CAMPBELL & BLACK, P.A.
LAWYERS

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JEFFERSON PLACE
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SANTA FE, NEW MEXICO 87504-2208
TELEPHONE: (505) 988-4421
TELECOPIER: (505) 983-6043

March 23, 1990

HAND-DELIVERED

RECEIVED
MAR 23 1990
OIL CONSERVATION DIVISION

Case 9902

William J. LeMay, Director
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
State Land Office Building
Santa Fe, New Mexico 87503

Re: Application of Hanson Operating Company, Inc. for Salt Water Disposal, Chaves County, New Mexico

Dear Mr. LeMay:

Pursuant to the provisions of Oil Conservation Division Rule 701(B) and Form C-108, I am enclosing herewith the original and one copy of the completed Form C-108 in the above-referenced matter. By copy of this letter, this form is also being provided to the Division's District Office in Artesia.

Your attention to this matter is appreciated.

Very truly yours,

WILLIAM F. CARR
WFC:mlh
Enclosures
cc w/enc.: Oil Conservation Division
District II Office
Post Office Drawer DD
Artesia, New Mexico 88210

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

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

FORM C-108
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: Hanson Operating Company, Inc.

Address: P. O. Box 1515, Roswell, New Mexico 88202-1515

Contact party: David Sweeney Phone: 505-622-7330

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: David Sweeney Title Drilling & Production Supt.

Signature: David Sweeney Date: 03/21/90

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OIL CONSERVATION DIVISION

* 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. Compensated Neutron Density Log sent to OCD, Artesia, 12/29/86, upon completion of the well.

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.

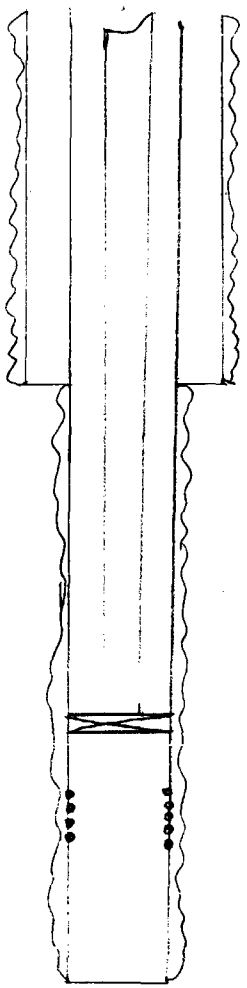
NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

INJECTION WELL DATA SHEET

SIDE 1

HANSON OPERATING COMPANY, INC.	HANLAD "A" STATE			
OPERATOR	LEASE			
1	1650'FSL & 330'FEL	28	10 South	27 East
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic



Tabular Data

Surface Casing

Size 8-5/8 " Cemented with 400 sx.

TOC surface feet determined by circulating

Hole size 12¼

Intermediate Casing

Size _____ " Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Long string

Size 5½ " Cemented with 350 sx.

TOC surface feet determined by circulating

Hole size 8"

Total depth 2132'

Injection interval

2034 feet to 2082 feet

(perforated or open-hole, indicate which)

INJECTION WELL DATA SHEET -- SIDE 2

Tubing size 2-3/8 lined with Plastic (material) set in a DCOT Model D1 (brand and model) packer at 2000 feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation San Andres

2. Name of Field or Pool (if applicable) Diablo San Andres

3. Is this a new well drilled for injection? /_/ Yes /x/ No

   If no, for what purpose was the well originally drilled? in fill producing well

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. Queen at 915'; San Andres P1 @ 1930', P2 @ 2050', P3 @ 2390'; Fusselman @ 6200'

HANSON OPERATING COMPANY, INC.
P. O. Box 1515
Roswell, New Mexico 88202-1515

FORM C-108

III. Well Data

B (1) The name of the injection formation and, if applicable, the field or pool name -

Diablo San Andres

B (2) The injection interval and whether it is perforated or open-hole -

2034 - 2082' Perforated

B (3) State if the well was drilled for injection or, if not, the original purpose of the well -

Drilled as a producing oil well.

B (4) Give the depths of any other perforated intervals -

N/A.

B (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well -

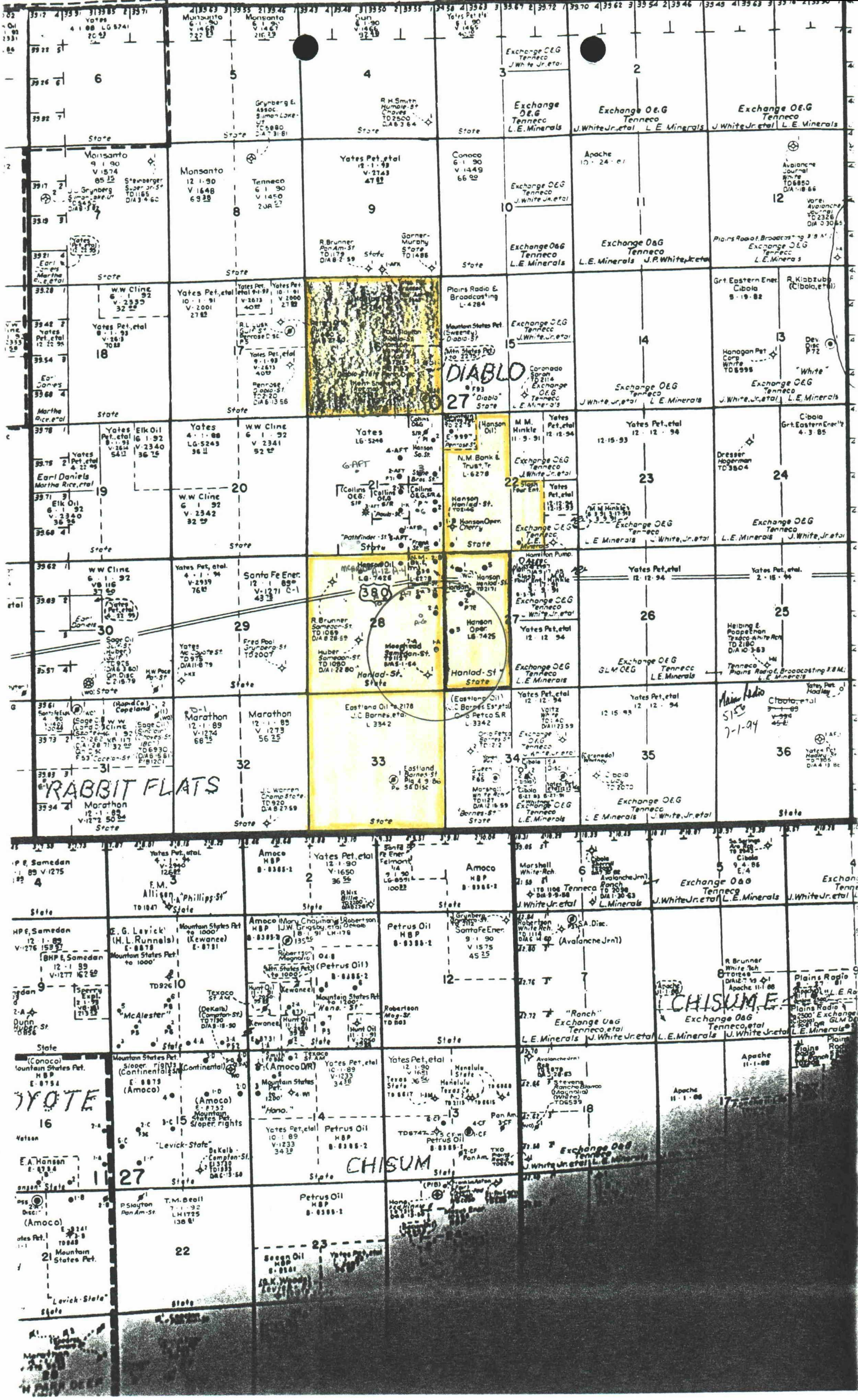
Queen @ 915'

San Andres P1 @ 1930'

San Andres P2 @ 2050'

San Andres P3 @ 2390'

Fusselman @ 6200'



DIABLO
RABBIT FLATS
CHISUM
CHISUM E.
Exchange O&G
Tenneco
L.E. Minerals
J. White Jr. etal
Yates Pet. etal
Monsanto
Conoco
Apache
Amoco
Petrus Oil
Marathon
W.W. Cline
Hanson Oper.
Eastland Oil
J.C. Barnes, etal
Mountain States Pet.
Santa Fe Ener.
Plains Radio & Broadcasting
Earl Daniels
Martha Rice, etal
380
State

HANSON OPERATING COMPANY, INC.

