

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE : X Secondary Recovery _____ Pressure Maintenance _____ Disposal _____ Storage _____
Application qualifies for administrative approval? _____ Yes _____ No
- II. OPERATOR: Chesapeake Operating, Inc.
- ADDRESS : 421 Marti Drive, Cleburne, Texas 76033
- CONTACT PARTY : Brenda Coffman PHONE : (817)556-5825
- III. WELL DATA: Complete the data required on the reverse side of this form for each well processed for injection.
Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? _____ Yes X 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:
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 geological data on the injection zone including appropriate lithologic detail, geological 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 source 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: Brenda Coffman TITLE: Sr. Regulatory Comp. Specialist

SIGNATURE: Brenda Losman DATE: 08/28/2007

E-MAIL ADDRESS: bcoffman@chkenergy.com

* If the information required under Sections VI, VII, X, and XI above has been previously submitted, please show the date and circumstance of the earlier submittal: See attached appendix

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Case No. 14001 & 14002
(Consolidated)...Exhibit No. 23
Submitted by:
CHESAPEAKE OPERATING, INC.
Hearing Date: November 1, 2007

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

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.
- (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 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, 1220 South St. Francis Dr., Santa Fe, NM 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

Chesapeake Operating, Inc.
Lea County, New Mexico

LIST OF WELLS FOR THIS APPLICATION

Quail Queen ~~SWD~~ 1
API # 30-025-25536
660' FSL & 1980' FEL
Unit O Section 11, T19S, R34E

TAED

Quail State 3Y
API # 30-025-26221
1841' FSL & 759' FEL
Unit I Section 11, T19S, R34E

State C-1
API # 30-025-23031
2080' FSL & 1980' FWL
Unit K Section 11, T19S, R34E

Wainoco State 3
API # 30-025-26707
990' FNL & 990' FEL
Unit A Section 11, T19S, R34E

Pennzoil State 1
API # 30-025-22841
1980' FNL & 1980' FEL
Unit G Section 11, T19S, R34E

State BG 2
API # 30-025-25493
1980' FNL & 1680' FEL
Unit G Section 14, T19S, R34E

REQUIREMENTS PER FORM C-108

ITEM I

The purpose of this application is secondary recovery.

ITEM II

Chesapeake Operating, Inc.
421 Marti Drive
Cleburne, TX 76033
Ms. Brenda Coffman

ITEM III

See Data Sheets attached.

ITEM IV

This is NOT an expansion of an existing project.

ITEM V

See attached maps that identify all wells and leases within two miles of all proposed injections wells with a one-half mile radius circle drawn around each injection well.

ITEM VI

See attached tabulation of wells of public record within the area of review which penetrate the proposed injection zone. Schematics are also attached for all plugged wells illustrating all plugging detail.

ITEM VII

1. Daily average injection rate is expected to be 1,000 BWPD. Maximum daily injection rate would be approximately 1,000 BWPD.
2. The system will be closed.
3. The proposed average injection pressure is expected to be 100 psig and the maximum pressure is expected to be 3000 psig.
4. The source of water to be injected is produced salt water from the nearby Xeric operated West Pearl Queen Unit, which produces from the Queen formation. Xeric assures us that they have 2,000 to 2,500 BWPD of produced water from the Queen formation which is more than enough capacity to provide to Chesapeake for injection purposes.
5. Injection is NOT for disposal.

ITEM VIII

The Quail;Queen pool, covering approximately 800 acres, is situated locally in western central Lea County, New Mexico and regionally near the Northwest Shelf shelf margin of the Delaware Basin. The field produces from the Queen Formation (some operators choose to call it Penrose) and consists of several thin north-northwests to south-southeast trending sandstones that pinch out to the east and west. The Queen Formation is Middle Guadalupian (Permian) in age directly overlain by the Seven rivers and underlain by the Grayburg, both of which produce on the Northwest Shelf.

In general the Queen Formation is composed of interfingering siliciclastics, carbonates, and evaporates (sandstone, dolomite, sandy and anhydritic dolomite, and shale). The Queen pay is described as a medium to fine-grained,

sub angular to subrounded friable sandstone with slight dolomite cement, silt, and occasional large round frosted quartz grains. Queen pay can get up to 10 feet thick with porosities ranging from 8-22%.

The fresh water for the area is from the Ogallala with depth from the surface at approximately 50 feet to 150 feet with the saturated thickness of the Ogallala formation on the High Plains ranging from 25 feet to 175 feet.

<u>TOP</u>	<u>Well Name</u>	<u>BOT</u>	<u>Top of Queen</u>	<u>Bottom of Queen</u>
5033	Quail Queen SWD 1	5394	4758'	5394' Deepen Perf
3020	Quail State 3Y 5400		4729'	5350' — SQZ Below 5394'
3020	State C-1 5400		4738'	5374' (appr well Deepen Perf NDE)
4980	Wainoco State 3 5340		4714'	5309' — SQZ Below 5309'
4980	Pennzoil State 1 5340		4720'	5356' (appr well Deepen? NDE)
5120	State BG 2 5510		4845	5490' — Deepen

ITEM IX

The only stimulation planned is a small volume of acid to clean up the perforated intervals. The Procedure to Convert the well to an injector is attached.

ITEM X

The logs were sent to the Oil conservation Division when the well was completed.

ITEM XI

Water analysis from the fresh water wells within one mile of the injection well is attached.

ITEM XII

The available geologic and engineering data have been examined and there is no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

ITEM #III –DATA SHEETS

ITEM#V – MAPS IDENTIFYING 2 MILE AND ½ MILE RADIUS
OF EACH INJECTION WELL
PRECEDED BY LIST OF OFFSET OPERATORS
AND SURFACE OWNERS

ITEM #VI – TABULATION
OF ALL WELLS IN AREA OF REVIEW
FOR EACH INJECTION WELL

ALL ITEMS ABOVE IN ORDER BY INJECTION WELL
FOLLOWED BY P&A SCHEMATICS

Quail Queen Offset Operators within 1/2 mile of Unit

Cimarex Energy Company of Colorado
P O Box 140907
Irving, TX 75014-0907

Daimont #1 Well
SW SW Sec. 1-19S-34E
Lea Co., NM

Pride Energy Company
P O Box 701950
Tulsa, OK 74170-1950

"Go State" #1 Well
NE NE Sec. 13-19S-34E
Lea Co., NM

Quail Queen Unit

Surface Ownership:

State of New Mexico
310 Old Santa Fe Trail
P O Box 1148
Santa Fe, NM 87504-1148
(505) 827-5760

Owns the entire surface inside the unit.

(see attached map)

Offset Producing Wells

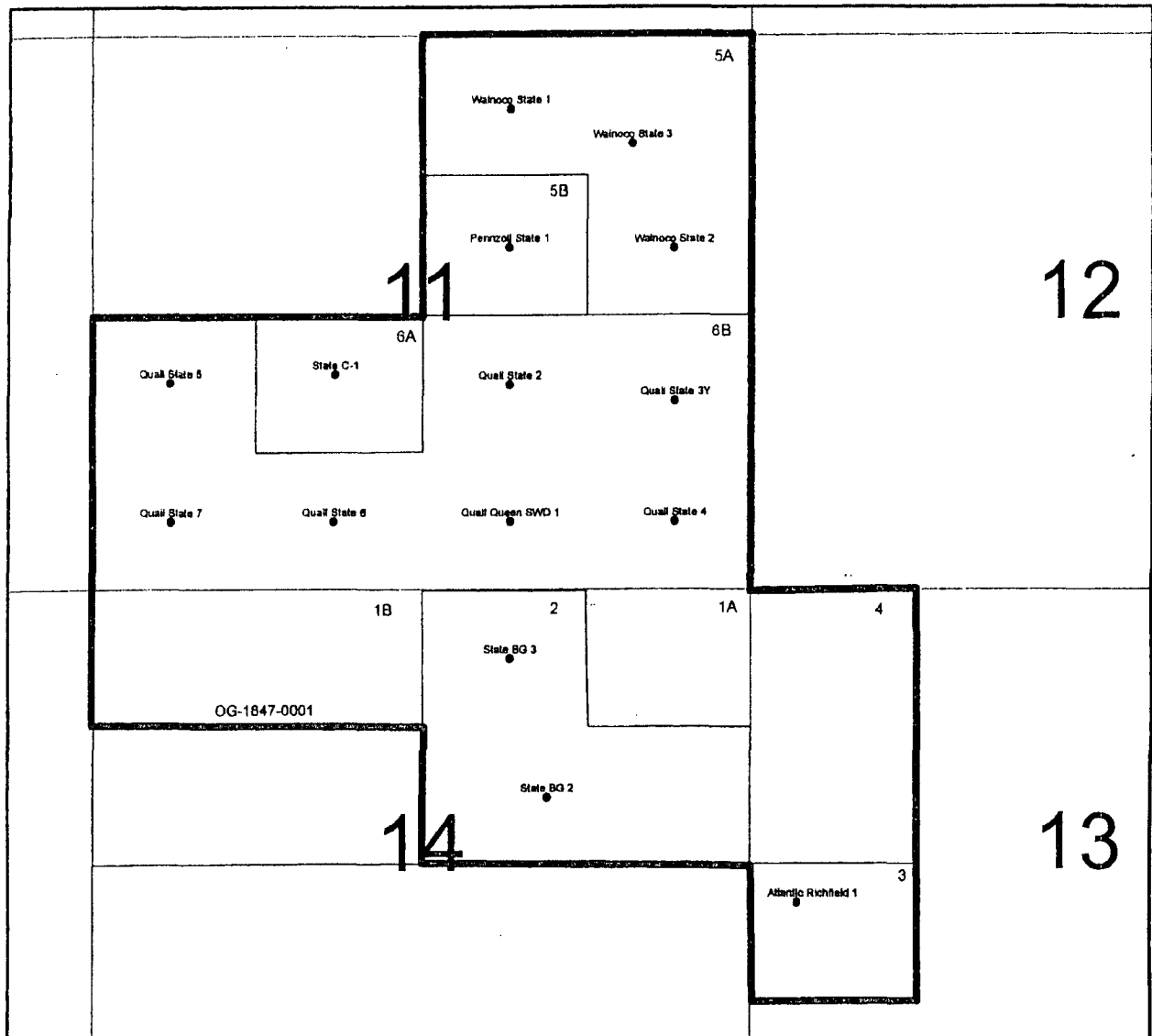
Within 1/2 mile of the Unit

Boundary (oil & gas)

Dalmont #1 well
Cimarex Energy Company
of Colorado

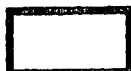
"Go State" #1 well
Pride Energy Company

EXHIBIT "A"



TOWNSHIP 19 SOUTH, RANGE 34 EAST
LEA COUNTY, NEW MEXICO

PROPOSED QUAIL QUEEN UNIT
CHESAPEAKE EXPLORATION, L.L.C.,



Proposed Waterflood Unit Boundary



Queen Wells



Federal Acreage = 0 acres



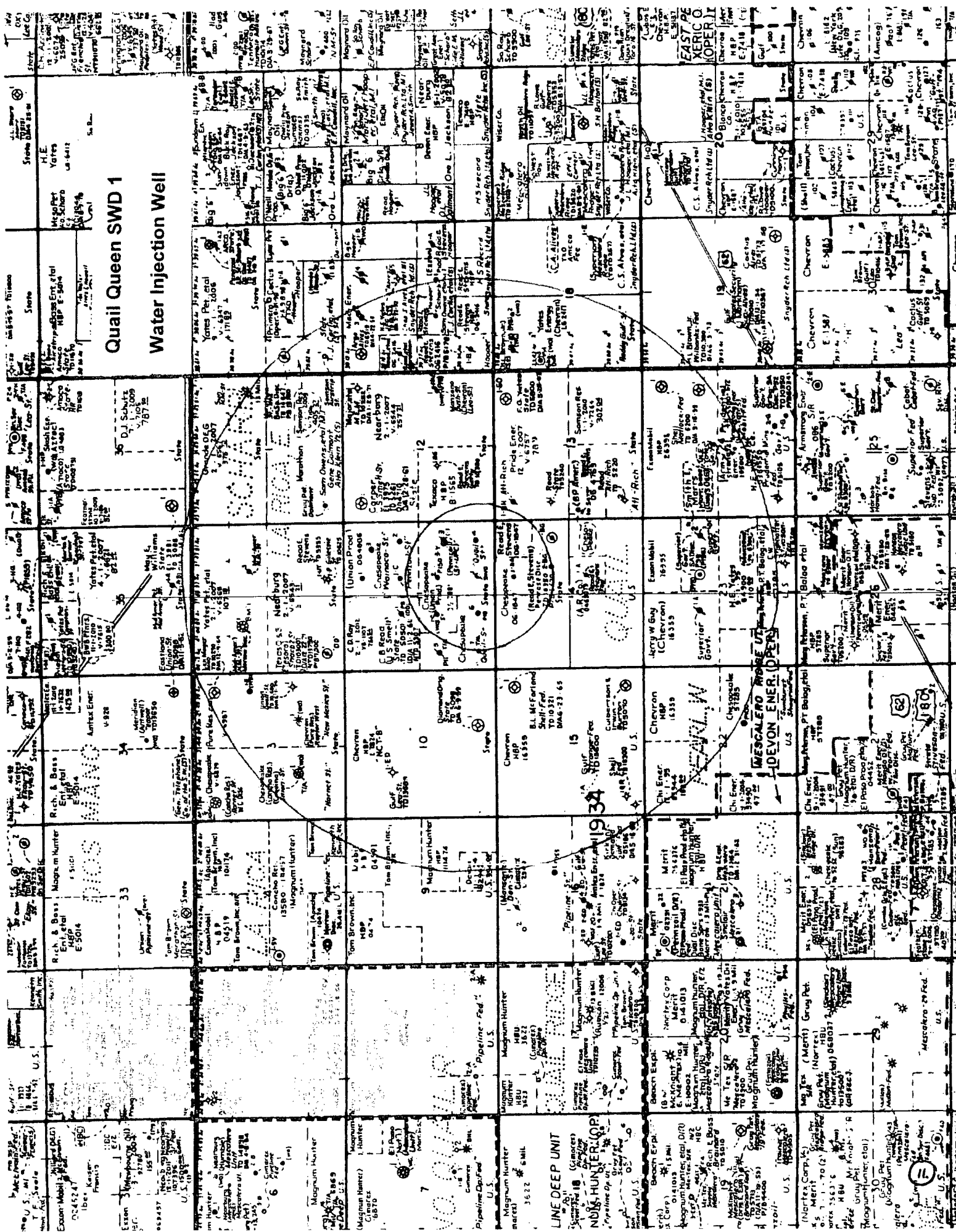
State Acreage = 840 acres



Fee Acreage = 0 acres

Total Acreage = 840 acres

Water Injection Well



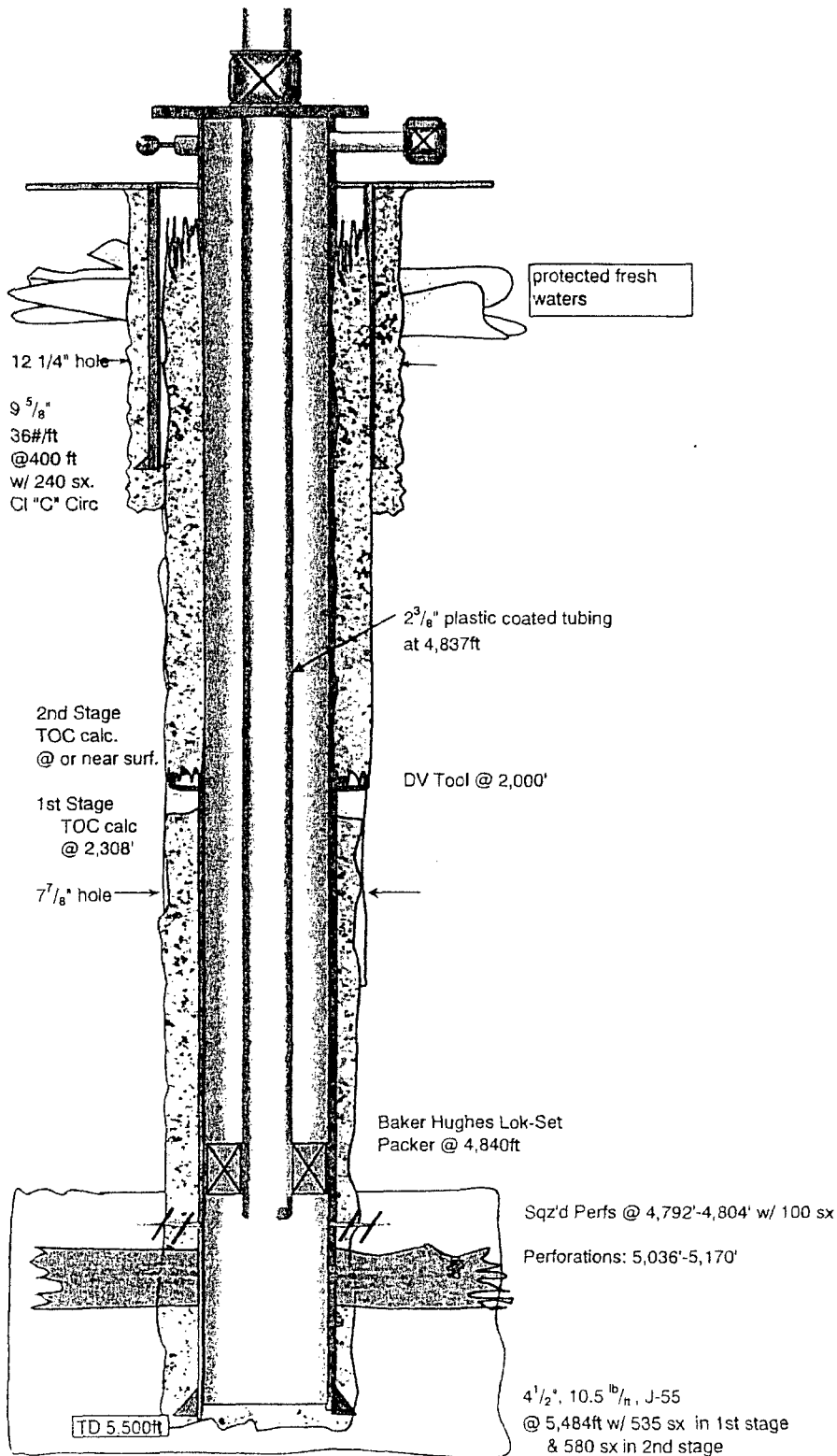
CHESAPEAKE OPERATING, INC.
421 MARTI DRIVE
CLEBURNE, TEXAS 76033
(817) 556-5825 EXT. 2805

