 10030.0' ABANDONED PERFS

7000.0 - 12143.0' CEMENT

10146.0 - 10150.0' CIBP

10535.0 - 10545.0' CIBP

11026.0 - 11086.0' ABANDONED PERFS

11120.0 - 11130.0' CIBP

11331.0 - 11345.0' ABANDONED PERFS

12173.0 - 12180.0' RETAINER

12226.0 - 12250.0' ABANDONED PERFS

4900.0 - 12413.0' 7" OD 26.00#/ft LINER

4950.0 - 12413.0' 8.5" OD HOLE

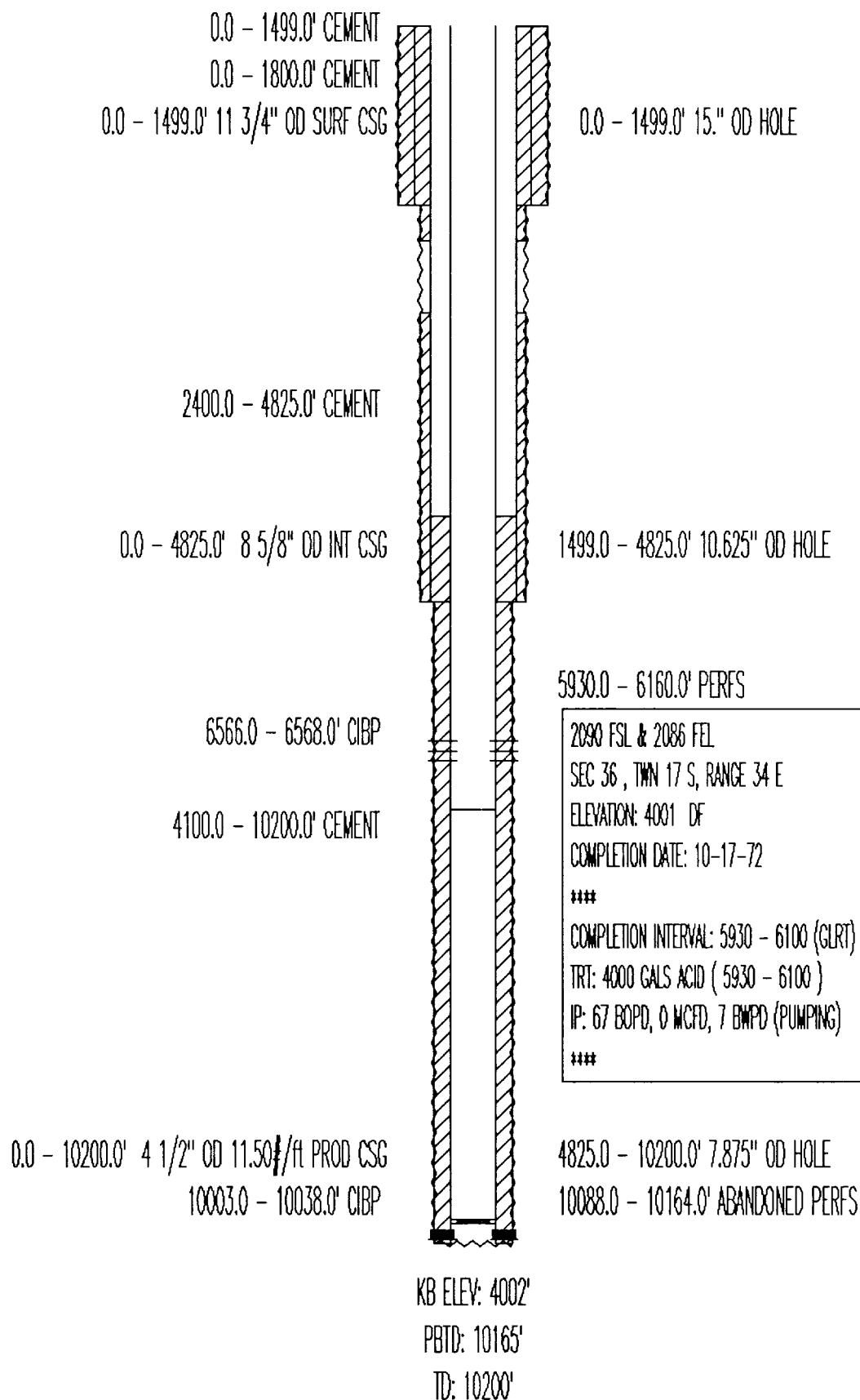
12252.0 - 12260.0' CIBP

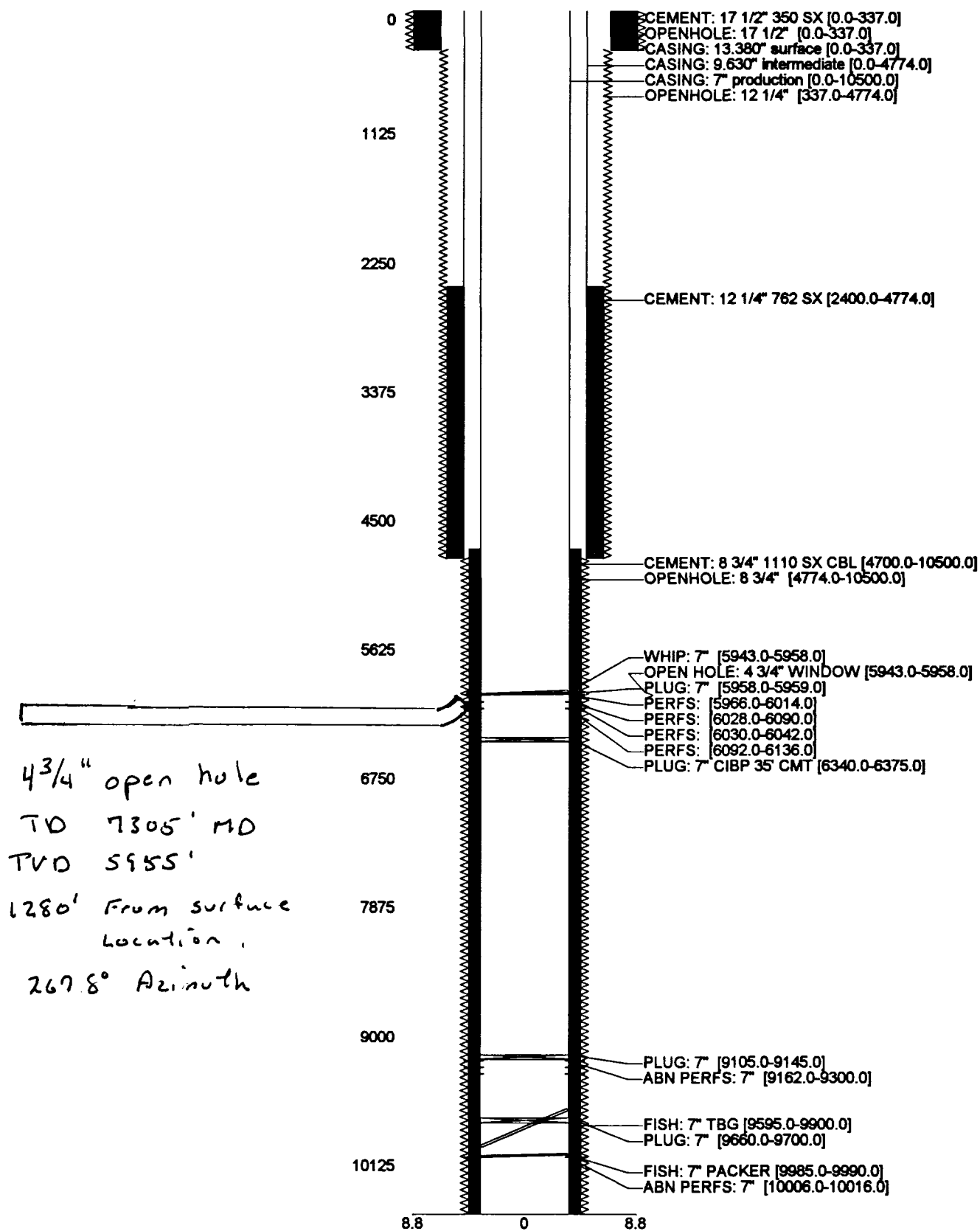
12255.0 - 12275.0' ABANDONED PERFS

TD: 12413'