United Bank Plaza, Suite 1200
Post Office Box 1515
Roswell, New Mexico 88202-1515

Phone: (505) 622-7330

FORM C-108, Sec. VI

WELL BORE SKETCH

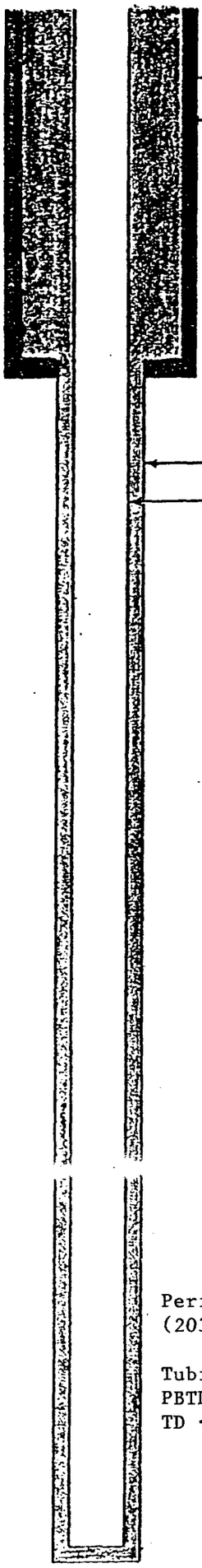
OPERATOR/LEASE/WELL HANSON OPERATING COMPANY, INC. - **HANLAD "A" STATE #1**

LOCATION NE¼SE¼ Section 28, 10S-27E, Chaves County 1650'FSL & 330' FEL

FIELD/POOL Diablo / San Andres

PLUG BACK DEPTH 2123 KB 3836GR ELEVATION 3836GR

SPUDDED 9-25-86 COMPLETED & PUT ON PUMP 12-24-86



Hole Size 12¼

SURFACE CASING:

Size 8-5/8" Weight 24# Grade J-55

Set at 500 with 400 Sacks Cement

Circulate 50 Sacks to Surface

Remarks:

Hole Size 8

PRODUCTION CASING:

Size 5½ Weight 17# Grade J-55

Set at 2132 with 350 Sacks Cement

Cement Top: Calculated _____ Temperature Survey _____

Remarks: circulated 48 sacks to surface

TUBING:

Size 2-3/8" Weight 4.6# Grade J-55

Number of Joints 66 Set at 2100

Packer Set at

Bottom Arrangement: mud anchor (10'), perf sub (3'), S.N. (110), 66 jts 2-3/8" (2087), 2-3/8" subs (14')

RODS:

Size 3/4" Number 83

Gas Anchor Set at 2100'

Pump Set at 2100'

Arrangement: 2X1½X12' pump, 83-3/4 rods (2075), 2-3/4 subs (11')

12-23-86 - Acidize perforations 2072-82' w/5000 gal 20% NEFE

1-17-89 - Re-perforated (2034-57'), re-acidized all perforations w/12,000 gal Mod-202 acid

HANSON OPERATING COMPANY, INC.

United Bank Plaza, Suite 1200
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FORM C-108, Sec. VI

WELL BORE SKETCH

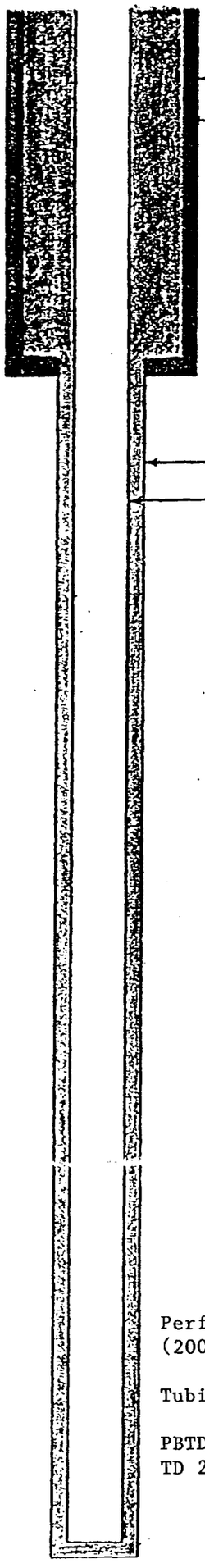
OPERATOR/LEASE/WELL HANSON OPERATING COMPANY, INC. - **HANLAD "A" STATE #2**

LOCATION SE¼NE¼ Section 28-10S-27E, Chaves County 2310'FNL & 330'FEL

FIELD/POOL Diablo / San Andres

PLUG BACK DEPTH 2004 KB 3822GR ELEVATION 3822GR

SPUDDED 3-19-88 COMPLETED & PUT ON PUMP 6-24-88



Hole Size 12¼

SURFACE CASING:
Size 8-5/8" Weight 24# Grade J-55
Set at 502 with 400 Sacks Cement
Circulate 65 Sacks to Surface
Remarks:

Hole Size 8"

PRODUCTION CASING:
Size 5½" Weight 14# Grade J-55
Set at 2099 with 400 Sacks Cement
Cement Top: Calculated _____ Temperature Survey _____
Remarks: Circulated 10 sacks to surface

TUBING:
Size 2-3/8" Weight 4.6# Grade J-55
Number of Joints 66 Set at 2070
Packer Set at
Bottom Arrangement: Perforated mud anchor (4'), S.N. (1.10), 66 jts. 2-3/8" tubing (2068)

RODS:
Size 3/4" Number 82
Gas Anchor Set at
Pump Set at 2070
Arrangement: 2X1½X12' pump, 82 3/4" rods (2050)

6-2-88 - Acidized perforation (2007-2049) w/2000 gal 20% NEFE acid
6-23-88 - Acidized perforation (2007-2049) w/12000 gal Mod-202 acid

HANSON OPERATING COMPANY, INC.

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FORM C-108, Sec. VI

WELL BORE SKETCH

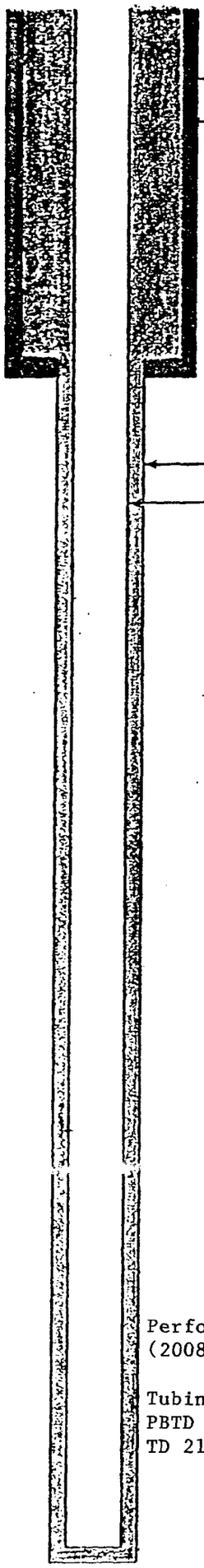
OPERATOR/LEASE/WELL HANSON OPERATING COMPANY, INC. - **HANLAD "A" STATE #3**

LOCATION SE¼NE¼ Section 28-10S-27E, Chaves County 1650'FNL & 330'FWL

FIELD/POOL Diablo / San Andres

PLUG BACK DEPTH 2105 KB 3823GR ELEVATION 3823GR

SPUDDED 12-18-87 COMPLETED & PUT ON PUMP 3-19-88



Hole Size 12¼

SURFACE CASING:
Size 8-5/8 Weight 24# Grade J-55
Set at 501 with 400 Sacks Cement
Circulate 20 Sacks to Surface
Remarks:

Hole Size 8"

PRODUCTION CASING:
Size 5½" Weight 14# Grade J-55
Set at 2106 with 400 Sacks Cement
Cement Top: Calculated Temperature Survey
Remarks: Circulated 20 sacks to surface

TUBING:
Size 2-3/8" Weight 4.6# Grade J-55
Number of Joints 64 Set at 2085
Packer Set at
Bottom Arrangement: Perforated mud anchor (6'), S.N. (1.10), 64 jts. 2-3/8" tubing (2085), 2 2-3/8 subs (10')

RODS:
Size 3/4" Number 83
Gas Anchor Set at
Pump Set at 2085'
Arrangement: 2X1½X12' pump, 83 3/4" rods (2075), 3 3/4" subs (22')

3-18-88 - Acidized perforations (2008-2090) w/5000 gal 20% NEFE acid
8-31-88 - Acidized perforations (2008-2090) w/10000 gal Mod-202 acid

HANSON OPERATING COMPANY, INC.

