



SANTA FE
EXPLORATION COMPANY

RELEASE 11-9-92

(505) 623-2733
P. O. Box 1136
ROSWELL, NEW MEXICO 88202

October 22, 1992

Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: West Knowles #9
Sec. 35, T-16-S, R-37-E
West Knowles Drinkard Field
Lea County, New Mexico

Gentlemen:


Please find enclosed and submitted for your approval one original and one copy of Santa Fe Exploration Company's Application for Authorization to Inject (Form C-108) which covers the referenced well. Also included are the necessary attachments per the application instructions.

At this time Santa Fe Exploration Company also requests a salt water disposal site easement and/or business lease from the Commercial Resources Division of the New Mexico State Land Office in order to dispose of water as contemplated herein. A copy of this application is being submitted to Commercial Resources to support this request which would encompass approximately 2.5 acres surrounding the referenced well in the SW/4 NW/4 of section 35.

Thank you for your consideration and assistance in this matter.

Sincerely,

SANTA FE EXPLORATION COMPANY


Richard C. Gilliland
Petroleum Engineer

/rcg

cc: Mr. Jerry Sexton
Oil Conservation Division
P. O. Box 1980
Hobbs, New Mexico 88240

Ms. Zilla Padilla
Commercial Resources Division
P. O. Box 1148
Santa Fe, New Mexico 87504-1148

87504-1148

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no
- II. Operator: Santa Fe Exploration Company
Address: P. O. Box 1136, Roswell, New Mexico 88202-1136
Contact party: Richard C. Gilliland Phone: (505) 623-2733
- 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: Richard C. Gilliland Title Petroleum Engineer
Signature: Richard C. Gilliland Date: May 1, 1992
- * 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. X. All logs were submitted by Mesa Petroleum following
D&C operations.
- DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division district office.

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 III: FORM C-108.III - WELL DATA

- A.1. Lease Name: West Knowles
Well Number: 9
Legal Location: Unit E, 1980' FNL & 660' FWL
Section 35, T-16-S, R-37-E
Lea County, New Mexico
2. (See attached Schematic)
Surface: 13 3/8" casing set at 404' with 530 sacks of Class "C" cement (circ.). Hole size is 17 1/2".
Intermediate: 8 5/8" casing set at 4949' with 2275 sacks of Class "C" cement (circ.). Hole size is 11".
Production: 5 1/2" casing set at 8,515' with 680 sacks of Class "H" cement. Hole size is 7 7/8".
3. Proposed Tubing Program:
2 3/8", J-55, 4.7#/ft, EUE, 8R tubing set at approximately 8,300'.
4. Proposed Packer:
2 3/8" X 5 1/2" Baker Loc-Set plastic coated packer set at approximately 8,300'
- B.1. Formation: West Knowles Drinkard
2. Interval: Perforated 8,304-8,372'
3. Original Use: Well was originally drilled by Mesa (spud date 8/21/81) as Drinkard producer.
4. Other Perforations: None
5. Next Higher Oil/Gas Zone: None in the Area
Next Lower Oil/Gas Zone: Strawn

ATTACHMENT V: FORM C-108.V - AREA MAP

Attached is a lease map showing all wells and leases within a two mile radius of our proposed disposal well in Lea County, New Mexico. Also shown is a one-half mile radius circle denoting the area of review.

ATTACHMENT VI: FORM C-108.VI - AREA WELLS

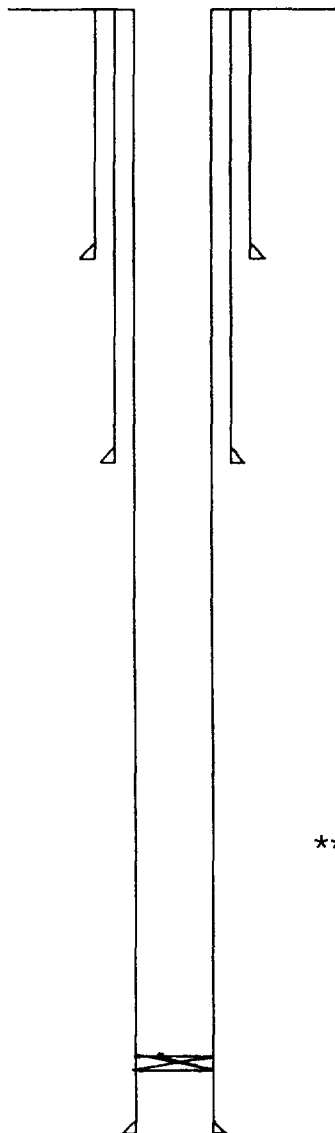
Attached are schematics on all wells of public record within our area of review which penetrate the proposed disposal zone. This information was retrieved from the files of the Oil Conservation Division - Hobbs, New Mexico District office.

OPERATOR: Santa Fe Exploration Co.

LEASE & WELL NO.: West Knowles No. 9

LOCATION: Unit E, 1980' FNL & 660' FWL, Sec. 35, T-16-S, R-37-E, Lea Co., NM

WELLBORE SCHEMATIC



Well Type: Producer (TA)

Spud Date: 8/21/81

Interval: 8304-72'

Shot: 1 JSPF

Acid: 15,000 gal

Hole Size..... 17 1/2 "
Casing Size... 13 3/8 " 77#
Depth Set..... 404 '
Cement..... 530 sx.
TOC..... Circ. '

Hole Size..... 11 "
Casing Size... 8 5/8 " 24 & 32#
Depth Set..... 4949 '
Cement..... 2275 sx.
TOC..... Circ. '

***6/20/91 TA well

Set BP @ 8104'; Circulate packer fluid and test casing for 30 min.

