

ROBERT E. BOLING
EXPLORATION CONSULTANT
305 SOUTH FIFTH STREET

ARTESIA, NEW MEXICO - 88210

April 10, 1987

New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87504-2088

Attention: Mr. Bill LeMay, Director

RECEIVED

APR 13 1987

OIL CONSERVATION DIVISION

Case 9126

Re: Application for permission to convert
the No. 1 Walter Solt State well,
2240' FS & 400' FWL Section 5, T18S
R28E, Eddy County, New Mexico, to
a SWD well

Gentlemen:

As agent for I & W, Inc., I have requested administrative approval of the captioned application. In connection with this application, all oil and gas lease owners with interests within one-half mile of the well were furnished a copy of Form C-108 by certified mail, return receipt requested.

The OCD Rules provide that any objection must be filed in writing within 15 days after receipt of the complete application. (A copy of this provision on the C-108 and a portion of Rule 701 "C" are enclosed.)

By letter dated April 1, 1987, addressed to the Oil Conservation Division, Phillips Petroleum Company, an offset operator, requested that I & W, Inc. be required to run a radioactive survey. Phillips Petroleum Company received the complete Form C-108 on March 16, 1987. Their 15 days within which to respond expired on March 31, 1987. It is respectfully requested that the Phillips letter be disregarded because it was not filed in accordance with the rules of the Oil Conservation Division. A copy of the Phillips letter and the Phillips return receipt are enclosed.

Phillips' request is without engineering reason. Phillips was furnished all information on the well in January 1987, and their comments were requested. They did not comment until it was too late. Two letters concerning the information furnished to Phillips are enclosed.

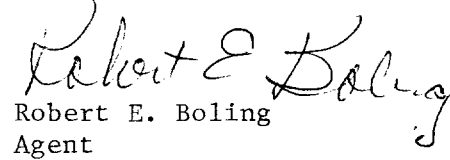
A Cement Evaluation Log is also enclosed which shows a good cement job from 8398 feet up to 7961 feet. The top of the Cisco is at 8100 feet. There is 139 feet of good cement above the top of the Cisco. The Cisco was perforated, acidized and tested. There was never any hint of communication during the Cisco testing operation.

New Mexico Oil Conservation Division
April 10, 1987
Page 2

Due to the fact that there is a gap between the two casing strings, the first string was shot off at 7846 feet, a cement retainer is in the first string at 7860 feet with cement on top to 7848 feet, it is estimated that it would cost a minimum of \$25,000 to drill everything out and run the requested survey.

For all of the reasons set out herein, I believe that you will agree that prudent operation does not require a radioactive survey.

Yours very truly,


Robert E. Boling
Agent

REB:scp

cc: Phillips Petroleum Company
4001 Pembroke
Odessa, Texas 79762
Attention: Mr. J. C. Mihm, Regional Manager

Case 9126

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no
- II. Operator: I & W, INC.
Address: P. O. BOX 176, ARTESIA, NEW MEXICO 88210
Contact party: Robert E. Boling, Agent Phone: 505-746-9336
- 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 ☒ 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 source 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: Robert E. Boling Title Agent
Signature: Robert E. Boling Date: 3-12-87
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal.

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, P. O. Box 2088, Santa Fe, New Mexico 87501 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.

I. SECONDARY OR OTHER ENHANCED RECOVERY, PRESSURE MAINTENANCE, SALT WATER DISPOSAL, AND UNDERGROUND STORAGE

RULE 701. INJECTION OF FLUIDS INTO RESERVOIRS

A. Permit for Injection Required

The injection of gas, liquefied petroleum gas, air, water, or any other medium into any reservoir for the purpose of maintaining reservoir pressure or for the purpose of secondary or other enhanced recovery or for storage or the injection of water into any formation for the purpose of water disposal shall be permitted only by order of the Division after notice and hearing, unless otherwise provided herein.