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FORM C-108, Sec. VI

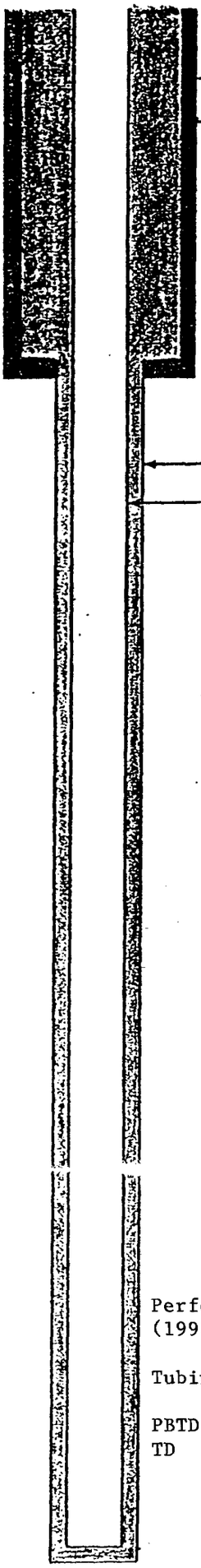
WELL BORE SKETCH

OPERATOR/LEASE/WELL HANSON OPERATING COMPANY, INC. - **HANLAD "A" STATE #5**

LOCATION SE¼NE¼ Section 28-10S-27E, Chaves County 1650'FNL & 990'FEL

FIELD/POOL Diablo / San Andres

PLUG BACK DEPTH 2083 KB 3819GR ELEVATION 3819GR



Hole Size 12¼

SURFACE CASING:
Size 8-5/8" Weight 24# Grade J-55
Set at 505 with 400 Sacks Cement
Circulate 50 Sacks to Surface
Remarks:

Hole Size 8"

PRODUCTION CASING:
Size 5½" Weight 17# Grade J-55
Set at 2100 with 350 Sacks Cement
Cement Top: Calculated ____ Temperature Survey ____
Remarks: Circulated 15 sacks to surface

TUBING:
Size 2-3/8" Weight 4.6# Grade J-55
Number of Joints 65 Set at 2072
Packer Set at
Bottom Arrangement: Perforated mud anchor (7'), S.N. (1.10), 65 jts. 2-3/8" tubing (2064), 2 2-3/8" subs (8')

RODS:
Size 3/4" Number 82
Gas Anchor Set at
Pump Set at 2064
Arrangement: 2X1½X12' pump, 82 3/4" rods (2050)

Perforations
(1992-2064) 22 holes

Tubing at 2072

PBTD 2083
TD 2100

4-22-89 - Acidized perforations (1992-2064) w/2500 gal 20% NEFE acid
4-25-89 - Acidized perforations (1992-2064) w/10000 gal Mod-202 acid

HANSON OPERATING COMPANY, INC.

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FORM C-108, Sec. VI

WELL BORE SKETCH

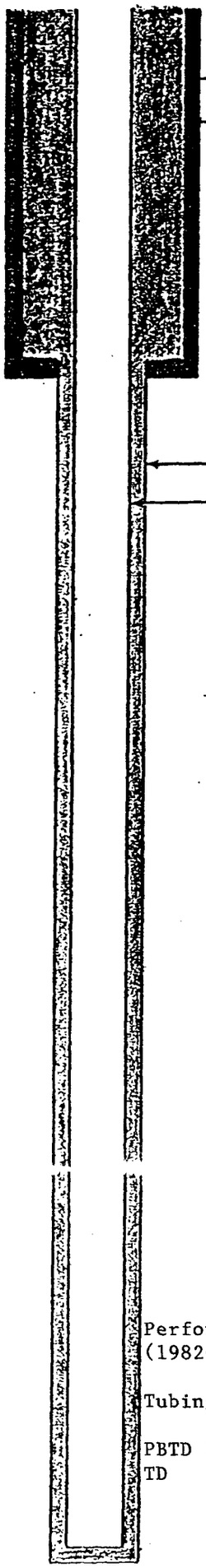
OPERATOR/LEASE/WELL HANSON OPERATING COMPANY, INC. - HANLAD "A" STATE #7

LOCATION SW¼NE¼ Section 28-10S-27E, Chaves County 1650'FNL & 1650'FEL

FIELD/POOL Diablo / San Andres

PLUG BACK DEPTH 2070 KB 3816GR ELEVATION 3816GR

SPUDDED 4-1-89 COMPLETED & PUT ON PUMP 5-13-89



Hole Size 12¼

SURFACE CASING:
Size 8-5/8" Weight 24# Grade J-55
Set at 520 with 400 Sacks Cement
Circulate 50 Sacks to Surface
Remarks:

Hole Size 8

PRODUCTION CASING:
Size 5½" Weight 17# Grade J-55
Set at 2090 with 350 Sacks Cement
Cement Top: Calculated _____ Temperature Survey _____
Remarks: Circulated 42 sacks to surface

TUBING:
Size 2-3/8" Weight 4.6# Grade J-55
Number of Joints 66 Set at 2057
Packer Set at
Bottom Arrangement: Perforated mud anchor (6'), S.N. (1.10), 66 jts. 2-3/8" (2047), 2 2-3/8" subs (10')

RODS:
Size 3/4" Number 81
Gas Anchor Set at
Pump Set at 2057
Arrangement: 2X1½X12' pump, 81 3/4" rods (2025), 2 3/4" subs (4')

5-11-89 - Acidized perforations (1982-2052) w/2500 gal 20% NEFE acid

5-12-89 - Acidized perforations (1982-2052) w/14000 gal Mod-202 acid

HANSON OPERATING COMPANY, INC.

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FORM C-108, Sec. VI

WELL BORE SKETCH

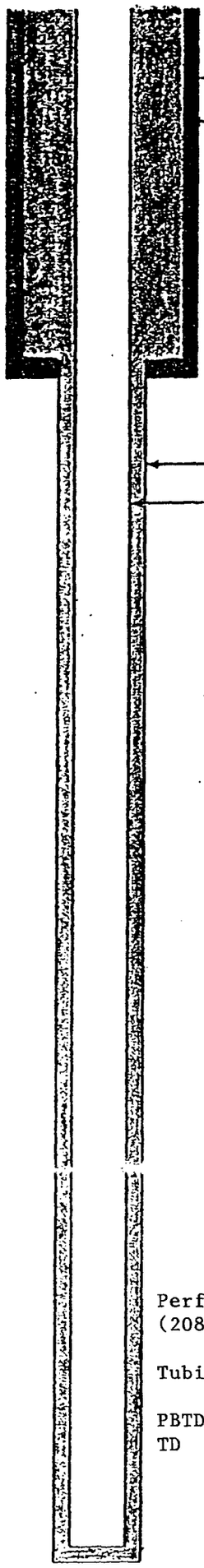
OPERATOR/LEASE/WELL HANSON OPERATING COMPANY, INC. - HANLAD STATE #2

LOCATION SW¼NW¼ Section 27-10S-27E, Chaves County 1980'FEL & 660' FWL

FIELD/POOL Diablo / San Andres

PLUG BACK DEPTH 2126 KB 3854GR ELEVATION 3854GR

SPUDDED 5-23-85 COMPLETED & PUT ON PUMP 8-5-85



Hole Size 12¼

SURFACE CASING:

Size 8-5/8 Weight 24# Grade J-55

Set at 500 with 300 Sacks Cement

Circulate 20 Sacks to Surface

Remarks:

Hole Size 8"

PRODUCTION CASING:

Size 5½ Weight 15# Grade J-55

Set at 2135 with 500 Sacks Cement

Cement Top: Calculated _____ Temperature Survey _____

Remarks: Circulated 84 sacks to surface

TUBING:

Size 2-3/8 Weight 4.6# Grade J-55

Number of Joints 68 Set at 2098

Packer Set at

Bottom Arrangement: Perf mud anchor (9'), tubing barrel (12') 68 jts. 2-7/8" tubing (2098)

RODS:

Size 3/4" Number 84

Gas Anchor Set at

Pump Set at 2110

Arrangement: 1-25/32 plunger & 84 3/4" rods (2100)

8-3-85 - Acidized perforations (2016-2114) w/2000 gal NEFE acid

1-25-89- Acidized perforations (2016-2114) w/10000 gal Mod-202 acid

HANSON OPERATING COMPANY, INC.

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FORM C-108, Sec. VI

WELL BORE SKETCH

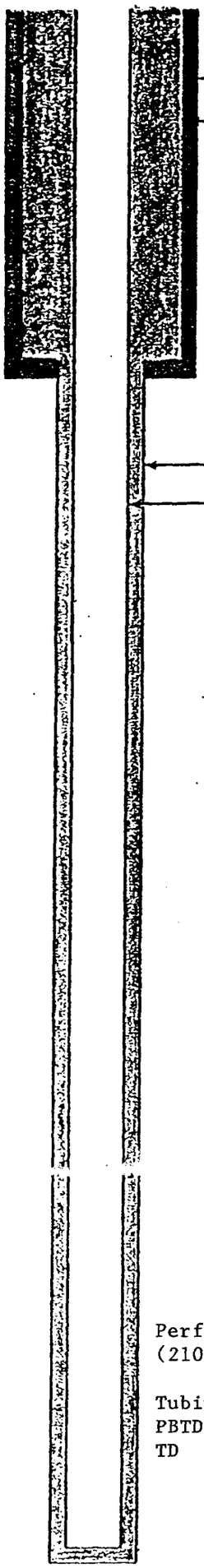
OPERATOR/LEASE/WELL HANSON OPERATING COMPANY, INC. - **HANLAD STATE #3**

LOCATION NW¼SW¼ Section 27-10S-27E, Chaves County 2310'FSL & 330'FWL

FIELD/POOL Diablo / San Andres

PLUG BACK DEPTH 2117 KB 3852GR ELEVATION 3852GR

SPUDDED 5-31-86 COMPLETED & PUT ON PUMP 9-25-86



Hole Size 12¼

SURFACE CASING:
Size 8-5/8" Weight 24# Grade J-55
Set at 469 with 350 Sacks Cement
Circulate 20 Sacks to Surface
Remarks:

Hole Size 8"

PRODUCTION CASING:
Size 5½" Weight 15.5# Grade J-55
Set at 2120 with 500 Sacks Cement
Cement Top: Calculated Temperature Survey
Remarks: Circulated 50 sacks to surface

TUBING:
Size 2-3/8" Weight 4.6# Grade J-55
Number of Joints 67 Set at 2042
Packer Set at
Bottom Arrangement: Mud anchor (6'), perf sub (3'), pump barrel (12'), 67 jts. 2-3/8" (2030)

RODS:
Size 3/4" Number 81
Gas Anchor Set at
Pump Set at 2042
Arrangement: 1-25/32 plunger, 81-3/4 rods (2025), 5-3/4 subs (22')

Perforations
(2106-2056) 16 holes

Tubing at 2042
PBTD 2117
TD 2120

9-23-86 - Acidized perforations (2106-2056) w/3000 gal 20% acid

10-12-89- Acidized perforations (2106-2056) w/10000 gal Mod-202 acid

HANSON OPERATING COMPANY, INC.

