

ARCO Oil and Gas Company
Central District
Post Office Box 1610
Midland, Texas 79702
Telephone 915 688 5200



November 13, 1986

Mr. Richard L. Stamets
New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

RE: Empire Abo Unit Well No. T-6
Application for Authorization of Water Disposal Well
Eddy County, New Mexico

Dear Mr. Stamets:

ARCO Oil and Gas Company respectfully requests administrative approval to dispose of water in the ARCO-operated Empire Abo Unit Well No. T-6. The subject well is located 990' FSL and 1650' FWL, in Section 16, Township 18 South, Range 27 East, Eddy County, New Mexico. The EAU Well No. T-6 will be used to dispose of produced water from Empire Abo Unit wells in the Empire Abo Field. A NMOCD Form C-108 is attached along with all of the necessary data required to complete the form. A copy of Form C-108 has been mailed to the surface owner by certified mail. ARCO Oil and Gas Company and Yates Petroleum Corporation are the only leasehold operators within 1/2 mile of the EAU Well No. T-6.

Ten wells are located within a 1/2 mile radius of the EAU Well No. T-6. All wells within a 1/2 mile radius of the subject well either have cement covering the injection interval of EAU Well No. T-6, or have been P&A'd in a manner that will protect any fresh water zones. No compatibility problems between the Yesso and Empire Abo water is anticipated based on two SWD wells located in the Empire Abo Unit. These two SWD wells were used to dispose of Empire Abo water into the Yesso formation and have not experienced compatibility problems. These SWD wells are the Empire Abo Unit Well Nos. O-10 and L-191, which were approved for SWD by NMOCD Order Nos. SWD-48 and R-3581, respectively.

If any additional information is needed, please contact me at (915) 688-5557 and I will be happy to provide it to you.

Yours very truly,

Jack T. Lowder

Jack T. Lowder
Senior Engineer

JTL:tis
Attachments

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no
- II. Operator: ARCO Oil and Gas Company
Address: P. O. Box 1610, Midland, Texas 79702
Contact party: Jack T. Lowder Phone: (915) 688-5557
- 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: Jack T. Lowder Title: Sr. Oper./Analy. Engineer
Signature: Jack T. Lowder Date: 11-13-86
- * 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.

Attachment to Form C-108

ARCO's Empire Abo Unit Well No. T-6

Section

III. Well Data: See attached well diagram and tabular well data sheet.

V. Area of Review: See attached plat.

VI. Well Data in Area of Review:

ARCO Empire Abo Unit Well No. R-5

Type: Empire Abo Oil Producer (SI)

Construction: 8-5/8", 32#, J-55 casing at 1519' cemented with 875 sacks, TOC at surface. 4-1/2", 9.5#, J-55 casing at 5708' cemented with 800 sacks, cement circulated.

Date Drilled: 9-7-60

Location: 1980' FNL, 660' FWL, Sec. 16-T18S-R27E

Depth: 5708'

Record of Completion: Perf'd Empire Abo 5555-5579' w/2 JSPF. Acidized perfs 5555-5579' w/6000 gal 15% NE HCL acid. IP 9-10-60 flowing 107 BO in 5-1/2 hours. 2-27-64 Fracture treated perfs 5555-5579' w/40,000 gal lease crude, 23,100# 20/40 sand and 5000# 12/20 glass beads.

ARCO Empire Abo Unit Well No. R-6

Type: Empire Abo Oil Producer (TA'd)

Construction: 8-5/8", 32#, J-55 casing at 1493' cemented with 800 sacks, cement circulated. 4-1/2", 9.5#, J-55 casing at 5699' cemented with 800 sacks, cement circulated.

Date Drilled: 7-21-60

Location: 1650' FNL, 1650' FWL, Sec. 16-T18S-R27E

Depth: 5700'

Record of Completion: Perf'd Empire Abo 5582-5600' w/2 JSPF. Acidized perfs 5582-5600' w/6000 gal 15% HCL acid. IP 7-23-60 flowing 117 BO in 11 hours. 12-5-62 Acidized perfs 5582-5600' w/12,000 gal acid. 5-5-63 Perf'd 5461, 82, 5501, 05, 16, 19, 24, 29, 37, 42 w/1 JSPF and acidized 5461-5524' w/15,000 gal 15% HCL acid. 10-30-63 Set CIBP at 5562'. Squeezed 5461-5524' w/300 sx of cmt. Perf'd 5461, 82, 5501, 06, 16, 19, 24, 29, 37, 42 w/1 JSPF. Acidized perfs w/14,000 gal NE 15% NCL acid. Fracture treated perfs w/43,800 gal lease crude, 24,000# sand and 5000# beads. 9-30-82 Set CR at 5400'. Squeezed perfs 5461-5600' w/250 sx of cmt. Dumped 60' of cmt on top of CR. Spotted 100' cmt plugs at 5088-5188', 4118-4218' and 1460-1560'.

ARCO Empire Abo Unit Well No. S-4

Type: Empire Abo Oil Producer (SI)

Construction: 8-5/8", 24#, J-55 casing at 1525' cemented with

955 sacks, TOC at surface. 4-1/2", 9.5#, J-55 casing at 5600' cemented w/850 sacks, cement circulated.

Date Drilled: 5-23-61

Location: 2314' FSL, 330' FEL, Sec. 17-T18S-R27E

Depth: 5602'

Record of Completion: Perf'd Empire Abo 5535-5540' w/2 JSPF. Acidized w/14,000 gal acid. Set CIBP at 5505' w/5' cmt on top. Perf'd 5446-5458' w/2 JSPF. Acidized w/10,000 gal acid. Perf'd 5316-22', 5382-5402' w/2 JSPF. Acidized 5316-5402' w/5000 gal acid. IP 6-21-61 flowing 81 B0 and 23 BW in 12 hours. 3-10-64 Fracture treated perfs 5316-5458' w/48,428 gal lease crude, 24,000# sand and 5,000# glass beads.

ARCO Empire Abo Unit Well No. S-401

Type: Empire Abo Dry Hole (TA'd)

Construction: 8-5/8", 24#, J-55 casing at 1516' cemented with 800 sacks, cement circulated. 4-1/2", 9.5#, J-55 casing at 5954' cemented with 800 sacks, TOC at 1350' by temp survey.

Date Drilled: 12-7-60

Location: 1650' FSL, 330' FEL, Sec. 17-T18S-R27E

Depth: 5970'

Record of Completion: Perf'd Empire Abo 5812-5826' w/2 JSPF. Acidized w/5000 gal. Set CIBP at 5780' w/10' cmt on top. Perf'd 5672-82', 5690-96', 5702-16' w/2 JSPF. Acidized w/10,000 gal 15% acid. Set CIBP at 5635' w/10' cmt on top. Perf'd 5526-34', 5548-62' w/2 JSPF. Acidized w/6,000 gal 15% HCL acid. Squeezed 5526-34', 5548-62' w/150 sx cmt. RO 25 sx. Perf'd 5526-34' and 5548-5562' w/2 JSPF. Acidized w/6000 gal 15% HCL acid. Spotted 200' cmt plug at 5400-5600'.

ARCO Empire Abo Unit Well No. S-5

Type: Empire Abo Oil Producer (SI)

Construction: 8-5/8", 24#, J-55 casing at 1519' cemented with 875 sacks, TOC at surface. 4-1/2", 9.5#, J-55 casing at 5797' cemented with 800 sacks, TOC at 300' by temp survey.