FORMERLY NM O ST NCT-1 NO. 25

TEXACO INC
VGWU 87
API# 3002521637





Analytical Laboratory Report for:**Texaco****UNICHEM**

A Division of BJ Services Company

UNICHEM Representative: John Offutt

Production Water Analysis

Listed below please find water analysis report from: NQOBA, Heater Dump sampled on 09/29/2000

Lab Test No: 2000128834

Specific Gravity: 1.061

TDS: 91736

pH: 6.00

Cations:	mg/L	as:
Calcium	3276	(Ca ⁺⁺)
Magnesium	787	(Mg ⁺⁺)
Sodium	27252	(Na ⁺)
Iron	473.00	(Fe ⁺⁺)
Barium	0.28	(Ba ⁺⁺)
Strontium	97.00	(Sr ⁺⁺)
Manganese	5.55	(Mn ⁺⁺)
Anions:	mg/L	as:
Bicarbonate	1244	(HCO ₃ ⁻)
Silica	49.71	(SiO ₂)
Sulfate	1550	(SO ₄ ⁻²)
Chloride	57000	(Cl ⁻)
Gases:		
Carbon Dioxide		(CO ₂)
Hydrogen Sulfide	34	(H ₂ S)

Comments:

ATTACHMENT VII
TO
FORM C-108

600/2002 P.002/009

BJ SERVICES MIDLAND

#4866 P.002

HOBBS PROD SAFE & ENV

47

DownHole SAT (km)
DEPOSITION POTENTIAL INDICATORS

Texaco
NQOBA

Heater Dump

Report Date: 10-11-2000 Sampled: 09-29-2000
Sample #: 8834 at 0000

SATURATION LEVEL

Calcite (CaCO3)	2.88
Aragonite (CaCO3)	2.44
Witherite (BaCO3)	< 0.001
Strontianite (SrCO3)	0.118
Magnesite (MgCO3)	0.831
Anhydrite (CaSO4)	0.954
Gypsum (CaSO4*2H2O)	1.05
Barite (BaSO4)	0.957
Celestite (SrSO4)	0.322
Calcium phosphate	0.00
Hydroxyapatite	0.00
Fluorite (CaF2)	0.00
Silica (SiO2)	0.363
Brucite (Mg(OH)2)	< 0.001
Magnesium silicate	< 0.001
Iron hydroxide (Fe(OH)3)	< 0.001
Strengite (FePO4*2H2O)	0.00
Siderite (FeCO3)	588.11
Halite (NaCl)	0.0248
Thenardite (Na2SO4)	< 0.001
Iron sulfide (FeS)	141.68

MOMENTARY EXCESS (Lbs/1000 Barrels)

Calcite (CaCO3)	0.0738
Aragonite (CaCO3)	0.0667
Witherite (BaCO3)	-24.10
Strontianite (SrCO3)	-1.22
Magnesite (MgCO3)	-0.0193
Anhydrite (CaSO4)	-14.95
Gypsum (CaSO4*2H2O)	53.00
Barite (BaSO4)	-0.00744
Celestite (SrSO4)	-107.66
Calcium phosphate	>-0.001
Hydroxyapatite	-398.11
Fluorite (CaF2)	-5.56
Silica (SiO2)	-31.26
Brucite (Mg(OH)2)	-0.471
Magnesium silicate	-119.34
Iron hydroxide (Fe(OH)3)	< 0.001
Strengite (FePO4*2H2O)	>-0.001
Siderite (FeCO3)	0.131
Halite (NaCl)	-160458
Thenardite (Na2SO4)	-77544
Iron sulfide (FeS)	7.08

SIMPLE INDICES

Langelier	0.847
Ryznar	4.31
Puckorius	0.689
Larson-Skold Index	58.26
Stiff Davis Index	0.260
Odde-Tomson	-0.125

UNICHEM - Midland Analytical Laboratory
P.O. Box 61427, Midland, Texas 79711

Analytical Laboratory Report for:

Texaco

UNICHEM

A Division of BJ Services Company

UNICHEM Representative: John Offutt

Production Water Analysis

Listed below please find water analysis report from: VOWU, Charge Pump sampled on 09/29/2000