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Roswell, New Mexico 88202-1515

Phone: (505) 622-7330

FORM C-108, Sec. VI

WELL BORE SKETCH

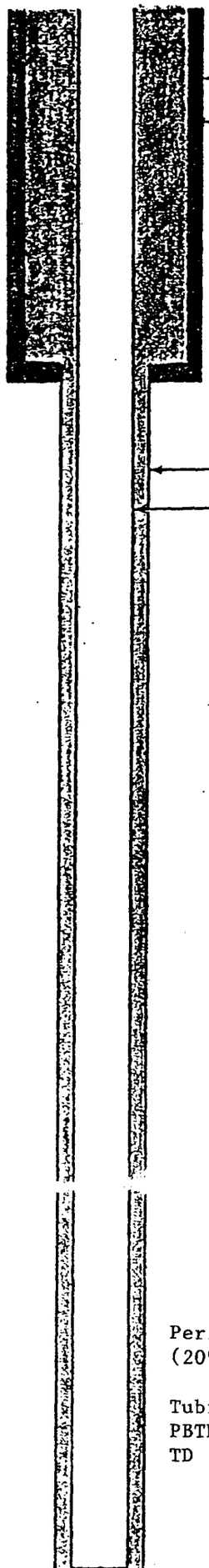
OPERATOR/LEASE/WELL HANSON OPERATING COMPANY, INC. - **HANLAD STATE #6**

LOCATION SW¼NW¼ Section 27, 10S-27E, Chaves County 650'FNL & 330'FWL

FIELD/POOL Diablo / San Andres

PLUG BACK DEPTH 2136 KB 3854GR ELEVATION 3854GR

SPUDDED 7-23-87 COMPLETED & PUT ON PUMP 10-29-87



Hole Size 12¼

SURFACE CASING:
Size 8-5/8" Weight 24# Grade J-55
Set at 500 with 400 Sacks Cement
Circulate 60 Sacks to Surface
Remarks:

Hole Size 8"

PRODUCTION CASING:
Size 5½" Weight 17# Grade J-55
Set at 2142 with 450 Sacks Cement
Cement Top: Calculated ____ Temperature Survey ____
Remarks: Circulated 45 sacks to surface

TUBING:
Size 2-3/8" Weight 4.6# Grade J-55
Number of Joints 65 Set at 2129
Packer Set at
Bottom Arrangement: Perforated mud anchor (5'), S.N. (110), 65 jts. 2-3/8" tubing (2130)

RODS:
Size 3/4" Number 84
Gas Anchor Set at
Pump Set at 2129'
Arrangement: 2X1½X12' pump, 84 - 3/4 rods (2100)

Perforations
(2095-2137) 20 holes

Tubing at 2130'
PBTD - 2136'
TD - 2140'

10-27-87 - Acidized perforations (2095-2137) w/3000 gal 20% NEFE acid
5-17-89 - Acidized perforations (2095-2137) w/12000 gal Mod-202 acid

HANSON OPERATING COMPANY, INC.
P. O. Box 1515
Roswell, New Mexico 88202-1515

FORM C-108

VII. Data on the proposed operation:

1. Proposed average and maximum daily rate and volume of fluids to be injected -
   350 BBLS a day average
   700 BBLS a day maximum.

2. Whether the system is open or closed - Open.

3. Proposed average and maximum injection pressure -
   1200# average
   1800# maximum.

4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water -
   Source - McBride State #1
   600' FNL & 1980' FWL
   Sec. 28, T.10S, R.27E
   Chaves County, New Mexico
   Fusselman formation
   Attached is an analysis of the injection fluid f/McBride State #1 and Cibola Plains #22-2 San Andres formation water analysis, which were used for the compatibility study and found to be compatible.**

5. If injection is for disposal purposes into a zone not productive of oil and gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water -
   The injected zone is capable of producing oil and gas in limited quantities.

** The Hanlad lease does not make enough water for compatibility studies, so we used The Cibola Plains #22-2 for this study.

FORM C-108, Sec. VII - #4

Unichem International

707 North Leech P.O.Box 1499

Hobbs, New Mexico 88240

Company : STEVENS OPERATING
Date : 03-02-1990
Sample 1: McBride #1 - Fusselman H2O Tank (on 3-1-90)
Sample 2: Cibola Plains 29-9 - San Andres Water Tank (on 3-1-90)

	Sample 1	Sample 2
Specific Gravity:	1.034	1.143
Total Dissolved Solids:	47833	200387
pH:	7.30	7.56
IONIC STRENGTH:	0.975	3.617

CATIONS:		me/liter	mg/liter	me/liter	mg/liter
Calcium	(Ca^{+2})	124	2480	164	3280
Magnesium	(Mg^{+2})	124	1510	116	1410
Sodium	(Na^{+1})	587	13500	3160	72600
Iron (total)	(Fe^{+2})	0.473	13.2	1.50	42.0
Barium	(Ba^{+2})	0.003	0.200	0.003	0.200
ANIONS:					
Bicarbonate	(HCO_3^{-1})	14.4	878	15.6	952
Carbonate	(CO_3^{-2})	0	0	0	0
Hydroxide	(OH^{-1})	0	0	0	0
Sulfate	(SO_4^{-2})	30.7	1480	65.6	3150
Chloride	(Cl^{-1})	790	28000	3360	119000

SCALING INDEX (positive value indicates scale)

Temperature		Calcium Carbonate	Calcium Sulfate	Calcium Carbonate	Calcium Sulfate
86°F	30°C	0.88	-19	2.0	-5.5

WATER COMPATIBILITY CALCULATIONS

FIELD NAME:Stevens Operating

WATER A :McBride #1
SAMPLE NO:1

WATER B :Cibola Plains
SAMPLE NO:2

ION(mg/L)	100%A	90%A	75%A	50%A	25%A	10%A	100%B
Na	13500	19410	28275	43050	57825	66690	72600
Ca	2480	2560	2680	2880	3080	3200	3280
Mg	1510	1500	1485	1460	1435	1420	1410
Ba	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Sr	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cl	28000	37100	50750	73500	96250	109900	119000
SO4	1480	1647	1898	2315	2733	2983	3150
CO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HCO3	878.0	885.4	896.5	915.0	933.5	944.6	952.0
TDS	47848	63103	85984	124120	162256	185138	200392
pH	7.30	7.30	7.40	7.40	7.50	7.50	7.60
SG	1.034	1.045	1.061	1.089	1.116	1.132	1.143
I(molar)	0.98	1.24	1.64	2.30	2.96	3.35	3.62

WATER INJECTION SYSTEM

CALCIUM CARBONATE SCALING CALCULATIONS

	Upstream of Pump						Downstream of Pump					
%A	TF	Psia	XCO2	pHc	SI	PTB	Is	TF	Psia	pHd	SId	PTB	Is
100	100	15	0	****	1.13	456.1	****	100	15	7.3	1.13	456.1	*****
90	100	15	0	****	1.12	459.7	****	100	15	7.32	1.12	459.7	*****
75	100	15	0	****	1.18	472.1	****	100	15	7.35	1.18	472.1	*****
50	100	15	0	****	1.43	500.6	****	100	15	7.41	1.43	500.6	*****
25	100	15	0	****	1.77	524.2	****	100	15	7.48	1.77	524.2	*****
10	100	15	0	****	2	535.3	****	100	15	7.53	2	535.3	*****
0	100	15	0	****	*****	*******	****	100	15	7.56	*****	**********	

SULFATE SCALE CALCULATIONS

			CaSO4		BaSO4		SrSO4	
%A	TF	Psia	SR	PTB	SR	PTB	SR	PTB
100	100	15	.5	-537.5	1.9	.1	0	-58.6
90	100	15	.5	-593	1.8	.1	0	-60.3
75	100	15	.5	-628.5	1.7	0	0	-60.7
50	100	15	.6	-577.9	1.6	0	0	-57.2
25	100	15	.7	-415.8	1.7	0	0	-51
10	100	15	.8	-275.3	1.7	0	*****	*******
0	100	15	.9	-166.5	1.7	0	*****	*******

NOTE: Values of SI & PTB for CaCO3, and SR & PTB for CaSO4 and BaSO4 are calculated at 14.7 psia.

