SUBSURFACE WATER DISPOSAL, INC.
P.O. BOX 1002
HOBBS, NEW MEXICO 88241-1002

February 23, 1994

Oil Conservation Division
New Mexico Energy, Minerals and
Natural Resources Dept.
P.O. Box 2088
Santa Fe, NM 87501

Re: Application for a Commercial Salt Water Disposal Well, Government "E" #1, 1880 feet from the west line and 610 feet from the south line of Section 25, Township 19 South, Range 34 East, Lea Bone Springs Pool, Lea County, New Mexico

Gentlemen:

Subsurface Water Disposal, Inc. hereby makes application to convert the subject Bone Springs producing well to a Bone Springs water disposal well. (Details of the proposed conversion are outlined on an attached sheet.)

The Government "E" #1 was completed in 1971 as a Bone Springs production well, perforations 9716' to 9720', and is presently operating at its economic limit. Cumulative production totals 182 MBO, 517 MMcf, and 121 MBW.

The closest active Lea Bone Springs producing well is over one mile from this proposed disposal well. The only penetrating wellbore within the one-half mile area of review is a plugged Lea Bone Springs producer located 770 feet from the north and 560 feet from the west lines of Sec. 36, Twp. 19 S., Rge. 34 E. (See attached plat.) The plugging detail for this well is provided on an attached diagramatic sketch.

Overlying oil and gas pools in the area are: the Pearl Seven Rivers (oil and gas) at a depth of 3900 to 4000 feet, the Pearl Queen (oil) at a depth of 4600 to 5200 feet, the Pearl San Andres (oil) at a depth of 5200 to 5300 feet, and the Lea San Andres (oil) at a depth of 6000 to 6100 feet. A listing of all wells within one half mile and their completion interval is provided in an attached tabulation. There are no underlying oil and gas pools in this area.

The applicant requests approval to dispose of produced water in the Bone Springs interval from 9716 feet to 10,240 feet. The disposal system will be a closed system and we request a maximum surface injection pressure of 2000 psi. We anticipate initial disposal by gravity. The maximum disposal volume is estimated at 3000 barrels per day with a monthly average rate of approximately 2000 barrels per day. The produced water that we propose to dispose of will come from various sources in the area, such as: the Yates-Seven Rivers, Queen, Grayburg-San Andres, Delaware, and Bone Springs. An informal survey of oil operators indicated a need for a salt water disposal well in this area. The water produced from the Bone Springs formation has a total solids of 120,000 ppm and a chloride content of 72,000 ppm as shown on the attached

chemical analysis. We plan to test the chemical compatibility of the disposal waters and will chemically treat before injecting into the Bone Springs if needed to prevent plugging problems.

As shown on the attached diagramatic sketch, we propose to equip this well with a string of 2 7/8 inch plastic lined tubing equipped with an injection packer set at approximately 9700 feet. The casing-tubing annulus will be filled with corrosion inhibited packer fluid with the provision for surface monitoring.

The Bone Springs is of mid-to-late Permian in age and occurs at a depth of from 9500 to 10,200 feet in this area. It is described as a dolomite, sucrosic in part, with intercrystalline and vuggy porosity. The vugular porosity and possible fractures in the Bone Springs should make this an excellent disposal zone.

A physical review of the area and check with the State Engineer's office in Roswell, revealed no fresh water wells within one mile of the proposed disposal well. We have examined the available geologic and engineering data and have found no evidence of open faults or any hydrologic connection between the disposal zone and an underground source of drinking water. Furthermore, the shallow formations and the salt section will be protected by three cemented casing strings, and injection tubing and packer.

Enclosed are two copies of this application, along with Form C-108, a marked plat of the surrounding area, a tabulation of all wells within one-half mile, three diagramatic wellbore sketches, chemical analysis of Bone Springs formation water, and proposed work outline.

Certified copies of this application have been sent to all oil operators within the one-half mile area of review, the surface owner, and the Oil Conservation Division, Hobbs District Office. (We are currently pursuing BLM approval for operating on federal land.)

A notice of publication will be forwarded as soon as possible.

Subsurface Water Disposal, Inc. asks for administrative approval of this application.

Respectfully submitted by,

Lowell B. Deckert

Lowell B. Deckert, Agent for
Subsurface Water Disposal, Inc.

Copies sent to:

Offset Operators:

Devon Energy Corp., 1500 Mid-America Tower, 20 North Broadway, Oklahoma City, OK 73102

Mack Energy, P.O. Box 276, Artesia, NM 88210

St. Clair Energy Corp., P.O. Box 1392, Midland, TX 79702

Surface Owner:

U.S. Department of the Interior, Bureau of Land Management, P.O. Box 1778, Carlsbad, NM 88221

ENERGY AND MINERALS DEPARTMENT

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☐ yes ☐ no

II. Operator: Subsurface Water Disposal, Inc.

Address: P.O. Box 1002 Hobbs, NM 88241

Contact party: Lowell B. Deckert Phone: (505) 393-9161

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: Lowell B. Deckert Title Consultant

Signature: Lowell B. Deckert Date: 2-24-'94

* 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. _____

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.

SUBSURFACE WATER DISPOSAL, INC.
P.O. BOX 1002
HOBBS, NEW MEXICO 88241-1002

Proposed Work To Convert Well To Salt Water Disposal Service:

Government "E" # 1 (formerly Armstrong Energy Corp., Lea Bone Springs producing well): Unit "N", Section 25, Township 19 South, Range 34 East, Lea Co., New Mexico

1) MIRU pulling unit. Make bit and scraper trip to PBTD: 10,277'

2) Perforate Bone Springs interval: 9716' to 9746'.
(present Bone Springs perfs.: 9716' to 9720')

3) Acidize Bone Springs perfs 9716' to 9746' with 2500 gallons NE Fe 15% hydrochloric acid.