Lab Test No: 2000128835

Specific Gravity: 1.069

TDS: 104211

pH: 6.64

Cations:	mg/L	as:
Calcium	2287	(Ca ⁺⁺)
Magnesium	452	(Mg ⁺⁺)
Sodium	35685	(Na ⁺)
Iron	9.66	(Fe ⁺⁺)
Barium	0.09	(Ba ⁺⁺)
Strontium	40.00	(Sr ⁺⁺)
Manganese	0.32	(Mn ⁺⁺)
Anions:	mg/L	as:
Bicarbonate	708	(HCO ₃ ⁻)
Silica	29.23	(SiO ₂)
Sulfate	4000	(SO ₄ ⁻)
Chloride	61000	(Cl ⁻)
Gases:		
Carbon Dioxide	20	(CO ₂)
Hydrogen Sulfide	306	(H ₂ S)

Comments:

DownHole SAT(tm)
MIXED WATER DEPOSITION POTENTIAL INDICATORS

1) CVU IPD 25%

2) VGWU Chrg Pump 75%

Report Date: 10-11-2000

SATURATION LEVEL		MOMENTARY EXCESS (Lbs/1000 Barrels)	
Calcite (CaCO3)	0.00426	Calcite (CaCO3)	-0.0455
Aragonite (CaCO3)	0.00361	Aragonite (CaCO3)	-0.0538
Witherite (BaCO3)	< 0.001	Witherite (BaCO3)	-23.51
Strontianite (SrCO3)	< 0.001	Strontianite (SrCO3)	-2.80
Magnesite (MgCO3)	0.00105	Magnesite (MgCO3)	-0.156
Anhydrite (CaSO4)	2.21	Anhydrite (CaSO4)	434.27
Gypsum (CaSO4*2H2O)	2.37	Gypsum (CaSO4*2H2O)	583.33
Barite (BaSO4)	1.06	Barite (BaSO4)	0.00355
Celestite (SrSO4)	0.395	Celestite (SrSO4)	-43.64
Calcium phosphate	0.00	Calcium phosphate	>-0.001
Hydroxyapatite	0.00	Hydroxyapatite	-364.21
Fluorite (CaF2)	0.00	Fluorite (CaF2)	-5.76
Silica (SiO2)	0.00	Silica (SiO2)	-44.38
Brucite (Mg(OH)2)	< 0.001	Brucite (Mg(OH)2)	-0.528
Magnesium silicate	0.00	Magnesium silicate	-109.93
Iron hydroxide (Fe(OH)3)	< 0.001	Iron hydroxide (Fe(OH)3)	< 0.001
Strengite (FePO4*2H2O)	0.00	Strengite (FePO4*2H2O)	>-0.001
Siderite (FeCO3)	0.0176	Siderite (FeCO3)	-0.0126
Halite (NaCl)	0.0386	Halite (NaCl)	-139899
Thenardite (Na2SO4)	< 0.001	Thenardite (Na2SO4)	-74299
Iron sulfide (FeS)	66.35	Iron sulfide (FeS)	4.08

SIMPLE INDICES

Langelier	-14.00
Ryznar	14.00
Puckorius	-4.54
Larson-Skold Index	84174
Stiff Davis Index	-14.00
Oddo-Tomson	-14.00

OPERATING CONDITIONS

Temperature (°F)	100.00
Time (mins)	3.00

UNICHEM - Midland Analytical Laboratory
P.O. Box 61427, Midland, Texas 79711

DownHole SAT(tm)
MIXED WATER DEPOSITION POTENTIAL INDICATORS

1) NQOBA 25%.

2) VGWU Chrg Pump 75%.

Report Date: 10-11-2000

SATURATION LEVEL

Calcite (CaCO3)	0.0863
Aragonite (CaCO3)	0.0731
Witherite (BaCO3)	< 0.001
Strontianite (SrCO3)	0.00230
Magnesite (MgCO3)	0.0216
Anhydrite (CaSO4)	1.98
Gypsum (CaSO4*2H2O)	2.13
Barite (BaSO4)	1.13
Celestite (SrSO4)	0.435
Calcium phosphate	0.00
Hydroxyapatite	0.00
Fluorite (CaF2)	0.00
Silica (SiO2)	0.00
Brucite (Mg(OH)2)	< 0.001
Magnesium silicate	0.00
Iron hydroxide (Fe(OH)3)	< 0.001
Strengite (FePO4*2H2O)	0.00
Siderite (FeCO3)	5.32
Halite (NaCl)	0.0346
Thenardite (Na2SO4)	< 0.001
Iron sulfide (FeS)	1286