HANSON OPERATING COMPANY, INC.
P. O. Box 1515
Roswell, New Mexico 88202-1515

FORM C-108

VIII. Attach appropriate geological data on the injection zone:

Lithology - slightly calcic dolomite
Geologic name - San Andres (P_1)
Thickness - Top San Andres to base of porosity - 630'
Porosity thickness - 48'
Depth - Top San Andres - 1450'
Top San Andres Porosity - 2034'
Potable water - No known fresh water aquifers.

IX. Describe the proposed stimulation program, if any -

No stimulation is planned at this time.

X. Attach appropriate logging and test data on the well -

Logs and test data were sent to the NMOCD, Artesia, on 12/29/86 and 12/31/86, upon completion of the well.

XI. Attach a chemical analysis of fresh water from two or more fresh water wells within one mile of any injection or disposal well -

No known fresh water wells are within 1 mile of the area.

HANSON OPERATING COMPANY, INC.
P. O. Box 1515
Roswell, New Mexico

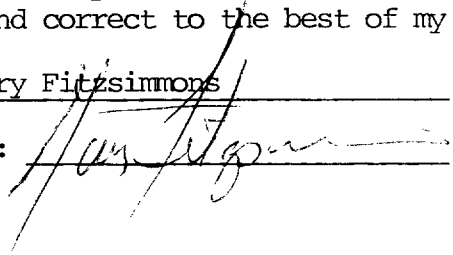
FORM C-108

XII. To date, we have not identified any fresh water zones in the area. Our wells have been drilled by cable tool and all water zones drilled have contained salt water. On March 16, 1990, Ken Fresquez, of the New Mexico State Engineering Office, confirmed that there are no known fresh water zones in the area. In addition, no faults have been identified in the San Andres formation, or shallower, and it is my opinion no faulting occurs in San Andres, and younger, rock in this area.

Therefore, there is no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

I hereby certify that the information submitted in this statement is true and correct to the best of my knowledge and belief.

Name: Gary Fitzsimmons Title: Geologist

Signature:  Date: 03/21/90

FORM C-108, Sec. XIII

CAMPBELL & BLACK, P.A.
LAWYERS

JACK M. CAMPBELL
BRUCE D. BLACK
MICHAEL B. CAMPBELL
WILLIAM F. CARR
BRADFORD C. BERGE
MARK F. SHERIDAN
WILLIAM P. SLATTERY
PATRICIA A. MATTHEWS

JEFFERSON PLACE
SUITE I - 110 NORTH GUADALUPE
POST OFFICE BOX 2208
SANTA FE, NEW MEXICO 87504-2208
TELEPHONE: (505) 988-4421
TELECOPIER: (505) 983-6043

March 15, 1990

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Case 9902

Commissioner of Public Lands
New Mexico State Land Office
Post Office Box 1148
Santa Fe, New Mexico 87504

Re: Application of Hanson Operating Company, Inc. for Approval of Salt Water Disposal, Chaves County, New Mexico

Gentlemen:

This letter is to advise you that Hanson Operating Company, Inc. has filed an application with the New Mexico Oil Conservation Division seeking authority to dispose of produced salt water by injection into the San Andres formation (Diablo San Andres Pool) in its Hanlad A State No. 1 Well located 1650 feet from the South line and 330 feet from the East line (Unit I), Section 28, Township 10 South, Range 27 East, N.M.P.M., Chaves County, New Mexico.

This application has been set for hearing before an Examiner of the Oil Conservation Division on April 4, 1990. You do not need to be present at the hearing, but failure to appear at the hearing or otherwise become a party of record in this case will preclude you from challenging the matter at a later date.

Very truly yours,

WILLIAM F. CARR
ATTORNEY FOR HANSON OPERATING COMPANY, INC.
WFC:mlh

FORM C-108, Sec. XIII

CAMPBELL & BLACK, P.A.
LAWYERS

JACK M. CAMPBELL
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SANTA FE, NEW MEXICO 87504-2208
TELEPHONE: (505) 988-4421
TELECOPIER: (505) 983-6043

March 15, 1990

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Case 9902

Yates Petroleum Corporation
105 South Fourth Street
Artesia, New Mexico 88210

Re: Application of Hanson Operating Company, Inc. for Approval of Salt Water Disposal, Chaves County, New Mexico

Gentlemen:

This letter is to advise you that Hanson Operating Company, Inc. has filed an application with the New Mexico Oil Conservation Division seeking authority to dispose of produced salt water by injection into the San Andres formation (Diablo San Andres Pool) in its Hanlad A State No. 1 Well located 1650 feet from the South line and 330 feet from the East line (Unit I), Section 28, Township 10 South, Range 27 East, N.M.P.M., Chaves County, New Mexico.

This application has been set for hearing before an Examiner of the Oil Conservation Division on April 4, 1990. You do not need to be present at the hearing, but failure to appear at the hearing or otherwise become a party of record in this case will preclude you from challenging the matter at a later date.

Very truly yours,

WILLIAM F. CARR
ATTORNEY FOR HANSON OPERATING COMPANY, INC.
WFC:mlh

STATE OF NEW MEXICO
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: Hanson Operating Company, Inc.

Address: P. O. Box 1515, Roswell, New Mexico 88202-1515

Contact party: David Sweeney Phone: 505-622-7330

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: David Sweeney Title Drilling & Production Supt.

Signature: David Sweeney Date: 03/21/90

* 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. Compensated Neutron Density Log sent to OCD, Artesia, 12/29/86, upon completion of the well.

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.

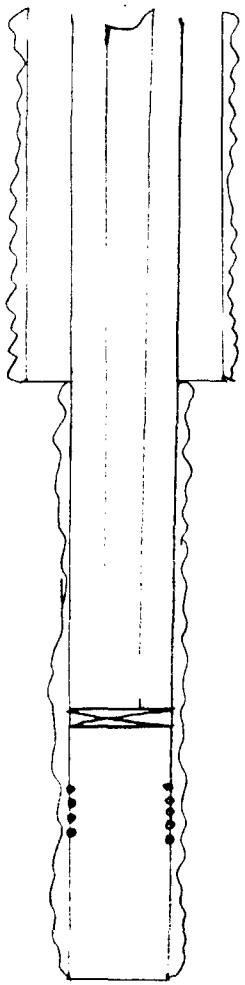
NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

INJECTION WELL DATA SHEET

SIDE 1

HANSON OPERATING COMPANY, INC.	HANLAD "A" STATE			
OPERATOR	LEASE			
1	1650'FSL & 330'FEL	28	10 South	27 East
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic



Tabular Data

Surface Casing

Size 8-5/8 " Cemented with 400 sx.

TOC surface feet determined by circulating

Hole size 12¼

Intermediate Casing

Size _____ " Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Long string

Size 5½ " Cemented with 350 sx.

TOC surface feet determined by circulating

Hole size 8"

Total depth 2132'

Injection interval

2034 feet to 2082 feet

(perforated or open-hole, indicate which)

INJECTION WELL DATA SHEET -- SIDE 2

Tubing size 2-3/8 lined with Plastic (material) set in a DCOT Model D1 (brand and model) packer at 2000 feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation San Andres

2. Name of Field or Pool (if applicable) Diablo San Andres

3. Is this a new well drilled for injection? /_/ Yes /x/ No

   If no, for what purpose was the well originally drilled? in fill producing well

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. Queen at 915'; San Andres P1 @ 1930', P2 @ 2050', P3 @ 2390'; Fusselman @ 6200'

HANSON OPERATING COMPANY, INC.
P. O. Box 1515
Roswell, New Mexico 88202-1515

FORM C-108

III. Well Data

B (1) The name of the injection formation and, if applicable, the field or pool name -

Diablo San Andres

B (2) The injection interval and whether it is perforated or open-hole -

2034 - 2082' Perforated

B (3) State if the well was drilled for injection or, if not, the original purpose of the well -

Drilled as a producing oil well.

B (4) Give the depths of any other perforated intervals -

N/A.