4) Take injectivity test.

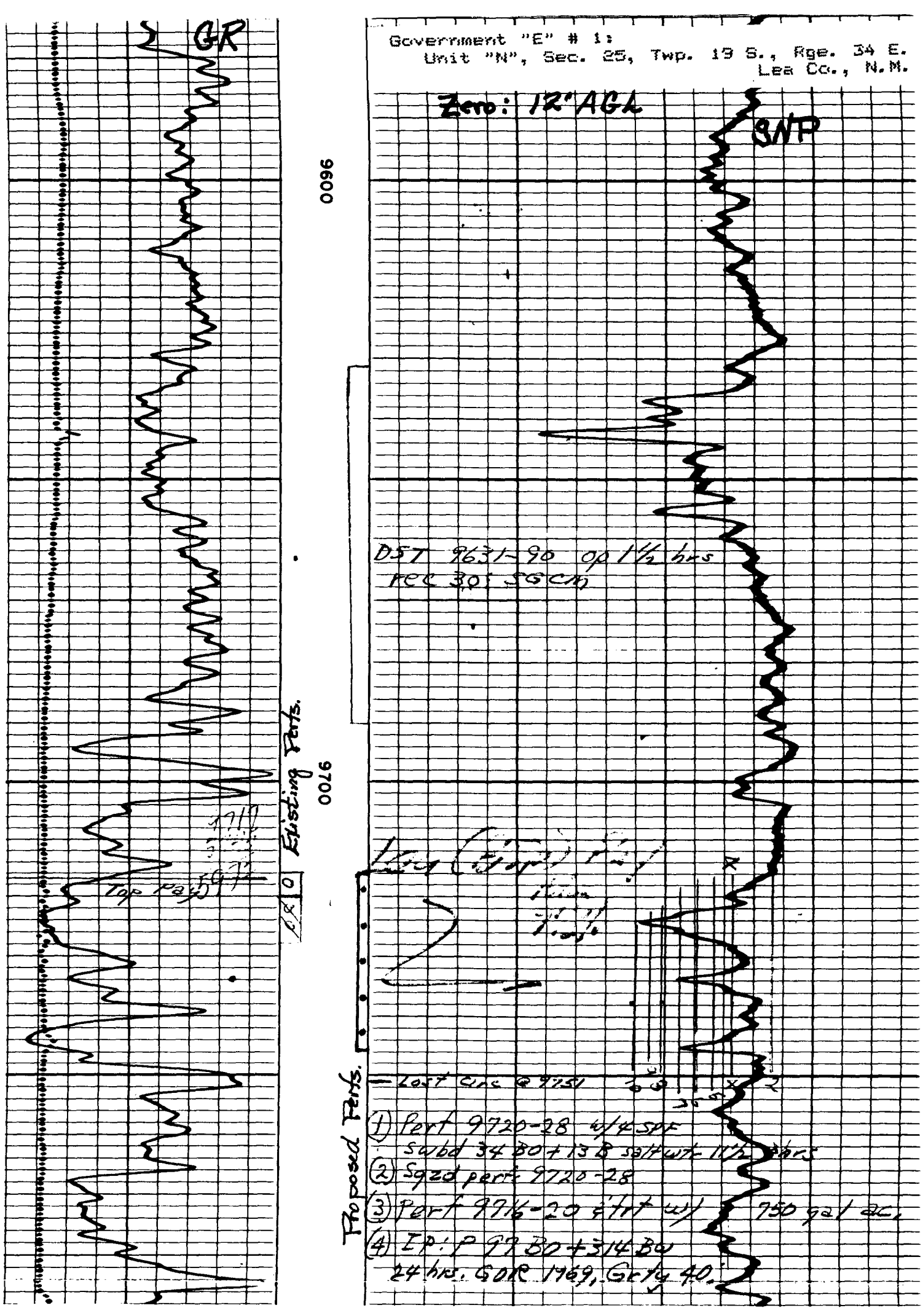
5) Set 5 ½" packer on wireline @ 9700'.