MOMENTARY EXCESS (Lbs/1000 Barrels)

Calcite (CaCO3)	-0.0387
Aragonite (CaCO3)	-0.0463
Witherite (BaCO3)	-23.35
Strontianite (SrCO3)	-2.19
Magnesite (MgCO3)	-0.139
Anhydrite (CaSO4)	333.49
Gypsum (CaSO4*2H2O)	460.64
Barite (BaSO4)	0.00961
Celestite (SrSO4)	-47.57
Calcium phosphate	>-0.001
Hydroxyapatite	-367.49
Fluorite (CaF2)	-5.56
Silica (SiO2)	-44.89
Brucite (Mg(OH)2)	-0.506
Magnesium silicate	-110.68
Iron hydroxide (Fe(OH)3)	< 0.001
Strengite (FePO4*2H2O)	>-0.001
Siderite (FeCO3)	0.00343
Halite (NaCl)	-142978
Thenardite (Na2SO4)	-74076
Iron sulfide (FeS)	65.15

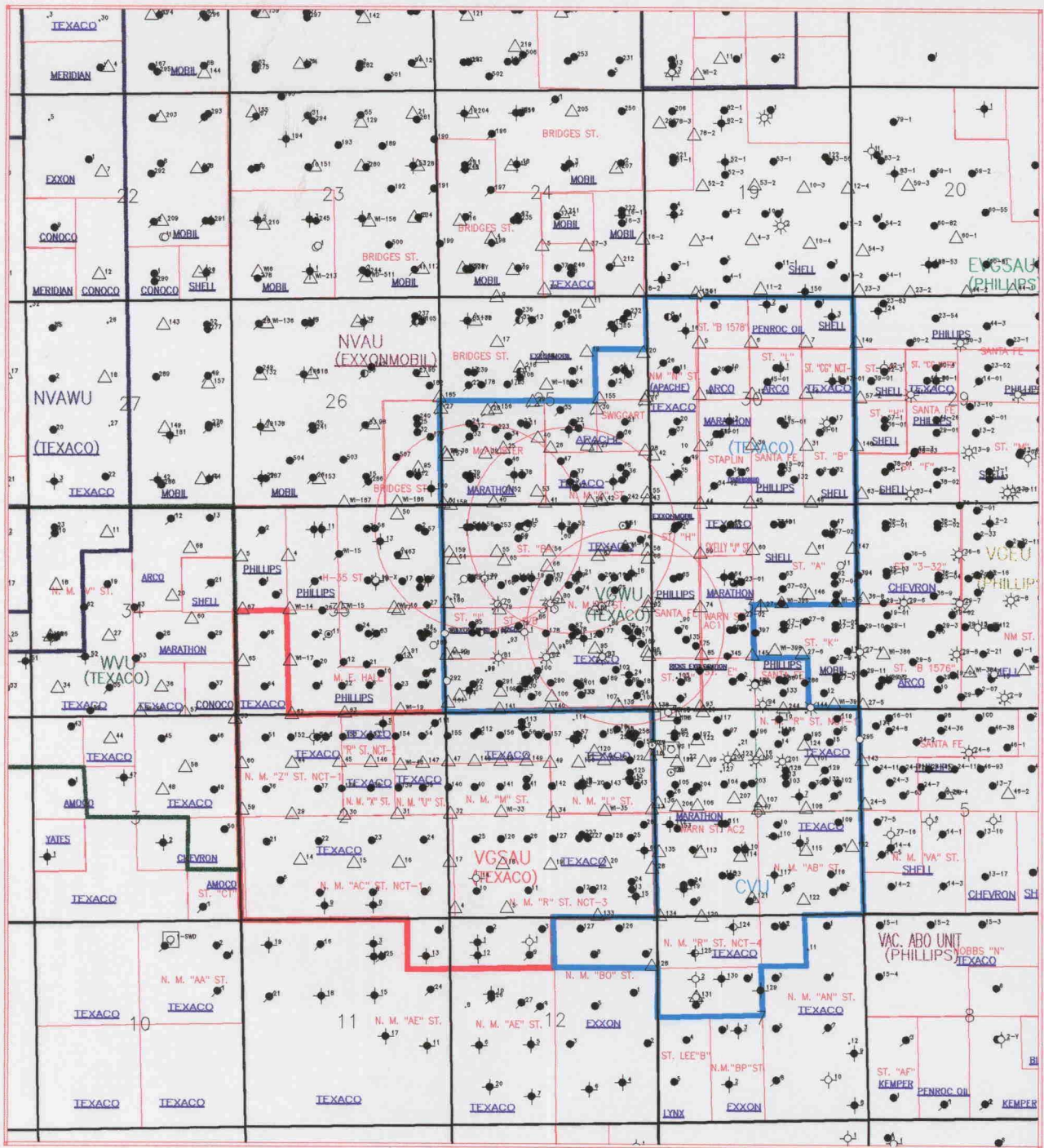
SIMPLE INDICES

Langelier	-14.00
Ryznar	14.00
Puckorius	-4.54
Larson-Skold Index	5003
Stiff Davis Index	-14.00
Odco-Tomson	-14.00

OPERATING CONDITIONS

Temperature (°F)	100.00
Time (mins)	3.00

UNICHEM - Midland Analytical Laboratory
P.O. Box 61427, Midland, Texas 79711



TEXACO EXPLORATION & PRODUCTION		
VACUUM FIELD		
T 17 & 18 S, R 34 & 35 E		
LEA COUNTY, NEW MEXICO		

LEGEND	
★	GAS
•	OIL
△	INJECTOR
◆	P & A
◇	DRY HOLE



Scale 1:48000.

1000. 0. 1000. 2000. 3000. 4000. 5000. feet

ATTACHMENT V
TO
FORM C-108

WELLS IN AREA OF REVIEW

API NUMBER	LEASE	WELL NO.	ID	STATUS	OPERATOR	COMP DATE	TWN	RANGE	SEC	FOOTAGE LOCATION
3002520228	H-35 STATE	9	10094	OIL	PHILLIPS PET.	12/8/63	17S	34E	35	1980 FN / 450 FE
3002520115	MCCALLISTER STATE	7	12125	PLA	MARATHON OIL	6/13/63	17S	34E	25	680 FS / 1780 FW
3002520116	MCCALLISTER STATE	5	12195	OIL	MARATHON OIL	5/1/63	17S	34E	25	680 FS / 580 FW
3002533954	MCCALLISTER STATE	12	11500	OIL	MARATHON OIL	7/22/87	17S	34E	25	1945 FSL / 850 FWL
3002502128	NORTH VACUUM ABO UNIT	95	13816	NJ	EXXONMOBIL	9/3/63	17S	34E	26	680 FS / 680 FE
3002520872	STATE CC UNIT	1	12080	OIL	EXXONMOBIL	8/12/64	17S	34E	36	1980 FS / 680 FW