B. Method of Making Application

1. Application for authority for the injection of gas, liquefied petroleum gas, air, water or any other medium into any formation for any reason, including but not necessarily limited to the establishment of or the expansion of water flood projects, enhanced recovery projects, pressure maintenance projects, and salt water disposal, shall be by submittal of Division Form C-108 complete with all attachments.
2. The Applicant shall furnish, by certified or registered mail, a copy of the application to the owner of the surface of the land on which each injection or disposal well is to be located and to each leasehold operator within one-half mile of the well.
3. Administrative Approval

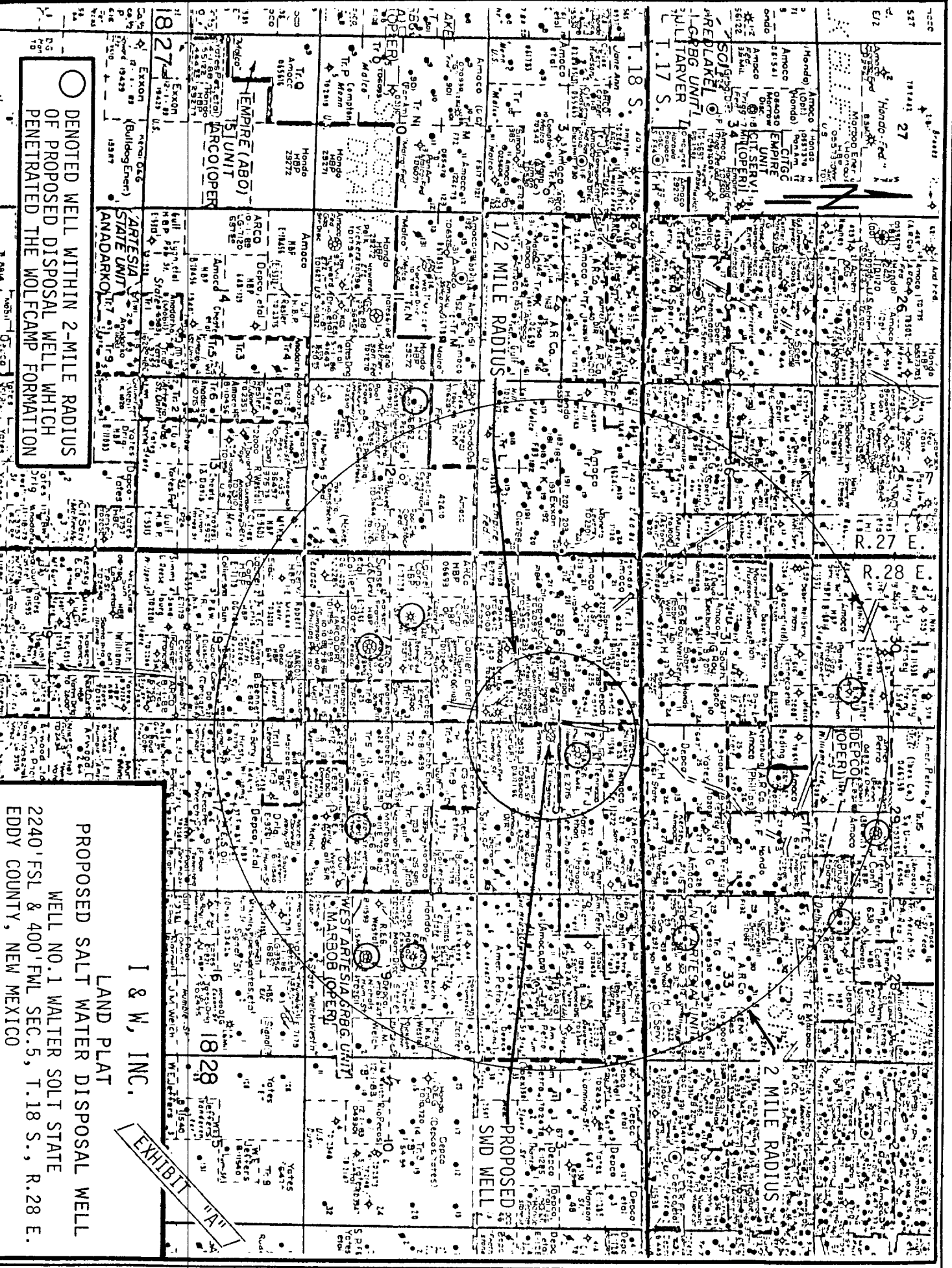
If the application is for administrative approval rather than for a hearing, it must also be accompanied by a copy of a legal publication published by the applicant in a newspaper of general circulation in the county in which the proposed injection well is located. (The details required in such legal notice are listed on Side 2 of Form C-108).

No application for administrative approval may be approved until 15 days following receipt by the Division of Form C-108 complete with all attachments including evidence of mailing as required under paragraph 2 above and proof of publication as required by paragraph 3 above.