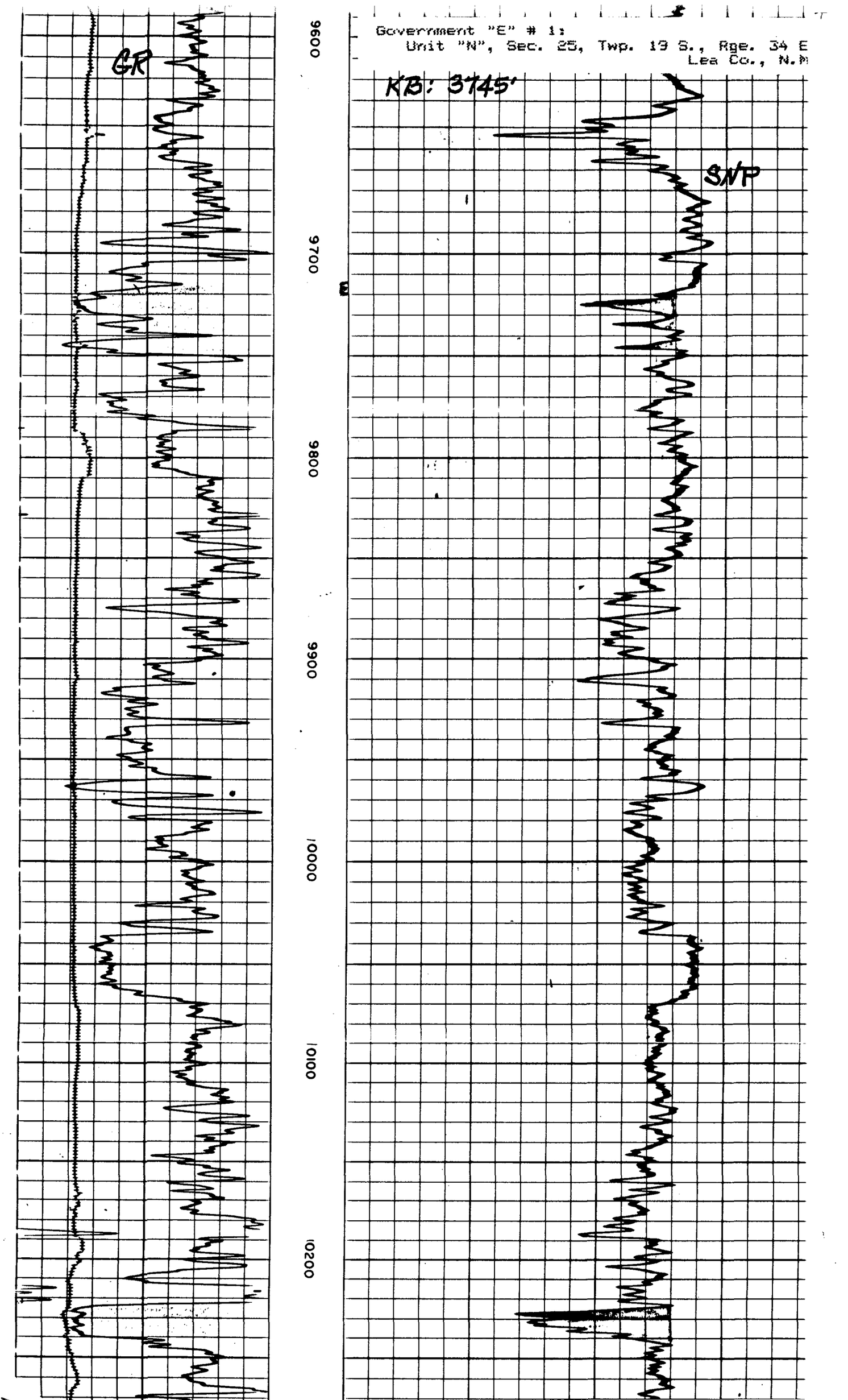
6) Run 2 7/8" injection tubing and one joint tailpipe.

7) Displace tubing-casing annulus with fresh water and packer fluid.

8) Stab into packer and test annulus for 30 minutes @ 500 psi.

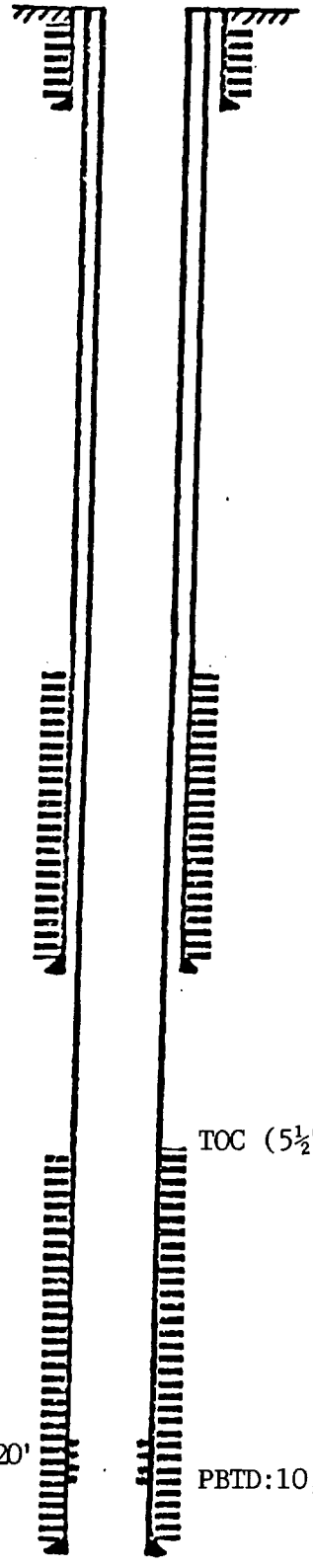
9) Place on injection and take injectivity test.


Government "E" # 1:
Unit "N", Sec. 25, Twp. 19 S., Rge. 34 E.
Lea Co., N.M.
Zero: 12' AGL
GR
GNP
9600
9700
Existing Perfs.
Top Perf 9671
DST 9631-90 op 1½ hrs
Rec 30' SGCM
Proposed Perfs.
Lost Circ @ 9750
(1) Perf 9720-28 4/ft SPF
Swbd 34 BO + 13 B salt wtr 11½ hrs
(2) Sqzd perf 9720-28
(3) Perf 9716-20 4/ft w/ 750 gal/ac.
(4) IP: F 9780+3140 BO
24 hrs. GOR 1969, Grty 40.


Government "E" # 1:
Unit "N", Sec. 25, Twp. 13 S., Rge. 34 E
Lea Co., N.M
KB: 3745'
GR
SNP
9600
9700
9800
9900
10000
10100
10200

OPERATOR		DATE
Armstrong Energy Corp.		2-7-94
LEASE	**WELL No.**	**LOCATION**
Government 'E'	1	1880'FW & 610' FSL Sec 25,T19S,R34E Lea County, NM

Schematic of Present Condition of Proposed Disposal Well



Tabular Data

Surface Casing

Size 11 3/4" set @ 400' Cemented with 450 sx.

TOC surface feet determined by circ.

Hole size 15"

Intermediate Casing

Size 8 5/8" set @ 4089' Cemented with 775 sx.