QUAIL QUEEN SWD 1
PROPOSED WIW

APPLICATION FOR AUTHORIZATION TO INJECT
LIST OF WELLS WITHIN ½ MILE RADIUS THAT PENETRATE
INJECTION ZONE PER FORM C-108 ITEM #VI

WELL NAME	TYPE	DATE DRLD	LOCATION	DEPTH
State C #1 API# 30-025-23031	Oil	03/29/1969	Sec. 11, T19S, R34E K, 2080' FSL & 1980' FWL	5033'
Quail State #6 API# 30-025-26853	Oil	06/17/1980	Sec. 11, T19S, R34E N 660' FSL & 1980' FWL	5150'
Quail Queen #1 API# 30-025-25536	SWD	06/02/1977	Sec. 11, T19S, R34E O 660' FSL & 1980' FEL	5500'
Quail State #2 API# 30-025-25868	Oil	03/03/1978	Sec. 11, T19S, R34E J 1980' FSL & 1980' FEL	5415'
Quail State #3Y API# 30-025-26221	Oil	02/14/1979	Sec. 11, T19S, R34E I 1841 FSL & 759 FEL	5600'
Quail State #4 API# 30-025-26473	Oil	09/22/1979	Sec. 11, T19S, R34E P 660' FSL & 660' FEL	5080'
Quail State #3 API# 30-025-22435	P&A P&A	01/31/1979 01/25/1979	Sec. 11, T19S, R34E I 1830' FSL & 660' FEL	10500'

Quail State SWD #1 Proposed Quail Queen Unit



INJECTION WELL DATA SHEET

OPERATOR: Chesapeake Operating, Inc.WELL NAME & NUMBER: 660' FSL & 1980' FEL Quail Queen #1 SWDWELL LOCATION: 660' FSL & 1980' FEL 0 11 19S 34E
FOOTAGE LOCATION UNIT LETTER SECTION TOWNSHIP RANGEWELLBORE SCHEMATICWELL CONSTRUCTION DATASurface CasingHole Size: 12 1/4 Casing Size: 9 5/8
Cemented with: 240 sx. or ft³Top of Cement: Surface Method Determined: CirculatedIntermediate CasingHole Size: Casing Size:
Cemented with: sx. or ft³

Top of Cement: Method Determined:

Production CasingHole Size: 7 7/8 Casing Size: 4 1/2
Cemented with: 1115 C.I. C. sx. or ft³Top of Cement: 2308' below DV tool @ 2000' Method Determined: Calculated
200' from Surface - CalculatedTotal Depth: 55005033 Injection Interval 5394
5036 feet to 5170

(Peforated or Open Hole; indicated which)

INJECTION WELL DATA SHEET

Tubing Size: 2 3/8 Lining Material: Plastic coated
 Type of Packer: Baker Hughes Lok-set
 Packer Setting Depth: 4840'
 Other Type of Tubing/Casing Seal (if applicable): None

Additional Data

1. Is This a new well drilled for injection? _____ Yes ☒ No ☐

If no, for what purpose was the well originally drilled? Oil - Converted to a SWD

2. Name of the Injected Formation: Queen

3. Name of Field or Pool (if applicable): Quail; Queen

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. 4792 - 4804 squeezed with 100sx

Class C to 3000 psi.

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injected zone in this area: None

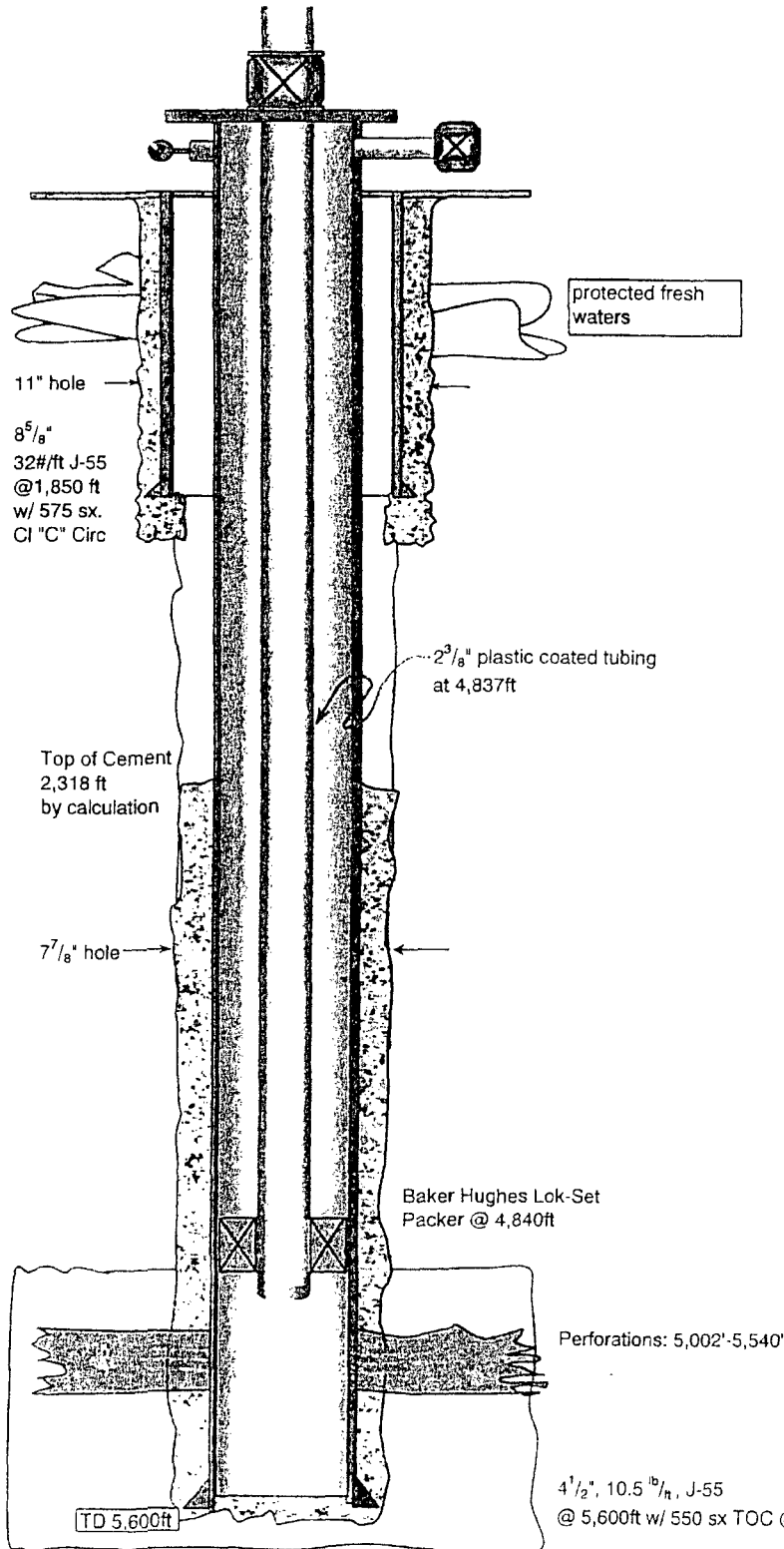
CHESAPEAKE OPERATING, INC.
421 MARTI DRIVE
CLEBURNE, TEXAS 76033
(817) 556-5825 EXT. 2805

QUAIL STATE #3Y
PROPOSED WIW

APPLICATION FOR AUTHORIZATION TO INJECT
LIST OF WELLS WITHIN ½ MILE RADIUS THAT PENETRATE
INJECTION ZONE PER FORM C-108 ITEM #VI

<u>WELL NAME</u>	<u>TYPE</u>	<u>DATE DRLD</u>	<u>LOCATION</u>	<u>DEPTH</u>
Quail State #2 API# 30-025-25868	Oil	03/03/1978	Sec. 11, T19S, R34E J 1980' FSL & 1980' FEL	5415'
Quail State #3Y API# 30-025-26221	P&A	02/14/1979	Sec. 11, T19S, R34E I 1841 FSL & 759 FEL	5600'
Quail State #3 API# 30-025-22435	P&A	01/25/1979	Sec. 11, T19S, R34E I 1830' FSL & 660' FEL	10500'
State C #1 API# 30-025-23031	Oil	03/29/1969	Sec. 11, T19S, R34E K 2080' FSL & 1980' FWL	5168'
Wainoco State #2 API# 30-025-26348	Oil	06/10/1979	Sec. 11, T19S, R34E H 1980' FNL & 660' FEL	6200'
Wainoco State #3 API# 30-025-26707	Oil	06/10/1979	Sec. 11, T19S, R34E A 990' FNL & 990' FEL	6200'
Quail State #4 API#30-025-26473	Oil	09/22/1979	Sec. 11, T19S, R34E P 660' FSL & 660' FEL	6200'
Quail Queen #1 API#30-025-25536	SWD	06/02/1977	Sec. 11, T19S, R34E O 660' FSL & 1980' FEL	5500'
Pennzoil State #1 API# 30-025-25536	Oil	11/22/1968	Sec. 11, T19S, R34E G 1980' FNL & 1980' FEL	5300'
Wainoco State #3 API# 30-025-26707	Oil	06/10/1979	Sec. 11, T19S, R34E A 990' FNL & 990' FEL	6200'

Quail State #3Y Proposed Quail Queen Unit



5020
5400

INJECTION WELL DATA SHEET

OPERATOR: Chesapeake Operating, Inc.WELL NAME & NUMBER: 1841' FSL & 759' FELWELL LOCATION: 1 UNIT LETTER 11 SECTION 19S TOWNSHIP 34E RANGEWELLBORE SCHEMATICWELL CONSTRUCTION DATASurface CasingHole Size: 11" Casing Size: 8 5/8"Cemented with: 575sx Cl. C sx. or ft³Top of Cement: Surface Method Determined: CirculatedIntermediate CasingHole Size: Casing Size: Cemented with: sx. or ft³Top of Cement: Method Determined: Production CasingHole Size: 7 7/8" Casing Size: 4 1/2"Cemented with: 550 sx Cl. C sx. or ft³Top of Cement: 2318 Method Determined: CalculatedTotal Depth: 5600

5020 Injection Interval 5400
5002 feet to 5540

(Peforated or Open Hole; indicated which)

INJECTION WELL DATA SHEET

Tubing Size: 2 3/8" Lining Material: Plastic coated

Type of Packer: Baker Hughes Lok-set

Packer Setting Depth: 4840

Other Type of Tubing/Casing Seal (if applicable): NA

Additional Data

1. Is This a new well drilled for injection? Yes X No

If no, for what purpose was the well originally drilled? Oil

2. Name of the Injected Formation: Queen

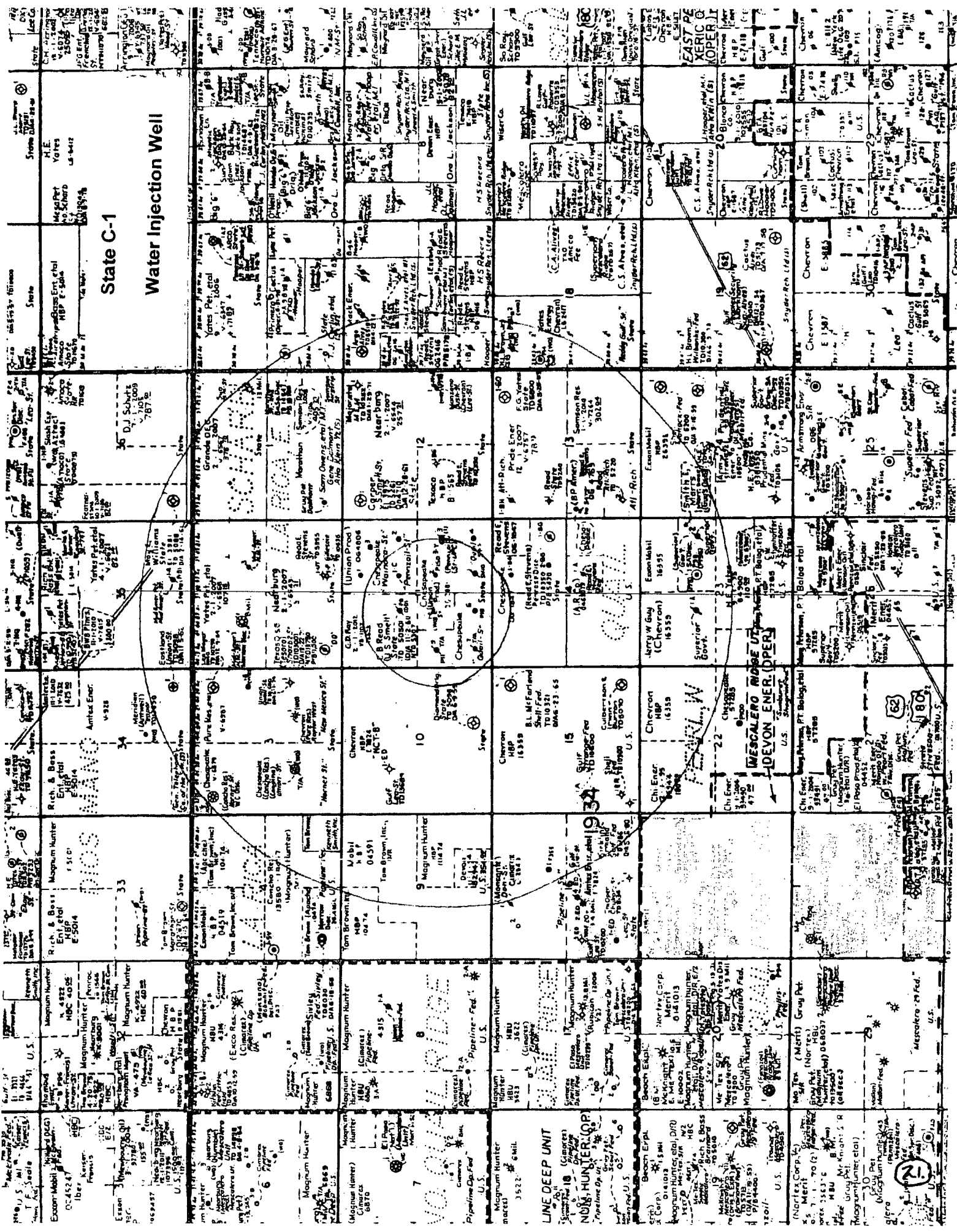
3. Name of Field or Pool (if applicable): Quail:Queen

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. None

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injected zone in this area: None