Date Drilled: 10-9-60

Location: 1980' FSL, 660' FWL, Sec. 16-T18S-R27E

Depth: 5797'

Record of Completion: Perf'd Empire Abo 5704-14', 5720-23', 5728-34', 5737-39', 5748-52', 5755-58' w/2 JSPF. Acidized w/16,000 gal 15% HCL acid. Set CIBP at 5698'. Perf'd 5662-67', 5678-90' w/2 JSPF. Acidized w/15,000 gal 15% HCL acid. Pushed CIBP to 5770'. Squeezed 5662-5758' with 250 sx cmt. Perf'd 5338-50', 5366-91', 5414-22', 5434-56'. Acidized w/18,000 gal 15% HCL acid. IP 11-8-60 84 B0, 1 BW and 60 MCFG in 24 hours. 2-6-69 Acidized 5338-5456' w/1000 gal 15% NE HCL acid.

ARCO Empire Abo Unit Well No. S-6

Type: Empire Abo Oil Producer (SI)

Construction: 8-5/8", 24#, J-55 casing at 1515' cemented with 800 sacks, cement circulated. 4-1/2", 9.5#, J-55 casing at 5955' cemented with 800 sacks, TOC at 110' by temp survey.

Date Drilled: 10-15-60

Location: 1980' FSL, 1650' FWL, Sec. 16-T18S-R27E

Depth: 5963'

Record of Completion: Perf'd Empire Abo 5820-50' w/2 JSPF. Acidized w/17,500 gal 15% HCL acid. Set CIBP at 5790' w/1 sk cmt on top. Perf'd 5350-75', 5403-20', 5440-55', 5490-5502' w/2 JSPF. Acidized w/19,000 gal 15% HCL acid. IP 11-16-60 flowing 123 BO, 3 BW and 173 MCFG in 16 hours. 5-29-63 Perf'd 5261, 65, 77, 82, 95, 5547, 53, 73, 78, 83, 99, 5614, 28, 60, 77, 91, 96, 5711, 24, 33 w/1 JSPF. Acidized 5547-5733' w/20,000 gal. Acidized 5261-5295' w/7500 gal. 12-24-63 Fracture treated 5261-5733' w/60,000 gal lease crude, 30,000# sand and 7500# glass beads.

ARCO Empire Abo Unit Well No. S-7

Type: Empire Abo Oil Producer (SI)

Construction: 8-5/8", 24#, J-55 casing at 1498' cemented with 700 sacks, TOC at surface. 4-1/2", 9.5#, J-55 casing at 6007' cemented with 1200 sacks, cement circulated.

Date Drilled: 12-25-62

Location: 2304' FSL, 2310' FEL, Sec. 16-T18S-R27E

Depth: 6007'

Record of Completion: Perf'd Empire Abo 5711-16', 5747-52', 5756-62', 5774-84', 5842-50', 5887-92', 5896-5902', 5906-5912', 5917-22' w/2 JSPF. Acidized w/1000 gal. IP 1-2-62 flowing 96 BO and 4 BW in 24 hours. 1-14-71 Set retr BP at 5868'. 8-23-79 Retrieved BP at 5868'. Squeezed perfs 5887-5922' with 200 sx cmt, RO 100 sx. Squeezed perfs 5711-5850' with 400 sx cmt, RO 1 sk. Perf'd 5810-20' w/2 JSPF. Acidized with 1200 gal 15% HCL acid and 800 gal xylene. Squeezed 5810-20' w/125 sx cmt, RO 28 sx. Perf'd 5756-62' w/2 JSPF. Acidized w/1500 gal 15% HCL acid. Squeezed 5756-62' w/150 sx cmt, RO 36 sx. Perf'd 5708-16' w/2 JSPF. Acidized w/900 gal 15% HCL acid and 600 gal xylene. Set CIBP at 5690'. Perf'd 5646-56' w/2 JSPF. Acidized w/1200 gal 15% HCL acid and 800 gal xylene. Acidized w/3000 gal 15% HCL acid.

ARCO Empire Abo Unit Well No. T-5 (see attached schematic)

Type: Empire Abo Dry Hole (D&A'd)

Construction: 8-5/8", 24#, J-55 casing at 1531' cemented with 800 sacks, circulated cement. 4-1/2", 9.5#, J-55 casing at 6150' cemented with 175 sacks, TOC at 5100' by temp survey.

Date Drilled: 11-15-60

Location: 660' FSL, 660' FWL, Sec. 16-T18S-R27E

Depth: 6150'

Record of Completion: Perf'd Empire Abo 6069-73', 6080-88'. Acidized w/6500 gal 15% HCL acid. Squeezed 6069-6088' w/200 sx cmt. Perf'd 6020-34' w/2 JSPF. Acidized w/6500 gal 15% HCL acid. Squeezed 6020-34' w/100 sx cmt. Perf'd 5932-40' w/2 JSPF. Acidized w/6500 gal acid. Squeezed 5932-40' w/100 sx cmt. Perf'd 5844-49', 5855-62' w/2 JSPF. Acidized w/6500 gal acid. Squeezed 5844-62' w/100 sx cmt. Perf'd 5760-5765' w/2 JSPF. Acidized w/4500 gal acid. Cut 4-1/2" casing at 4950' and pulled. Set 50 sack cmt plugs at 4900-5000' and 1475-1575'. Set 10 sack cmt plug at 0-20'. Mud laden fluid between all plugs.

ARCO Empire Abo Unit Well No. T-7 (see attached schematic)

Type: Empire Abo Oil Producer (P&A'd)

Construction: 7", 20#, H-40 casing at 1500' cemented with 350 sacks, cement circulated. 4-1/2", 9.5# and 11.6#, J-55 casing at 6100' cemented with 200 sacks, TOC at 3225' by temp survey.

Date Drilled: 9-14-64

Location: 990' FSL, 2310' FEL, Sec. 16-T18S-R27E

Depth: 6100'

Record of Completion: Perf'd Empire Abo 6060-71'. Acidized with 500 gal. Squeezed 6060-71' w/50 sx cmt. Perf'd 5958-82'. Acidized w/500 gal. IP 11-23-64 pumping 56 BO, 220 BW in 24 hours. 7-9-80 Set CIBP at 5900' w/2 sx cmt on top. Cut 4-1/2" casing at 3051' and pulled. Set 30 sack cmt plug at 2971-3131'. Set 40 sack cmt plug at 1394-1606'. Set 10 sack cmt plug at 0-58'.

Yates Petroleum Rio Pecos "RS" Federal Well No. 1 (see attached schematic)

Type: Morrow Gas Dry Hole (D&A'd)

Construction: 13-3/8", 54.5#, J-55 casing at 342' cemented with 350 sacks, cement circulated. 8-5/8", 32#, J-55 casing at 3200' cemented with 1175 sacks, cement circulated. 4-1/2", 9.5#, J-55 casing at 9843' cemented with 1200 sacks, TOC at 5490' by casing bond log.

Date Drilled: 5-22-86

Location: 760' FNL, 1980' FEL, Sec. 21-T18S-R27E

Depth: 9850'

Record of Completion: Perf'd Morrow 9031-39' w/2JSPF. Acidized w/3000 gal 15% NEFE HCL acid. Perf'd Morrow 8022-29', 8035-8038' w/1 JSPF. Acidized w/2500 gal 15% NEFE HCL acid. Perf'd 7214-69', 8586-95', 9042-50' and 9471-74'. Cut 4-1/2" casing at 5364' and pulled. Set two 10 sack cmt plugs at 8500 and 9450'. Set CIBP at 7180' w/ 35' cmt on top. Set 50 sack cmt plug at 5205-5416'. Set 45 sack cmt plug at 3135-3255'. Set 30 sack cmt plug at 344-460'. Set 15 sack cmt plug at 0-58'.