TOC NR feet Hole size 11"

TOC (5½"):7700'

BS perfs:9716-20'

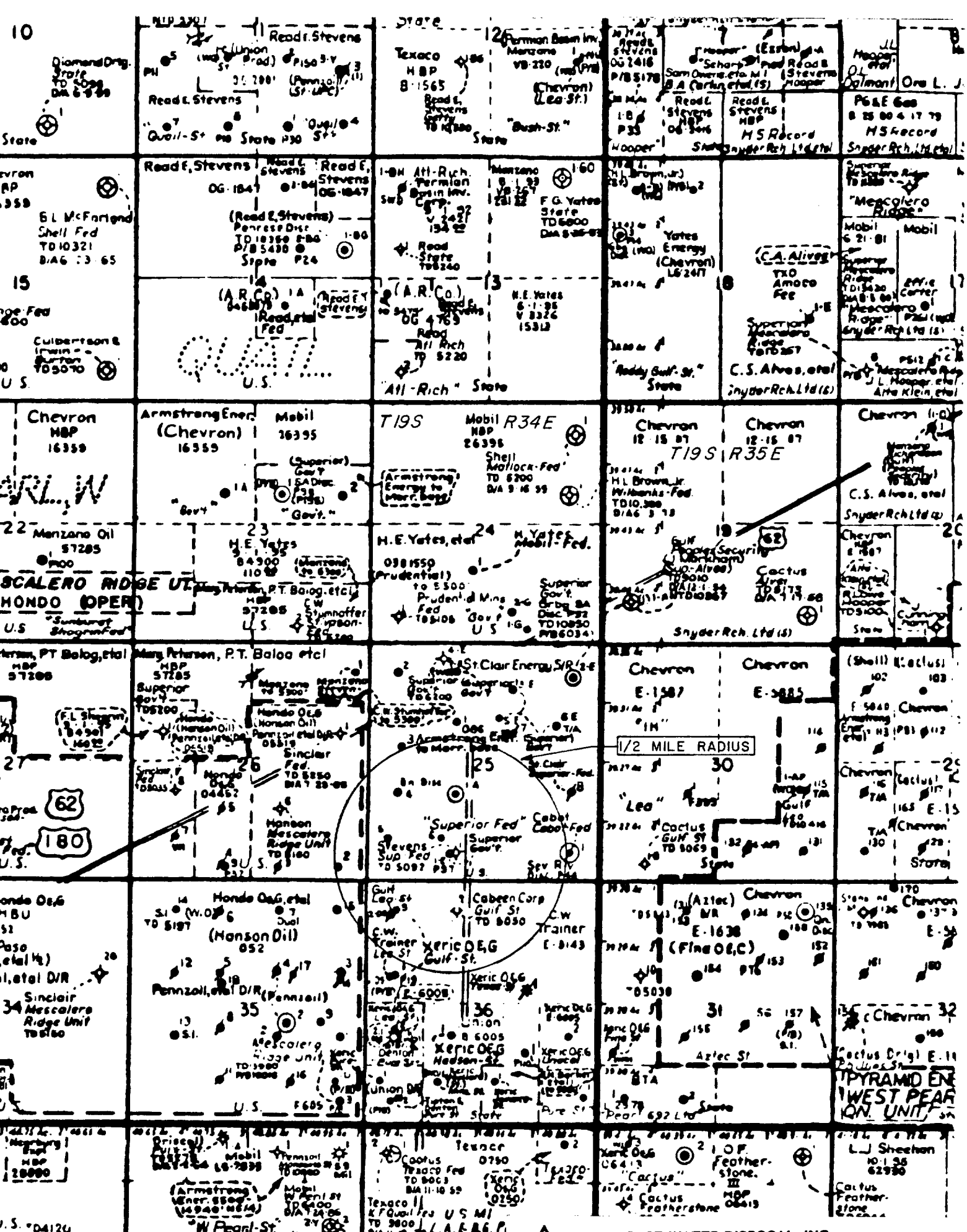
PBTD:10,277'

Long string

Size 5½ " Cemented with 500 sx.

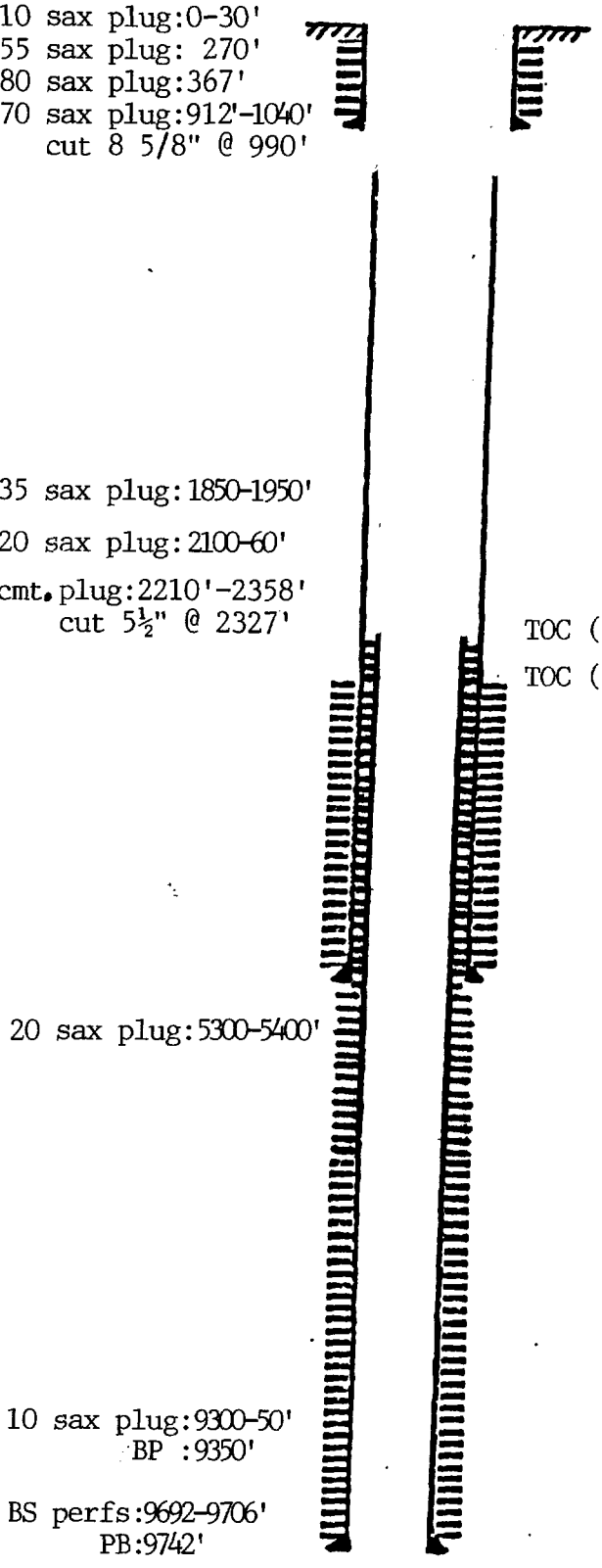
TOC 7700 feet Hole size 7 7/8"