State C-1

Water Injection Well



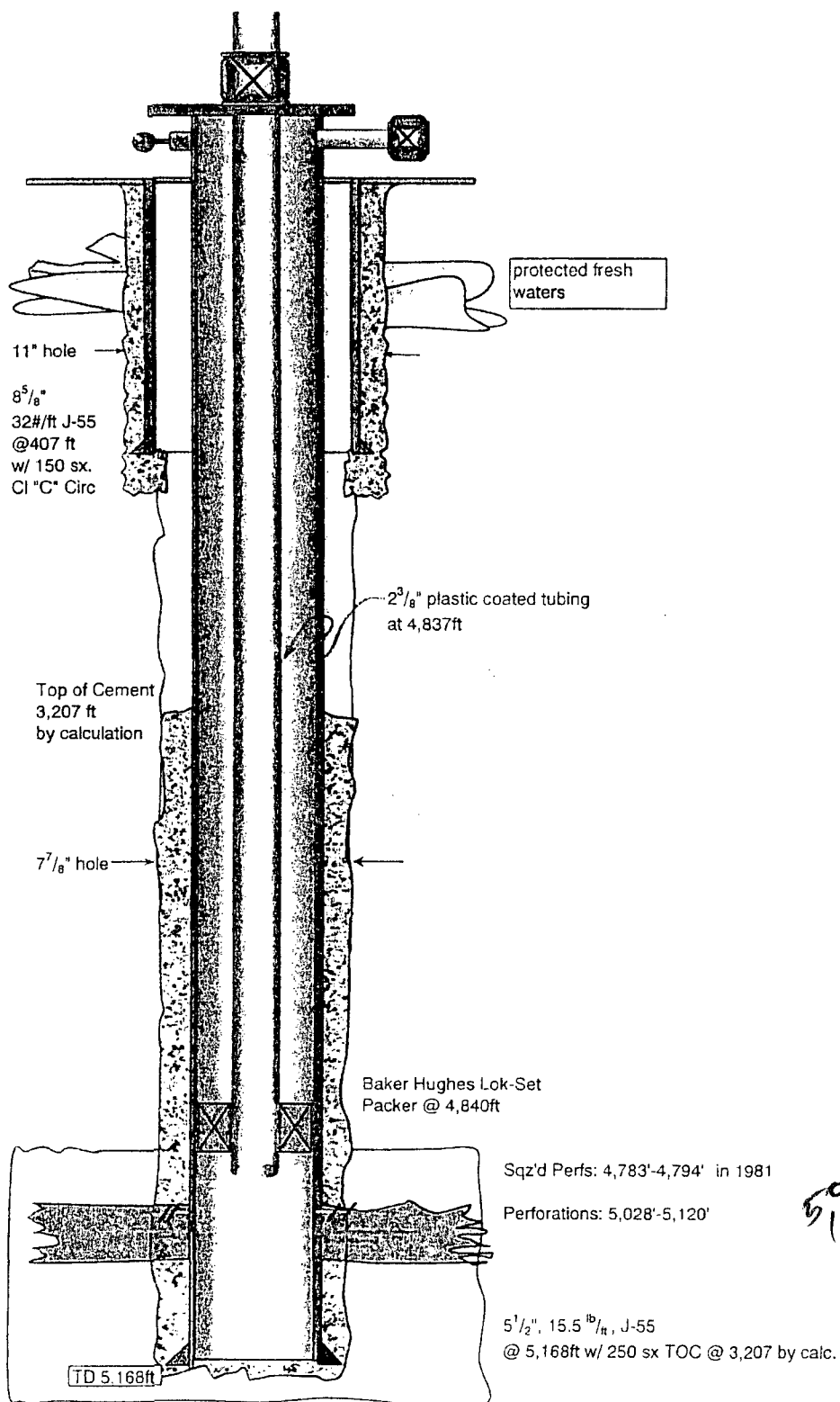
CHESAPEAKE OPERATING, INC.
421 MARTI DRIVE
CLEBURNE, TEXAS 76033
(817) 556-5825

STATE C-1
PROPOSED WIW

APPLICATION FOR AUTHORIZATION TO INJECT
LIST OF WELLS WITHIN ½ MILE RADIUS THAT PENETRATE
INJECTION ZONE PER FORM C-108 ITEM # VI

WELL NAME	TYPE	DATE DRLD	LOCATION	DEPTH
Quail State #7 API# 30-025-27096	Oil	2/17/1981	Sec. 11, T19S, R34E M660' FSL & 660' FWL	5062
Quail State #6 API# 30-025-26853	Oil	6/17/1980	Sec. 11, T19S, R34E N660' FSL & 1980' FWL	6200
Raptor 11 State #1 API# 30-025-36902	Oil	11/13/2004	Sec. 11, T19S, R34E F1830' FNL & 1980' FWL	10479
Quail State #5 API# 30-025-26783	Oil	4/30/1980	Sec. 11, T19S, R34E L 1980' FSL & 660' FWL	6200
Quail State #3Y API# 30-025-26221	Oil	2/14/1979	Sec. 11, T19S, R34E I 1841' FSL & 759' FEL	5600
Quail State #2 API# 30-025-25868	Oil	3/03/1978	Sec. 11, T19S, R34E J 1980' FSL & 1980' FEL	5082
Pennzoil State #1 API# 30-025-22841	Oil	11/22/1968	Sec. 11, T19S, R34E G 1980' FNL & 1980' FEL	5300
Quail Queen #1 API #30-025-25536	SWD	6/02/1977	Sec. 11, T19S, R34E O 660' FSL & 1980' FEL	5500

State "C" #1 Proposed Quail Queen Unit



INJECTION WELL DATA SHEET

OPERATOR: Chesapeake Operating, Inc.WELL NAME & NUMBER: 2080' FSL & 1980' FWL State C #1

WELL LOCATION:	2080' FSL & 1980' FWL	K	11	19S	34E
FOOTAGE LOCATION		UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLSBORE SCHEMATICWELL CONSTRUCTION DATASurface CasingHole Size: 11" Casing Size: 8 5/8"Cemented with: 150sx Class C sx. or ft³Top of Cement: Surface Method Determined: CirculatedIntermediate CasingHole Size: Casing Size: Cemented with: sx. or ³ ftTop of Cement: Method Determined: Production CasingHole Size: 7 7/8" Casing Size: 5 1/2"Cemented with: 250sx Class C sx. or ³ ftTop of Cement: 3207 Method Determined: CalculatedTotal Depth: 5168

5028 - 5400 -

5028 feet to 5120

24.

(Peforated or Open Hole; indicated which)

INJECTION WELL DATA SHEET

Tubing Size: 2 3/8" Lining Material: Plastic Coated

Type of Packer: Baker Hughes Lok-Set

Packer Setting Depth: 4840

Other Type of Tubing/Casing Seal (if applicable): _____

Additional Data

1. Is This a new well drilled for injection? _____ Yes _____ X No

If no, for what purpose was the well originally drilled? Oil

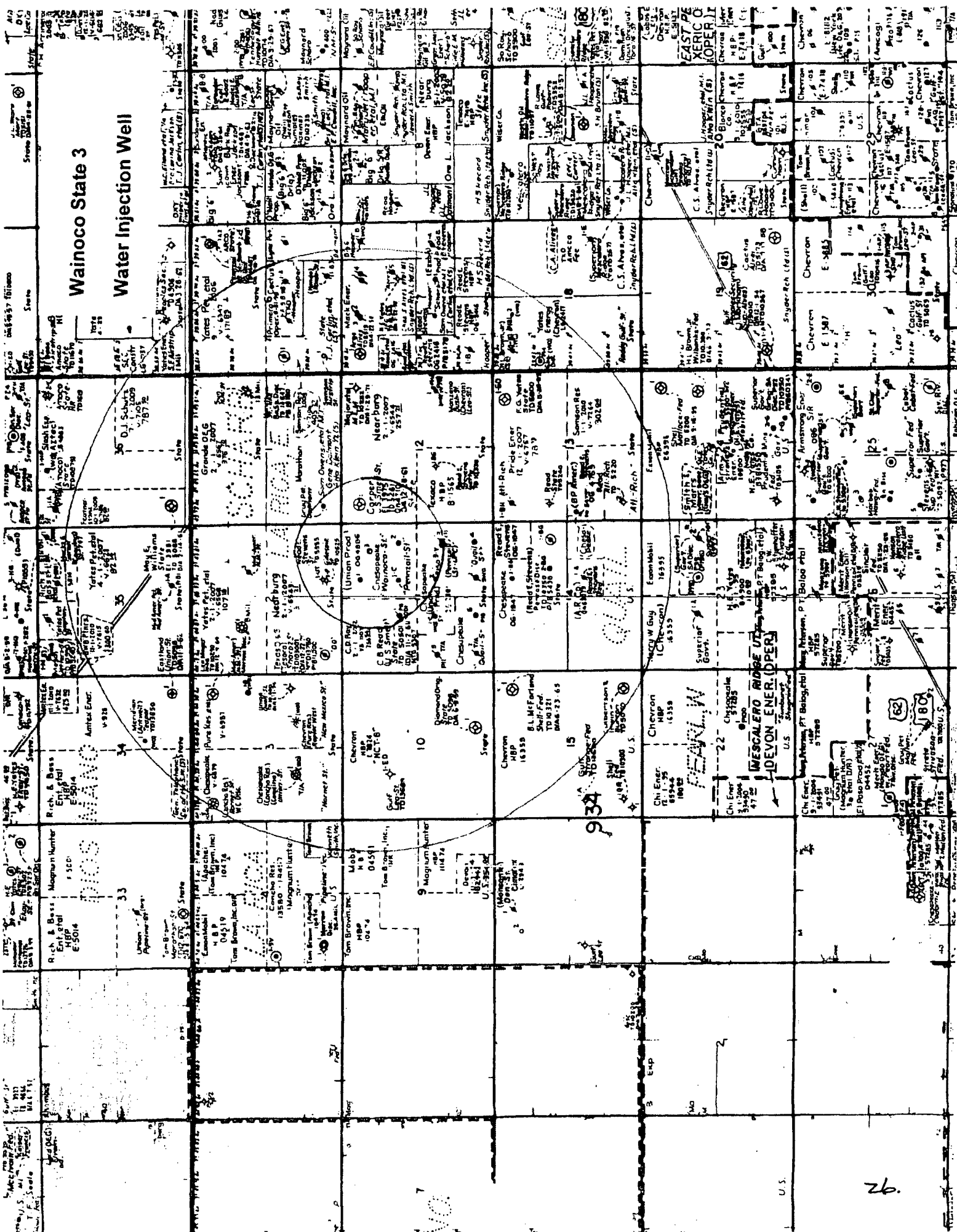
2. Name of the Injected Formation: Queen

3. Name of Field or Pool (if applicable): Quail, Queen

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. 4783 - 4794

Squeezed with 85 sx Class C to 2200 psi. Reverse out 29sx

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injected zone in this area: None



Wainoco State 3
Water Injection Well

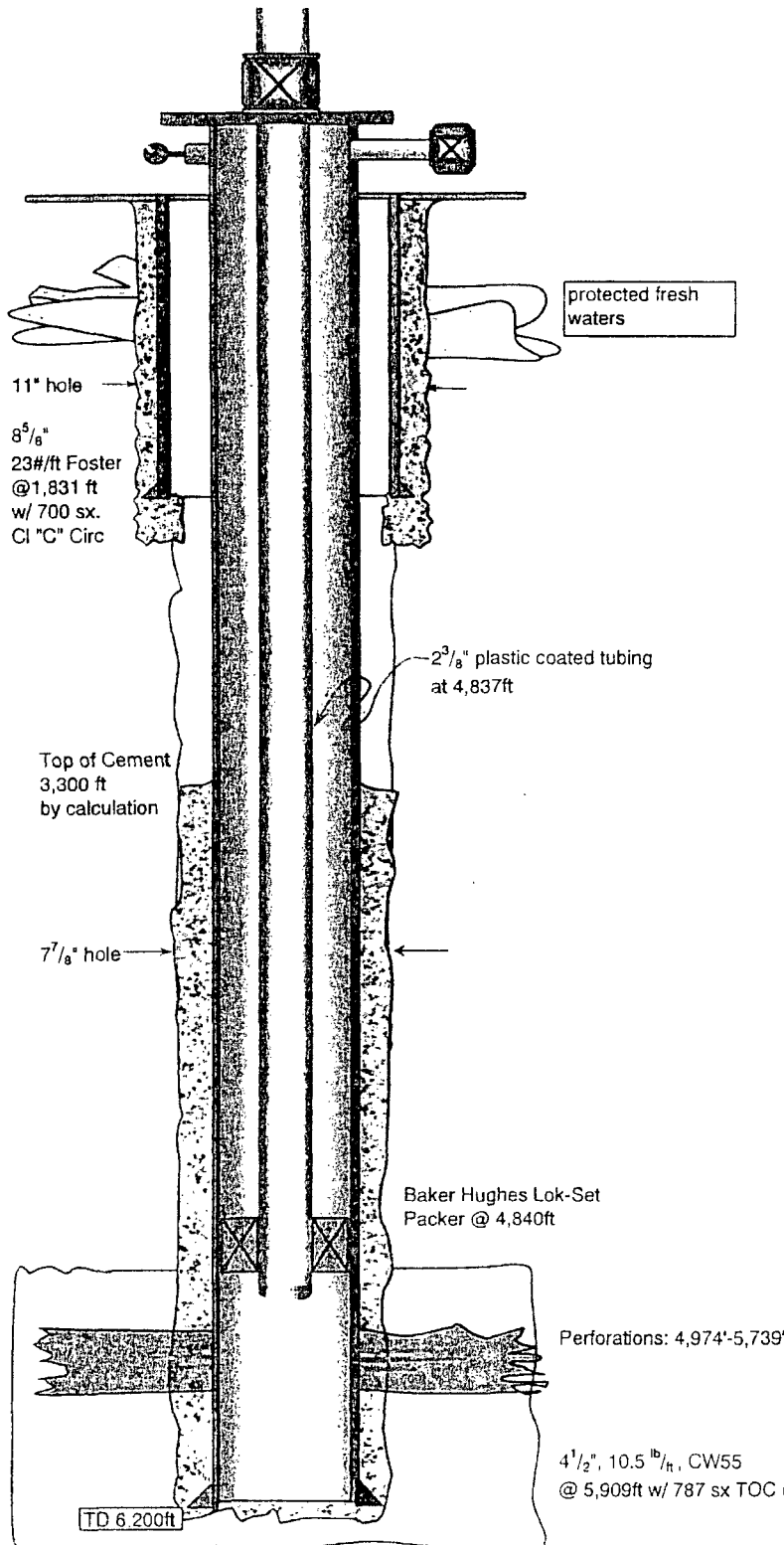
CHESAPEAKE OPERATING, INC.
421 MARTI DRIVE
CLEBURNE, TEXAS 76033
(817) 556-5825 EXT. 2805

WAINOCO STATE #3
PROPOSED WIW

APPLICATION FOR AUTHORIZATION TO INJECT
LIST OF WELLS WITHIN ½ MILE RADIUS THAT PENETRATE
INJECTION ZONE PER FORM C-108 ITEM #VI

<u>WELL NAME</u>	<u>TYPE</u>	<u>DATE DRLD</u>	<u>LOCATION</u>	<u>DEPTH</u>
Quail State #2 API# 30-025-25868	Oil	03/03/1978	Sec. 11, T19S, R34E J 1980' FSL & 1980' FEL	5415'
Quail State #3Y API# 30-025-26221	P&A	02/14/1979	Sec. 11, T19S, R34E I 1841 FSL & 759 FEL	5600'
Quail State #3 API# 30-025-22435	P&A	01/31/1979	Sec. 11, T19S, R34E I 1830' FSL & 660' FEL	10500' OK
Wainoco State #2 API# 30-025-26348	Oil	06/10/1979	Sec. 11, T19S, R34E H 1980' FNL & 660' FEL	6200'
Quail Queen #1 API#30-025-25536	SWD	06/02/1977	Sec. 11, T19S, R34E O 660' FSL & 1980' FEL	5500'
Pennzoil State #1 API# 30-025-25536	Oil	11/22/1968	Sec. 11, T19S, R34E G 1980' FNL & 1980' FEL	5300'
State #1 API# 30-025-02383	P&A	03/21/1969	Sec. 11, T19S, R34E F 1980' FNL & 1980' FWL	5307'
U. S. Smelting St. API#30-025-02384	P&A	12/08/1961	Sec. 12, T19S, R34E D 660' FNL & 660' FWL	5261'
State P #1 API# 30-025-32435	P&A	03/30/1994	Sec. 02, T19S, R34E O 550' FSL & 1980' FEL	10625' OK
State UT API# 30-025-26049	P&A	08/03/1978	Sec. 2, T19S, R34E O 660' FSL & 1980' FEL	5355' OK
Dalmont #1 API# 30-025-22365	Oil	12/13/1967	Sec. 1, T19S, R34E M 660' FSL & 660' FWL	10500' B.H. chad

Wainoco State #3 Proposed Quail Queen Unit



4980
5340

INJECTION WELL DATA SHEET

OPERATOR: Chesapeake Operating, Inc.WELL NAME & NUMBER: 990' FNL & 990' FELWELL LOCATION: 990' FNL & 990' FEL

FOOTAGE LOCATION

A

UNIT LETTER

11

SECTION

19S

TOWNSHIP

34E

RANGE

WELLBORE SCHEMATICWELL CONSTRUCTION DATASurface CasingHole Size: 11"Casing Size: 8 5/8"Cemented with: 700sx Cl. C sx. or ft³Top of Cement: SurfaceMethod Determined: CirculatedIntermediate Casing

Hole Size: _____

Casing Size: _____

Cemented with: _____ sx. or _____ ft³

Top of Cement: _____

Method Determined: _____

Production CasingHole Size: 7 7/8"Casing Size: 4 1/2"Cemented with: 787sx Cl. C sx. or _____ ft³Top of Cement: 3300Method Determined: CalculatedTotal Depth: 6200'5940Injection Interval5348'4974feet to 5339

(Peforated or Open Hole; indicated which)