Hole Size..... 7 7/8 "
Casing Size... 5 1/2 " 17 & 15.5#
Depth Set..... 8515 '
Cement..... 680 sx.
TOC..... 4590 ' est.

PBTD: 8437 '

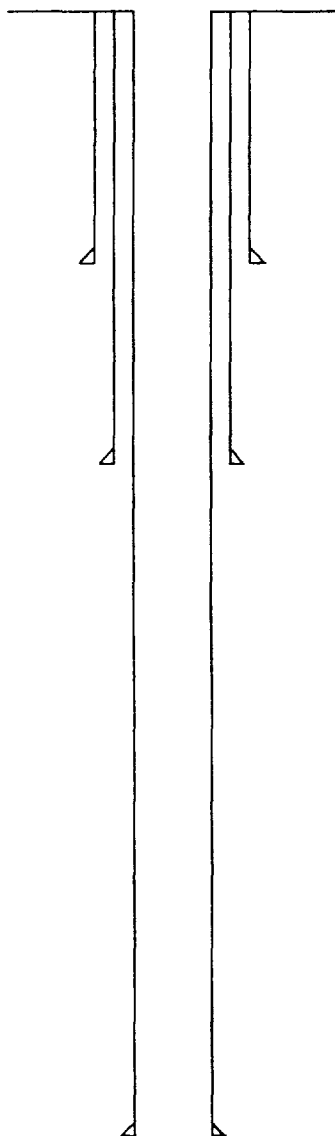
REMARKS: API# 30-025-27467 Drilled by Mesa

OPERATOR: Santa Fe Exploration Co.

LEASE & WELL NO.: West Knowles No. 5

LOCATION: Unit H, 1980' FNL & 660' FEL, Sec. 34, T-16-S, R-37-E, Lea Co., NM

WELLBORE SCHEMATIC



Well Type: Producer
Spud Date: 5/29/75
Interval: 8240-320'
Shot: 1 JSPF
Acid: 3500 gal.

Hole Size..... 17 1/2 "
Casing Size... 13 3/8 " 48#
Depth Set..... 360 '
Cement..... 375 sx.
TOC..... Circ. '

Hole Size..... 12 1/4 "
Casing Size... 9 5/8 " 36 & 40#
Depth Set..... 4200 '
Cement..... 1150 sx.
TOC..... 2660 ' Temp Surv.

Hole Size..... 7 7/8 "
Casing Size... 4 1/2 " 10.5 & 11.6#
Depth Set..... 8575 '
Cement..... 370 sx.
TOC..... 6950 ' est.

PBTD: 8508 '

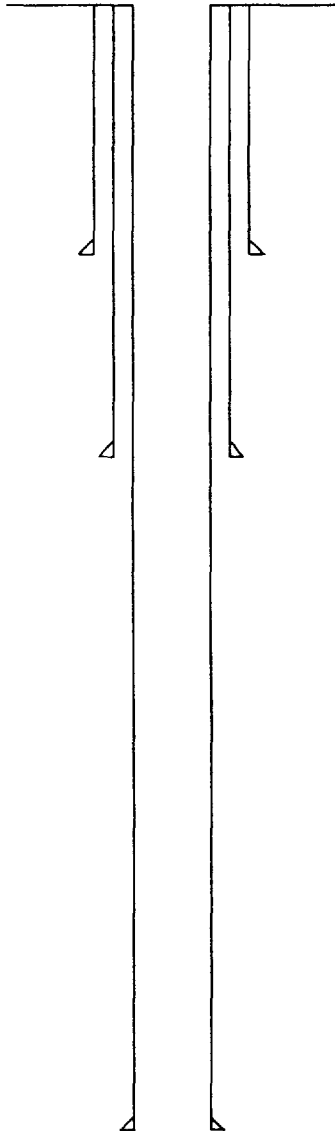
REMARKS: API# 30-025-25031 Elev.: 3772' GR (+13' KB)
Drilled by Mesa Petroleum Company

OPERATOR: Santa Fe Exploration Co.

LEASE & WELL NO.: West Knowles No. 8

LOCATION: Unit A, 660' FNL & 660' FEL, Sec. 34, T-16-S, R-37-E, Lea Co., NM

WELLBORE SCHEMATIC



Well Type: Producer
Spud Date: 7/16/81
Interval: 11,335-389'
Shot: 26 shots
Acid: 8000 gal.

Hole Size..... 17 1/2 "
Casing Size... 13 3/8 "
Depth Set..... 425 '
Cement..... 530 sx.
TOC..... Circ. '

Hole Size..... 12 1/4 "
Casing Size... 9 5/8 "
Depth Set..... 4951 '
Cement..... 1900 sx.
TOC..... Circ. '

Hole Size..... 8 1/2 "
Casing Size... 5 1/2 "
Depth Set..... 11,590 '
Cement..... 1620 sx.
TOC..... 7200 'Temp Surv.