Total depth 10,300'


T19S R34E
T19S R35E
1/2 MILE RADIUS
"Superior Fed"
"Lea"
"Cactus"
"Mescalero Ridge"
SUBSURFACE WATER DISPOSAL, INC.
Map Showing Area Wells and Leases,
and 1/2 Mile Area of Review Around
Proposed Water Injection (Disposal) We
Government "E" # 1
Unit "N", Sec. 25, Twp. 13 S., Rge. 34 E.

OPERATOR			DATE
Gulf Oil Corp.			2-7-94
LEASE	**WELL No.**	**LOCATION**	
Lea 'DS' State	2	770'FN & 560'FWL Sec36-T19S-R34E Lea County, NM	

P & A Well Schematic



Surface Casing:
Size: 13 3/8" set @ 355' Cemented with: 420 sax
Hole Size: 17½" TOC @ circulated'

TOC (5½"): 2360'
TOC (8 5/8"): 3210'

Intermediate Casing:
Size: 8 5/8" set @ 4049' Cemented with: 265 sax
Hole Size: 11" TOC @ 3210'

Production Casing:
Size: 5½" set @ 9770' Cemented with: 585 sax
Hole Size: 7 7/8" TOC @ 2360' TD: 9770'

Tabulation of All Wells Within ½ Mile of Proposed Disposal Well:
Government "E" #1, "N" Sec. 25, Twp. 19 S., Rge. 34 E., Lea Co., N.M.

Location	Operator	Lease & Well #	Pool	Compl. Int.	T.D.	Status
E25-19-34	St.Clair Energy	Superior Fed. #3	Pearl Queen	4808'-5019'	5150'	Prod.
K25-19-34	St.Clair Energy	Superior Fed. "A" #1	Pearl Queen	4796'-4806'	5112'	Prod.
L25-19-34	St.Clair Energy	Superior Fed. # 4	Pearl Queen	4781'-5013'	5150'	Prod.
M25-19-34	St.Clair Energy	Superior Fed. # 5	Pearl Queen	4882'-4986'	5150'	Prod.
N25-19-34	St.Clair Energy	Superior Fed. # 6	Pearl Queen	4811'-5015'	5150'	Prod.
P26-19-34	Devon Energy	Mescalero Rdg. Ut. 26 # 2	Pearl Queen	4623'-4972'	5150'	SI Prod.
C36-19-34	Cabeen Corp.	Gulf St. # 2	-------	---------	5050'	D & A
D36-19-34	Mack Energy	Gulf St. # 3	Pearl Queen	4763'-4996'	5148'	SI Prod.
D36-19-34	Gulf Oil	Lea St. "DS" # 2	Lea Bone Spr.	9692'-9706'	9770'	P & A

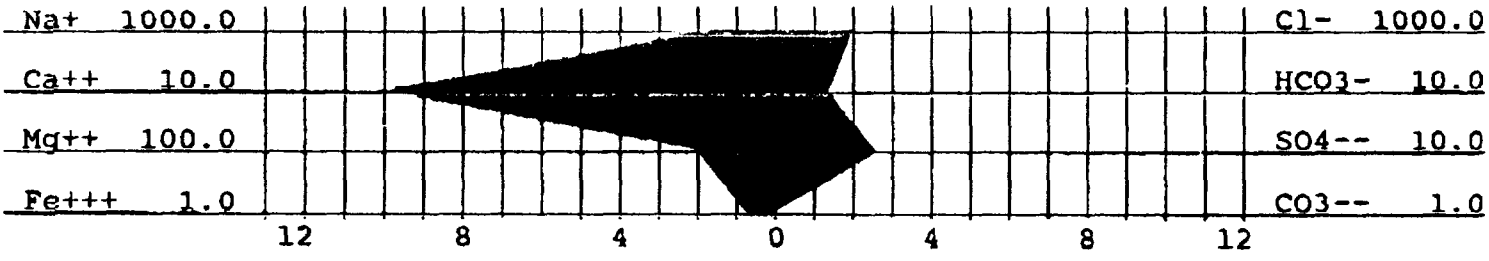
BAKER PERFORMANCE CHEMICALS
A Baker Hughes company

WATER ANALYSIS for ARMSTRONG ENERGY

Date of Analysis:	OCTOBER 12, 1992	**Analysis #:**	1757
Company:	ARMSTRONG ENERGY	**Company Address:**	N/D
State:	N/D	**Field:**	N/D
Lease:	GOVERNMENT E #1	**Well #:**	# 1
Oil (bbl/day):	N/D	**Water (bbl/day):**	N/D
Type of Water:	PRODUCED	**Temp.,C:**	17
Sample Source:	WELL HEAD	**Date of Sampling:**	OCTOBER 11, 1992
Representative:	DON BLACKSTOCK	**Analysis By:**	SUZANNE WILLIAMS