In no objection is received within said 15-day period, and a hearing is not otherwise required, the application may be approved administratively.

C. Hearings

If a written objection to any application for administrative approval of an injection well is filed within 15 days after receipt of a complete application, or if a hearing is required by these rules or deemed advisable by the Division Director, the application shall be set for hearing and notice thereof given by the Division.



○ DENOTED WELL WITHIN 2-MILE RADIUS OF PROPOSED DISPOSAL WELL WHICH PENETRATED THE WOLF CAMP FORMATION

I & W, INC.

EXHIBIT "A"

PROPOSED SALT WATER DISPOSAL WELL
WELL NO. 1 WALTER SOLT STATE
2240' FSL & 400' FWL SEC. 5, T.18 S., R.28 E.
EDDY COUNTY, NEW MEXICO

ROBERT E. BOLING

EXPLORATION CONSULTANT

305 SOUTH FIFTH STREET

ARTESIA, NEW MEXICO - 88210

January 22, 1987

Mr. Bud Chamberlin
Phillips Petroleum Company
4001 Pembroke
Odessa, Texas 79762

Re: Conversion of No. 1 Walter Solt
2240' FS & 400' FWL Section 5,
T18S R28E, Eddy County, New
Mexico to a SWD well

Dear Mr. Chamberlin:

As discussed in our telephone conversation of even date, please find enclosed the following information concerning the captioned well:

1. Land plat
2. Copy of all reports filed with the State on this well along with a plat
3. Drilling report
4. Water analysis taken on water recovered from well
5. Letter summarizing what I think I know about the well and the proposed completion of the well as a SWD well.
6. Dual Laterolog, compensated Neutron-Litho Density and three bond logs
7. Geologic tops on Solt well

Queen	1315
San Andres	2165
Abo	5850
Wolfcamp	6590
Cisco	8100
TD	8500
Elevation	3644.4 Ground
	3653.4 D.F.
	3654.4 K.B.

Mr. Bud Chamberlin
January 22, 1987
Page 2

The plan is to dispose of water through existing perfs and lost circulation zones from 7515 to 7961 - which is in the lower Wolfcamp. I think this interval is equivalent to the zone from 7475 to 7920 in the Phillips No. 1 Illinois Camp well.

I have a working interest in the Illinois Camp well. I do not believe that the disposal of water into the Lower Wolfcamp in the Solt well will hurt the Illinois Camp well in any way.

As I mentioned to you today, if Phillips does not object, I feel confident that I can get administrative approval from the State to convert the Solt well to a SWD well. If Phillips objects, then we will all have to go to a hearing, spend our money and see what the Oil Conservation Division, with all of its wisdom, decides.

I expect your geology department might be interested in looking at the enclosed logs when you have finished with them.

It is requested that you advise what Phillips' position is going to be in this matter as soon as you have reached a decision.

Yours very truly,

Robert E. Boling

REB:scp

ROBERT E. BOLING

EXPLORATION CONSULTANT

305 SOUTH FIFTH STREET

ARTESIA, NEW MEXICO - 88210

January 21, 1987

Frostman Oil Corp. No. 1 Walter Solt State, 2240' FS & 400' FWL
Section 5, T18S R28E, Eddy County, New Mexico

To: Whom it may concern

Subject: Present condition of well and suggested completion procedure as a SWD well.

A. Present conditions:

1. The well has 5½" casing set at 7832 w/packer shoe on bottom and top of cement at 7400' behind 5½" casing.
2. There is open hole from 7832 to 7846 and 5½" casing with no cement behind it from 7846 to 7961. The very top of the large lost circulation zone is open behind the 5½" casing from 7958-7961. The original lost circulation zone was from 7958 to 7980.
3. The following perfs are open:
7810-12 w/3,
7778-7887 w/10, AW/1000
7742-7756 w/14, AW/1000
7632-7642 w/10, AW/1000
7518-7534 w/16, AW/1000
4. There is a retrievable bridge plug someplace in the hold. This plug was set at 7590' while the perfs 7518-7534 were being tested. When we came out of the hole the last time we hooked onto the plug and when we got out of the hole we did not have the plug.
5. The main lost circulation zone from 7958 to 7980 cemented three times while drilling the hole without regaining circulation. The hold was then drilled to total depth 8500 without returns and the cuttings are presumed to have gone into the lost circulation zone. The 5½" casing was then cemented and covered the lost circulation zone from 7980 up to 7961 leaving approximately the top three feet of zone open. We were never able to circulate the hole above 7961. We tried to cement it one more time through perfs at 7860 without success. After we cut and pulled the casing and was rerunning the casing the hole ran over as the last one-third of the casing was run. This shows that the hold was bridged off near the bottom or the lost circulation zone was shut off. After we got on bottom with the casing we did not have circulation indicating the lost circulation