PBTD: 11,475 '

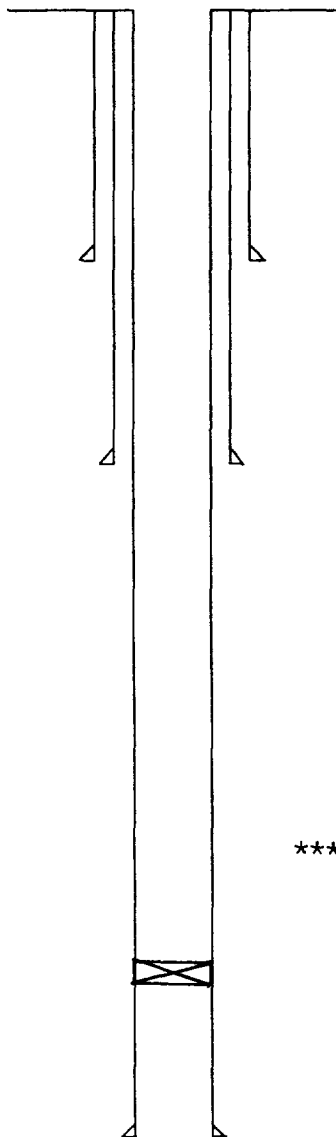
REMARKS: API# 30-025-27269 Elev.: 3771.8 GR
Drilled by Mesa Petroleum Company

OPERATOR: Santa Fe Exploration Co.

LEASE & WELL NO.: West Knowles No. 6

LOCATION: Unit F, 1880' FNL & 1880' FWL, Sec. 35, T-16-S, R-37-E, Lea Co., NM

WELLBORE SCHEMATIC



Well Type: Producer(TA)
Spud Date: 7/1/75
Interval: 8297-374'
Shot: 1 JSPF
Acid: 3000 gal.

3/29/79:
perf 8378-95'
acid 2000 gal

Hole Size..... 17 1/2 "
Casing Size... 13 3/8 " 48#
Depth Set..... 348 '
Cement..... 375 sx.
TOC..... Circ. '

Hole Size..... 11 "
Casing Size... 8 5/8 " 24 & 32#
Depth Set..... 4200 '
Cement..... 400 sx.
TOC..... 3200 ' Temp Surv.

*** 6/25/92: TA well with BP @ 8,220'.

Hole Size..... 7 7/8 "
Casing Size... 4 1/2 " 10.5 & 11.6#
Depth Set..... 8640 '
Cement..... 380 sx.
TOC..... 6800 ' CBL

PBTD: 8465 '

REMARKS: API# 30-025-25061 Elev.: 3769' GR (+13' KB)

OPERATOR: Mesa Petroleum Co.

LEASE & WELL NO.: West Knowles #2

LOCATION: Unit L, 1980' FSL & 660' FWL, Sec. 35, T-16-S, R-37-E, Lea Co., NM

WELLBORE SCHEMATIC

Well Type: Producer (P&A)
 Spud Date: 2/6/75
 Interval: 8360-98'
 Shot: 1 JSPF
 Acid: 3500 gal

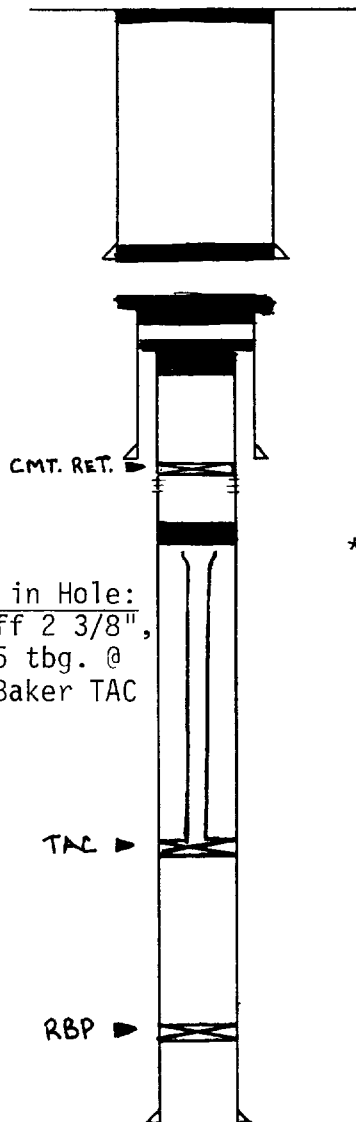
Hole Size..... 17 1/2"
 Casing Size... 13 3/8"
 Depth Set..... 355'
 Cement..... 350 sx.
 TOC..... Circ. '

Hole Size..... 11"
 Casing Size... 8 5/8"
 Depth Set..... 4195'
 Cement..... 300 sx.
 TOC..... 3000' est.

***Plug and Abandon with 9.1 PPG mud between all plugs:

- 20 SX spotted from 5000-4700 in 4 1/2" csg. above fish.
- Perf'd 4 1/2" csg. @ 4275-79. Set retainer @ 4200'.
- Pmp. 40 sx below retainer & out perfs. Est. TOC @ 4100'.
- Spot 2 sx on top of retainer.
- Spotted 65 sx from 1700-1400. (4 1/2" csq. stub @ 1608'.)
- Pulled 8 5/8" csg. from 1203'.
- Spotted 90 sx from 1250-1100'.
- Spotted 75 sx from 400-300'. (13 3/8" csg. shoe @ 355'.)
- Spot 10 sx of cmt @ surface and set marker.