WATER ANALYSIS PATTERN

(number beside ion symbol indicates me/l scale unit)



DISSOLVED SOLIDS

CATIONS	me/l	mg/l
Total Hardness :	300.00	
Calcium, (Ca++) :	100.00	2004.81
Magnesium, (Mg++):	200.00	2430.28
Iron, (Fe+++) :	0.81	15.00
Barium, (Ba++) :	N/D	N/D
Sodium, Na+(calc):	1767.38	40649.65
Manganese, (Mn++):	0.00	0.00
ANIONS		
Chloride, Cl- :	2028.17	71997.52
Sulfate, SO4-- :	26.01	1250.00
Carbonate, CO3-- :	0.00	0.00
Bicarbonate,HCO3-:	14.00	854.18
Hydroxyl,OH- :	0.00	0.00
Sulfide, S-- :	0.00	0.00
TOTAL SOLIDS (quant.):		119201.40

DISSOLVED GASES

Hydrogen sulfide:	0.00	mg/l
Carbon dioxide :	308.88	mg/l
Oxygen :	N/D	mg/l

PHYSICAL PROPERTIES

pH :	6.05
Spec Grav. :	1.100
TDS (calc.) :	119215.45

SCALE STABILITIES

Temp.,C	CaCO3	CaSO4	BaSO4
17.0	-0.48	5491	0
27.0	-0.31	5708	0
37.0	-0.10	6002	0
Max entity, (calc.)		1836	0

RESIDUAL HYDROCARBONS: N/D

N/D = not determined

@20'C...CALCIUM SULFATE SCALING IS UNLIKELY.
@20'C...MODERATE CORROSIVE.

P.O. BOX 2187
HOBBS, N.M. 88240

Champion Technologies, Inc.

PHONE: (505) 393-7726

WATER ANALYSIS REPORT

Report for: Lowell Deckert
cc: Kenny Kearney
cc:
cc:
Company: Subsurface Water Disp. Inc.
Address: P.O. Box 1002
Service Engineer: K. Kearney

Date sampled: 04/29/94
Date reported: 05/01/94
Lease or well # : Lea Bone Springs
County: Lea State: N.M.
Formation:
Depth:
Submitted by: K. Kearney

CHEMICAL COMPOSITION :	mg/L	meq/L
Chloride (Cl)	160000	4513
Iron (Fe) (total)	3.0	
Total hardness	87000	
Calcium (Ca)	23458	1171
Magnesium (Mg)	6925	556
Bicarbonates (HCO3)	36	1
Carbonates (CO3)	0	
Sulfates (SO4)	548	11
Hydrogen sulfide (H2S)	n/a	
Carbon dioxide (CO2)	n/a	
Sodium (Na)	64373	2799
Total dissolved solids	255342	
Barium (Ba)	n/a	
Strontium (Sr)	n/a	

Specific Gravity	1.182
Density (#/gal.)	9.850
pH	5.750
IONIC STRENGTH	5.39

Stiff-Davis (CaCO3) Stability Index :
SI = pH - pCa - pAlk - K

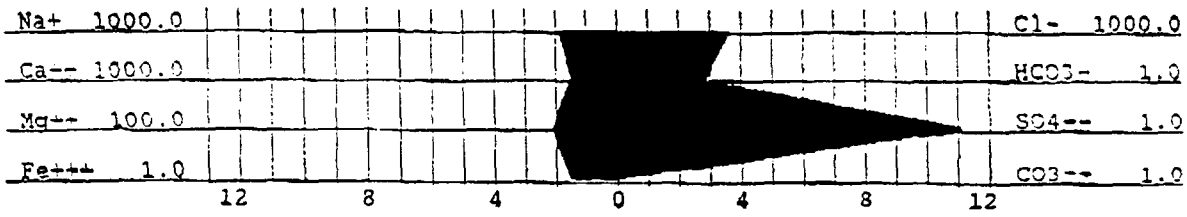
SI @ 86 F = +0.41
104 F = +0.64
122 F = +0.90
140 F = +1.19
158 F = +1.51

This water is 90 mg/l (-10.38%) under ITS CALCULATED CaSO4 saturation value at 82 F.
SATURATION= 867 mg/L PRESENT= 777 mg/L

REPORTED BY ROBERT C MIDDLETON
TECHNICAL SERVICES REPRESENTATIVE

WATER ANALYSIS PATTERN

(number beside ion symbol indicates me/l scale unit)



DISSOLVED SOLIDS

CATIONS	me/l	mg/l
Total Hardness :	1820.00	
Calcium, (Ca++) :	1600.00	32076.98
Magnesium, (Mg++):	220.00	2673.31
Iron, (Fe+++) :	1.61	30.00
Barium, (Ba++) :	N/D	N/D
Sodium, Na+(calc):	1939.31	44604.19
Manganese, (Mn++):	0.00	0.00
ANIONS		
Chloride, Cl- :	3746.48	132995.38
Sulfate, SO4-- :	11.45	550.00
Carbonate, CO3-- :	0.00	0.00
Bicarbonate,HCO3-:	3.00	183.04
Hydroxyl,OH- :	0.00	0.00
Sulfide, S-- :	0.00	0.00
TOTAL SOLIDS (quant.):		213112.90

DISSOLVED GASES

Hydrogen sulfide:	0.00	mg/l
Carbon dioxide :	217.80	mg/l
Oxygen :	N/D	mg/l

PHYSICAL PROPERTIES

pH :	6.65
Spec Grav. :	1.140
TDS (calc.) :	213115.89

SCALE STABILITIES

Temp.,C	CaCO3	CaSO4	BaSO4
16.0	1.73	513	2
26.0	N/D	570	1
36.0	N/D	657	2
Max entity, (calc.)		833	0

RESIDUAL HYDROCARBONS: N/D

N/D = not determined

@16'C...CALCIUM SULFATE SCALING IS UNLIKELY .
@16'C...SEVERE CARBONATE SCALING.