VII. Data on Proposed Operation:

- 1) Proposed Average Daily Rate: 800 BWP
Proposed Maximum Daily Rate: 2500 BWP
- 2) Type of System: Open
- 3) Proposed Average Injection Pressure: 500 psig
Proposed Maximum Injection Pressure: 700 psig
- 4) Injection Water Source: Empire Abo

Compatibility Tests: See attached water analyses.
- 5) Chemical Analysis of Disposal Zone: No compatibility problems exist in other area SWD wells disposing of Empire Abo water into the Yeso formation. If required, a water sample and analysis will be obtained during the workover to convert the subject well to a SWD well.

VIII. Geological Data on the Injection Zone:

Geological Name: Yeso
Lithological Detail: Sucrosic Dolomite
Thickness: 100'
Depth: 3610' to 3710'

Geological Data of Drinking Water Zone:

The underground source of drinking water overlying the zone of disposal is the Ogallala, which occurs near the surface and is approximately 350' thick. There is no known source of drinking water below the zone of disposal.

- IX. Proposed Stimulation Program: Acidize Yeso perforations with 7500 gal 15% NEFE HCL.
- X. Log and Test Data: Test data attached. Logs enclosed.
- XI. Chemical Analysis of Fresh Water: See attached water analysis sheet dated 10-29-86 for freshwater wells shown on map.
- 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 source of drinking water.
- XIII. Proof of Notice: Copy of application sent to surface owner by certified mail. Affidavit of Mailing attached. Proof of Publication to be received from Artesia Daily Press.

ARCO Oil and Gas Company
Empire Abo Unit Well No. T-6
990' FSL & 1650' FWL
Sec. 16-T18S-R27E
Eddy County, New Mexico

Disposal Well Tabular Data

Surface Casing

Size: 8-5/8" set at 1534'. Cemented with 800 sx.
TOC at surface determined by circulating.
Hole Size: 11"

Production Casing

Size: 4-1/2" set at 5983'. Cemented with 800 sx.
TOC at surface determined by circulating.
Hole Size: 7-7/8"

Total Depth: 5985'

Injection Interval: 3610' to 3710' (Perforated)

(TK-75)

Tubing: Size 2-3/8" lined with internal plastic coating set in a Baker Lok-Set packer at 3500 feet.

Name of Injection Formation: Yeso

Is this a new well drilled for injection? No, the well was originally drilled as an Empire Abo producer.

Has the well ever been perforated in any other zones? Yes

Perforated intervals and plugging detail: Perforations 5850-5878' and 5910-5922' squeezed with 70 sx of cement. Perforations 5670-5680', 5740-5750', 5774-5786' and 5792-5806' squeezed with 195 sx of cement. Perforations 5741-5747', 5777-5782', 5913-5921' and 5962-5966' squeezed with 300 sx of cement. Cement retainer at 5210' with 15 sx of cement on top.

Depth and Name of overlying and/or underlying oil or gas zones (pools) in this area:

<u>Name</u>	<u>Depth</u>
Empire Abo	5600'

ARCO Oil and Gas Company
Empire Abo Unit Well No. T-6
990' FSL & 1650' FWL
Sec. 16-T18S-R27E
Eddy County, New Mexico

Proposed

Yeso Perfs
3610-3710'

8-5/8" Csg @ 1534'
cmtd w/800 sx. Circ.
2-3/8" tbg & Lok-set
pkr @ 3500'

CR @ 5210' w/15 sack
cmt plug on top

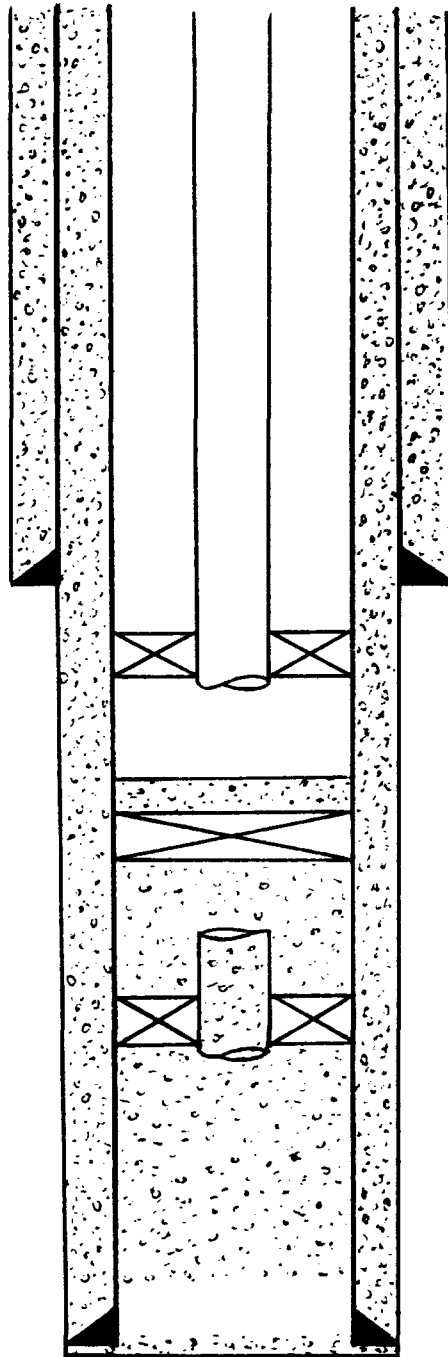
2-3/8" tbg @ 5476'

AD-1 pkr @ 5650'

Abo Perfs (sqzd)

5670-5680'
5740-5750'
5776-5786'
5792-5806'
5850-5878'
5910-5922'
5962-5966'

4-1/2" Csg @ 5983'
cmtd w/800 sx. Circ.
TD @ 5985'



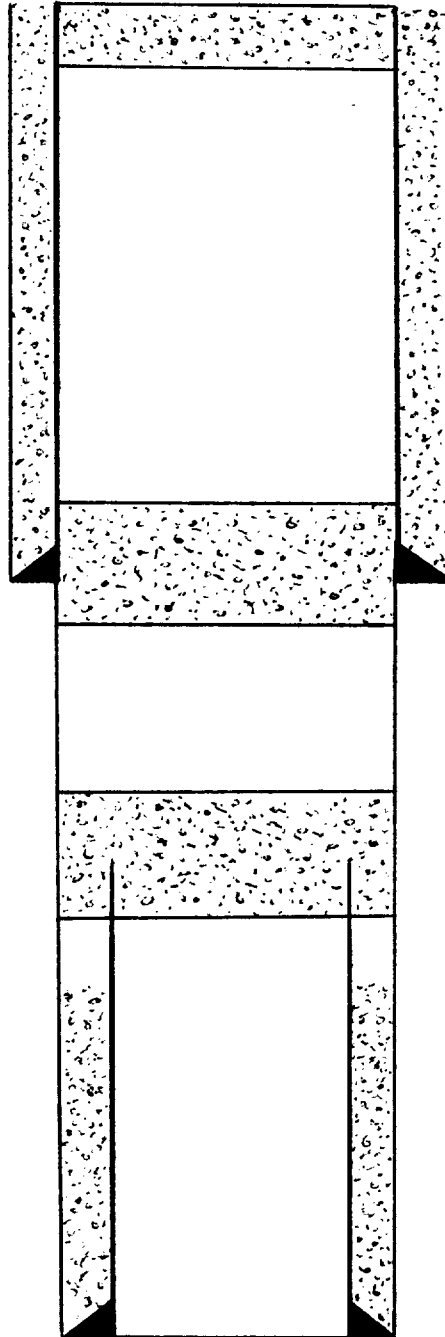
ARCO Oil and Gas Company
 Empire Abo Unit Well No. T-5
 660' FSL & 660' FWL
 Sec. 16-T18S-R27E
 Eddy County, New Mexico

10 sack cmt
 plug 0-20'

50 sack cmt
 plug 1475-1575'

50 sack cmt
 plug 4900-5000'

Abo Perfs
 5760-5765'
 5844-5849'
 5855-5862'
 5932-5940'
 6020-6034'
 6069-6073'
 6080-6088' } sqzd



8-5/8" Csg @ 1531'
 cmtd w/800 sx. Circ.