Hole Size..... 7 7/8"
 Casing Size... 4 1/2"
 Depth Set..... 8715'
 Cement..... 650 sx.
 TOC..... 5862' est.



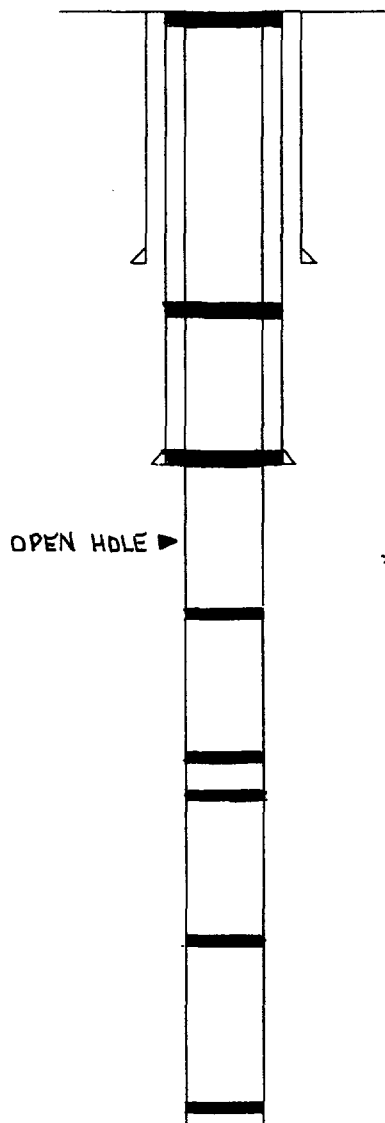
Junk left in Hole:
 Backed off 2 3/8",
 4.7#, J55 tbg. @
 5070'. Baker TAC
 at 6243'

PB TD: 8401' with RBP

REMARKS: API# 30-025-24962 Elev.: 3765'GR (+13' KB)

OPERATOR: Mesa Petroleum Co.	LEASE & WELL NO.: West Knowles #10
LOCATION: Unit D, 660' FNL & 660' FWL, Sec. 35, T-16-S, R-37-E, Lea Co., NM	

WELLBORE SCHEMATIC



Well Type: Producer (P&A)
 Spud Date: 12/4/82
 Interval: ---
 Shot: ---
 Acid: ---

Hole Size.....	17 1/2 "
Casing Size...	13 3/8 "
Depth Set.....	425 '
Cement.....	550 sx.
TOC.....	Circ. '

Hole Size.....	11 "
Casing Size...	8 5/8 "
Depth Set.....	4945 '
Cement.....	1625 sx.
TOC.....	Circ. '

*** 1/14/83: Plug & Abandon

42 SX @	11,500-11,400	(Strawn)
36 SX @	9,800-9,700	(Wolfcamp)
46 SX @	8,775-8,675	(Abo)
59 SX @	8,125-8,025	(Drinkard)
46 SX @	6,450-6,350	(Paddock)
55 SX @	5,000-4,900	(San Andres & 8 5/8 csq. shoe)
31 SX @	1,500-1,400	(Top of Salt)
20 SX @	100-Surface	

Hole Size.....	7 7/8 "
Casing Size...	"
Depth Set.....	'
Cement.....	sx.
TOC.....	'

TD: 11,675 '

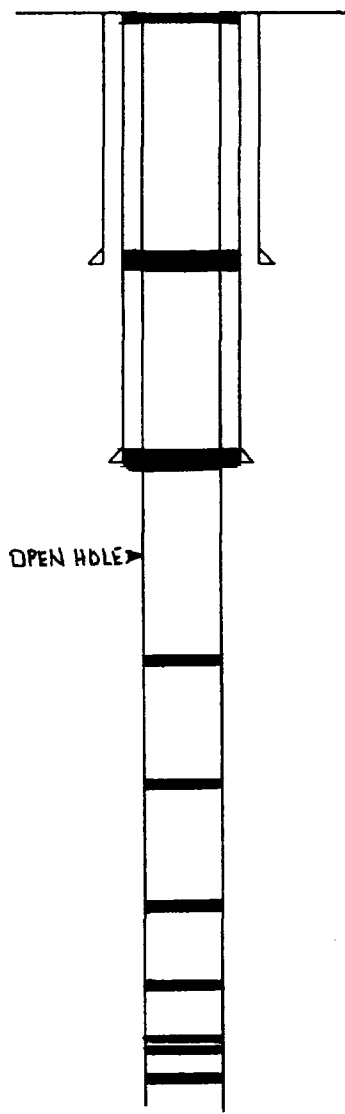
REMARKS: Elev.: 3772.7 GR

OPERATOR: Conoco, Inc.