B (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well -

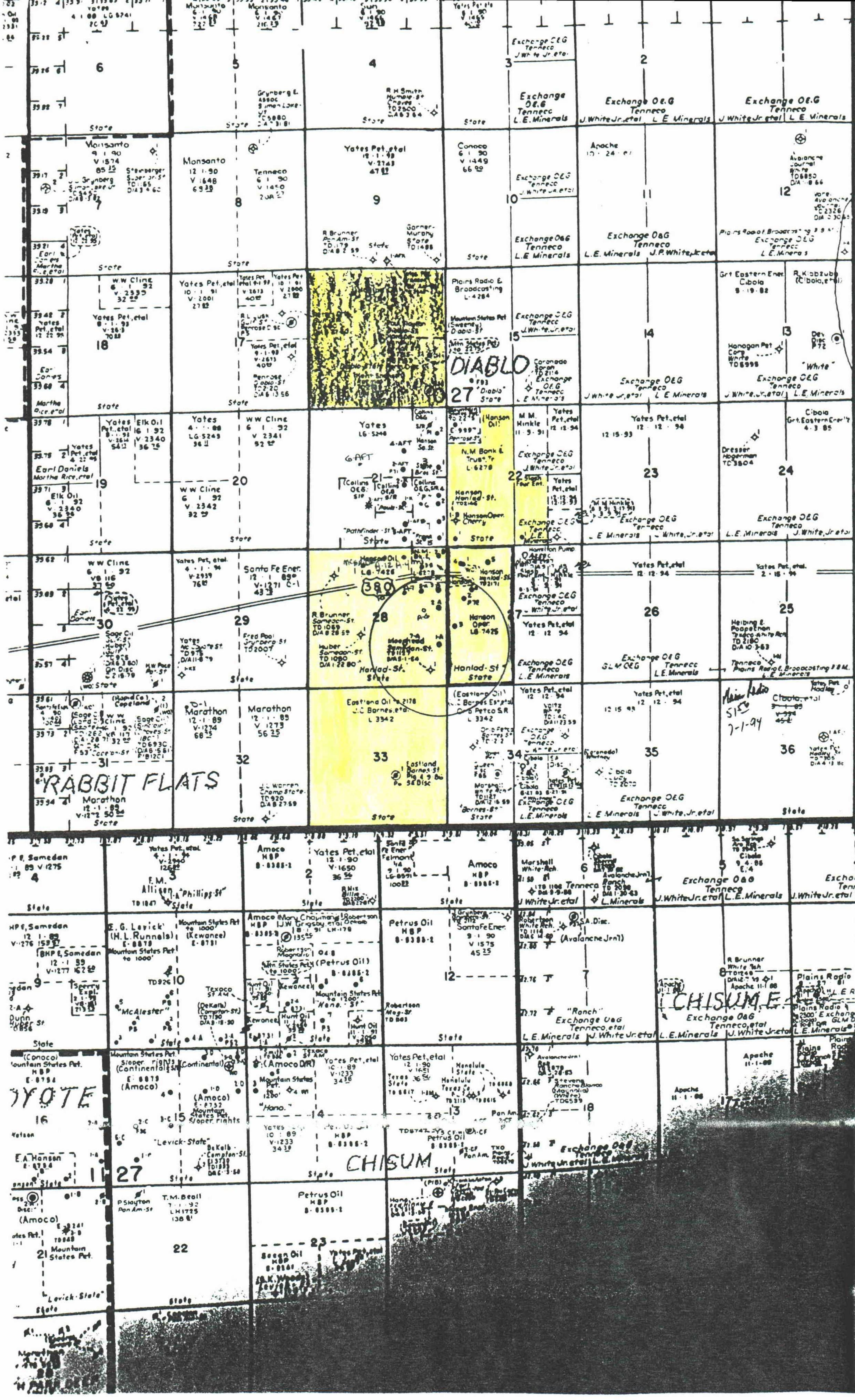
Queen @ 915'

San Andres P1 @ 1930'

San Andres P2 @ 2050'

San Andres P3 @ 2390'

Fusselman @ 6200'



DIABLO
RABBIT FLATS
CHISUM E
CHISUM
380
Exchange O&G
Tenneco
J. White Jr. etal
L.E. Minerals
Yates Pet. etal
Monsanto
Tenneco
Conoco
Apache
W.W. Cline
Plains Radio & Broadcasting
Grt. Eastern Ener.
Cibola
N.M. Bank & Trust, Tr.
Hanson Oper.
Hanson Oil
Santa Fe Ener.
Marathon
Eastland Oil
J.C. Barnes, etal
Petco S.R.
Earl Daniels
Elk Oil
Amoco
Petrus Oil
E.G. Levick
(H.L. Runnels)
Mountain States Pet.
Robertson
"Ranch"
"Levick-State"
T.M. Beall
State

HANSON OPERATING COMPANY, INC.
United Bank Plaza, Suite 1200
Post Office Box 1515
Roswell, New Mexico 88202-1515
Phone: (505) 622-7330

FORM C-108, Sec. VI

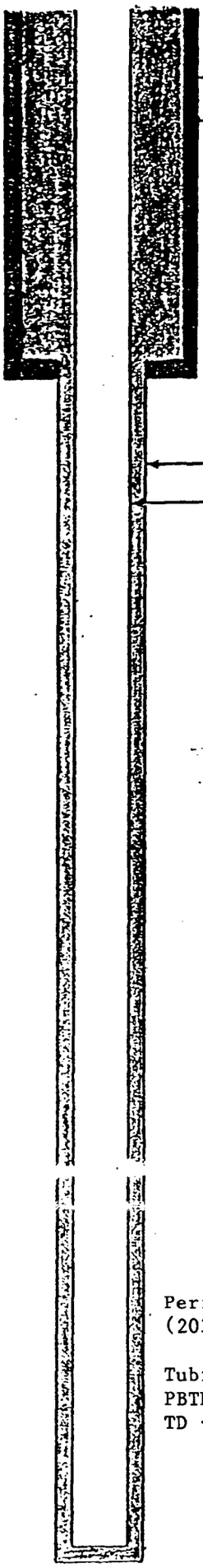
WELL BORE SKETCH

OPERATOR/LEASE/WELL HANSON OPERATING COMPANY, INC. - **HANLAD "A" STATE #1**

LOCATION NE¼SE¼ Section 28, 10S-27E, Chaves County 1650'FSL & 330' FEL

FIELD/POOL Diablo / San Andres

PLUG BACK DEPTH 2123 KB 3836GR ELEVATION 3836GR
SPUDDED 9-25-86 COMPLETED & PUT ON PUMP 12-24-86



Hole Size 12¼

SURFACE CASING:
Size 8-5/8" Weight 24# Grade J-55
Set at 500 with 400 Sacks Cement
Circulate 50 Sacks to Surface
Remarks:

Hole Size 8

PRODUCTION CASING:
Size 5½ Weight 17# Grade J-55
Set at 2132 with 350 Sacks Cement
Cement Top: Calculated Temperature Survey
Remarks: circulated. 48 sacks to surface

TUBING:
Size 2-3/8" Weight 4.6# Grade J-55
Number of Joints 66 Set at 2100
Packer Set at
Bottom Arrangement: mud anchor (10'), perf sub (3'), S.N. (110), 66 jts 2-3/8" (2087), 2-3/8" subs (14')

RODS:
Size 7/8" Number 83
Gas Anchor Set at 2100'
Pump Set at 2100'
Arrangement: 2X1½X12' pump, 83-3/4 rods (2075), 2-3/4 subs (11')

12-23-86 - Acidize perforations 2072-82' w/5000 gal 20% NEFE
1-17-89 - Re-perforated (2034-57'), re-acidized all perforations w/12,000 gal Mod-202 acid

HANSON OPERATING COMPANY, INC.

United Bank Plaza, Suite 1200
Post Office Box 1515
Roswell, New Mexico 88202-1515

Phone: (505) 622-7330

FORM C-108, Sec. VI

WELL BORE SKETCH

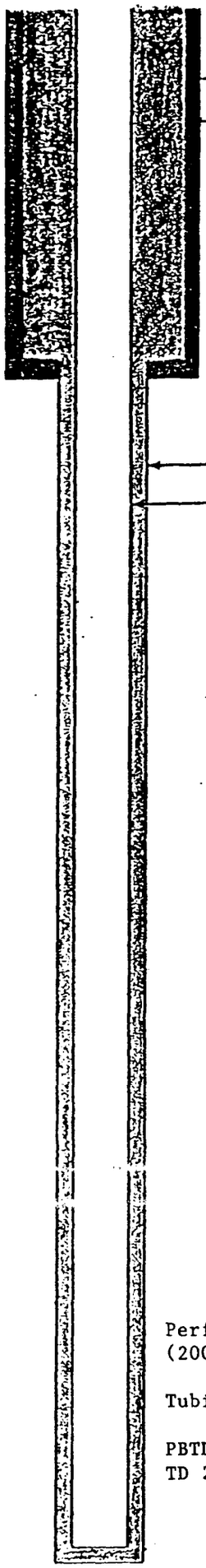
OPERATOR/LEASE/WELL HANSON OPERATING COMPANY, INC. - **HANLAD "A" STATE #2**

LOCATION SE¼NE¼ Section 28-10S-27E, Chaves County 2310'FNL & 330'FEL

FIELD/POOL Diablo / San Andres

PLUG BACK DEPTH 2004 KB 3822GR ELEVATION 3822GR

SPUDDED 3-19-88 COMPLETED & PUT ON PUMP 6-24-88



Hole Size 12¼

SURFACE CASING:

Size 8-5/8" Weight 24# Grade J-55

Set at 502 with 400 Sacks Cement

Circulate 65 Sacks to Surface

Remarks:

Hole Size 8"

PRODUCTION CASING:

Size 5½" Weight 14# Grade J-55

Set at 2099 with 400 Sacks Cement

Cement Top: Calculated _____ Temperature Survey _____

Remarks: Circulated 10 sacks to surface

TUBING:

Size 2-3/8" Weight 4.6# Grade J-55

Number of Joints 66 Set at 2070

Packer Set at

Bottom Arrangement: Perforated mud anchor (4'), S.N. (1.10), 66 jts. 2-3/8" tubing (2068)

RODS:

Size ¾" Number 82

Gas Anchor Set at

Pump Set at 2070

Arrangement: 2X1½X12' pump, 82 3/4" rods (2050)

Perforations
(2007-2049) 16 holes

Tubing at 2070

PBTD 2094
TD 2099

6-2-88 - Acidized perforation (2007-2049) w/2000 gal 20% NEFE acid

6-23-88 - Acidized perforation (2007-2049) w/12000 gal Mod-202 acid

HANSON OPERATING COMPANY, INC.