INJECTION WELL DATA SHEET

Tubing Size: 2 3/8" Lining Material: Plastic coated

Type of Packer: Baker Hughes LOK Set

Packer Setting Depth: 4840

Other Type of Tubing/Casing Seal (if applicable): NA

Additional Data

1. Is This a new well drilled for injection? Yes ☒ No ☐

If no, for what purpose was the well originally drilled? Oil

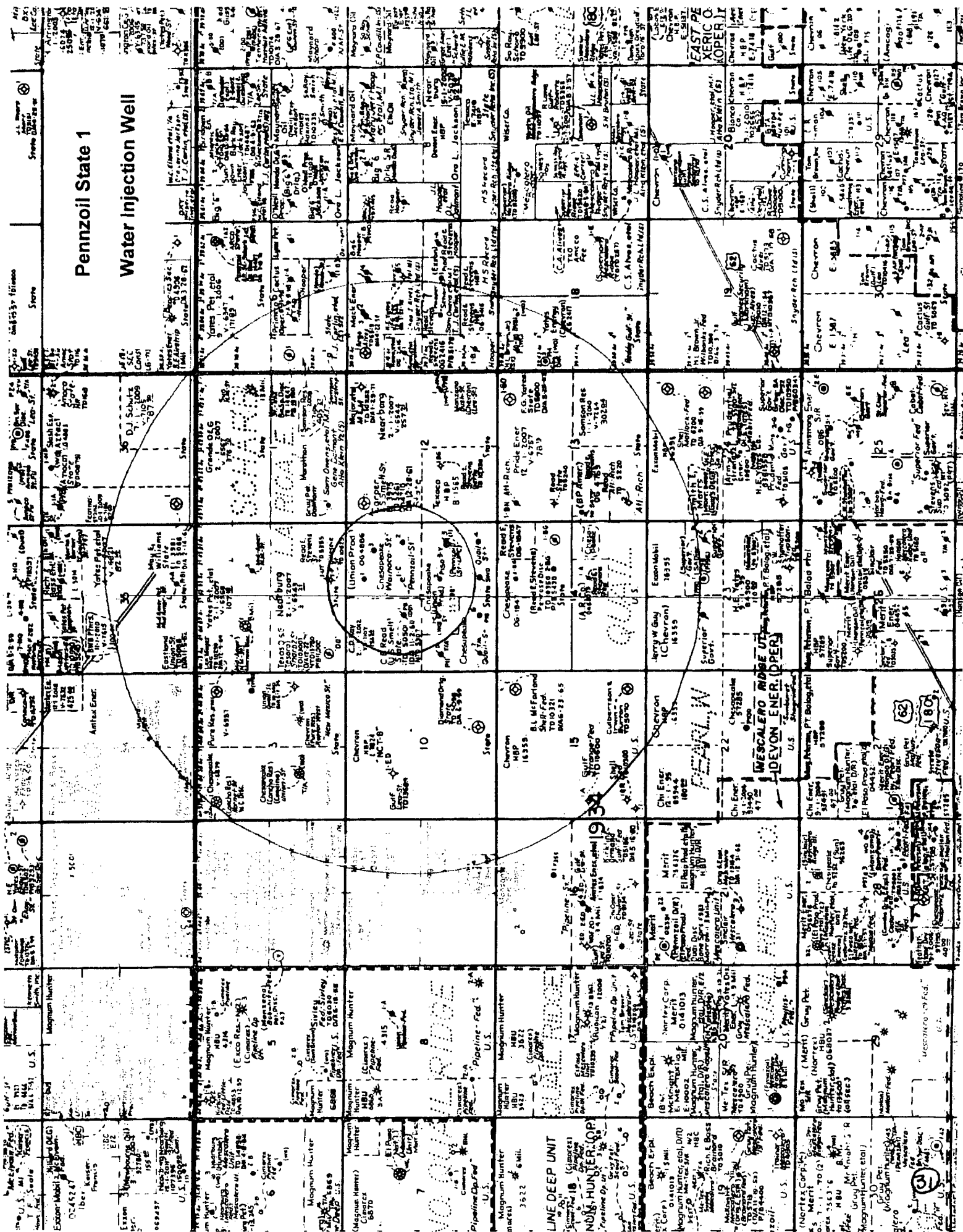
2. Name of the Injected Formation: Queen

3. Name of Field or Pool (if applicable): Quail:Queen

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. No

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injected zone in this area: None

Water Injection Well



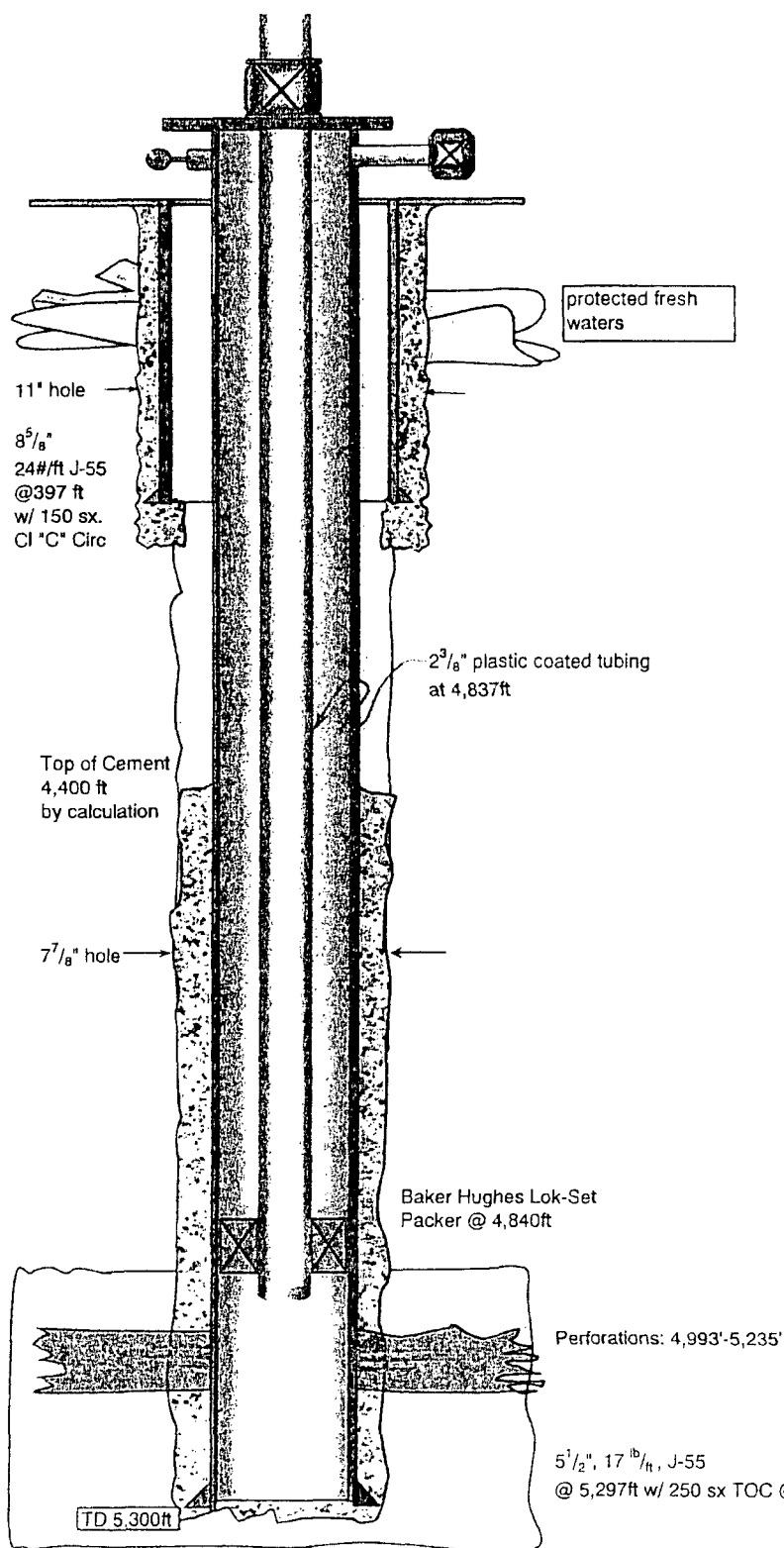
**CHESAPEAKE OPERATING, INC.
421 MARTI DRIVE
CLEBURNE, TEXAS 76033
(817) 556-5825 EXT. 2805**

**PENNZOIL STATE #1
PROPOSED WIW**

**APPLICATION FOR AUTHORIZATION TO INJECT
LIST OF WELLS WITHIN ½ MILE RADIUS THAT PENETRATE
INJECTION ZONE PER FORM C-108 ITEM #VI**

<u>WELL NAME</u>	<u>TYPE</u>	<u>DATE DRLD</u>	<u>LOCATION</u>	<u>DEPTH</u>
Quail State #2 API# 30-025-25868	Oil	03/03/1978	Sec. 11, T19S, R34E J 1980' FSL & 1980' FEL	5415'
Quail State #3Y API# 30-025-26221	P&A	02/14/1979	Sec. 11, T19S, R34E I 1841 FSL & 759 FEL	5600'
Quail State #3 API# 30-025-22435	P&A P&A	01/31/1979 01/25/1979	Sec. 11, T19S, R34E I 1830' FSL & 660' FEL	10500'
State I #1 API# 30-025-02383	P&A	03/21/1969	Sec. 11, T19S, R34E F 1980' FNL & 1980' FWL	5307'
State C #1 API# 30-025-23031	Oil	03/29/1969	Sec. 11, T19S, R34E K 2080' FSL & 1980' FWL	5168'
Wainoco State #1 API# 30-025-25887	Oil	03/25/1978	Sec. 11, T19S, R34E B 600' FNL & 1980' FEL	5380'
Wainoco State #2 API# 30-025-26348	Oil	06/10/1979	Sec. 11, T19S, R34E H 1980' FNL & 660' FEL	6200'
Wainoco State #3 API# 30-025-26707	Oil	06/10/1979	Sec. 11, T19S, R34E A 990' FNL & 990' FEL	6200'
Raptor 11 State #1 API# 30-025-36902	P&A	11/03/2004	Sec. 11, T19S, R34E F 1830' FNL & 1980' FWL	10497'
State P #1 API# 30-025-32435	P&A	03/30/1994	Sec. 2, T19S, R34E O 550' FSL & 1980' FEL	10625'

Pennzoil State #1 Proposed Quail Queen Unit



4,900' - 5,340'

INJECTION WELL DATA SHEET

OPERATOR: Chesapeake Operating, Inc.WELL NAME & NUMBER: 1980' FNL & 1980' FEL G 11 19S 34EFOOTAGE LOCATION UNIT LETTER SECTION TOWNSHIP RANGEWELLBORE SCHEMATICWELL CONSTRUCTION DATASurface CasingHole Size: 11" Casing Size: 8 5/8"Cemented with: 150 sx Cl. C sx. or ft³Top of Cement: Surface Method Determined: CirculatedIntermediate CasingHole Size: Casing Size: Cemented with: sx. or ft³Top of Cement: Method Determined: Production CasingHole Size: 7 7/8" Casing Size: 5 1/2"Cemented with: 250sx Cl. C sx. or ft³Top of Cement: 4400 Method Determined: CalculatedTotal Depth: 5300'5280' Injection Interval 5340'
4993 feet to 5235

(Peforated or Open Hole; indicated which)

INJECTION WELL DATA SHEETTubing Size: 2 3/8" Lining Material: Plastic coatedType of Packer: Baker Hughes Lok-SetPacker Setting Depth: 4840Other Type of Tubing/Casing Seal (if applicable): NA**Additional Data**

1. Is This a new well drilled for injection? Yes X No

If no, for what purpose was the well originally drilled? Oil

2. Name of the Injected Formation: Queen

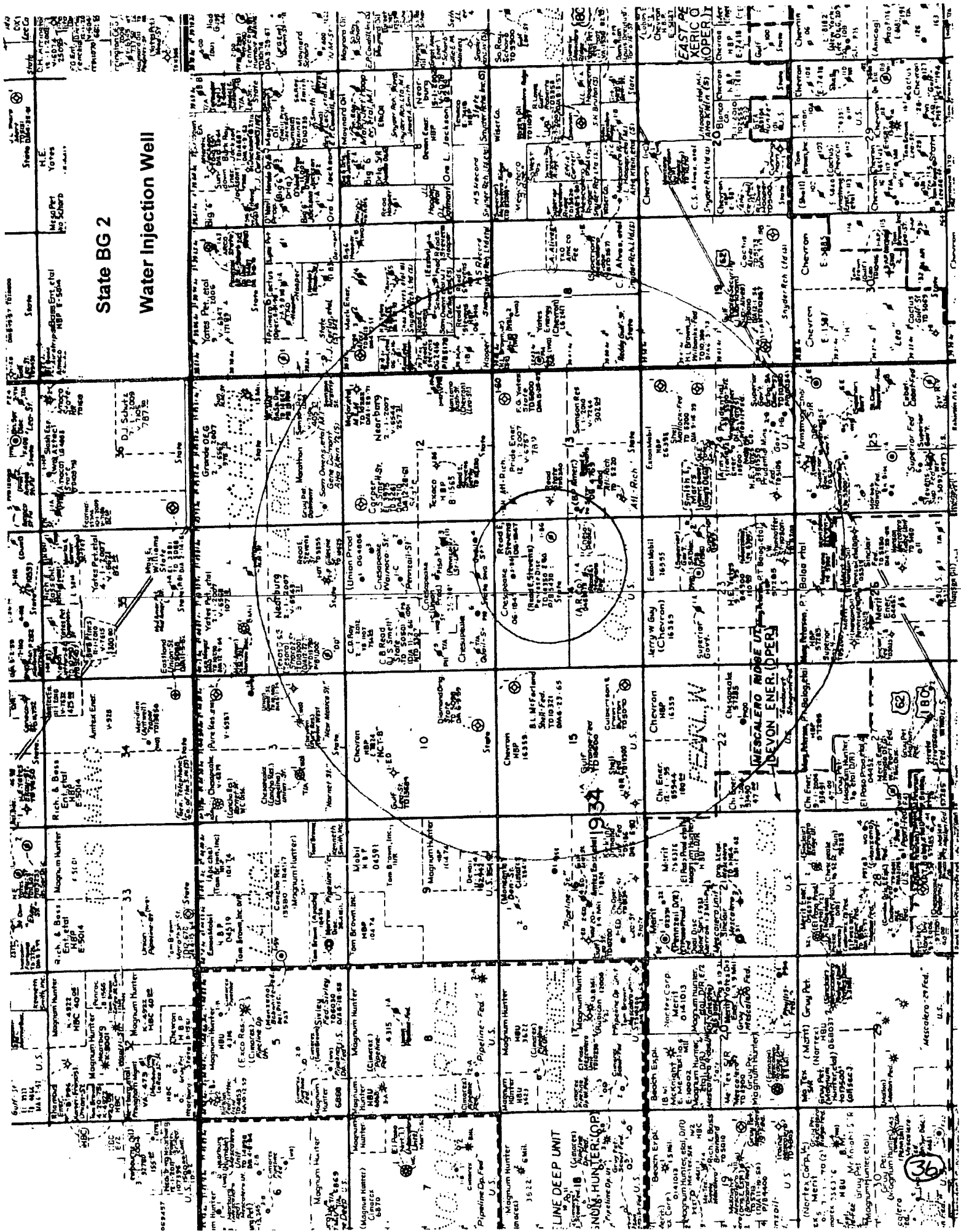
3. Name of Field or Pool (if applicable): Quail; Queen

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. No

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injected zone in this area: None

State BG 2

Water Injection Well



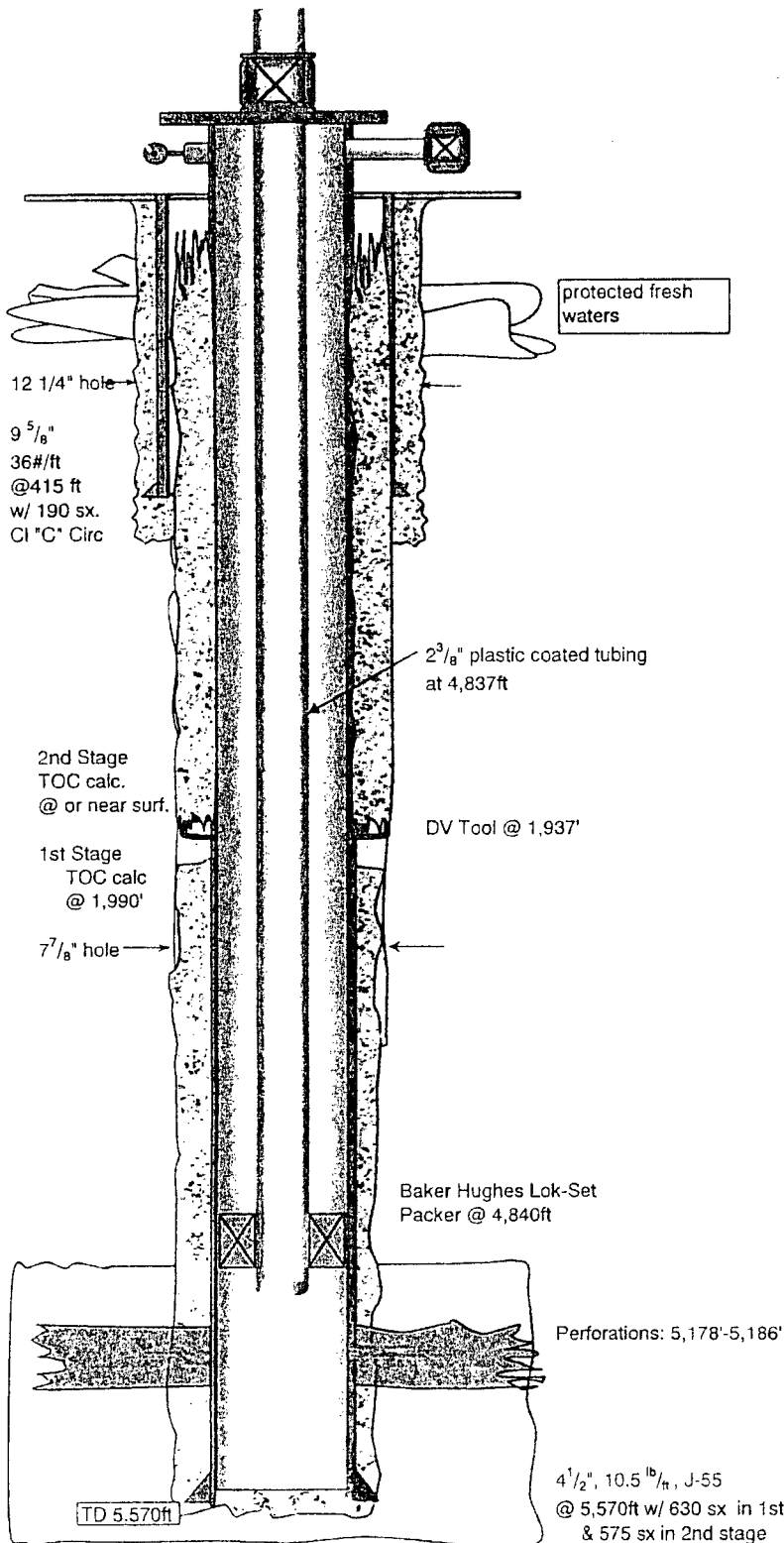
**CHESAPEAKE OPERATING, INC.
421 MARTI DRIVE
CLEBURNE, TEXAS 76033
(817) 556-5825 EXT. 2805**