4-1/2" Csg @ 4950'

TOC @ 5100' by
 temp survey

4-1/2" Csg @ 6150'
 cmtd w/175 sx.
 TD @ 6150'

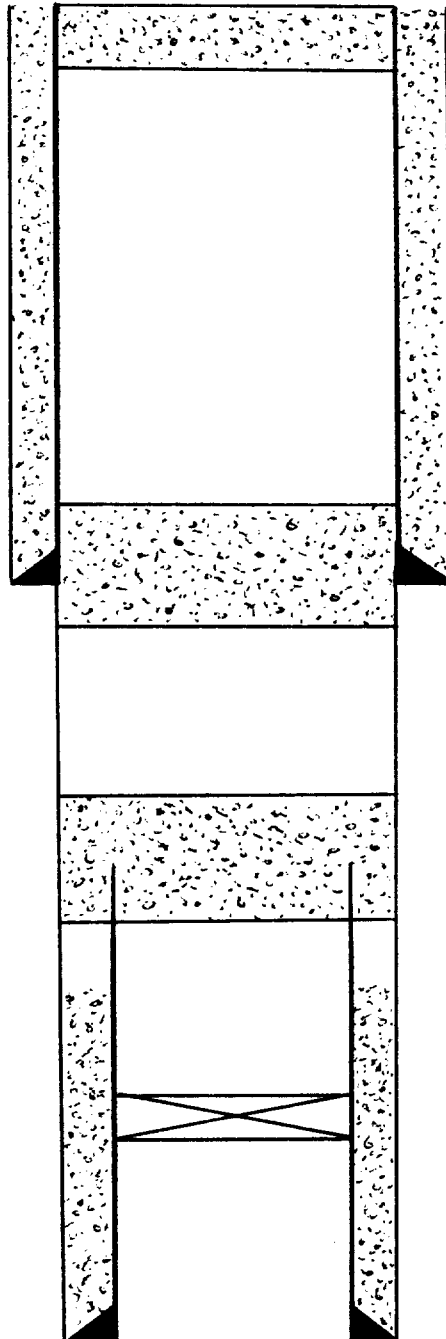
ARCO Oil and Gas Company
Empire Abo Unit Well No. T-7
990' FSL & 2310' FEL
Sec. 16-T18S-R27E
Eddy County, New Mexico

10 sack cmt
plug 0-58'

40 sack cmt
plug 1394-1606'

30 sack cmt
plug 2971-3131'

Abo Perfs
5958-5982'
6060-6071' Sqzd



7" Csg @ 1500'
cmtd w/350 sx. Circ.

4-1/2" Csg @ 3051'

TOC @ 3225' by
temp survey

CIBP @ 5900'

4-1/2" Csg @ 6100'
cmtd w/200 sx.
TD @ 6100'

Yates Petroleum
 Rio Pecos "RS" Federal Well No. 1
 760' FWL & 1980' FEL
 Sec. 21-T18S-R37E
 Eddy County, New Mexico

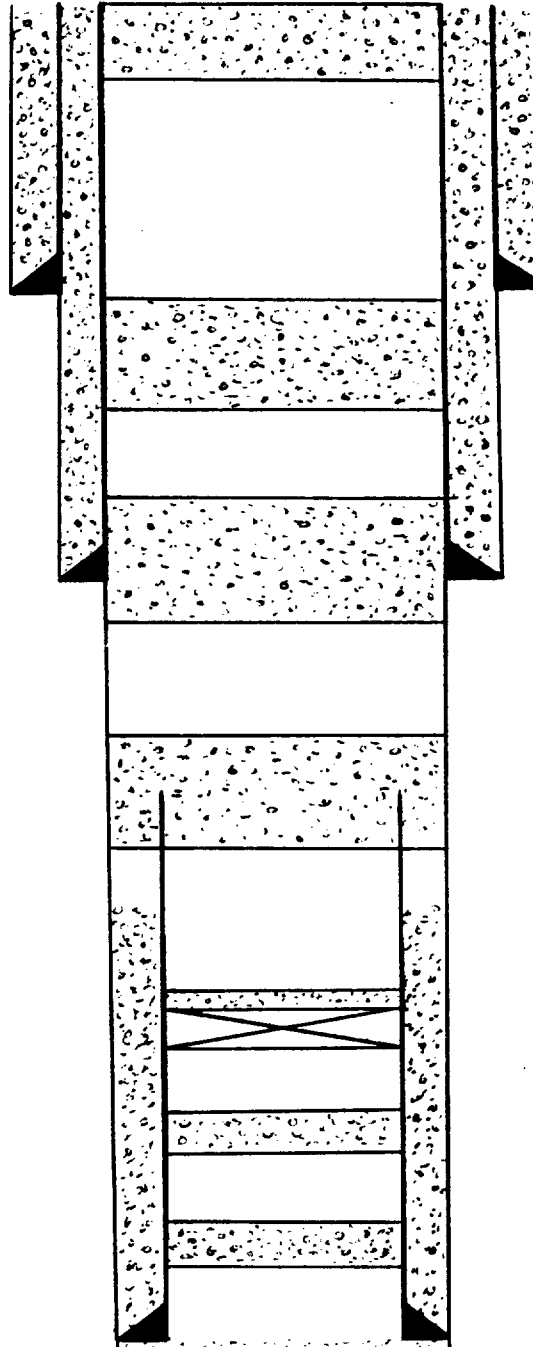
15 sack cmt
 plug 0-58'

30 sack cmt
 plug 344-460'

45 sack cmt
 plug 3135-3255'

50 sack cmt
 plug 5205-5416'

Morrow Perfs
 7214-7269'
 8022-8029'
 8035-8038'
 8586-8595'
 9031-9039'
 9042-9050'
 9471-9474'



13-3/8" Csg @ 342'
 cmtd w/350 sx. Circ.

8-5/8" Csg @ 3200'
 cmtd w/1175 sx. Circ.

4-1/2" Csg @ 5364'

TOC @ 5490' by CBL

CIBP @ 7180' w/35'
 cmt on top

10 sack cmt
 plug 8500-8645'

10 sack cmt
 plug 9305-9450

4-1/2" Csg @ 9843'
 cmtd w/1200 sx.
 TD @ 9850

NEW MEXICO OIL CONSERVATION COMMISSION

MISCELLANEOUS REPORTS ON WELLS

(Submit to appropriate District Office as per Commission Rule 1106)

RECEIVED

FORM C-103
(Rev 3-55)

NOV 22 1960

O. C. C.
ARTESIA OFFICE

Name of Company Humble Oil & Refining Company		Address Box 2347, Hobbs, N.M.			
Lease Abo Chalk Bluff Draw Unit	Well No. 19	Unit Letter N	Section 16	Township 18 S	Range 27 E
Date Work Performed 11-7, 11-14-60	Pool Empire Abo			County Eddy	

THIS IS A REPORT OF: (Check appropriate block)

- | | | |
|--|--|---|
| <input type="checkbox"/> Beginning Drilling Operations | <input checked="" type="checkbox"/> Casing Test and Cement Job | <input type="checkbox"/> Other (Explain): |
| <input type="checkbox"/> Plugging | <input checked="" type="checkbox"/> Remedial Work | |

Detailed account of work done, nature and quantity of materials used, and results obtained.