LEASE & WELL NO.: West Knowles #12

LOCATION: Unit E, 2310' FNL & 660' FWL, Sec. 35, T-16-s, R-37-E, Lea Co., NM

WELLBORE SCHEMATIC



Well Type: Producer (P&A)

Spud Date: 8/8/90

Interval: ---

Shot: ---

Acid: ---

Hole Size..... 17 1/2 "
Casing Size... 13 3/8 " 48#
Depth Set..... 500 '
Cement..... 395 sx.
TOC..... Circ. '

Hole Size..... 11 "
Casing Size... 8 5/8 " 32#
Depth Set..... 4750 '
Cement..... 1768 sx.
TOC..... Circ. '

***9/22/90 Plug & Abandon

95 SX @ 11,500-11,300 (Strawn)
160 SX @ 11,000-10,650 (L. Wolfcamp)
110 SX @ 10,450-10,220 (U. Wolfcamp) tagged
95 SX @ 9,450-9,250 (Abo)
50 SX @ 8,100-8,000 (Drinkard)
95 SX @ 6,650-6,450 (Glorietta)
115 SX @ 5,350-5,100 (San Andres)
60 SX @ 4,700-4,500 (8 5/8 csg. shoe)
30 SX @ 615-515 (13 3/8 csg. shoe)
10 SX @ Surface with DH Marker

Hole Size..... 7 7/8 "
Casing Size... "
Depth Set..... '
Cement..... sx.
TOC..... '

TD: 11,900 '

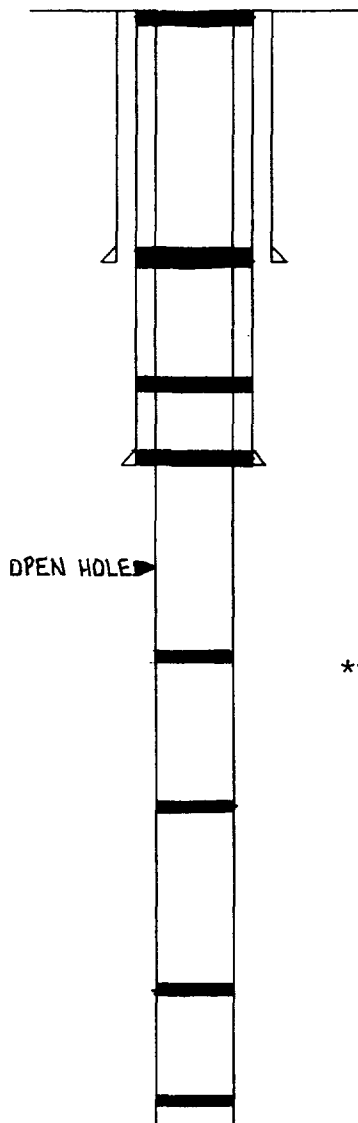
REMARKS: API# 30-025-30929 Elev.: 3768.6 GR

OPERATOR: Mesa Petroleum Co.

LEASE & WELL NO.: Alcorn No. 1

LOCATION: Unit K, 2310' FSL & 1980' FWL, Sec. 35, T-16-S, R-37-E, Lea Co., NM

WELLBORE SCHEMATIC



Well Type: Producer (P&A)
Spud Date: 7/11/83
Interval: ---
Shot: ---
Acid: ---

Hole Size..... 16 "
Casing Size... 13 3/8" 61 & 68#
Depth Set..... 350 '
Cement..... 225 sx.
TOC..... Circ. '

Hole Size..... 11 "
Casing Size... 8 5/8" 24 & 32#
Depth Set..... 4200 '
Cement..... 2110sx.
TOC..... Circ. '

*** 7/25/83: Plug and Abandon

40 SX @ 11,500-11,400
45 SX @ 9,750-9,650
85 SX @ 8,600-8,400
50 SX @ 6,500-6,400
55 SX @ 4,250-4,150
25 SX @ 2,200-2,100
25 SX @ 400-300
10 SX @ 30-Surface with DH marker

Hole Size..... 7 7/8 "
Casing Size... "
Depth Set..... '
Cement..... sx.
TOC..... '

TD: 11,750 '

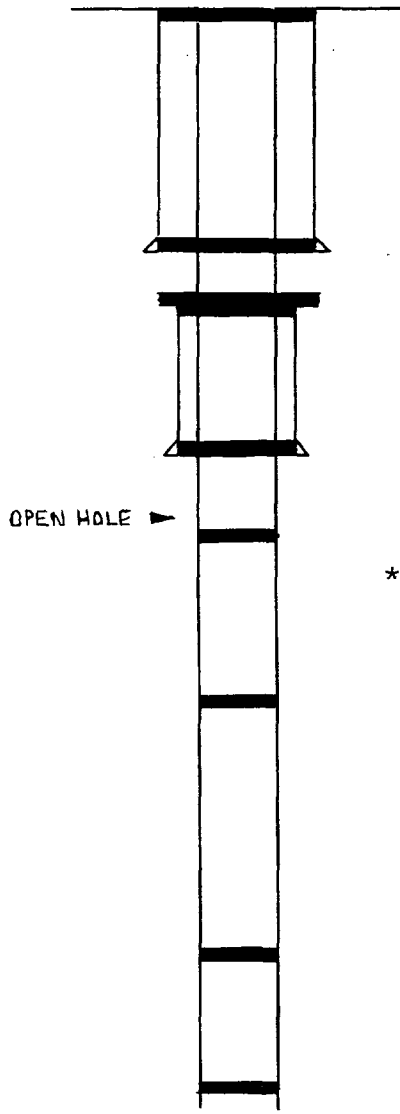
REMARKS: Formerly Shipp #1 operated by Rex Alcorn (TD @ 8538)
Re-entered by Mesa 7/11/83
Elev.: 3762 GR

OPERATOR: Mesa Petroleum Co.