United Bank Plaza, Suite 1200
Post Office Box 1515
Roswell, New Mexico 88202-1515

Phone: (505) 622-7330

FORM C-108, Sec. VI

WELL BORE SKETCH

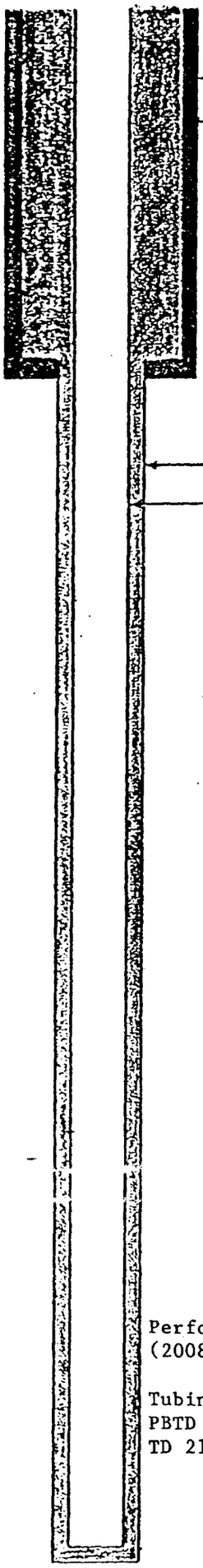
OPERATOR/LEASE/WELL HANSON OPERATING COMPANY, INC. - **HANLAD "A" STATE #3**

LOCATION SE¼NE¼ Section 28-10S-27E, Chaves County 1650'FNL & 330'FWL

FIELD/POOL Diablo / San Andres

PLUG BACK DEPTH 2105 KB 3823GR ELEVATION 3823GR

SPUDDED 12-18-87 COMPLETED & PUT ON PUMP 3-19-88



Hole Size 12¼

SURFACE CASING:
Size 8-5/8 Weight 24# Grade J-55
Set at 501 with 400 Sacks Cement
Circulate 20 Sacks to Surface
Remarks:

Hole Size 8"

PRODUCTION CASING:
Size 5½" Weight 14# Grade J-55
Set at 2106 with 400 Sacks Cement
Cement Top: Calculated _____ Temperature Survey _____
Remarks: Circulated 20 sacks to surface

TUBING:
Size 2-3/8" Weight 4.6# Grade J-55
Number of Joints 64 Set at 2085
Packer Set at
Bottom Arrangement: Perforated mud anchor (6'), S.N. (1.10), 64 jts. 2-3/8" tubing (2085), 2 2-3/8 subs (10')

RODS:
Size 3/4" Number 83
Gas Anchor Set at
Pump Set at 2085'
Arrangement: 2X1½X12' pump, 83 3/4" rods (2075), 3 3/4" subs (22')

3-18-88 - Acidized perforations (2008-2090) w/5000 gal 20% NEFE acid
8-31-88 - Acidized perforations (2008-2090) w/10000 gal Mod-202 acid

HANSON OPERATING COMPANY, INC.
United Bank Plaza, Suite 1200
Post Office Box 1515
Roswell, New Mexico 88202-1515
Phone: (505) 622-7330

FORM C-108, Sec. VI

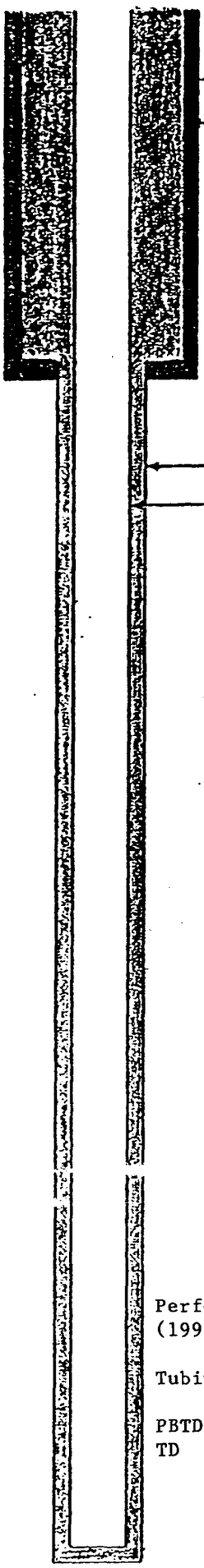
WELL BORE SKETCH

OPERATOR/LEASE/WELL HANSON OPERATING COMPANY, INC. - **HANLAD "A" STATE #5**

LOCATION SE¼NE¼ Section 28-10S-27E, Chaves County 1650'FNL & 990'FEL

FIELD/POOL Diablo / San Andres

PLUG BACK DEPTH 2083 KB 3819GR ELEVATION 3819GR



Hole Size 12¼

SURFACE CASING:
Size 8-5/8" Weight 24# Grade J-55
Set at 505 with 400 Sacks Cement
Circulate 50 Sacks to Surface
Remarks:

Hole Size 8"

PRODUCTION CASING:
Size 5½" Weight 17# Grade J-55
Set at 2100 with 350 Sacks Cement
Cement Top: Calculated ____ Temperature Survey ____
Remarks: Circulated 15 sacks to surface

TUBING:
Size 2-3/8" Weight 4.6# Grade J-55
Number of Joints 65 Set at 2072
Packer Set at
Bottom Arrangement: Perforated mud anchor (7'), S.N. (1.10), 65 jts. 2-3/8" tubing (2064), 2 2-3/8" subs (8')

RODS:
Size 3/4" Number 82
Gas Anchor Set at
Pump Set at 2064
Arrangement: 2X1½X12' pump, 82 3/4" rods (2050)

Perforations
(1992-2064) 22 holes

Tubing at 2072

PBTD 2083
TD 2100

4-22-89 - Acidized perforations (1992-2064) w/2500 gal 20% NEFE acid
4-25-89 - Acidized perforations (1992-2064) w/10000 gal Mod-202 acid

HANSON OPERATING COMPANY, INC.

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FORM C-108, Sec. VI

WELL BORE SKETCH

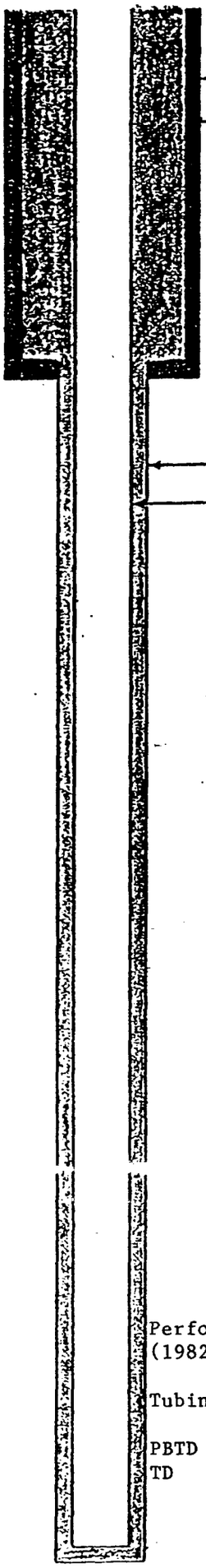
OPERATOR/LEASE/WELL HANSON OPERATING COMPANY, INC. - HANLAD "A" STATE #7

LOCATION SW¼NE¼ Section 28-10S-27E, Chaves County 1650'FNL & 1650'FEL

FIELD/POOL Diablo / San Andres

PLUG BACK DEPTH 2070 KB 3816GR ELEVATION 3816GR

SPUDDED 4-1-89 COMPLETED & PUT ON PUMP 5-13-89



Hole Size 12¼

SURFACE CASING:
Size 8-5/8" Weight 24# Grade J-55
Set at 520 with 400 Sacks Cement
Circulate 50 Sacks to Surface
Remarks:

Hole Size 8

PRODUCTION CASING:
Size 5½" Weight 17# Grade J-55
Set at 2090 with 350 Sacks Cement
Cement Top: Calculated ____ Temperature Survey ____
Remarks: Circulated 42 sacks to surface

TUBING:
Size 2-3/8" Weight 4.6# Grade J-55
Number of Joints 66 Set at 2057
Packer Set at
Bottom Arrangement: Perforated mud anchor (6'), S.N. (1.10), 66 jts. 2-3/8" (2047), 2 2-3/8" subs (10')

RODS:
Size 3/4" Number 81
Gas Anchor Set at
Pump Set at 2057
Arrangement: 2X1½X12' pump, 81 3/4" rods (2025), 2 3/4" subs (4')

5-11-89 - Acidized perforations (1982-2052) w/2500 gal 20% NEFE acid
5-12-89 - Acidized perforations (1982-2052) w/14000 gal Mod-202 acid

HANSON OPERATING COMPANY, INC.