Spudded 11" hole at 5:00 PM 11-7-60. Ran 1521' (49 jts) 8-5/8" 24# J-55 csg, set at 1534'. Cmt W/800 sx reg cmt. POB 2:15 AM 11-12-60. Cmt circ. Tested csg w/1500# for 30 min - no drop in pressure. Drilled float collar, guide shoe and 5' formation, tested w/600# for 30 min- no drop in pressure - drilling.

Witnessed by <i>C. L. Sparkman</i>	Position Field Supt	Company Humble Oil & Refining Co.
---------------------------------------	------------------------	--------------------------------------

FILL IN BELOW FOR REMEDIAL WORK REPORTS ONLY

ORIGINAL WELL DATA

D F Elev.	T D	P BTD	Producing Interval	Completion Date
Tubing Diameter	Tubing Depth	Oil String Diameter	Oil String Depth	
Perforated Interval(s)				
Open Hole Interval		Producing Formation(s)		

RESULTS OF WORKOVER

Test	Date of Test	Oil Production BPD	Gas Production MCFPD	Water Production BPD	GOR Cubic feet/Bbl	Gas Well Potential MCFPD
Before Workover						
After Workover						

OIL CONSERVATION COMMISSION		I hereby certify that the information given above is true and complete to the best of my knowledge.	
Approved by <i>M. L. Armstrong</i>	Name <i>Ann E. [Signature]</i>		
Title OIL AND GAS INSPECTOR	Position Agent		
Date NOV 22 1960	Company Humble Oil & Refining Company Box 2347, Hobbs, N.M.		

RECEIVED

NEW MEXICO OIL CONSERVATION COMMISSION

FORM C-103

DEC 14 1960

(Rev 3-55)

MISCELLANEOUS REPORTS ON WELLS

(Submit to appropriate District Office as per Commission Rule 110A) ☐ O. C. C. ARTESIA, OFFICE

Name of Company Humble Oil & Refining Company				Address Box 2347, Hobbs, New Mexico			
Lease Abo Chalk Bluff Draw Unit	Well No. 19	Unit Letter N	Section 16	Township 18-S	Range 27-E		
Date Work Performed 12/10/60		Pool Empire Abo		County Eddy			

THIS IS A REPORT OF: (Check appropriate block)

- ☐ Beginning Drilling Operations
 ☒ Casing Test and Cement Job
 ☐ Other (Explain):
- ☐ Plugging
 ☐ Remedial Work

Detailed account of work done, nature and quantity of materials used, and results obtained.

Drilled to total depth of 5985'. Ran 5970' (189 jts) 4½", J-55
 9.5# csg set @ 5983' w/800 sx 12% gel cmt with 1/4# flocele/sx in
 first 100 sx. POB @ 10:45 a.m., 12/10/60. Cmt circulated. Tested
 csg w/1500# for 30 minutes - no drop in pressure.

Witnessed by <i>C. L. Sparkman</i>	Position Fld Supt	Company Humble Oil & Refining Co.
------------------------------------	--------------------------	--

FILL IN BELOW FOR REMEDIAL WORK REPORTS ONLY

ORIGINAL WELL DATA

D F Elev.	T D	P B T D	Producing Interval	Completion Date
Tubing Diameter	Tubing Depth	Oil String Diameter	Oil String Depth	
Perforated Interval(s)				
Open Hole Interval		Producing Formation(s)		

RESULTS OF WORKOVER

Test	Date of Test	Oil Production BPD	Gas Production MCFPD	Water Production BPD	GOR Cubic feet/Bbl	Gas Well Potential MCFPD
Before Workover						
After Workover						

OIL CONSERVATION COMMISSION

I hereby certify that the information given above is true and complete to the best of my knowledge.

Approved by <i>M. L. Armstrong</i>	Name <i>C. L. Sparkman</i>
Title OIL AND GAS INSPECTOR	Position Agent
Date DEC 14 1960	Company Humble Oil & Refining Company

NUMBER OF COPIES RECEIVED 3	
DISTRIBUTION	
SANTA FE	
FILE	
U.S.G.S	
LAND OFFICE	
TRANSPORTER	OIL
	GAS
PRODUCTION OFFICE	
OPERATOR	

NEW MEXICO OIL CONSERVATION COMMISSION

MISCELLANEOUS REPORTS ON WELLS

(Submit to appropriate District Office as per Commission Rule 1106)

RECEIVED
JAN 25 1961
 C-103
 (Rev 3-55)
D. C. C.
ARTESIA, OFFICE

Name of Company Humble Oil & Refining Company		Address Box 2347, Hobbs, New Mexico			
Lease Abo Chalk Bluff Draw Unit	Well No. 19	Unit Letter N	Section 16	Township 18-S	Range 27-E
Date Work Performed 12-11-60, 1-21-61		Pool Empire Abo Unit		County Eddy	

THIS IS A REPORT OF: (Check appropriate block)

- ☐ Beginning Drilling Operations
 ☐ Casing Test and Cement Job
 ☒ Other (Explain): **Attempt to complete well.**
☐ Plugging
 ☐ Remedial Work

Detailed account of work done, nature and quantity of materials used, and results obtained.

SEE ATTACHED SHEET.

Witnessed by J. C. Sherrill	Position Field Supt.	Company Humble Oil & Refining Company
---------------------------------------	--------------------------------	---

FILL IN BELOW FOR REMEDIAL WORK REPORTS ONLY

ORIGINAL WELL DATA

D F Elev.	T D	P BTD	Producing Interval	Completion Date
Tubing Diameter	Tubing Depth	Oil String Diameter	Oil String Depth	
Perforated Interval(s)				
Open Hole Interval		Producing Formation(s)		

RESULTS OF WORKOVER

Test	Date of Test	Oil Production BPD	Gas Production MCFPD	Water Production BPD	GOR Cubic feet/Bbl	Gas Well Potential MCFPD
Before Workover						
After Workover						

OIL CONSERVATION COMMISSION		I hereby certify that the information given above is true and complete to the best of my knowledge.	
Approved by <i>M. L. Armstrong</i>	Name <i>Charles D. Fox</i>		
Title OIL AND GAS INSPECTOR	Position Agent		
Date JAN 25 1961	Company Humble Oil & Refining Company		

ABO CHALK BLUFF-DRAW UNIT, WELL #19, HUMBLE OIL & REFINING COMPANY.