**STATE BG #2
PROPOSED WIW**

**APPLICATION FOR AUTHORIZATION TO INJECT
LIST OF WELLS WITHIN ½ MILE RADIUS THAT PENETRATE
INJECTION ZONE PER FORM C-108 ITEM #VI**

<u>WELL NAME</u>	<u>TYPE</u>	<u>DATE DRLD</u>	<u>LOCATION</u>	<u>DEPTH</u>
Quail State #2 API# 30-025-25868	Oil	03/03/1978	Sec. 11, T19S, R34E J 1980' FSL & 1980' FEL	5415'
Quail State #3Y API# 30-025-26221	P&A	02/14/1979	Sec. 11, T19S, R34E I 1841 FSL & 759 FEL	5600'
Quail State #3 API# 30-025-22435	P&A P&A	01/31/1979 01/25/1979	Sec. 11, T19S, R34E I 1830' FSL & 660' FEL	10500'
State C #1 API# 30-025-23031	Oil	03/29/1969	Sec. 11, T19S, R34E K 2080' FSL & 1980' FWL	5168'
Wainoco State #2 API# 30-025-26348	Oil	06/10/1979	Sec. 11, T19S, R34E H 1980' FNL & 660' FEL	6200'
Wainoco State #3 API# 30-025-26707	Oil	06/10/1979	Sec. 11, T19S, R34E A 990' FNL & 990' FEL	6200'
Quail State #4 API#30-025-26473	Oil	09/22/1979	Sec. 11, T19S, R34E P 660' FSL & 660' FEL	6200'
Quail Queen #1 API#30-025-25536	SWD	06/02/1977	Sec. 11, T19S, R34E O 660' FSL & 1980' FEL	5500'
Pennzoil State #1 API# 30-025-25536	Oil	11/22/1968	Sec. 11, T19S, R34E G 1980' FNL & 1980' FEL	5300'

State "BG" #2 Proposed Quail Queen Unit



INJECTION WELL DATA SHEET

OPERATOR: Chesapeake Operating, Inc.WELL NAME & NUMBER: State BG #2WELL LOCATION: 1980' FNL & 1680' FEL

G

FOOTAGE LOCATION

UNIT LETTER

14

SECTION

19S

TOWNSHIP

34E

RANGE

WELLBORE SCHEMATICWELL CONSTRUCTION DATASurface CasingHole Size: 12 1/4"Casing Size: 9 5/8"Cemented with: 190sx CLC sx. or ft³Top of Cement: SurfaceMethod Determined: CirculatedIntermediate Casing

Hole Size: _____

Casing Size: _____

Cemented with: _____ sx. or _____ ft³

Top of Cement: _____

Method Determined: _____

Production CasingHole Size: 7 7/8"Casing Size: 4 1/2"Cemented with: 1205sx Poz & Lite sx. or _____ ft³Top of Cement: 1990' below DVtool @ 1937 Method Determined: Calculated
200' from surface - (assumed)Total Depth: 5570'Injection Interval5180 -5178 feet to 5186 -

(Peforated or Open Hole; indicated which)

INJECTION WELL DATA SHEET

Tubing Size: 2 3/8" Lining Material: Plastic coated

Type of Packer: Baker Hughes Lok-set

Packer Setting Depth: 4840

Other Type of Tubing/Casing Seal (if applicable): NA

Additional Data

1. Is This a new well drilled for injection? _____ Yes ☒ No ☐

If no, for what purpose was the well originally drilled? Oil

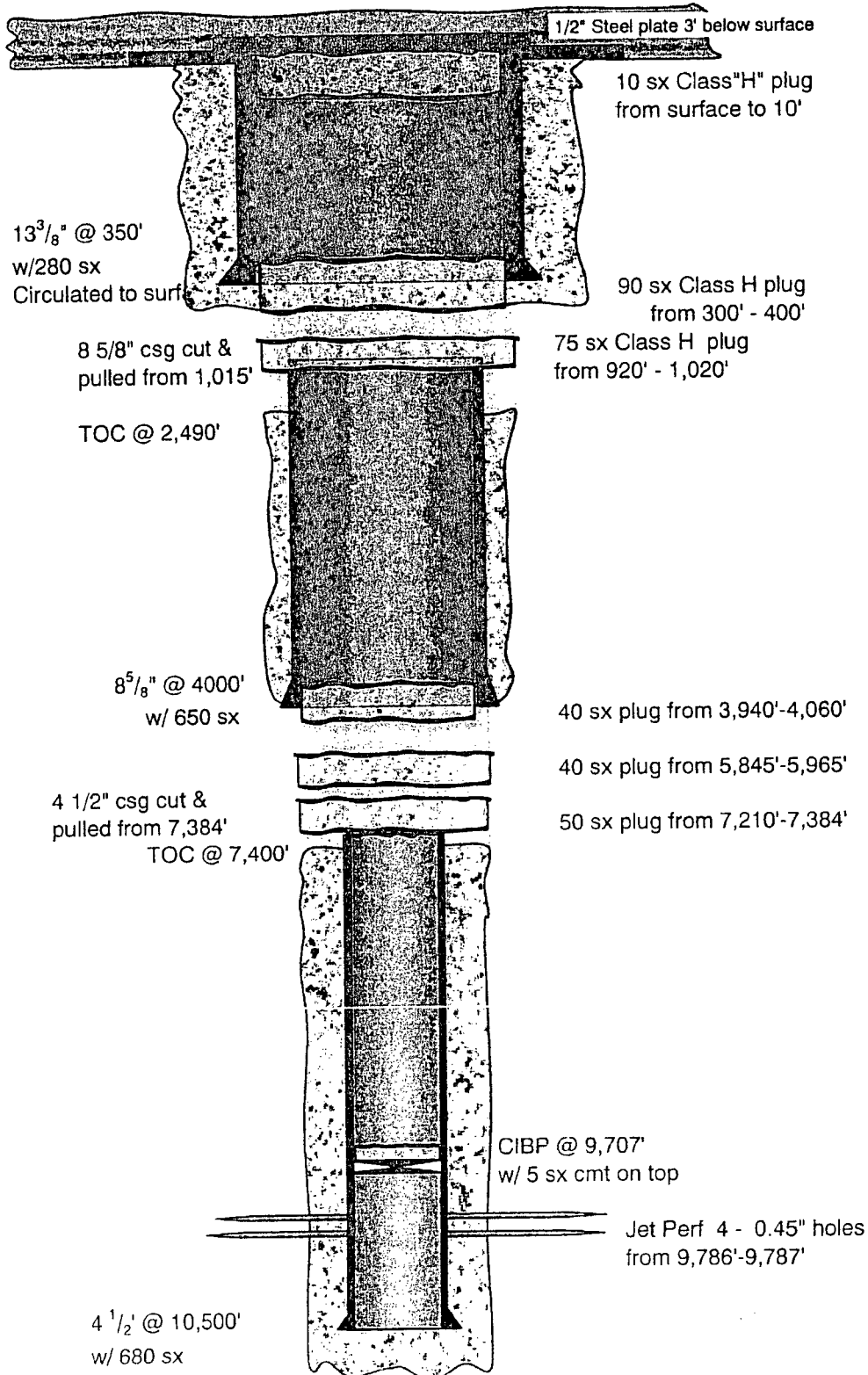
2. Name of the Injected Formation: Queen

3. Name of Field or Pool (if applicable): Quail; Queen

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. No

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injected zone in this area: None

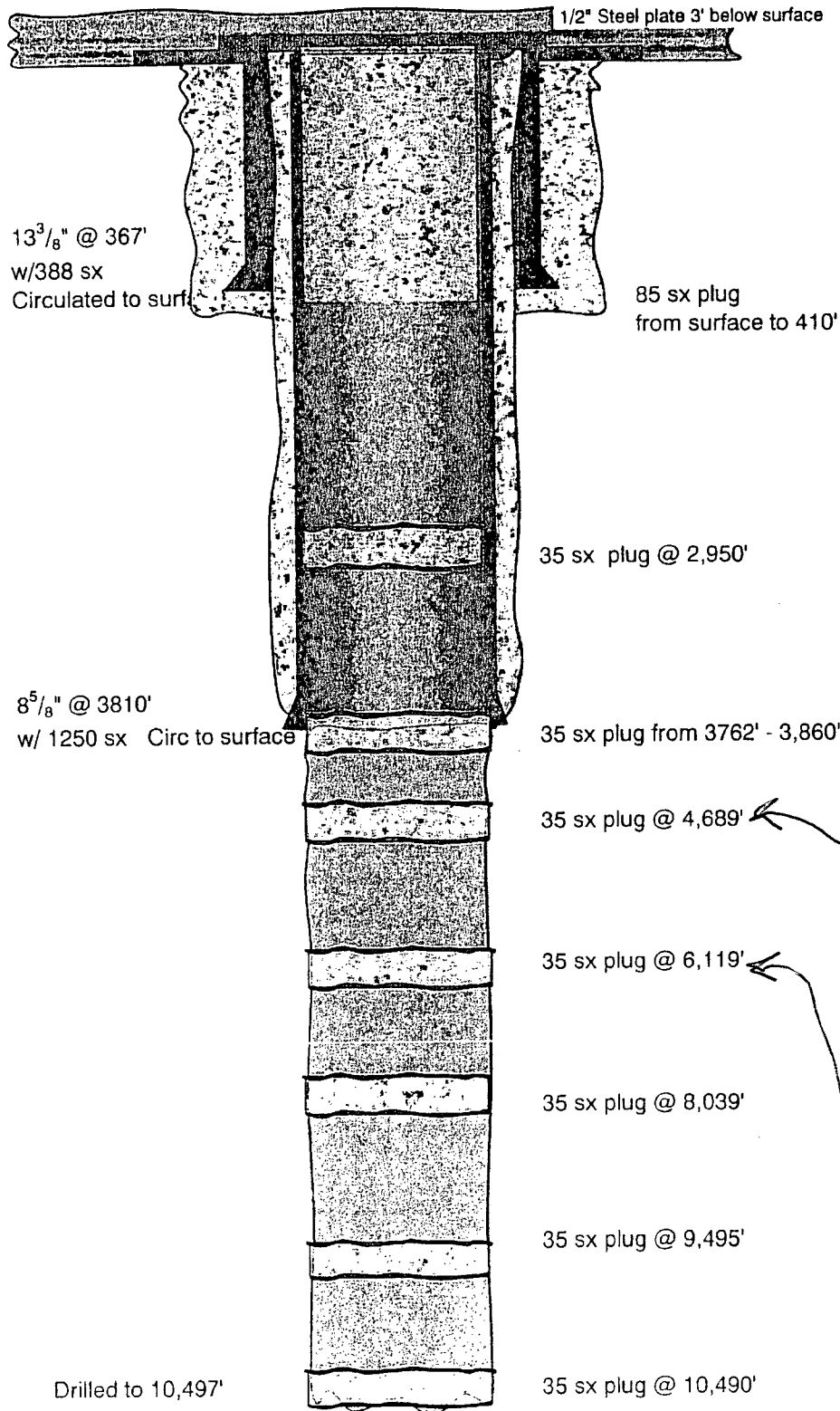
Quail State #3/Pennzoil State UPC #1-11 Sec 11 T19S-R34E Plugging Schematic