To Whom it May Concern
January 21, 1987
Page 2

zone was taking fluid again. As soon as the packer shoe was set at 7832 feet the hole circulated again. Fluid level on all zones tested above 7832 and lost circulation zones indicates a bottom hole pressure of around 2800 pounds.

If we assume the disposal water to weigh 9 lbs/gal then the disposal column would have a hydrostatic pressure of 3600 lbs which is 800 lbs above the pressure in the formation so the well will take water on a vacuum.

B. Suggestions for completion as a SWD well:

1. Rent string of 2-3/8" tubing
2. Go in hole and retrieve bridge plug
3. Put small bit on tubing and go back in hold and drill out packer shoe at 7832 feet. (Halliburton can tell you the I.D. of the packer shoe. The inside is not iron.)
4. After packer shoe has been drilled, you probably will not have returns. Pump 2000 gal of whatever kind of acid Halliburton recommends through bit to clean up open hole 7832 to 46, annulus behind 5 1/2" casing from 7846 to 7961 and the main lost circulation zone 7958 to 7961.
5. Pull 2-3/8" tubing w/bit and run 2-7/8" plastic-lined tubing with nickel plated lock set packer. Set packer at 7500 feet. Fill annulus with packer fluid. You are now ready to inject water into the Wolfcamp on a vacuum.

Respectfully suggested,

Robert E. Boling

REB:scp

APPLICATION FOR AUTHORITY TO INJECT

SUPPLEMENTAL INFORMATION

I & W, INC.
WELL NO.1 WALTER SOLT STATE
EDDY COUNTY, NEW MEXICO

ITEM:

III. WELL DATA:

A.(1) Well Name: I & W, Inc. (formerly Metex Pipe & Supply) Walter Solt State No.1
2240'FSL and 400'FWL of Section 5,
T.18 S., R.28 E., Eddy County, New Mexico

(2) Casing Data: (Also see Exhibit "C")

Surface Casing:

13-3/8" 54# J-55 casing set at 354' in 17-1/2" hole.
Cemented with 350 sacks of Class "C" cement with 2% CaCl.
Cement circulated to surface.

Intermediate Casing:

8-5/8" 24# J-55 casing set at 1745' in 11" hole.
Cemented with 400 sacks of Halco Lite with 8# salt and 1/4# Flocele per sack and 250 sacks of Class "C" with 2% CaCl.
Cement circulated to surface.

First Production Casing:

5-1/2" 17# N-80 and K-55 LTC casing set at 8466' in 7-7/8" hole. Cemented with 135 sacks of Class "H" cement.
Cement bond log showed top of cement behind 5-1/2" casing at 7961'. Could not circulate behind 5-1/2" to place additional cement behind casing. After testing upper Cisco formation, 5-1/2" casing was cut at 7846' and pulled.

Second Production Casing:

Above 5-1/2" casing was rerun with packer shoe on bottom and set at 7832 with Lynes formation packer at 7690'. After setting packer on casing shoe hole would circulate. Pumped in nitrogen and foam to lighten fluid column and then cemented 5-1/2" casing with 100 sacks of Class "H" cement.
Ran WELEX cement bond log. Found PB total depth at 7816'. Found good cement job from 7806' up to 7400'.

(3) Injection Tubing: (Also see Exhibit "D")

Size: 2-7/8" O.D.

Lining Material: Plastic.

Setting Depth: 7500 feet.

B.(1) Injection Formation: Wolfcamp formation. Proposed injection well is not in a defined Wolfcamp pool.

(2) Injection Interval: Injection will be into existing perforations and open hole intervals as follows:

Perforations 7518'-7534'

" 7632'-7642'

" 7742'-7756'

" 7778'-7787'

" 7810'-7812'

Open Hole 7832'-7961'

(3) Original Purpose of Well: This well was drilled originally as an 8500 foot Permo-Penn test.