RECEIVED
JAN 25 1961
D. C. C.
ARTERIA, OFFICE

Perforated 4 $\frac{1}{2}$ " csg 5910-5922' w/2 jet shots per ft. Acidized perfs 5910-5922' w/2000 gals 15% acid with avg inj rate of 4.2 BPM. Swbd 3 hrs, rec 25 bbls acid wtr. On 10 hr swab test, rec 16 bbls acid wtr. Swbd 11 hrs, rec 11 bbls wtr with slight show oil. Swbd dry. Shut well in for 4 days. Pulled 2" tbg. Perf 4 $\frac{1}{2}$ " csg 5850-5873' w/2 shots per ft. Ran tbg & pkr. Displaced wtr in hole with acid. Treated perforations 5910-5922' & 5850-5878' w/15,000 gals 15% low tension non-emulsion acid with avg inj rate of 9.4 BPM. Swbd 11 hrs, rec 14 bbls load & acid wtr - no show oil or gas. On 9 hr swb test, rec 30 bbls load & acid wtr. Swbd dry. Well shut in 2 days. Swbd 4 hrs, rec 25 bbls load & acid wtr. Swbd well to 5800' - no show. Pld tbg & shut well in. Ran tbg & set Halliburton DC squeeze tool at 5830'. Squeezed perfs 5910-5922' & 5850-5878' w/100 sx reg neat cmt. Reversed out 30 sx. Pld tbg out of hole. Perf 4 $\frac{1}{2}$ " csg 5740-5750', 5776-5786 & 5792-5806' w/2 shots per ft. Ran tbg w/pkr set at 5606'. Swbd dry. Acidized perfs w/4000 gals low tension acid with avg inj rate of 5.5 BPM. Opened well - flowed back 20 bbls acid wtr & swbd 10 bbls acid wtr. On 11 hr swb test, rec 60 bbls acid wtr w/show oil. On 9 hr swb test, rec 29 bbls acid wtr w/trace oil. Swbd 20 hrs, rec 89 bbls acid wtr. On 11 hr swb test, rec 1 bbl & 28 bbls wtr. Well shut in. Perf 4 $\frac{1}{2}$ " csg 5670-80' w/2 shots per ft. Pld tbg. Ran tbg w/Baker full bore cementer set at 5716'. Spotted 2000 gals acid above pkr. Pmpd acid into perforations. Had 4 bbls acid in formation & established communication between perforations. Swbd 3 hrs, rec 33 bbls load & acid wtr. On 12 hr swb test rec 41 bbls wtr. Swbd dry. On 10 hr swb test, rec 27 bbls wtr. Lowered 2" tbg to 5700' & spotted 1000 gals Dowell Jel X-830 over perfs 5740-5750, 5776-5786 & 5792-5806 with gradual pressure buildup. Plg tbg out of hole & shut in well. Ran tbg w/Halliburton drillable cmt retainer set at 5645'. Squeezed perfs 5670-80, 5740-50, 5774-5786, 5792-5804 w/200 sx slo-set neat cmt. Reversed out 5 sx. Pld tbg. Perf 4 $\frac{1}{2}$ " csg 5670-5680'. Ran tbg in hole with pkr at 5572'. Swbd well dry. Acidized 5670-5680' w/2000 gals low surface tension acid, avg inj rate 3.5 BPM. Swbd 28 bbls acid wtr. On 9 hr swb test, rec 70 bbls fluid, 3 BO & 67 bbls water. Swbd 9 hrs, rec 10 bbls oil & 10 bbls water. Swbd dry. On 8 hr swb test, rec 7 bbls oil & 13 bbls wtr. Swbd 9 hrs, rec 6 bbls oil & 13 bbls wtr. Swbd dry. Acidized 5670-5680' w/4000 gals non-emulsion low surface tension acid, avg inj rate 6.4 BPM. Swbd 1 hr, rec 42 bbls acid wtr. Well started flowing, flowed 22 bbls oil & 21 bbls acid water in 5 hrs. Shut well in. Opened well, flowed 1 hr & died. Swbd dry, kicked off & flowed 1 hr. Swbg, rec 30 bbls oil & 37 bbls acid wtr. On 22 hr flow test, rec 108 bbls PLC on 1/4" choke with TP 340. Testing. Final tubing setting at 5574'. On 17 hr potential test, rec 75 bbls oil, 7/10% BS&W on 14/64" choke. Completed as flowing oil well thru perfs 5670-5680'.

NUMBER OF COPIES RECEIVED		5
DISTRIBUTION		
SANTA FE		
FILE		
U.S.G.S.		
LAND OFFICE		
TRANSPORTER	OIL	
	GAS	
PRODUCTION OFFICE		
OPERATOR		3

NEW MEXICO OIL CONSERVATION COMMISSION

FORM C-103

MISCELLANEOUS REPORTS ON WELLS

(Submit to appropriate District Office as per Commission Rule 1706)

RECEIVED

APR 27 1961

Name of Company Humble Oil & Refining Company		Address Box 2347, Hobbs, N.M.		ARTESIA, OFFICE	
Lease Abo Chalk Bluff Draw Unit	Well No. 19	Unit Letter E	Section 16	Township 18-S	Range 27-E
Date Work Performed 4-4, 4-9-61	Pool Empire Abo	County Eddy			

THIS IS A REPORT OF: (Check appropriate block)

- ☐ Beginning Drilling Operations
 ☐ Casing Test and Cement Job
 ☐ Other (Explain):
- ☐ Plugging
 ☒ Remedial Work

Detailed account of work done, nature and quantity of materials used, and results obtained.

Acidized perforations from 5670 - 5680' w/10,000 gal Dowell XM-38 acid, avg inj rate 5.5 BPM. Swabbed well in and placed on production.

Witnessed by J. C. Sherrill	Position Field Supt	Company Humble Oil & Refining Co.
---------------------------------------	-------------------------------	---

FILL IN BELOW FOR REMEDIAL WORK REPORTS ONLY

ORIGINAL WELL DATA

D F Elev. 3435 DF	T D 5985	P B T D 5704	Producing Interval 5670 - 5680	Completion Date 5-21-61
Tubing Diameter 2	Tubing Depth 5574	Oil String Diameter 1 1/2	Oil String Depth 5983	
Perforated Interval(s) 5670-5680				
Open Hole Interval -		Producing Formation(s) Abo		

RESULTS OF WORKOVER

Test	Date of Test	Oil Production BPD	Gas Production MCFPD	Water Production BPD	GOR Cubic feet/Bbl	Gas Well Potential MCFPD
Before Workover	3-10-61	51	88	2	1725	
After Workover	4-8-61	84	121	2	1298	

OIL CONSERVATION COMMISSION

I hereby certify that the information given above is true and complete to the best of my knowledge.

Approved by <i>M. L. Armstrong</i>	Name <i>M. L. Armstrong</i>
Title OIL AND GAS INSPECTOR	Position Agent
Date APR 27 1961	Company Humble Oil & Refining Company

NO. OF COPIES RECEIVED	4
DISTRIBUTION	
SANTA FE	1
FILE	1
U.S.G.S.	
LAND OFFICE	
OPERATOR	2

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-103
Supersedes Old
C-102 and C-103
Effective 1-1-65

5a. Indicate Type of Lease
State <input checked="" type="checkbox"/> Fee <input type="checkbox"/>
5. State Oil & Gas Lease No.
LC-070938 7989

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT -" (FORM C-101) FOR SUCH PROPOSALS.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>	7. Unit Agreement Name
2. Name of Operator	Chalk Bluff Draw Unit (A)
Humble Oil & Refining Company	8. Farm or Lease Name
3. Address of Operator	Chalk Bluff Draw Unit (A)
Box 2100, Hobbs, N.M.	9. Well No.
4. Location of Well	19
UNIT LETTER N 990 FEET FROM THE South LINE AND 1650 FEET FROM	10. Field and Pool, or Wildcat
THE West LINE, SECTION 16 TOWNSHIP 18-S RANGE 27-E NMPM.	Empire Abo
15. Elevation (Show whether DF, RT, GR, etc.)	12. County
3435 DF	Eddy

Check Appropriate Box To Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	OTHER <input type="checkbox"/>

SUBSEQUENT REPORT OF:

REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
COMMENCE DRILLING OPNS. <input type="checkbox"/>	PLUG AND ABANDONMENT <input checked="" type="checkbox"/>
CASING TEST AND CEMENT JOBS <input type="checkbox"/>	OTHER <input type="checkbox"/>

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1703.