3002533301	CENTRAL VACUUM UNIT	250	10553	OIL	TEXACO EXPL & PROD	12/18/64	17S	35E	31	510 FN / 535 FW
3002533362	NEW MEXICO L STATE	16	11500	OIL	TEXACO EXPL & PROD	6/2/66	18S	34E	1	810 FNL / 650 FEL
3002520362	NEW MEXICO O STATE NCT-1	11	12155	OIL	TEXACO EXPL & PROD	2/22/72	17S	34E	36	1980 FN / 1780 FW
3002520008	NEW MEXICO O STATE NCT-1	14	12154	OIL	TEXACO EXPL & PROD	7/26/63	17S	34E	36	1674 FS / 2086 FE
3002520125	NEW MEXICO O STATE NCT-1	17	12082	OIL	TEXACO EXPL & PROD	6/5/69	17S	34E	36	760 FS / 2080 FW
3002520274	NEW MEXICO O STATE NCT-1	18	11510	PLA	TEXACO EXPL & PROD	10/9/63	17S	34E	36	1880 FN / 580 FE
3002520946	NEW MEXICO O STATE NCT-1	24	10300	PLA	TEXACO EXPL & PROD	8/1/72	17S	34E	36	680 FS / 680 FE
3002533148	NEW MEXICO O STATE NCT-1	38	11500	OIL	TEXACO EXPL & PROD	1/1/66	17S	34E	36	710 FEL 2085 FSL
3002533569	NEW MEXICO O STATE NCT-1	39	10300	OIL	TEXACO EXPL & PROD	6/16/97	17S	34E	36	2075 FNL / 2110 FEL
3002520294	NEW MEXICO O STATE	4	12285	OIL	TEXACO EXPL & PROD	12/4/63	17S	34E	25	500 FS / 780 FE
3002533850	NEW MEXICO Q STATE	12	10350	OIL	TEXACO EXPL & PROD	5/15/97	17S	34E	25	400 FSL 1900 FEL
3002520057	STATE BA	6	12110	OIL	TEXACO EXPL & PROD	10/15/72	17S	34E	36	660 FN / 860 FW
3002520986	STATE BA	8	10494	OIL	TEXACO EXPL & PROD	8/14/64	17S	34E	36	786 FN / 2086 FE
3002533570	STATE BA	14	11500	OIL	TEXACO EXPL & PROD	12/31/66	17S	34E	36	880 FNL / 330 FEL
3002520948	TEXACO SHELL STATE COM	1	10200	OIL	APACHE	9/22/71	17S	34E	25	1833 FS / 1845 FE
3002520329	VGWU	56	12413	OIL	TEXACO EXPL & PROD	10/21/65	17S	34E	35	680 FN / 1780 FE
3002521637	VGWU	87	10200	OIL	TEXACO EXPL & PROD	10/17/72	17S	34E	36	2080 FS / 2086 FE
3002520270	VGWU	80	10500	OIL	TEXACO EXPL & PROD	1/30/64	18S	34E	31	2130 FS / 660 FW
3002534945	STATE BA	15	10500	OIL	TEXACO EXPL & PROD	7/17/00	17S	34E	36	612 FN / 2135 FW