Raptor 11 State #1 Sec 11 T19S-R34E Plugging Schematic

12/14/04

1830 FNL
1980 FNL
30-025-37902



4782 948 701

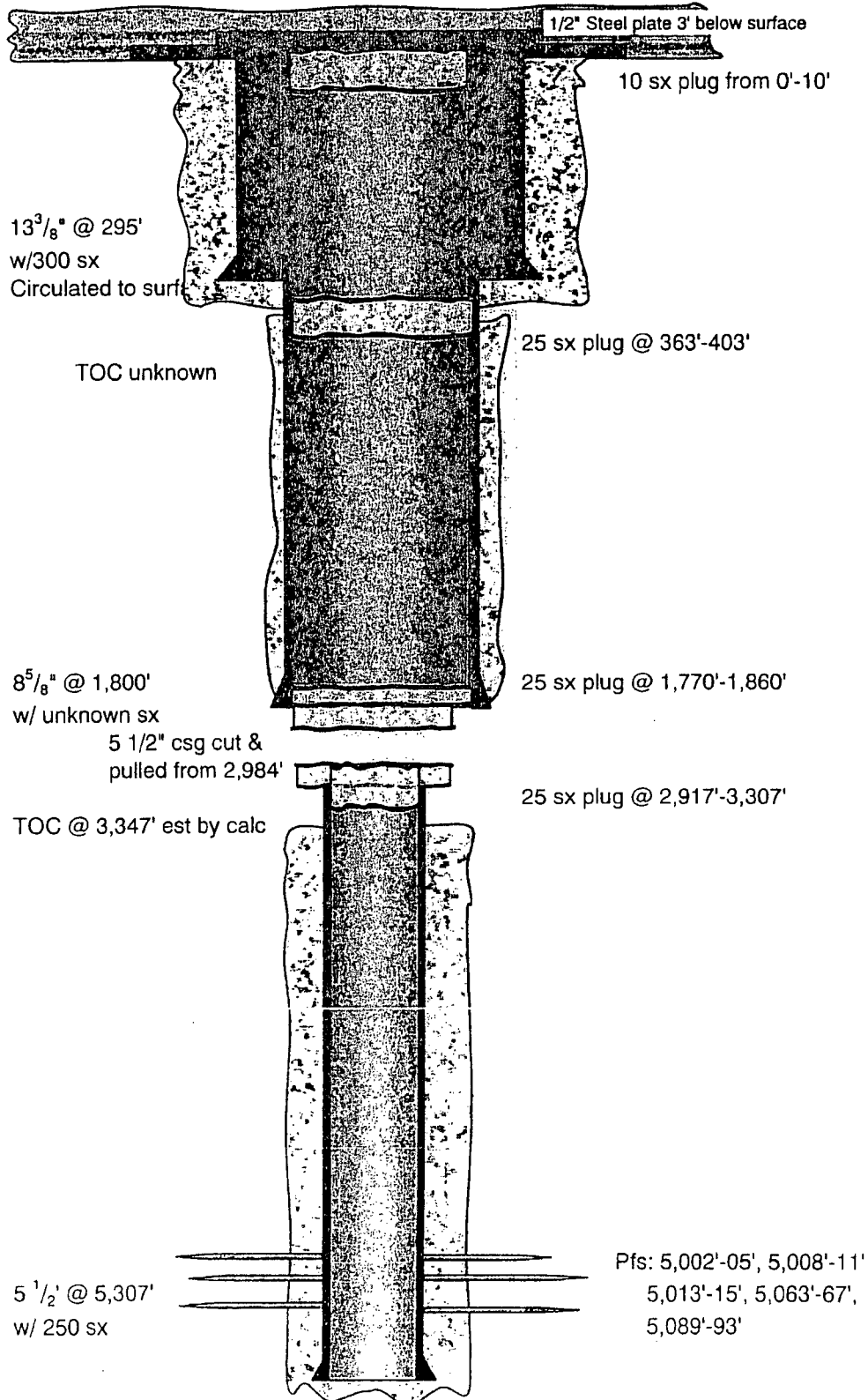
PLUGGED 12/14/04

Pump Pg ≈ 5010 -
DEL wire ≈ 6140 -

State #1

Sec 11 T19S-R34E

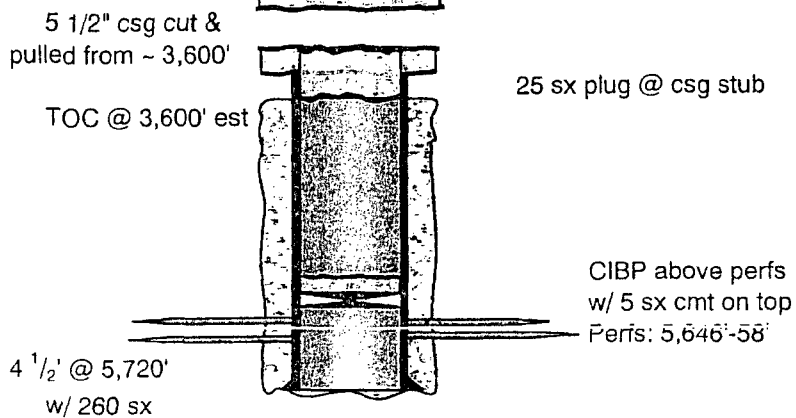
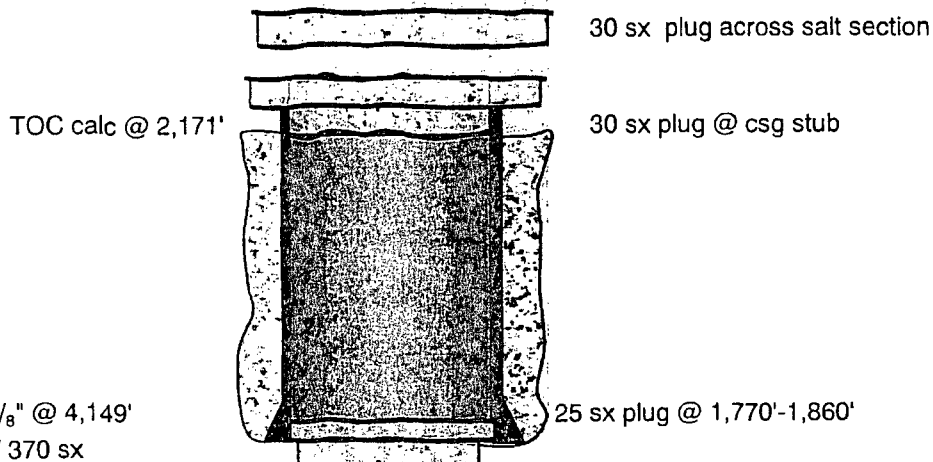
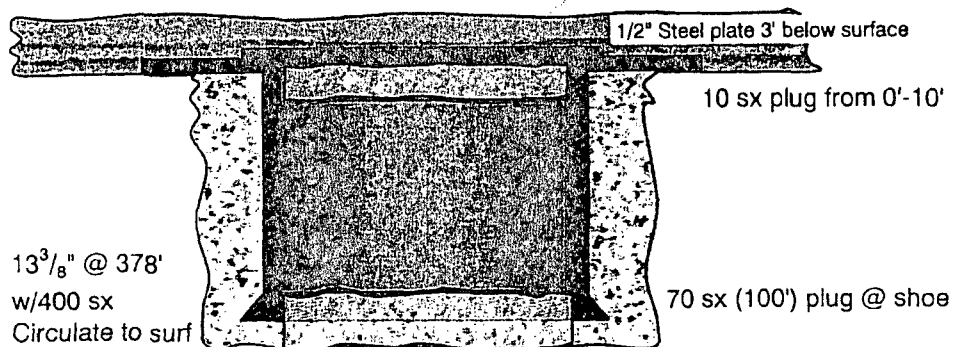
Plugging Schematic



State "P" #1

Sec 2 T19S-R34E

Plugging Schematic

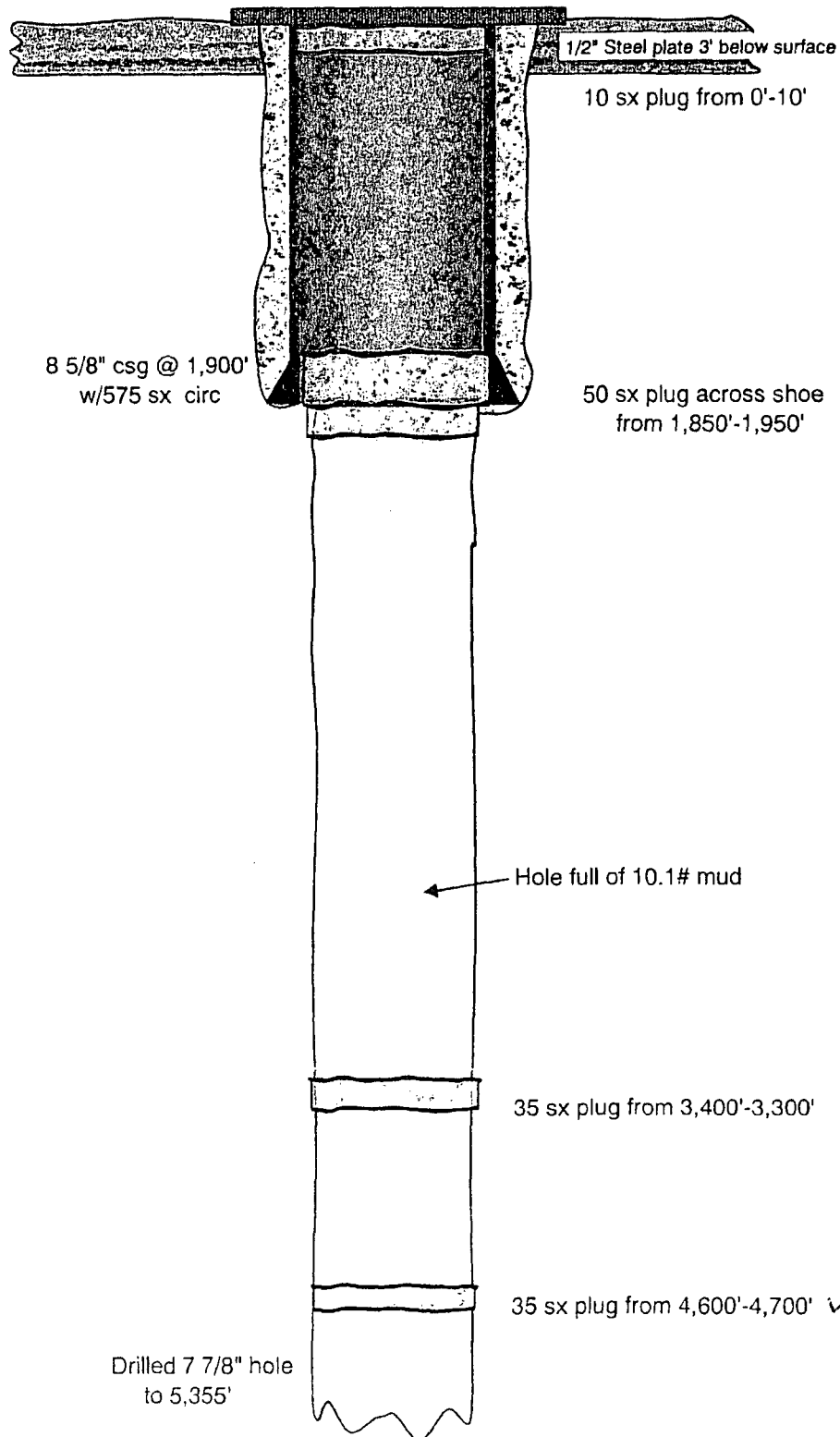


Drilled 7 7/8"
hole to 10,625'



35 sx "H" plug @ 7,970'-8,070'