RESISTIVITY: 0.057 @ 70°

ARMSTRONG ENERGY CORP.

WATER ANALYSIS
NORTHEAST LEA FIELD Delaware
LEA COUNTY, NEW MEXICO

EXHIBIT F-1

Champion Technologies, Inc.

P.O.BOX 2187
OBBS, N.M. 88240

PHONE: (505) 393-7726

W A T E R A N A L Y S I S R E P O R T

Report for: Lowell Deckert
cc: Kenny Kearney
cc:
cc:
Company: Subsurface Water Disp. Inc.
Address: P.O. Box 1002
Service Engineer: K. Kearney

Date sampled: 04/29/94
Date reported: 05/01/94
Lease or well # : West Pearl Queen
County: Lea State: N.M.
Formation:
Depth:
Submitted by: K. Kearney

CHEMICAL COMPOSITION :	mg/L	meq/L
Chloride (Cl)	110000	3103
Iron (Fe) (total)	1.0	
Total hardness	47000	
Calcium (Ca)	10827	540
Magnesium (Mg)	4860	390
Bicarbonates (HCO3)	158	3
Carbonates (CO3)	0	
Sulfates (SO4)	1757	37
Hydrogen sulfide (H2S)	n/a	
Carbon dioxide (CO2)	n/a	
Sodium (Na)	50869	2212
Total dissolved solids	178473	
Barium (Ba)	n/a	
Strontium (Sr)	n/a	

Specific Gravity	1.127
Density (#/gal.)	9.392
pH	6.150
IONIC STRENGTH	3.63

Stiff-Davis (CaCO3) Stability Index :
SI = pH - pCa - pAlk - K

SI @ 86 F = +0.25
104 F = +0.48
122 F = +0.74
140 F = +1.03
158 F = +1.35

This water is 512 mg/l (25.87%) over ITS CALCULATED CaSO4 saturation value at 82 F.
SATURATION= 1979 mg/L PRESENT= 2491 mg/L

REPORTED BY ROBERT C MIDDLETON
TECHNICAL SERVICES REPRESENTATIVE

Champion Technologies, Inc.

P.O.BOX 2187
OBBS, N.M. 88240

PHONE: (505) 393-7726

W A T E R A N A L Y S I S R E P O R T

Report for: Lowell Deckert
cc: Kenny Kearney
cc:
cc:
Company: Subsurface Water Disp. Inc.
Address: P.O. Box 1002
Service Engineer: K. Kearney

Date sampled: 04/29/94
Date reported: 05/01/94
Lease or well # : Quail Greyburg
County: Lea State: N.M.
Formation:
Depth:
Submitted by: K. Kearney

CHEMICAL COMPOSITION :	mg/L	meq/L
Chloride (Cl)	180000	5078
Iron (Fe) (total)	2.0	
Total hardness	71000	
Calcium (Ca)	22055	1101
Magnesium (Mg)	3888	312
Bicarbonates (HCO3)	67	1
Carbonates (CO3)	0	
Sulfates (SO4)	573	12
Hydrogen sulfide (H2S)	n/a	
Carbon dioxide (CO2)	n/a	
Sodium (Na)	84592	3678
Total dissolved solids	291176	
Barium (Ba)	n/a	
Strontium (Sr)	n/a	

Specific Gravity	1.207
Density (#/gal.)	10.059
pH	5.950
IONIC STRENGTH	5.80

Stiff-Davis (CaCO3) Stability Index :
SI = pH - pCa - pAlk - K

SI @ 86 F = +1.09
104 F = +1.32
122 F = +1.58
140 F = +1.87
158 F = +2.19

This water is 207 mg/l (-20.29%) under ITS CALCULATED CaSO4 saturation value at 82 F.
SATURATION= 1020 mg/L PRESENT= 813 mg/L

REPORTED BY ROBERT C MIDDLETON
TECHNICAL SERVICES REPRESENTATIVE

Champion Technologies, Inc.

P.O.BOX 2187
OBBS, N.M. 88240

PHONE: (505) 393-7726

W A T E R A N A L Y S I S R E P O R T

Report for: Lowell Deckert
cc: Kenny Kearney
cc:
cc:
Company: Subsurface Water Disp. Inc.
Address: P.O. Box 1002
Service Engineer: K. Kearney

Date sampled: 04/29/94
Date reported: 05/01/94
Lease or well # : W. Tonto B. Springs
County: Lea State: N.M.
Formation:
Depth:
Submitted by: K. Kearney

CHEMICAL COMPOSITION :	mg/L	meq/L
Chloride (Cl)	110000	3103
Iron (Fe) (total)	6.0	
Total hardness	8400	
Calcium (Ca)	2887	144
Magnesium (Mg)	291	23
Bicarbonates (HCO3)	329	5
Carbonates (CO3)	0	
Sulfates (SO4)	377	8
Hydrogen sulfide (H2S)	n/a	
Carbon dioxide (CO2)	n/a	
Sodium (Na)	67820	2949
Total dissolved solids	181706	
Barium (Ba)	n/a	
Strontium (Sr)	n/a	