LEASE & WELL NO.: Amerada State No. 1

LOCATION: Unit B, 810' FSL & 1980' FEL, Sec 35, T-16-S, R-37-E, Lea Co., NM

WELLBORE SCHEMATIC



Well Type: Producer (D&A)
Spud Date: 8/2/75
Interval: ---
Shot: ---
Acid: ---

Hole Size..... 17 1/2 "
Casing Size... 13 3/8 " 54.5#
Depth Set..... 355 '
Cement..... 400 SX.
TOC..... Circ. '

Hole Size..... 11 "
Casing Size... 8 5/8 " 24 & 32#
Depth Set..... 4200 '
Cement..... 400 SX.
TOC..... 2700 ' Temp Surv.

*** 8/23/75 Plug & Abandon with 9.2 PPG mud between all plugs.

35 SX @ 8500-8600 (Abo)
35 SX @ 8100-8200 (Drinkard)
35 SX @ 6500-6600 (Paddock)
35 SX @ 4900-5000 (San Andres)
35 SX @ 4150-4250 (8 5/8" csg. shoe)
50 SX @ 1250-1350 (8 5/8" csg. stub @ 1303')
75 SX @ 325-400 (13 3/8" csg. shoe)
20 SX @ Surface with DH marker

Hole Size..... 7 7/8 "
Casing Size... "
Depth Set..... '
Cement..... SX.
TOC..... '

TD: 8640 '

REMARKS: Elev.: 3762 GR (+13' KB)

ATTACHMENT VII: FORM C-108.VII - PROPOSED OPERATION

1. Our expected maximum daily injection rate is 3,000 BWIPD.
2. Our proposed system is closed.
3. Our expected maximum injection pressure is 2,000 psia.
4. Our source of injection fluid is produced water from the West Knowles Drinkard and Casey & Shipp Strawn formations which we propose to reinject into the Drinkard formation. A water analysis is attached.
5. N/A. The Drinkard zone which we propose to dispose into is productive of oil and gas in the area.

AQUANESS WATER ANALYSIS REPORT

Lab ID No. :

Analysis Date: October 9, 1992

Company : Santa Fe Exploration
Field : West Knowles Drinkard
Lease/Unit : W. Knowles
Well ID. : #5
Sample Loc.:

Sampled By : Pro-Kem
Sample Date: 9-23-92
Salesperson: Curtis
Formation : Drinkard
Location :

CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
Calcium as Ca++	4,323	216	Hydroxyl as OH-	0	0
Magnesium as Mg++	1,230	101	Carbonate as CO3=	0	0
Sodium as Na+ (Calc)	28,219	1,227	Bicarbonate as HCO3-	399	7
Barium as Ba++	Not Determined		Sulfate as SO4=	2,050	43
Oil Content	0		Chloride as Cl-	52,988	1,495

Total Dissolved Solids, Calculated:

89,208 mg/L.

Calculated Resistivity: 0.083 ohm-meters
mg/L. Hydrogen Sulfide: Not Determined
mg/L. Carbon Dioxide: Not Determined
mg/L. Dissolved Oxygen: Not Determined

pH: 7.040
Specific Gravity 60/60 F.: 1.068
Saturation Index @ 80 F.: +0.538
@ 140 F.: +1.463

Total Hardness: 15,840 mg/L. as CaCO3
Total Iron: 2.75 mg/L. as Fe++

Calcium Sulfate Scaling Potential
Mild

Estimated Temperature of Calcium
Carbonate Instability is
60 F.

PROBABLE MINERAL COMPOSITION		
COMPOUND	MG/L	MEQ/L
Ca(HCO3)2	530	6.5
CaSO4	2,907	42.7
CaCl2	9,263	165.9
Mg(HCO3)2	0	0.0
MgSO4	0	0.0
MgCl2	4,799	100.8
NaHCO3	0	0.0
Na2SO4	0	0.0
NaCl	71,726	1,226.9

Analyst

11:54 AM

AQUANESS WATER ANALYSIS REPORT

Lab ID No. :

Analysis Date: October 9, 1992

Company : Santa Fe Exploration
Field : Casey Strawn
Lease/Unit : W. Knowles
Well ID. : #8
Sample Loc.:

Sampled By : Pro-Kem
Sample Date: 9-23-92
Salesperson: Curtis
Formation : Strawn
Location :

CATIONS	MG/L	MEQ/L	ANIONS	MG/L	MEQ/L
Calcium as Ca++	4,323	216	Hydroxyl as OH-	0	0
Magnesium as Mg++	1,390	114	Carbonate as CO3=	0	0
Sodium as Na+ (Calc)	46,137	2,006	Bicarbonate as HCO3-	297	5
Barium as Ba++	Not Determined		Sulfate as SO4=	900	19
Oil Content	0		Chloride as Cl-	81,982	2,312

Total Dissolved Solids, Calculated: 135,028 mg/L.

Calculated Resistivity: 0.088 ohm-meters
mg/L. Hydrogen Sulfide: Not Determined
mg/L. Carbon Dioxide: Not Determined
mg/L. Dissolved Oxygen: Not Determined

pH: 6.890
Specific Gravity 60/60 F.: 1.103
Saturation Index @ 80 F.: +0.180
@ 140 F.: +1.110

Total Hardness: 16,500 mg/L. as CaCO3
Total Iron: 122.00 mg/L. as Fe++

PROBABLE MINERAL COMPOSITION		
COMPOUND	MG/L	MEQ/L
Ca(HCO3)2	394	4.9
CaSO4	1,276	18.8
CaCl2	10,685	192.5
Mg(HCO3)2	0	0.0
MgSO4	0	0.0
MgCl2	5,425	113.9
NaHCO3	0	0.0
Na2SO4	0	0.0
NaCl	117,267	2,005.9

Calcium Sulfate Scaling Potential
Not Present

Estimated Temperature of Calcium
Carbonate Instability is
68 F.