State "UT" #1
Sec 2 T19S-R34E
Plugging Schematic

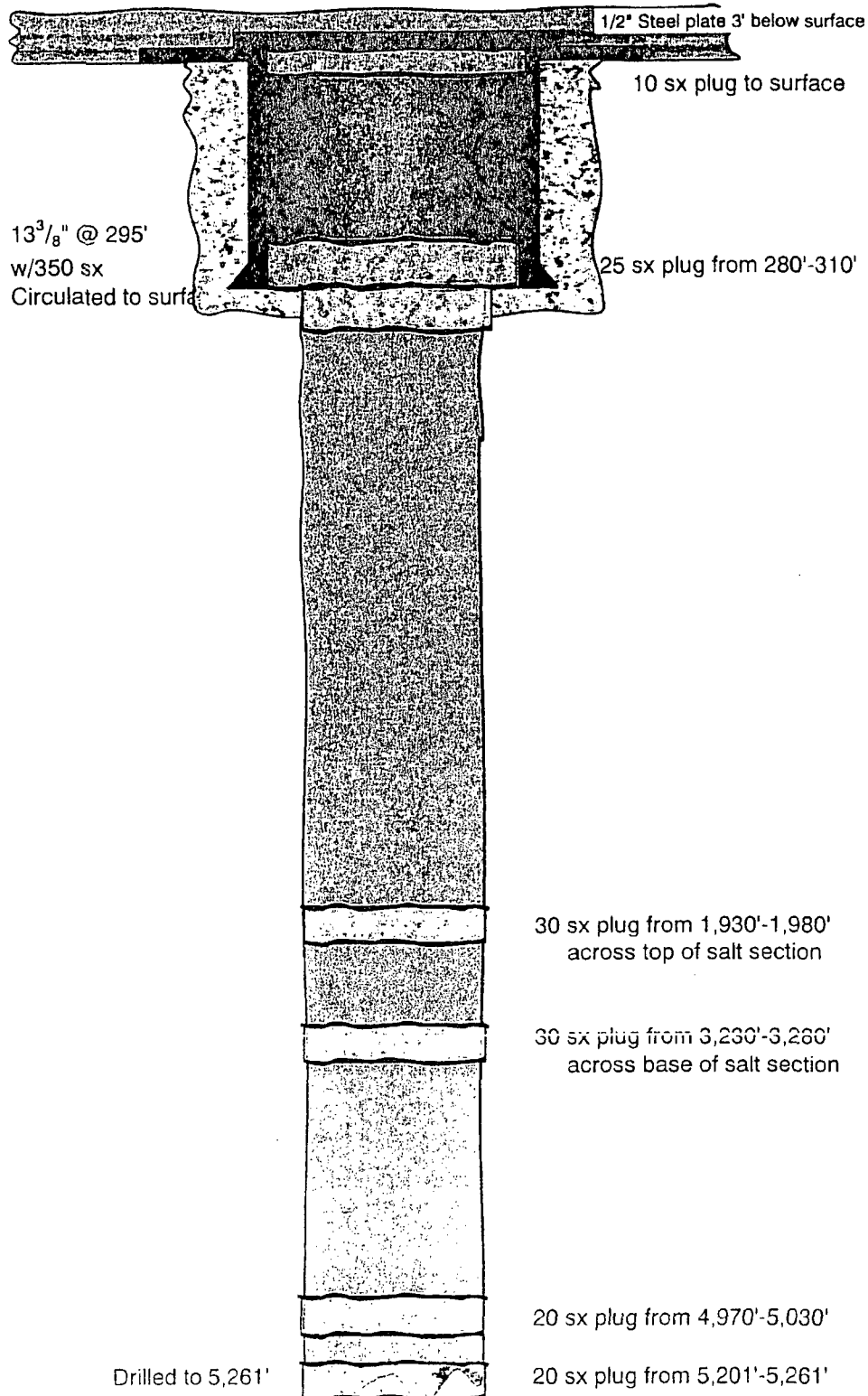


OK

US Smelting State #1

Sec 12 T19S-R34E

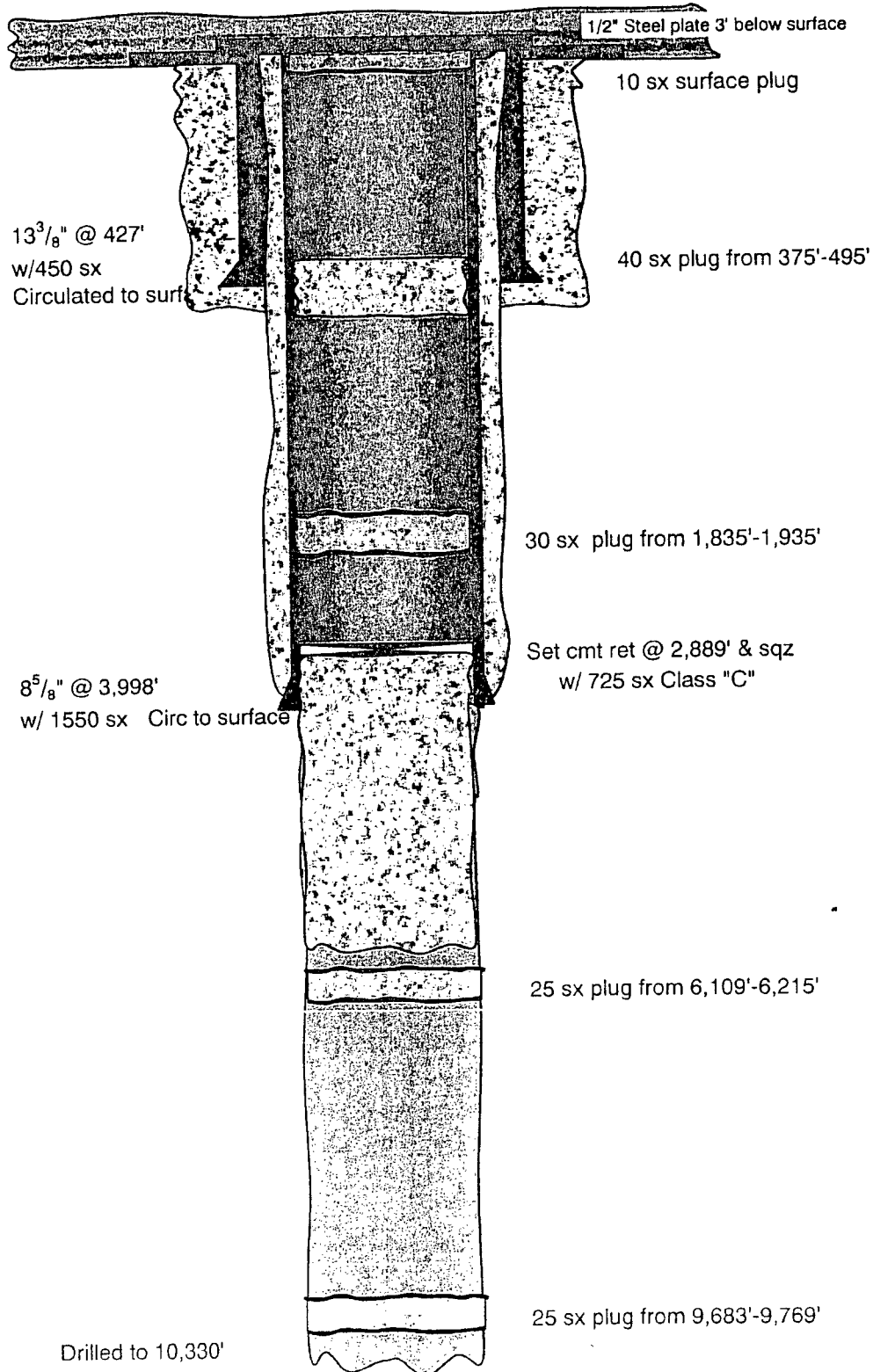
Plugging Schematic



State "BG" #1

Sec 12 T19S-R34E

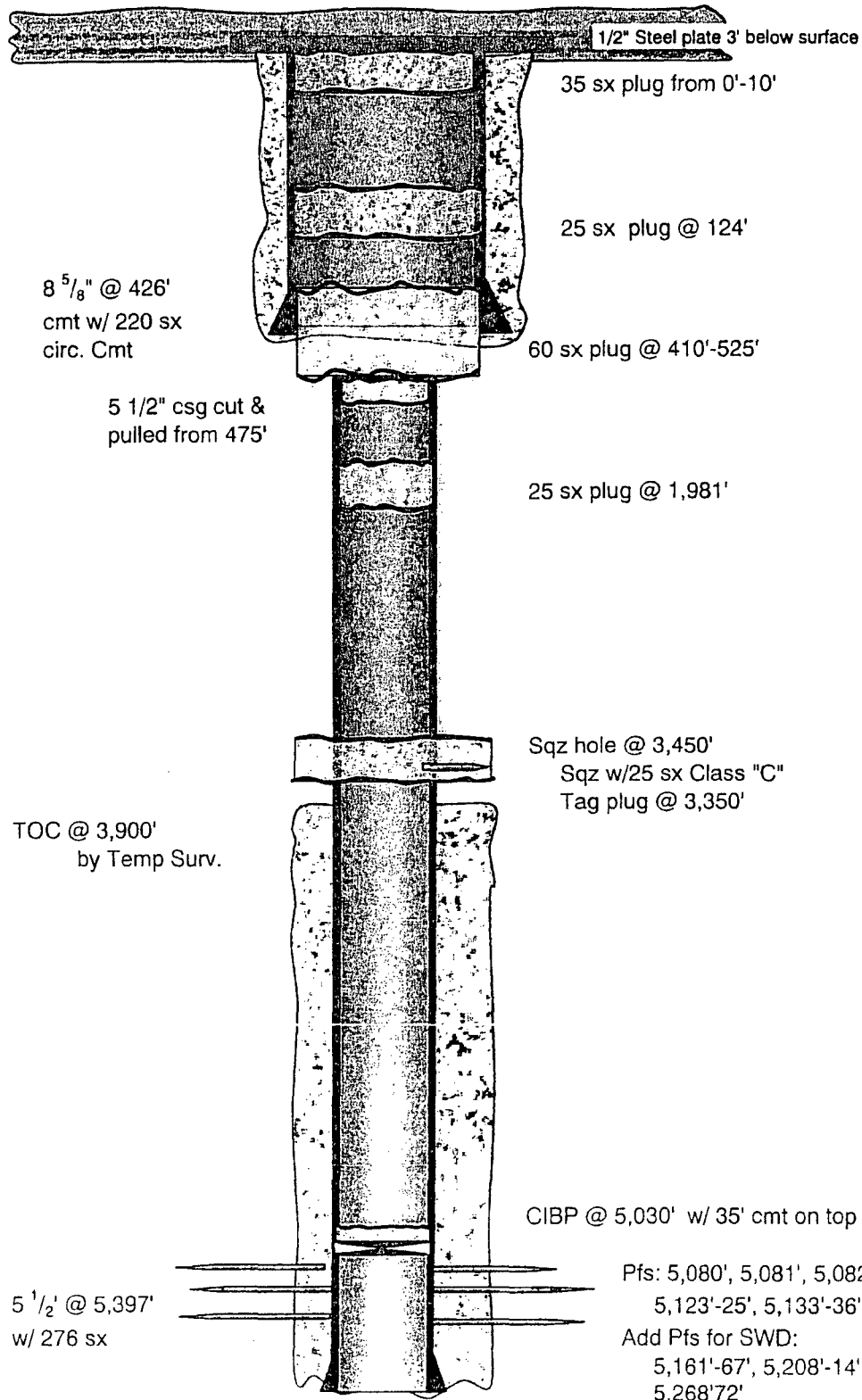
Plugging Schematic



State BH #1

Sec 13 T19S-R34E

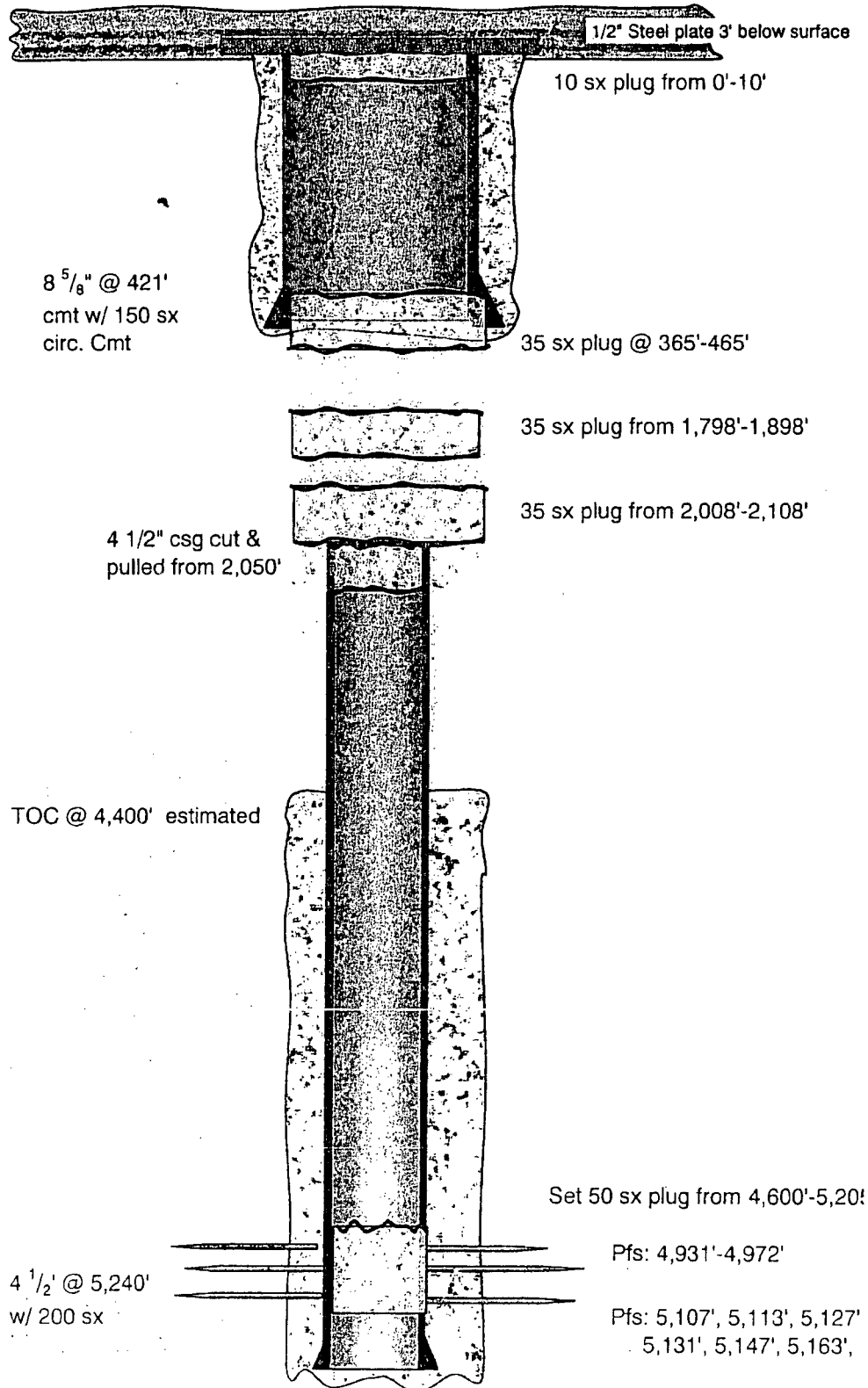
Plugging Schematic



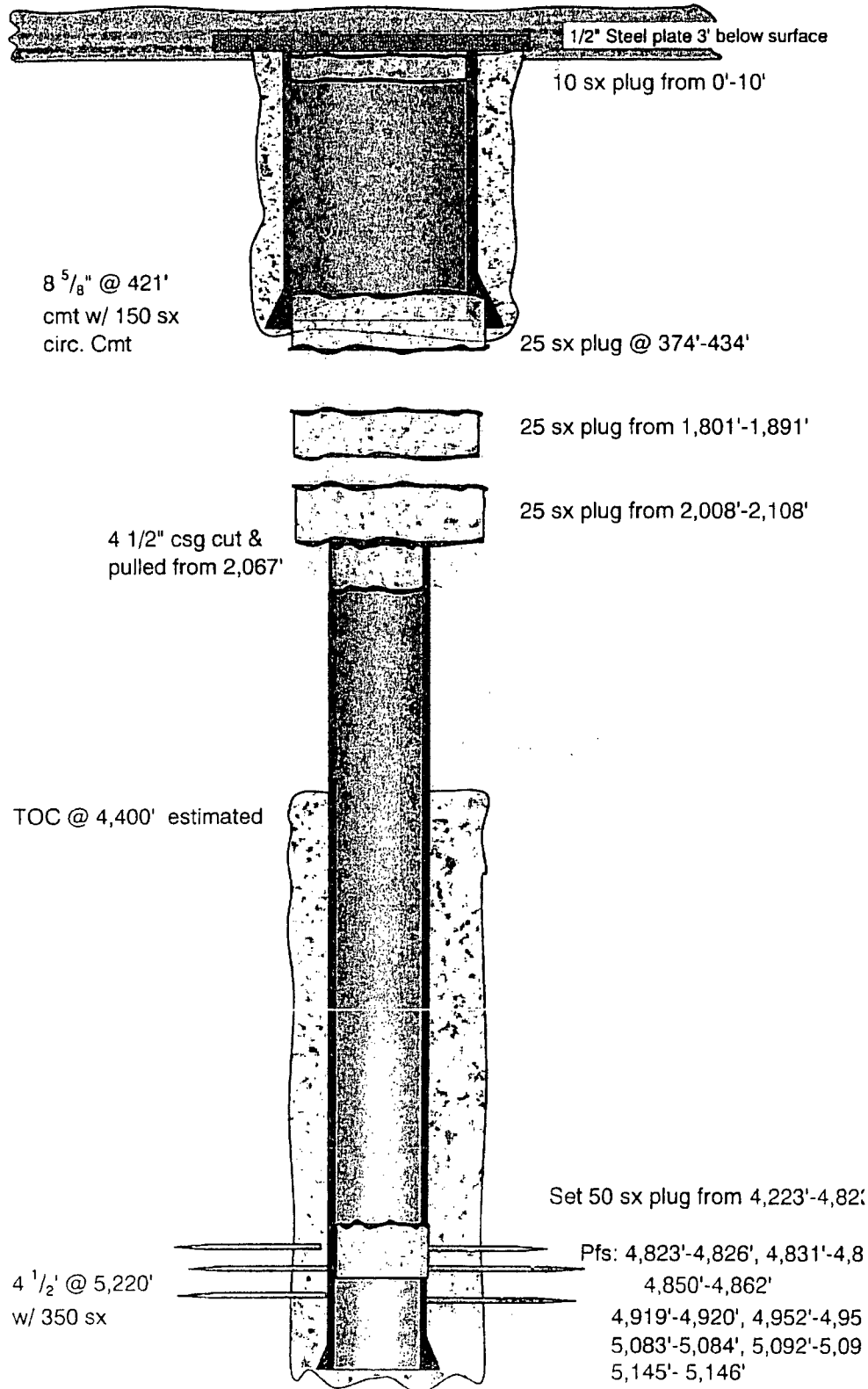
Mobil #1

Sec 13 T19S-R34E

Plugging Schematic



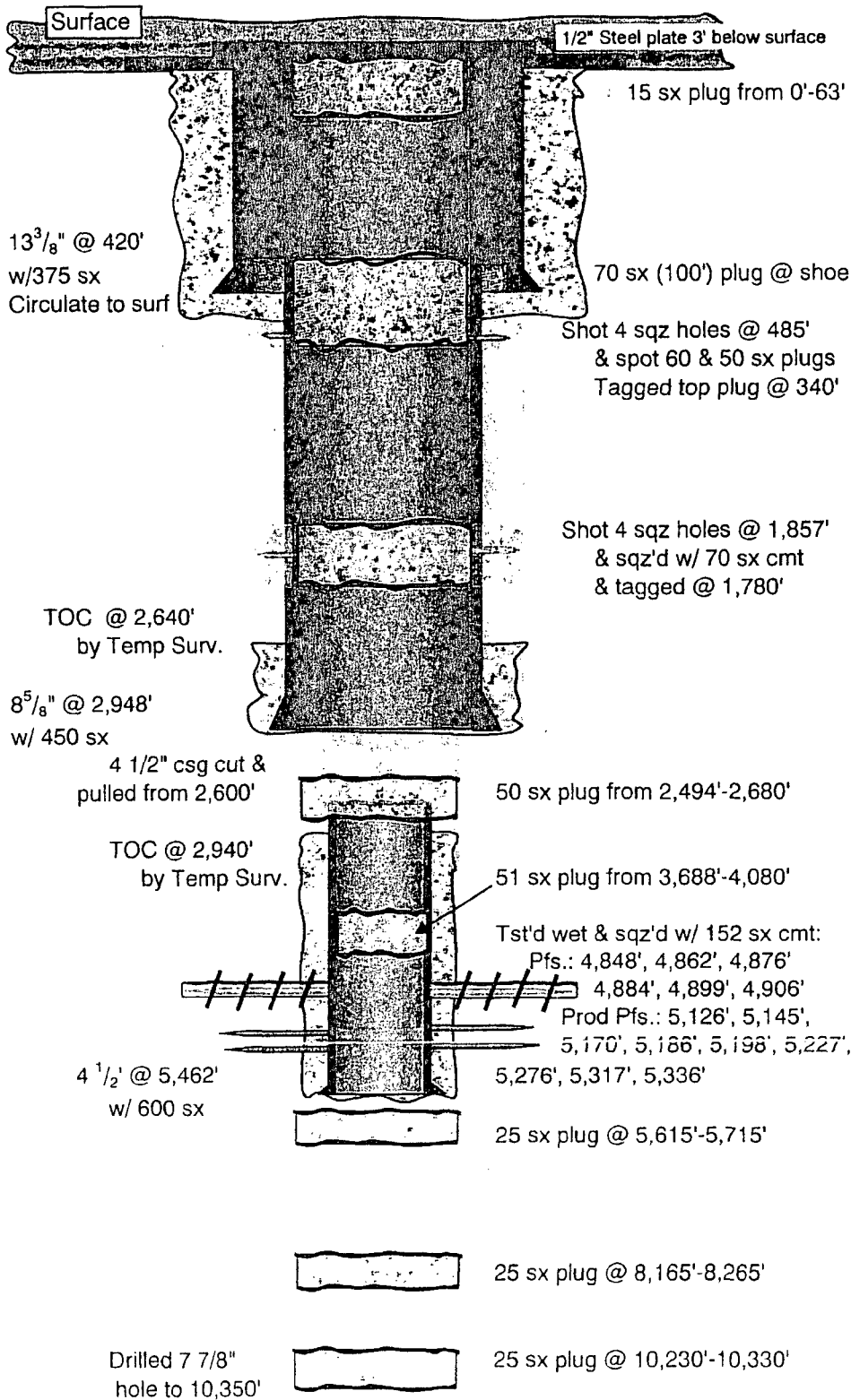
Atlantic Richfield #2 Sec 13 T19S-R34E Plugging Schematic



State "BG" #1

Sec 14 T19S-R34E

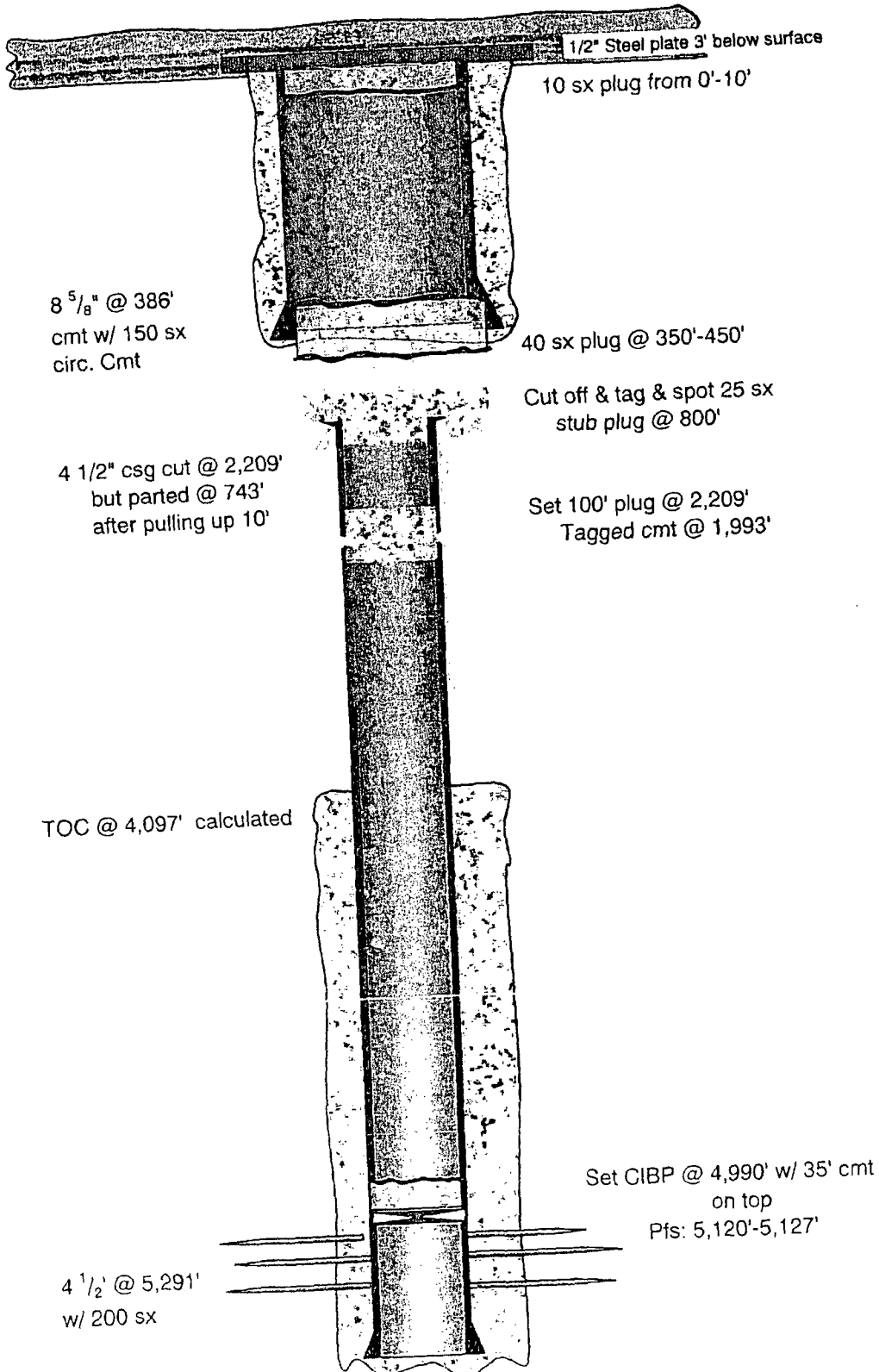
Plugging Schematic



Federal A #1

Sec 14 T19S-R34E

Plugging Schematic



Explanation regarding proposed injection water to be used in the Quail Queen Unit.