- Set 25 sack cement plug from 5670 - 5680'.
 - Filled hole w/mud laden fluid.
 - Set 10 sack plug - 20' - surface in 4 1/2" csg.
 - Install dry hole marker as required by NMOCC.
 - Cleaned and leveled location.
- (Well plugged & abandoned May 26, 1965)

RECEIVED

FEB 7 1966

O. C. C.
ARTESIA OFFICE

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED E. H. Harris TITLE Dist. Admin. Supervisor DATE Feb 4, 1966

APPROVED BY W. A. Gussert TITLE OIL AND GAS INSPECTOR DATE MAR 3 1966

CONDITIONS OF APPROVAL, IF ANY:

NO. OF COPIES RECEIVED	6
DISTRIBUTION	
SANTA FE	1
FILE	1
U.S.G.S.	2
LAND OFFICE	1
OPERATOR	1

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-103
Supersedes Old
C-102 and C-103
Effective 1-1-65

OCT 16 1968

D. C. C.

5a. Indicate Type of Lease State <input checked="" type="checkbox"/> Fee <input type="checkbox"/>
5. State Oil & Gas Lease No. 7989
7. Unit Agreement Name
8. Farm or Lease Name Chalk Bluff Draw Unit (A)
9. Well No. 19
10. Field and Pool, or Wildcat Empire Abo
12. County Eddy

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR.
USE "APPLICATION FOR PERMIT -" (FORM C-101) FOR SUCH PROPOSALS.)

1. OIL WELL <input checked="" type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/>
2. Name of Operator Humble Oil & Refg Co. ✓
3. Address of Operator Box 1600 - Midland, Texas 79701
4. Location of Well UNIT LETTER <u>N</u> <u>990'</u> FEET FROM THE <u>S</u> LINE AND <u>1650'</u> FEET FROM THE <u>W</u> LINE, SECTION <u>16</u> , TOWNSHIP <u>13-S</u> , RANGE <u>27-E</u> NMPM.
15. Elevation (Show whether DF, RT, GR, etc.) 3435 DF

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data	
NOTICE OF INTENTION TO:	SUBSEQUENT REPORT OF:
PERFORM REMEDIAL WORK <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	CASING TEST AND CEMENT JOB <input type="checkbox"/>
OTHER <input type="checkbox"/>	OTHER <u>Conkret to Salt Water Disposal</u> <input checked="" type="checkbox"/>

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

MIRU. Dild out cement plugs and cleaned hole to 5982' TD. RU. Lane Wells and perf. 4 1/2" csg from 5741' to 5747' and from 5777' to 5782' and from 5913' to 5921' and from 5962' to 5966' w/ 2 jet shots per ft. Acidized each set perfs w/ 2500 gal. 15% NE acid. Pulled out of hole and ready wellhead for water disposal. Ran 5637' - 2" EUE 4.7# J-55 plastic coated tubing, set pkv (Baker AD-1) @ 5650'. Filled csg-tbg annulus w/ Enjay #7720 Chemical mixed w/ 50 bbl water. Installed pressure gauge on Annulus and rig down.

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED R. T. Bunn TITLE Unit Head DATE 10-15-68

APPROVED BY W. A. Shrest TITLE C. C. C. Officer DATE OCT 16 1968

CONDITIONS OF APPROVAL, IF ANY:

C. CONSERVATION DIVISION
P. O. BOX 7088
SANTA FE, NEW MEXICO 87501

Form C-103
Revised 10-1-78

NO. OF COPIES REQUIRED	
DISTRIBUTION	
SANTA FE	
FILE	
U.S.G.S.	
LAND OFFICE	
OPERATOR	

5a. Indicate Type of Lease	
State <input checked="" type="checkbox"/>	Fee <input type="checkbox"/>
5. State Oil & Gas Lease No.	
7989	

SUNDRY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

OIL WELL ☐ GAS WELL ☐ OTHER ☒ SWD - TA

RECEIVED

2. Name of Operator: ARCO Oil and Gas Company
Division of Atlantic Richfield Company

OCT 15 1982

8. Farm or Lease Name
Empire Abo Unit SWD "T"

3. Address of Operator:
P. O. Box 1710, Hobbs, New Mexico 88240

O. C. D.

9. Well No.
6

4. Location of Well:

ARTESIA, OFFICE

10. Field and Pool, or Wildcat
Empire Abo

UNIT LETTER N 990 FEET FROM THE South LINE AND 1650 FEET FROM
THE West LINE, SECTION 16 TOWNSHIP 18S RANGE 27E NMPM.

15. Elevation (Show whether DF, RT, GR, etc.)
3435' DF

12. County
Eddy

16. Check Appropriate Box To Indicate Nature of Notice, Report or Other Data
NOTICE OF INTENTION TO: SUBSEQUENT REPORT OF:

PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>	PLUG AND ABANDONMENT <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	OTHER <input type="checkbox"/>	CASING TEST AND CEMENT JOB <input type="checkbox"/>	OTHER <input checked="" type="checkbox"/> Temporarily Abandon

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

RU 9/30/82, killed well, install BOP & POH w/2-3/8" OD IPC tbg. Left 5 jts 2-3/8" OD IPC tbg w/pkr in hole. TOF @ 5476'. RIH w/pkr & found btm of good csg @ 5210'. Set cmt retr @ 5210', press tested csg to 600# for 30 mins OK. Cmt squeeze holes in csg below retr & perms 5741-47', 5777-82', 5913-21' w/300 sx Cl H cmt cont'g 2% CaCl₂. Max press. 1700#. Set 15 sx cmt plug on top of retr. Circ hole w/brine gel mud. Spot 25 sx cmt plug 1592-1350'. Rem BOP & install wellhead. Shut in surf gate valve. TA eff 10/11/82. Hold for future use in pressure maintenance project. Final Report.

RECEIVED
DEC 6 1982

CENTRAL FILES

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Signed Robert P. Lawrence TITLE Drlg. Engr. DATE 10/13/82

APPROVED BY M. H. Walker TITLE OIL AND GAS INSPECTOR DATE OCT 18 1982

CONDITIONS OF APPROVAL, IF ANY:

*Medland
Dallas
C-7-Mio*

709 W INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

LABORATORY NO. 1086268
SAMPLE RECEIVED 10-29-86
RESULTS REPORTED 10-31-86

COMPANY ARCO Oil & Gas Company LEASE 2. 400' FSL & 1,980' FWL
FIELD OR POOL 1. 1,650' FNL & 1,188' FEL,
SECTION 1. 29 BLOCK 2. 20 SURVEY T-18S & K-27E COUNTY Eddy STATE NM
SOURCE OF SAMPLE AND DATE TAKEN:

NO. Raw water - taken from Windmill #1. 10-23-86

NO. Raw water - taken from George Close water well #2. 10-23-86

NO. 3

NO. 4

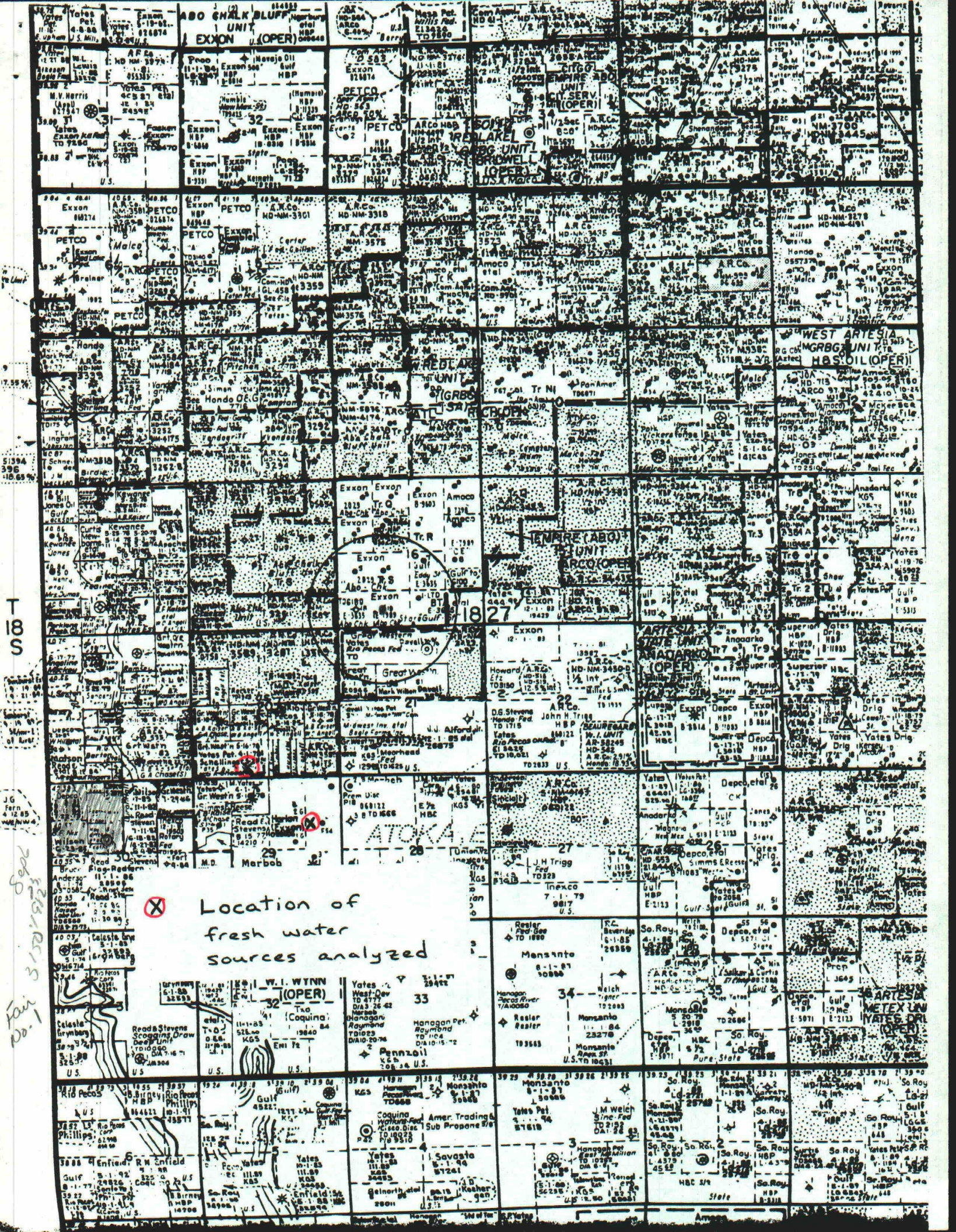
REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0041	1.0058		
pH When Sampled				
pH When Received	7.79	7.83		
Bicarbonate as HCO ₃	168	151		
Supersaturation as CaCO ₃				
Undersaturation as CaCO ₃				
Total Hardness as CaCO ₃	2,225	2,825		
Calcium as Ca	632	760		
Magnesium as Mg	157	225		
Sodium and/or Potassium	174	695		
Sulfate as SO ₄	1,986	2,317		
Chloride as Cl	284	1,278		
Iron as Fe	0.25	3.0		
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	3,402	5,427		
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide - Total	0.0	0.0		
Resistivity, ohms/m at 77° F.	2.27	1.25		
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

By Waylan C. Martin, M. A.



X Location of fresh water sources analyzed

3/10/1973
Fair No. 1

AFFIDAVIT OF MAILING

Jack T. Lowder, being duly sworn states that he is an engineer for ARCO Oil and Gas Company, the Applicant herein.

That on the 13th day of November, 1986, in the City of Midland, Midland County, Texas, he mailed in a sealed envelope, postage prepaid, a copy of the application and plat herein attached to the following:

Bogle Farms, Inc.
P.O. Box 358
Dexter, New Mexico 88230

Yates Petroleum Corporation
207 S. 4th
Artesia, New Mexico 88210

Jack T. Lowder
Jack T. Lowder

State of Texas)
)
County of Midland)

Before me the undersigned, a Notary Public in and for the said County and State, on this 13th day of November, 1986, personally appeared Jack T. Lowder, to me known to be the identical person who executed the within and foregoing instrument and acknowledged to me that he executed the same as his free and voluntary act and deed for the uses and purposes herein set forth.

Given under my hand and seal the day and year last above written.

My commission Expires:

5-28-90

Jane E. Hill
Notary Public

ARCO Oil and Gas Company
Central District
Post Office Box 1610
Midland, Texas 79702
Telephone 915 688 5200



CERTIFIED
RETURN RECEIPT
REQUESTED

November 13, 1986

Bogle Farms, Inc.
P.O. Box 358
Dexter, New Mexico 88230

Dear Sirs:

Attached is a copy of Form C-108 submitted to the New Mexico Oil Conservation Division requesting permission to dispose of water in the Empire Abo Unit Well No. T-6. For your convenience, we have included a plat indicating the location of the well covered by this application.

This letter will serve as formal notice, as required by the NMOCD, of our intention to convert the Empire Abo Unit Well No. T-6 to a water disposal well.

We will be happy to provide you with any additional information that you may require at your request. Thank you for your cooperation.

Yours very truly,

Jack T. Lowder
Senior Engineer

JTL:tis
Attachments

ARCO Oil and Gas Company
Central District
Post Office Box 1610
Midland, Texas 79702
Telephone 915 688 5200



November 13, 1986

CERTIFIED
RETURN RECEIPT
REQUESTED

Yates Petroleum Corporation
207 S. 4th
Artesia, New Mexico 88210

Dear Sirs:

Attached is a copy of Form C-108 submitted to the New Mexico Oil Conservation Division requesting permission to dispose of water in the Empire Abo Unit Well No. T-6. For your convenience, we have included a plat indicating the location of the well covered by this application.

This letter will serve as formal notice, as required by the NMOCD, of our intention to convert the Empire Abo Unit Well No. T-6 to a water disposal well.

We will be happy to provide you with any additional information that you may require at your request. Thank you for your cooperation.

Yours very truly,

Jack T. Lowder

Jack T. Lowder
Senior Engineer

JTL:tis
Attachments

ARCO Oil and Gas Company
Central District
Post Office Box 1610
Midland, Texas 79702
Telephone 915 688 5200



November 13, 1986

CERTIFIED
RETURN RECEIPT
REQUESTED

Artesia Daily Press
503 W. Main
Artesia, New Mexico 88210

Dear Sirs:

The New Mexico Oil Conservation Division requires that notice of an application to inject water be published in a newspaper of general circulation in the county in which the well is located. Please print the following notice in the Artesia Daily Press as soon as possible.

"ARCO Oil and Gas Company, P.O. Box 1610, Midland, Texas, 79702, has filed an application with the New Mexico Oil Conservation Division seeking permission to dispose of salt water into a well in Eddy County. The water disposal well will be located 990' FSL, 1650' FWL, Sec. 16, Township 18 South, Range 27 East. Water is to be injected into the Yezo formation at an approximate depth of 3600' to 3700'. A maximum injection rate of 2500 BWPD and a maximum injection pressure of 700 psig is expected. Please refer questions to Jack Lowder at the above address, or call (915) 688-5557. Any requests for hearing or objections to this application must be made to the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico, 87501, within 15 days."

The notice is to run for one day. The New Mexico Oil Conservation Division also requires that proof of publication be submitted to them before our application is approved. Please send proof of publication, including a copy of the legal advertisement, to Mr. Richard L. Stamets, Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico, 87501. Please send an additional copy of the proof of publication to Mr. D. C. Douglas, ARCO Oil and Gas Company, P.O. Box 1610, Midland, Texas, 79702.

Please send the bill in care of Mr. J. W. Guy, ARCO Oil and Gas Company, P.O. Box 1710, Hobbs, New Mexico, 88240. Thank you for your help and cooperation.

Yours very truly,

Jack T. Lowder

J. T. Lowder
Senior Engineer

JTL:tis
Attachments

cc: Mr. R. L. Stamets
New Mexico Oil Conservation Division

Mr. J. W. Guy - Hobbs