Analyst: *Cyril Ward* 11:53 AM

ATTACHMENT VIII: FORM C-108.VIII - GEOLOGIC DATA

The proposed injection zone is in the Drinkard carbonate formation which is perforated in this wellbore from 8,304' - 8,372' below the surface.

The only known underground drinking water source in the area is the Ogallala formation which lies from the surface to approximately 250 feet below the surface. There are no known sources of drinking water below our proposed zone of injection in the Drinkard.

ATTACHMENT: FORM C-108.IX - C-108.XII

IX. No stimulation program is proposed at this time.

X. All logs have been previously filed with the Oil Conservation Division by the original operator, Mesa Petroleum Company.

XI. There are no known fresh water wells within a one-mile radius.

XII. Santa Fe Exploration Company has examined available geologic and engineering data and finds no evidence of open faults or any other hydrologic connection between the disposal zone and any known underground source of drinking water.

ATTACHMENT XIII: FORM C-108.XIII - PROOF OF NOTICE

Attached is an Affidavit of Publication from the Hobbs Daily News-Sun, a daily newspaper published in Hobbs, New Mexico, submitted herein as proof of notice publication.

Also attached are copies of the return receipts from the certified notification sent to the offset operators and surface owners.

The owner of the surface is the State of New Mexico and is hereby notified by submission of this application.

AFFIDAVIT OF PUBLICATION

State of New Mexico,
County of Lea.

I, Kathi Bearden

of the Hobbs Daily News-Sun, a daily newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published once a week in the regular and entire issue of said paper, and not a supplement thereof for a period

of _____

One weeks.
Beginning with the issue dated

Oct. 14, 1992
and ending with the issue dated

Oct. 14, 1992

Kathi Bearden
General Manager

Sworn and subscribed to before

me this 14 day of

Oct, 1992

Paul Parrish
Notary Public.

My Commission expires _____

Aug. 5, 1995
(Seal)

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

LEGAL NOTICE

October 14, 1992

"Santa Fe Exploration Company will convert the West Knowles well no. 9 located 1980' FNL and 660' FWL of Section 35, Township 16 South, Range 37 East, Lea County, New Mexico to a salt water disposal well. Injection will be into the West Knowles Drinkard formation into perforations from 8,304' to 8,372' with formation into perforations from 8,304' to 8,372' with expected maximum rates and pressures of 3,000 BWIPD and 2,000 psia respectively. Any 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.

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt Fee will provide you the signature of the person delivered to and the date of delivery.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:		4a. Article Number	
H.L. Brown, Jr.		P 144 843 489	
P. O. Box 2237		4b. Service Type	
Midland, TX 79702		<input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail <input type="checkbox"/> Return Receipt for Merchandise	
5. Signature (Addressee)		7. Date of Delivery	
6. Signature (Agent)		8. Addressee's Address (Only if requested and fee is paid)	
<i>H. L. Brown, Jr.</i>		OCT 21 1992	

PS Form 3811, November 1990 • U.S. GPO: 1991-287-066 **DOMESTIC RETURN RECEIPT**

P 144 843 489



Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

To: H.L. Brown, Jr.	
P. O. Box 2237	
City, State, and ZIP Code: Midland, TX 79702	
Postage	\$ 1.21
Certified Fee	1.00
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	1.00
Return Receipt Showing to Whom Delivered Addressee's Address	
TOTAL Postage & Fees	\$ 3.21
Postmark of Date	

PS Form 3800, June 1991

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt Fee will provide you the signature of the person delivered to and the date of delivery.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Conoco, Inc.
10 Desta Drive, Suite 100W
Midland, TX 79705-4500

4a. Article Number

P 144 843 490

4b. Service Type

- | | |
|---|---|
| <input type="checkbox"/> Registered | <input type="checkbox"/> Insured |
| <input checked="" type="checkbox"/> Certified | <input type="checkbox"/> COD |
| <input type="checkbox"/> Express Mail | <input type="checkbox"/> Return Receipt for Merchandise |

7. Date of Delivery

10-15-92

5. Signature (Addressee)**8. Addressee's Address (Only if requested and fee is paid)****6. Signature (Agent)**

H. Gonzales

PS Form 3811, November 1990 ☆ U.S. GPO: 1991-287-066

DOMESTIC RETURN RECEIPT

P 144 843 490



**Receipt for
Certified Mail**

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to:	
Conoco, Inc.	
Street and No.	
10 Desta Dr., Ste. 100W	
P.O. State and Zip Code	
Midland, TX 79705-4500	
Postage	\$ 1.21
Certified Fee	1.00
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	1.00
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	\$ 3.21
Postmark or Date	

PS Form 3800, June 1991

88201

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
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I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Bill Seltzer
507 Petroleum Building
Midland, TX 79701