The salt water Chesapeake proposes to use for injection purposes is produced salt water from the nearby Xeric operated West Pearl Queen Unit, which produces from the Queen formation. Xeric assures us that they have 2,000 to 2,500 BWPD of produced water from the Queen formation which is more than enough capacity to provide to Chesapeake for injection purposes.

ITEM #VII - #4

WATER SOURCE SAMPLE

P.O. BOX 98
MIDLAND, TX. 79702
PHONE (432) 683-4521

Martin Water Laboratories, Inc.

709 W. INDIANA
MIDLAND, TEXAS 79701
FAX (432) 682-8819

RESULT OF WATER ANALYSES

TO: Mr. Ralph Skinner LABORATORY NO. 807-223
PO Box 190, Hobbs, NM 88241 SAMPLE RECEIVED 8-27-07
RESULTS REPORTED 8-27-07

COMPANY Chesapeake LEASE As listed

FIELD OR POOL _____

SECTION _____ BLOCK _____ SURVEY _____ COUNTY Lea STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Quail State. 8-27-07 location: SE Section 11-19S-34E, Lea Co., NM

NO. 2 W. Pearl Queen (Xeric). 8-27-07 location: NE Section 32-19S-34E, Lea Co., NM

NO. 3 _____

NO. 4 _____

REMARKS: _____

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 80° F.	1.1695	1.1435		
pH When Sampled				
pH When Received	6.10	6.14		
Bicarbonate as HCO ₃	134	122		
Supersaturation as CaCO ₃				
Undersaturation as CaCO ₃				
Total Hardness as CaCO ₃	62,000	53,000		
Calcium as Ca	14,400	9,200		
Magnesium as Mg	6,318	7,290		
Sodium and/or Potassium	90,086	78,410		
Sulfate as SO ₄	1,324	1,011		
Chloride as Cl	181,809	157,662		
Iron as Fe	26.7	24.7		
Barium as Ba	0	0		
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	294,070	253,695		
Temperature °F.				
Carbon Dioxide, Calculated	174	159		
Dissolved Oxygen				
Hydrogen Sulfide	0.0	0.0		
Resistivity, ohm-cm at 77° F.	0.046	0.050		
Suspended Solids				
Corrosiveness	Mod-Severe	Mod-Severe		
Barium Sulfate Scaling Tendency	None	None		
CaCO ₃ S.I. @ 77° F. (Stiff-Davis)	1.86	0.86		
CaCO ₃ S.I. @ 122° F. (Stiff-Davis)	2.86	2.02		
Calcium Sulfate Scaling Tendency	None	None		

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks

CaCO₃ S.I. - A positive fig. signifies a scaling potential proportionate to the magnitude of the number, and a negative fig. signifies no scaling potential.

Both waters were analyzed individually with scaling tendencies determined and hypothetically combined in various proportions. We carefully searched for potential scale formation from calcium carbonate, calcium sulfate, and barium sulfate. Also, potential precipitation from iron sulfide and elemental sulfur was evaluated. Based on these results, no significant additional scaling or precipitation would be expected when mixing these two waters. It should be noted that both waters show a calcium carbonate scaling tendency but this tendency would likely not increase when these waters are combined. Therefore, based on the evidence available, these waters should be compatible.

Form No. 3

By

Greg Ogden, B.S.

ITEM #XI-WATER ANALYSIS
FROM FRESH WATER WELLS WITHIN ONE MILE
OF THE INJECTION WELL



PHONE (325) 873-7001 • 2111 BEECHWOOD • ABILENE, TX 79603

PHONE (505) 393-2328 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
BBC INTERNATIONAL, INC.
ATTN: CLIFF BRUNSON
P.O. BOX 805
HOBBS, NM 88241
FAX TO: (505) 397-0397

Receiving Date: 08/21/07
Reporting Date: 08/27/07
Project Owner: CHESAPEAKE
Project Name: PEARL VALLEY AREA
Project Location: 62/180

Sampling Date: 08/21/07
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: HM
Analyzed By: HM/KS

LAB NUMBER	SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (uS/cm)	T-Alkalinity (mgCaCO ₃ /L)
ANALYSIS DATE:		08/21/07	08/23/07	08/23/07	08/23/07	08/22/07	08/23/07
H13148-1	WATER WELL #1	22	55.9	5.65	1.80	432	152
H13148-2	WATER WELL #2	26	66.5	8.07	2.40	531	168
Quality Control		NR	51.9	49.2	1.94	1423	NR
True Value QC		NR	50.0	50.0	2.00	1413	NR
% Recovery		NR	104	98.4	97.0	101	NR
Relative Percent Difference		NR	8.0	6.3	2.1	0.3	NR

METHODS:	SM3500-Ca-D	3500-Mg E	8049	120.1	310.1
----------	-------------	-----------	------	-------	-------

	Cl ⁻ (mg/L)	SO ₄ (mg/L)	CO ₃ (mg/L)	HCO ₃ (mg/L)	pH (s.u.)	TDS (mg/L)
ANALYSIS DATE:	08/22/07	08/22/07	08/23/07	08/23/07	08/22/07	08/22/07
H13148-1	24	25.7	0	185	7.42	207
H13148-2	36	37.8	0	205	7.36	285
Quality Control	500	25.6	NR	939	6.95	NR
True Value QC	500	25.0	NR	1000	7.00	NR
% Recovery	100	103	NR	93.9	99.3	NR
Relative Percent Difference	< 0.1	1	NR	1.4	< 0.1	NR

METHODS:	SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1
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Cliff Brunson
Chemist

08-27-07
Date

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analysis. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.

57

ARDINAL LABORATORIES, INC.

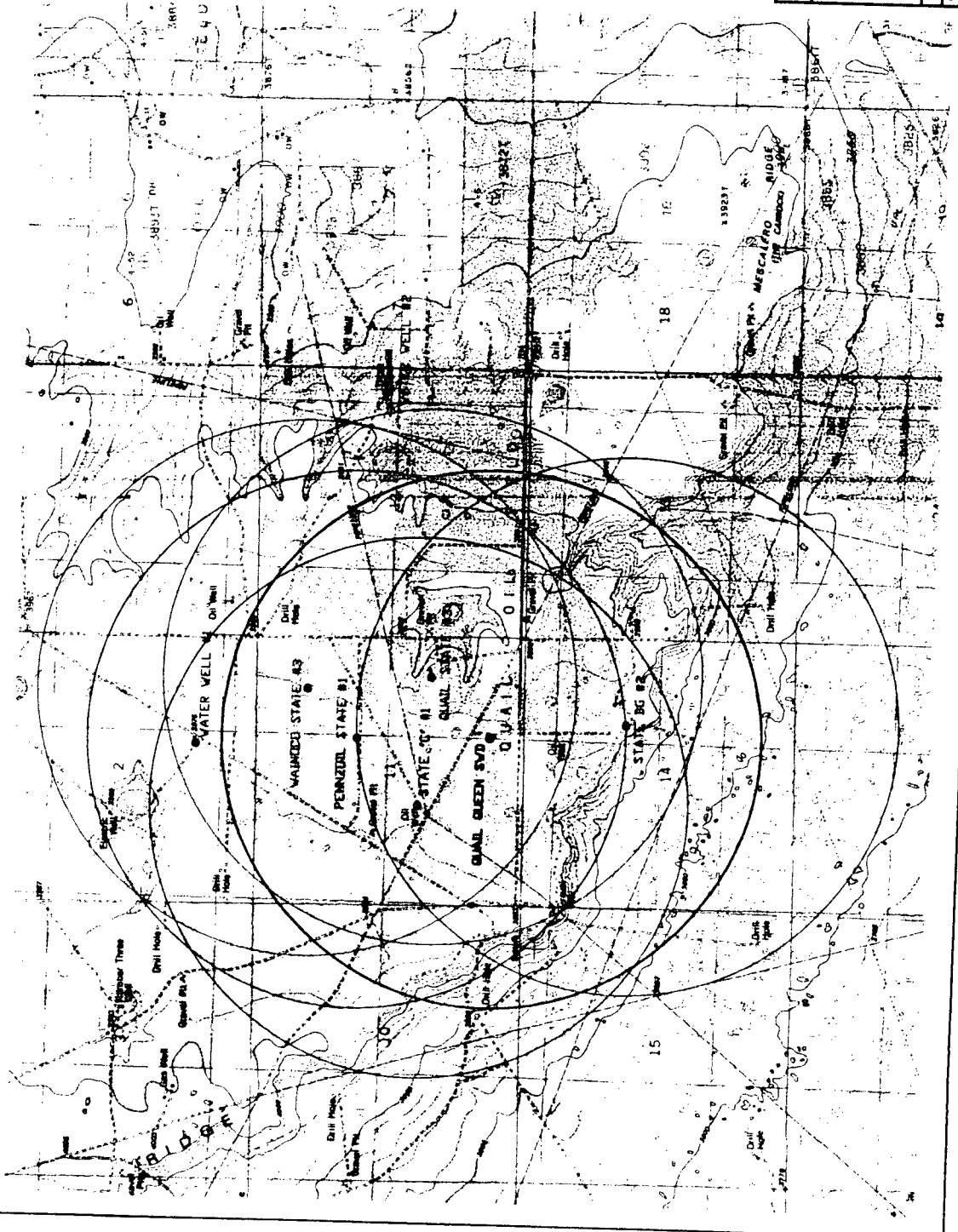
2111 Beechwood, Abilene, TX 79603 101 East Marland, Hobbs, NM 88240
(915) 673-7001 Fax (915) 673-7020. (505) 393-2326 Fax (505) 393-2478

Page 2 of 2

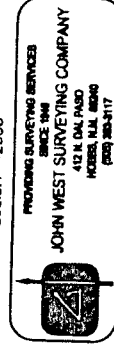
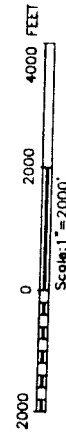
ANALYSIS REQUEST									
BILL TO									
Company Name: EBC International Project Manager: Cliff Bawson Address: 1324 W. Main Street City: Hobbs State: NM Zip: 88240 Phone #: (505) 397-6388 Fax #: (505) 397-0397 Project #: Project Name: Fossil Valley Area Project Location: 621180 Sampler Name: Roger Hernandez P.O. #: Company: Attn: Sam Address: City: El State: Zip: Phone #: Fax #:									
Matrix: ☐ Groundwater ☐ Wastewater ☐ Soil ☐ Crude Oil ☐ Sludge ☐ Other: Preserv: ☐ Ice/Cool ☐ Other: Sampling: Date: 8/11/07 Time: 11:15 Date: 8/11/07 Time: 12:40									
Lab I.D.: Sample I.D. H13148-1 Water well #1 -2- Water well #2 ☐ RAB OR (C) OMP ☐ # Containers ☐ GROUNDWATER ☐ WASTEWATER ☐ SOIL ☐ CRUDE OIL ☐ SLUDGE ☐ OTHER: ☐ ICE / COOL ☐ OTHER:									
Received By: Roger Hernandez Date: 8/11/07 Time: 2:43 Signature: [Signature] Received By: [Signature] Date: 8/11/07 Time: 2:00 Signature: [Signature]									
Remarks:									
Phone Result: ☐ Yes ☐ No Add'l Phone #: Fax Result: ☐ Yes ☐ No Add'l Fax #:									

PLEASE NOTE: Liability and Damages. Customer's liability and damage shall be limited to the amount paid by the client for the analysis. All other results shall be negligence and any other results shall be limited to the amount paid by the client for the analysis. In no event shall the liability be limited to the amount paid by the client for the analysis. In no event shall the liability be limited to the amount paid by the client for the analysis. In no event shall the liability be limited to the amount paid by the client for the analysis.

SECTIONS 2, 11, 12 & 14, TOWNSHIP 19 SOUTH, RANGE 34 EAST, N.M.P.M.,
LEA COUNTY,
NEW MEXICO.



TOPO: IRONHOUSE WELL - CONTOUR - 10'
IRONHOUSE DRAW - CONTOUR - 10'
SUPPLEMENTAL 5'

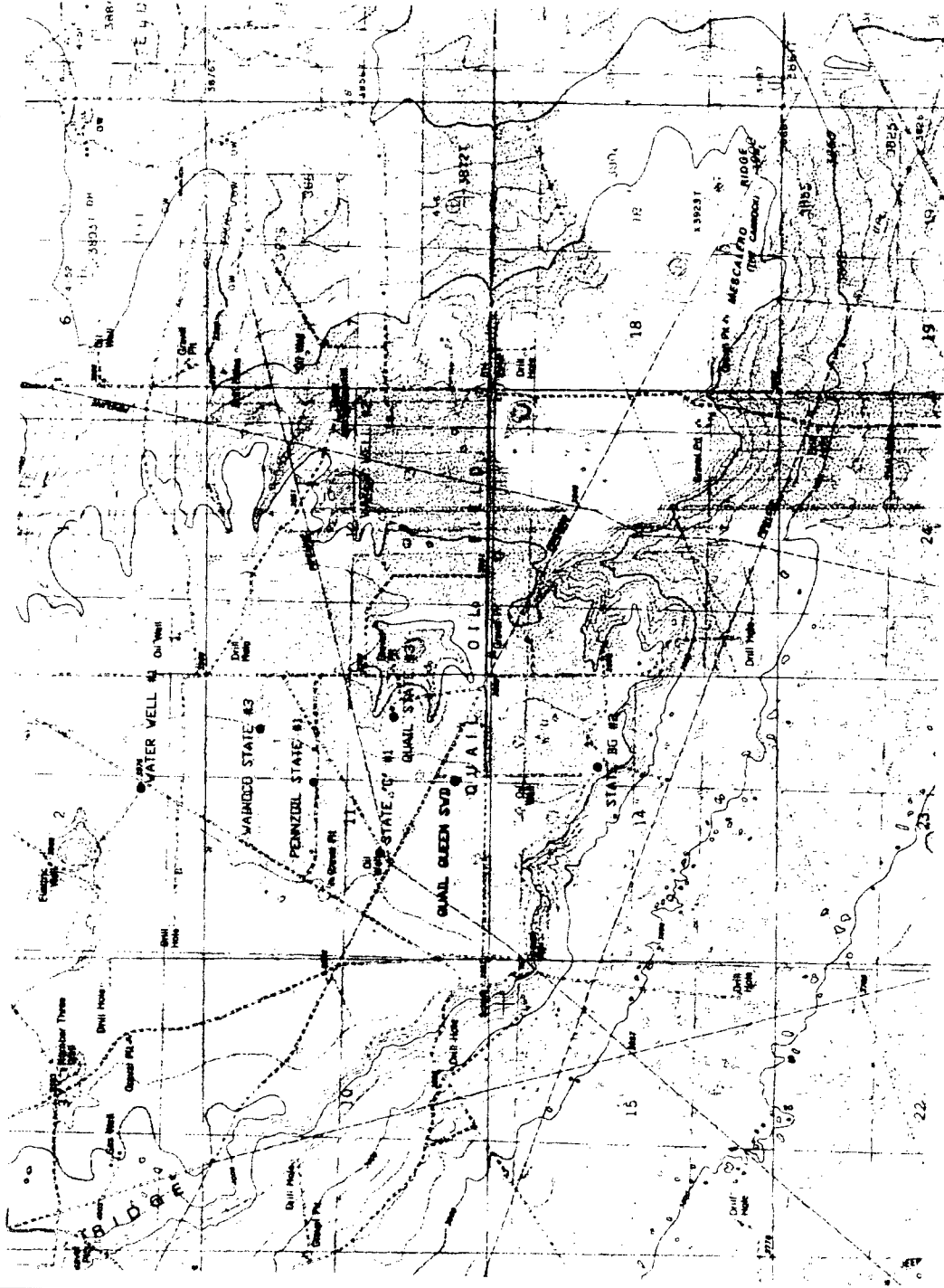


BBC INTERNATIONAL

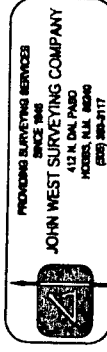
PLAT TO LOCATE EXISTING WELLS SITUATED IN
SECTIONS 2, 11, 12 & 14, TOWNSHIP 19 SOUTH,
RANGE 34 EAST, N.M.P.M., LEA COUNTY NEW MEXICO

Survey Date: -----	Sheet 1 of 1	Sheets
W.O. Number: 07.13.1165	Drawn By: LA	
Date: 8/22/07	DISK:CD#6	07131165

SECTIONS 2, 11, 12 & 14, TOWNSHIP 19 SOUTH, RANGE 34 EAST, N.M.P.M.,
LEA COUNTY,
NEW MEXICO.



2000 0 2000 4000 FEET
Scale: 1"=2000'



BBC INTERNATIONAL

PLAT TO LOCATE EXISTING WELLS SITUATED IN
SECTIONS 2, 11, 12 & 14, TOWNSHIP 19 SOUTH,
RANGE 34 EAST, N.M.P.M., LEA COUNTY NEW MEXICO

Survey Date: -----	Sheet 1 of 1	Sheets
W.O. Number: 07131165	Drawn By: LA	
Date: 8/22/07	DISK:CD#6	07131165

TOPO: IRONHOUSE WELL - CONTOUR - 10'
IRONHOUSE DRAW - CONTOUR - 10' - SUPPLEMENTAL S'