(4) Other Perforated Intervals: Only other perforations, 10 holes in the interval 8214'-8236', were to test the Cisco Lime. This zone tested non-commercial and was sealed off by setting a bridge plug at 8200 feet and capping with 35 feet of cement.

(5) Overlying and/or Underlying Oil and Gas Zones: The next higher producing zone in the area is in the Abo formation at an approximate depth of 6250 feet.

The next lower producing zone in the area is the Morrow formation in the Pennsylvanian at an approximate depth of 10,000 feet.

V. MAP: Exhibit "A" is a land plat showing wells and leases in the area of the proposed injection well and the proposed injection well's "area of review". Also shown are wells within a radius of two miles which penetrated the Wolfcamp formation. These wells, together with well data, are tabulated and presented as Exhibit "B".

VI. WELLS IN AREA OF REVIEW: As shown on Exhibit "A", there is only one well in the area of review that penetrated the proposed injection zone. Information concerning this well is as follows:

Operator: Phillips Petroleum Company.

Well Name: Well No.1 Illinois Camp "A" Com.

Well Location: 1980'FNL and 990'FWL of Section 5, T.18 S., R.28 E., Eddy County, New Mexico.

Spud Date: 5-28-83.

Surface Casing: 13-3/8" 54.5# K-55 casing set at 663' in 17-1/2" hole. Cemented with 650 sacks of Class "C" cement with 2% CaCl. Cement circulated.

Intermediate Casing: 8-5/8" 32# K-55 casing set at 4000' in 11" hole. Cemented with 1400 sacks Class "C" with 20% Diacel D followed by 200 sacks of Class "C" with 2% CaCl. Cement circulated.

Production Casing: 5-1/2" 20# N-80 LTC casing set at 10,450' in 7-7/8 hole with DV tool at 6500 feet. Cemented with 1472 sacks Class "H". Opened DV tool. Circulated out 100 sacks of first stage. Cemented thru DV tool with 235 sacks of Class "H" with 20% Diacel D followed by 300 sacks of Class "H". Ran temperature survey and found top of cement behind 5-1/2" casing at 4040 feet - 40 feet below 8-5/8" casing shoe.

Completion: Completed for gas production in Morrow formation through perforations at 10,070'-10,075' and 10,172'-10,184' with CAOF of 2611 MCFGPD and GOR of 21,900. Completion date 8-12-83.

VII. PROPOSED OPERATIONS DATA:

- (1) Proposed Average Daily Injection Rate: 2000 bbls.
Proposed Maximum Daily Injection Rate: 5000 bbls.
- (2) Type of System: Open
- (3) Expected Average Injection Pressure: Vacuum.
Proposed Maximum Injection Pressure: No greater than 0.2 psi per foot from surface to top of perforations.
- (4) Sources of Injection Water: The injection water will be mainly produced water from the Grayburg and San Andres formations. An analysis of this type of water is attached as Exhibit "E".

- (5) Receiving Formation: Wolfcamp. Exhibit "F" shows water analyses of Wolfcamp formation water taken from the proposed injection well.

VIII. INJECTION FORMATION:

- (1) The injection formation is the Wolfcamp, which is white to gray fine crystalline dolomite and limestone with small amounts of chert and thin layers of gray shale. Top of the Wolfcamp in this well is at 6590 feet and the bottom is at 8100 feet for a gross thickness of 1510 feet. Proposed injection is in lower Wolfcamp in the interval 7518-7961 feet.
- (2) Fresh water occurs in this area in sandy zones in the Chinle (Triassic) red beds. Base of the fresh water zone is at approximately 175 feet. There is no fresh water in zones below the Wolfcamp formation.