**Offset Operator Report
State "BA" Well
Lea County, New Mexico
February 16, 2001**

T-17-S, R-34-E, NMPM

Section 25: NW/4 SE/4, as to depths from 8,300' to 10,300'

Apache Corporation
2000 Post Oak Blvd., Suite 100
Houston, TX 77056-4400

Section 25: NE/4 SE/4, as to depths from 8,300' to 10,300'

Ricks Exploration II, L.P.
3000 Oklahoma Tower
210 Park Avenue
Oklahoma City, OK 73102

Section 25: SW/4, as to depths from 8,300' to 10,300'

Marathon Oil Company
P. O. Box 552
Midland, TX 79702

Section 26: SE/4, as to depths from 8,300' to 10,300'

Mobil Producing Texas & New Mexico, Inc.
% Exxon Mobil Corporation
P. O. Box 4697
Houston, TX 77210-4697

Section 35: SE/4, as to depths from 8,300' to 10,300'

Phillips Petroleum Company
4001 Penbrook
Odessa, TX 79762

Section 35: NE/4, as to depths from 8,300' to 10,300'

Conoco Inc.
10 Desta Dr., Suite 100W
Midland, TX 79705

T-17-S, R-34-E, NMPM

Section 36: NE/4 SW/4, as to depths from 8,300' to 10,300'

Apache Corporation
2000 Post Oak Blvd., Suite 100
Houston, TX 77056-4400

Section 36: NW/4 SW/4, as to depths from 8,300' to 10,300'

Mobil Producing Texas & New Mexico, Inc.
% Exxon Mobil Corporation
P. O. Box 4697
Houston, TX 77210-4697

T-17-S, R-35-E, NMPM

Section 31: Lot 1 (NW/4 NW/4), as to depths from 8,300' to 10,300'

Mobil Producing Texas & New Mexico, Inc.
% Exxon Mobil Corporation
P. O. Box 4697
Houston, TX 77210-4697

Section 31: Lot 2 (SW/4 NW/4), as to depths from 8,300' to 10,300'

Phillips Petroleum Company
4001 Penbrook
Odessa, TX 79762

Section 31: Lot 3 (NW/4 SW/4), as to depths from 8,300' to 10,300'

Phillips Petroleum Company
4001 Penbrook
Odessa, TX 79762

Section 31: Lot 4 (SW/4 SW/4), as to depths from 8,300' to 10,300'

Ricks Exploration II, L.P.
3000 Oklahoma Tower
210 Park Avenue
Oklahoma City, OK 73102

T-18-S, R-35-E, NMPM

Section 6: NW/4, as to depths from 8,300' to 10,300'

Marathon Oil Company
P. O. Box 552
Midland, TX 79702

COMMENTS

The above ownership is based on Takeoffs prepared by J. David Williams dated 3/24/00.

The records of Caprock Title Company are posted through January 22, 2001.