4a. Article Number

P 144 843 491

4b. Service Type

- | | |
|---|---|
| <input type="checkbox"/> Registered | <input type="checkbox"/> Insured |
| <input checked="" type="checkbox"/> Certified | <input type="checkbox"/> COD |
| <input type="checkbox"/> Express Mail | <input type="checkbox"/> Return Receipt for Merchandise |

7. Date of Delivery

10/15/92

5. Signature (Addressee)

[Signature]

6. Signature (Agent)**8. Addressee's Address (Only if requested and fee is paid)**

PS Form 3811, November 1990 ☆ U.S. GPO: 1991-287-066

DOMESTIC RETURN RECEIPT

P 144 843 491



**Receipt for
Certified Mail**

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to:	
Bill Seltzer	
Street and No.	
507 Petroleum Bldg.	
City, State, and ZIP Code	
Midland, TX 79701	
Postage	\$ 1.21
Certified Fee	1.00
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	1.00
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	\$ 3.21
Postmark or Date	

PS Form 3800, June 1991

SENDER:

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- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt Fee will provide you the signature of the person delivered to and the date of delivery.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

E.D. & W.M. Shipp
1104 West Avenue J
Lovington, NM 88260

E.D. Shipp

5. Signature (Addressee)

6. Signature (Agent)

4a. Article Number

P 144 843 488

4b. Service Type

- | | |
|---|---|
| <input type="checkbox"/> Registered | <input type="checkbox"/> Insured |
| <input checked="" type="checkbox"/> Certified | <input type="checkbox"/> COD |
| <input type="checkbox"/> Express Mail | <input type="checkbox"/> Return Receipt for Merchandise |

7. Date of Delivery

10-15-92

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, November 1990 ☆ U.S. GPO: 1991-287-066

DOMESTIC RETURN RECEIPT

P 144 843 488



**Receipt for
Certified Mail**

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

To: E.D. & W.M. Shipp	
1104 West Avenue J	
Lovington, NM 88260	
Postage	\$ 1.21
Registration Fee	1.00
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	1.00
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL POSTAGE & FEES	\$ 3.21
Postmark: 10-15-92	

PS Form 3800, June 1991

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt Fee will provide you the signature of the person delivered to and the date of delivery.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Ultramar Oil and Gas
16825 Northchase Drive
Suite 1200
Houston, TX 77060



Dina Hammer

5. Signature (Addressee)

6. Signature (Agent)

4a. Article Number

P 144 843 487

4b. Service Type

- | | |
|---|---|
| <input type="checkbox"/> Registered | <input type="checkbox"/> Insured |
| <input checked="" type="checkbox"/> Certified | <input type="checkbox"/> COD |
| <input type="checkbox"/> Express Mail | <input type="checkbox"/> Return Receipt for Merchandise |

7. Date of Delivery

10-19-92

8. Addressee's Address (Only if requested and fee is paid)

PS Form 3811, November 1990 ★U.S. GPO: 1991-287-066

DOMESTIC RETURN RECEIPT

P 144 843 487



**Receipt for
Certified Mail**

No Insurance Coverage Provider.
Do not use for International Mail
(See Reverse)

Sent to Ultramar O&G	
Street and No. 16825 Northchase Dr., Ste.	
P.O., State and ZIP Code Houston, TX 77060 1200	
Postage	\$ 1.21
Certified Fee	1.00
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	1.00
Return Receipt Showing to Whom Date, and Addressee's Address	
TOTAL Postage & Fees	\$ 3.21
Postmark or Date	

PS Form 3800, June 1991



JIM BAGA
COMMISSIONER

RECEIVED
OIL CONSERVATION DIVISION

APR 8 5
Commissioner of Public Lands
Santa Fe

State of New Mexico

OFFICE OF THE

P.O. BOX 1148
SANTA FE, NEW MEXICO 87504-1148

October 30, 1992

Mr. David Catanach
Energy, Minerals & Natural Resources Dept.
Oil Conservation Division
State Land Office
P. O. Box 2088
Santa Fe, New Mexico 87504

Re: Application for a Salt Water Easement

Dear Mr. Catanach:

Application is being made to Oil Conservation Division from Santa Fe Exploration Company for approval of a Salt Water Disposal in Section 35, Township 16 South, Range 37 East located within SW $\frac{1}{4}$ NW $\frac{1}{4}$ (Lea County).

The Commissioner of Public Lands has no objection at this time to your approval of the above application. However, the Commissioner reserves the right to refuse to grant a salt water easement when it would be detrimental to the Trust.

The applicant has a right under his valid oil and gas lease to dispose of the salt water subject to your approval. However, if he is going to inject salt water from other wells outside of the lease premises he will have to apply for a salt water disposal easement from the State Land Office.

If you have any questions, you may contact Dru Lucero at 827-5724.

Sincerely,

Johnny A. Taylor 3/11
Johnny A. Taylor
Assistant Commissioner

JAT/dl

cc: Date File



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

'92 NO 2 07 10 32

10-27-92

BRUCE KING
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

RE: Proposed:

MC _____
DHC _____
NSL _____
NSP _____
SWD X _____
WFX _____
PMX _____

Gentlemen:

I have examined the application for the:

Shinto, Jr. Expl. Co. West Knowles #9-E 35-16-37
Operator Lease & Well No. Unit S-T-R

and my recommendations are as follows:

OK

Yours very truly,

Jerry Sexton
Jerry Sexton
Supervisor, District 1

/ed