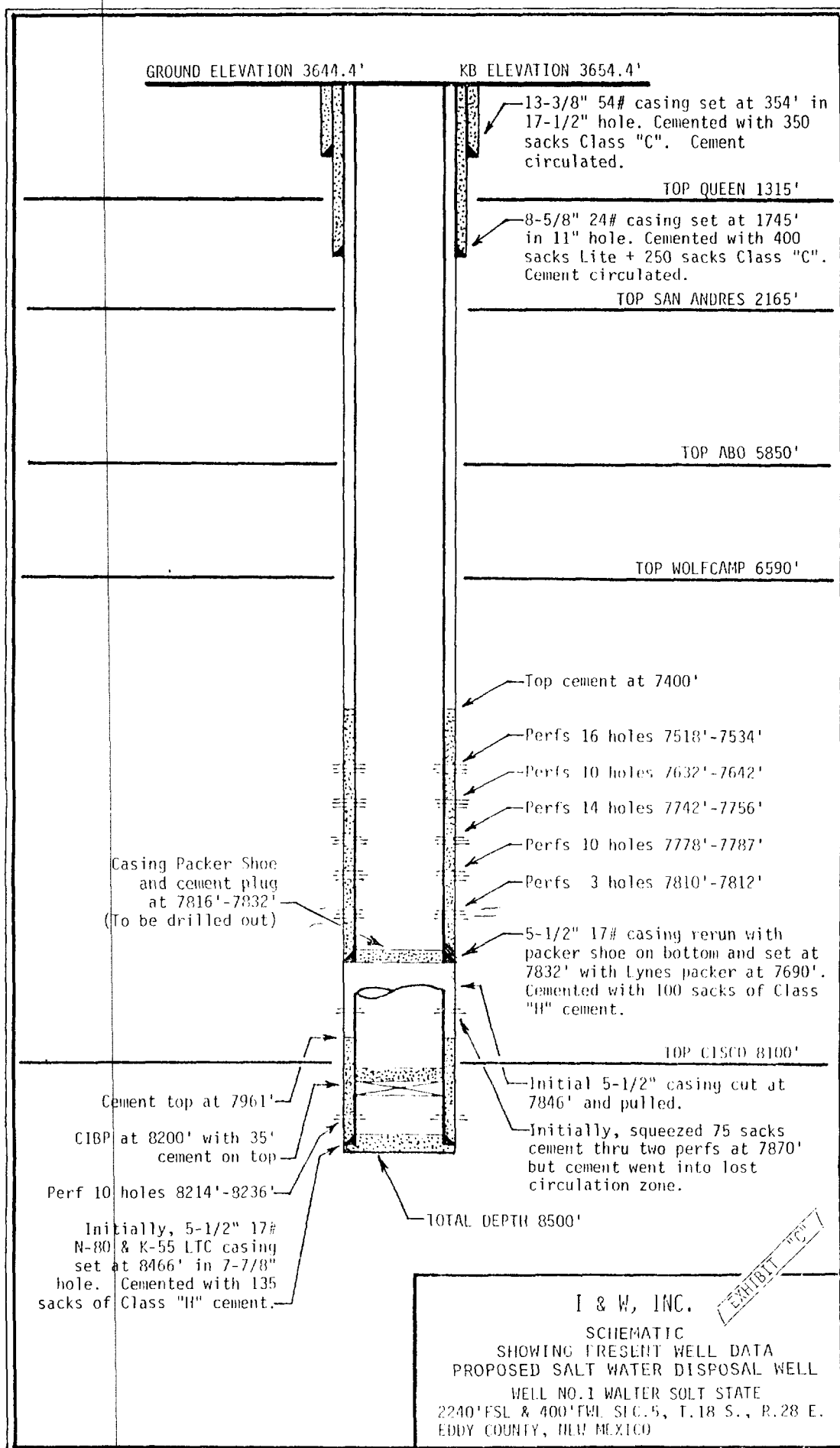
IX. STIMULATION PROGRAM: 5000 gallons of acid.

- X. WELL LOG: A copy of a portion of the well log, showing the proposed injection interval, is attached as Exhibit "G".

- XI. FRESH WATER WELLS: The New Mexico State Engineer's records show a fresh water well in the SW/4 of Section 4, T.18 S., R.28 E., which is 103 feet deep and tested 41 ppm in June 1985, and another well in the SE/4 of Section 7, T.18 S., R.28 E. which is of unknown depth and tested 255 ppm.

- XII. AFFIRMATIVE STATEMENT: Examination of available geologic and engineering data resulted in no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

- XIII. PROOF OF NOTICE: The owner of the surface on which the proposed injection well is located and leasehold operators within one-half mile of the well location are being notified of this application.



Rate - $\frac{8625}{10}$

Rate = $\frac{8625}{866/d}$

Actual Rate = .5 BPM or 720 Bbl/d.

56

LARGE FORMAT
EXHIBIT HAS
BEEN REMOVED
AND IS LOCATED
IN THE NEXT FILE