Specific Gravity	1.129
Density (#/gal.)	9.409
pH	6.200
IONIC STRENGTH	3.20

Stiff-Davis (CaCO3) Stability Index :
SI = pH - pCa - pAlk - K

SI @ 86 F = -0.11
104 F = +0.12
122 F = +0.38
140 F = +0.67
158 F = +0.99

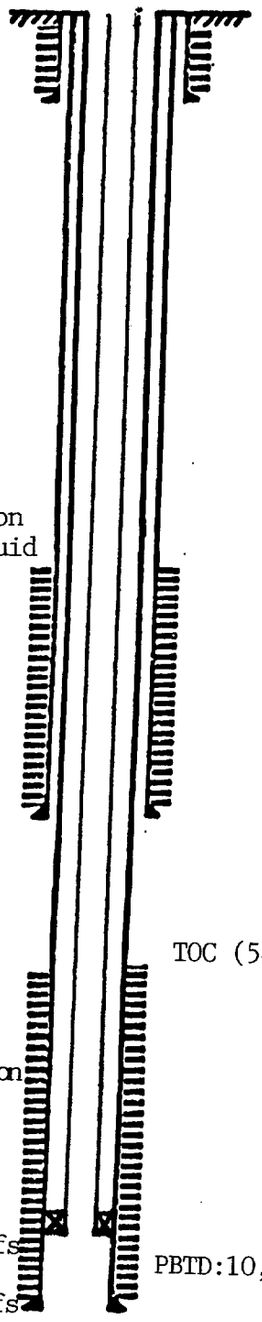
This water is 3672 mg/l (-87.30%) under ITS CALCULATED CaSO4 saturation value at 82 F.
SATURATION= 4206 mg/L PRESENT= 534 mg/L

REPORTED BY ROBERT C MIDDLETON
TECHNICAL SERVICES REPRESENTATIVE

OPERATOR		DATE
Subsurface Water Disposal, Inc.		2-7-94
LEASE Government 'E'	**WELL No** 1	**LOCATION** 1880'FW & 610'FSL Sec25,T19S,R34E

Lea County, NM

Schematic of Proposed Disposal Well



Surface Casing:
Size: 11 3/4" set @ 400' Cemented with: 450 sax
Hole Size: 15" TOC @ circ'

csg-tbg annulus filled w/corrosion inhibited pkr.fluid

Intermediate Casing:
Size: 8 5/8" set @ 4089' Cemented with: 775 sax
Hole Size: 11" TOC @ NR'

TOC (5½"):7700'

9700' of 2 7/8" plastic -lined tbg. set on injection packer

Proposed B.S. perfs 9716-20'
(Present B.S. perfs 9716-46')

PBTD:10,277'

Production Casing:
Size: 5½" set @ 10,300' Cemented with: 500 sax
Hole Size: 7 7/8" TOC @ 7700' TD: 10,300'

Tubing size 2 7/8" lined with plastic (material) set in a Baker Model 'R' (brand and model) packer at 9700 feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Bone Springs (perfs. 9716-46')
2. Name of Field or Pool (if applicable) Lea Bone Springs
3. Is this a new well drilled for injection? ☐ Yes ☒ No
   If no, for what purpose was the well originally drilled? Bone Springs oil production
4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) No
5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. Pearl Seven Rivers (oil & gas): 3900-4000', Pearl Queen (oil): 4600-5200'
   Pearl San Andres (oil): 5200-5300', Lea San Andres (oil): 6000-6100'

AFFIDAVIT OF PUBLICATION

State of New Mexico,
County of Lea.

I, Kathi Bearden

General Manager

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

March 9, 1994

and ending with the issue dated

March 9, 1994

Kathi Bearden
General Manager

Sworn and subscribed to before me this 11 day of March, 1994

Marlene Perrin
Notary Public.

My Commission expires
March 15, 1997
(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.

94 MAR 21 AM 8 39

LEGAL NOTICE
March 9, 1994

Subsurface Water Disposal, Inc. proposes to convert the following well from oil production to water disposal service:

Armstrong Energy Government "E" # 1 610' FSL & 1880' FWL, Sec 25, Twp, 19S, Rge. 34E Lea Bone Springs Pool Lea Co., New Mexico.

1) Name, address, phone number and contact party for the applicant:
Subsurface Water Disposal, Inc.
Post Office Box 1002
Hobbs, New Mexico
88241-1002

Attention: Lowell B. Deckert

2) The intended purpose of the injection well is produced water disposal.

3) Depth of injection interval is 9716' to 10,240'. Maximum injection rates and pressures are 3000 barrels per day at 2000 psig.

4) Interested parties must file objections or requests for hearing with the following within 15 days.
Oil Conservation Division
Post Office Box 2088
Santa Fe, New Mexico
87504-2088

N DIVISION
RECEIVED
94 APR 21 AM 8 50

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.
1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)* 2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:
Devon Energy Corporation
1500 Mid-America Tower
20 North Broadway
Oklahoma City, Ok 73102

4. Article Number
P 567 658 206

Type of Service:
☐ Registered ☐ Insured
☑ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X

6. Signature – Agent
X M. Tittle

7. Date of Delivery
2-28-94

8. Addressee's Address *(ONLY if requested and fee paid)*

PS Form **3811**, Apr. 1989 ★U.S.G.P.O. 1989-238-815 **DOMESTIC RETURN RECEIPT**

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
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1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)* 2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:
Mack Energy
P.O. Box 276
Artesia, NM 88210

4. Article Number
P 567 658 210

Type of Service:
☐ Registered ☐ Insured
☑ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X

6. Signature – Agent
X Stacy Sanders

7. Date of Delivery
2-28-94

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1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)* 2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:
St. Clair Energy Corp.
P.O. Box 1392
Midland, Tx 79702

4. Article Number
P 567 658 209

Type of Service:
☐ Registered ☐ Insured
☑ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Addressee
X

6. Signature – Agent
X M. Tittle

7. Date of Delivery
2-28-94

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87504-2088

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

BRUCE KING
GOVERNOR

3-3-94

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:

Subsurface Water Disposal Inc Government E #1-N 25-19-34
Operator Lease & Well No. Unit S-T-R

and my recommendations are as follows:

OK

Yours very truly,

Jerry Sexton
Supervisor, District 1

/ed