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FORM C-108, Sec. VI

WELL BORE SKETCH

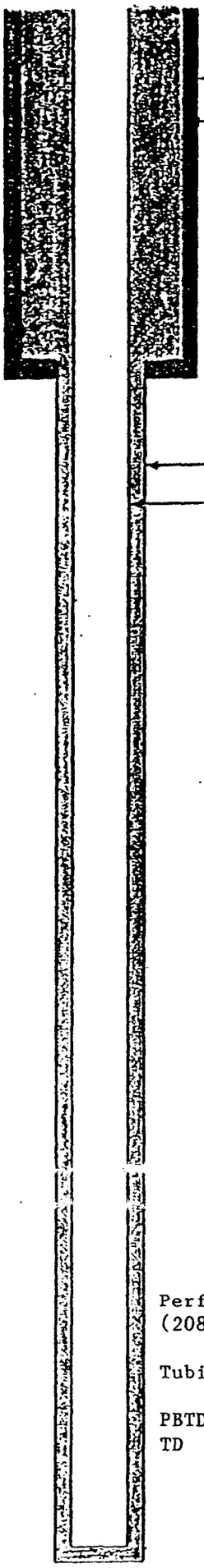
OPERATOR/LEASE/WELL HANSON OPERATING COMPANY, INC. - HANLAD STATE #2

LOCATION SW¼NW¼ Section 27-10S-27E, Chaves County 1980'FEL & 660' FWL

FIELD/POOL Diablo / San Andres

PLUG BACK DEPTH 2126 KB 3854GR ELEVATION 3854GR

SPUDDED 5-23-85 COMPLETED & PUT ON PUMP 8-5-85



Hole Size 12¼

SURFACE CASING:

Size 8-5/8 Weight 24# Grade J-55

Set at 500 with 300 Sacks Cement

Circulate 20 Sacks to Surface

Remarks:

Hole Size 8"

PRODUCTION CASING:

Size 5½ Weight 15# Grade J-55

Set at 2135 with 500 Sacks Cement

Cement Top: Calculated _____ Temperature Survey _____

Remarks: Circulated 84 sacks to surface

TUBING:

Size 2-3/8 Weight 4.6# Grade J-55

Number of Joints 68 Set at 2098

Packer Set at

Bottom Arrangement: Perf mud anchor (9'), tubing barrel (12') 68 jts. 2-7/8" tubing (2098)

RODS:

Size [illegible] Number 84

Gas Anchor Set at

Pump Set at 2110

Arrangement: 1-25/32 plunger & 84 3/4" rods (2100)

Perforations
(2086-2114) 16 holes

Tubing at 2098'

PBTD 2126'
TD 2134'

8-3-85 - Acidized perforations (2016-2114) w/2000 gal NEFE acid

1-25-89- Acidized perforations (2016-2114) w/10000 gal Mod-202 acid

HANSON OPERATING COMPANY, INC.

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FORM C-108, Sec. VI

WELL BORE SKETCH

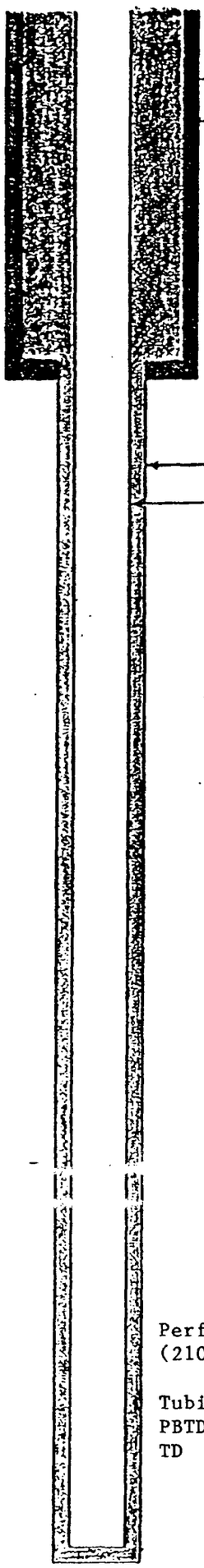
OPERATOR/LEASE/WELL HANSON OPERATING COMPANY, INC. - **HANLAD STATE #3**

LOCATION NW¼SW¼ Section 27-10S-27E, Chaves County 2310'FSL & 330'FWL

FIELD/POOL Diablo / San Andres

PLUG BACK DEPTH 2117 KB 3852GR ELEVATION 3852GR

SPUDDED 5-31-86 COMPLETED & PUT ON PUMP 9-25-86



Hole Size 12¼

SURFACE CASING:
Size 8-5/8" Weight 24# Grade J-55
Set at 469 with 350 Sacks Cement
Circulate 20 Sacks to Surface
Remarks:

Hole Size 8"

PRODUCTION CASING:
Size 5½" Weight 15.5# Grade J-55
Set at 2120 with 500 Sacks Cement
Cement Top: Calculated Temperature Survey
Remarks: Circulated 50 sacks to surface

TUBING:
Size 2-3/8" Weight 4.6# Grade J-55
Number of Joints 67 Set at 2042
Packer Set at
Bottom Arrangement: Mud anchor (6'), perf sub (3'), pump barrel (12'), 67 jts. 2-3/8" (2030)

RODS:
Size 3/4" Number 81
Gas Anchor Set at
Pump Set at 2042
Arrangement: 1-25/32 plunger, 81-3/4 rods (2025), 5-3/4 subs (22')

Perforations
(2106-2056) 16 holes

Tubing at 2042
PBTD 2117
TD 2120

9-23-86 - Acidized perforations (2106-2056) w/3000 gal 20% acid
10-12-89- Acidized perforations (2106-2056) w/10000 gal Mod-202 acid

HANSON OPERATING COMPANY, INC.

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FORM C-108, Sec. VI

WELL BORE SKETCH

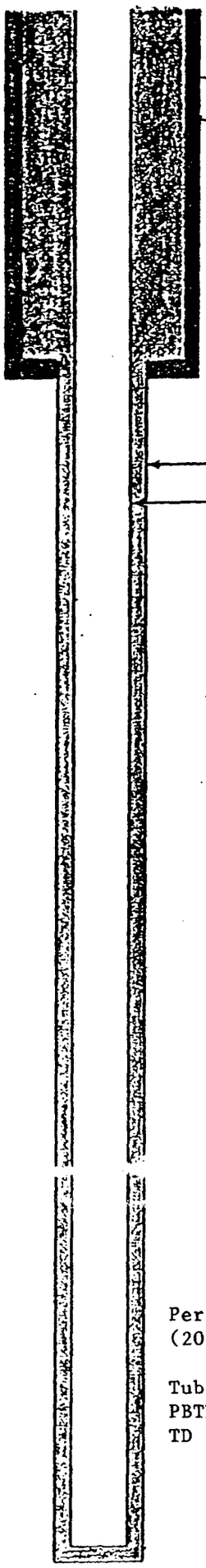
OPERATOR/LEASE/WELL HANSON OPERATING COMPANY, INC. - **HANLAD STATE #6**

LOCATION SW¼NW¼ Section 27, 10S-27E, Chaves County 650'FNL & 330'FWL

FIELD/POOL Diablo / San Andres

PLUG BACK DEPTH 2136 KB 3854GR ELEVATION 3854GR

SPUDDED 7-23-87 COMPLETED & PUT ON PUMP 10-29-87



Hole Size 12¼

SURFACE CASING:
Size 8-5/8" Weight 24# Grade J-55
Set at 500 with 400 Sacks Cement
Circulate 60 Sacks to Surface
Remarks:

Hole Size 8"

PRODUCTION CASING:
Size 5½" Weight 17# Grade J-55
Set at 2142 with 450 Sacks Cement
Cement Top: Calculated Temperature Survey
Remarks: Circulated 45 sacks to surface

TUBING:
Size 2-3/8" Weight 4.6# Grade J-55
Number of Joints 65 Set at 2129
Packer Set at
Bottom Arrangement: Perforated mud anchor (5'), S.N. (110), 65 jts. 2-3/8" tubing (2130)

RODS:
Size ¾" Number 84
Gas Anchor Set at
Pump Set at 2129'
Arrangement: 2X1½X12' pump, 84 - ¾ rods (2100)

Perforations
(2095-2137) 20 holes

Tubing at 2130'
PBTD - 2136'
TD - 2140'

10-27-87 - Acidized perforations (2095-2137) w/3000 gal 20% NEFE acid
5-17-89 - Acidized perforations (2095-2137) w/12000 gal Mod-202 acid

HANSON OPERATING COMPANY, INC.
P. O. Box 1515
Roswell, New Mexico 88202-1515

FORM C-108

VII. Data on the proposed operation:

1. Proposed average and maximum daily rate and volume of fluids to be injected -
   350 BBLS a day average
   700 BBLS a day maximum.

2. Whether the system is open or closed - Open.

3. Proposed average and maximum injection pressure -
   1200# average
   1800# maximum.

4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water -
   Source - McBride State #1
   600' FNL & 1980' FWL
   Sec. 28, T.10S, R.27E
   Chaves County, New Mexico
   Fusselman formation
   Attached is an analysis of the injection fluid f/McBride State #1 and Cibola Plains #22-2 San Andres formation water analysis, which were used for the compatibility study and found to be compatible.**

5. If injection is for disposal purposes into a zone not productive of oil and gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water -
   The injected zone is capable of producing oil and gas in limited quantities.

** The Hanlad lease does not make enough water for compatibility studies, so we used The Cibola Plains #22-2 for this study.

FORM C-108, Sec. VII - #4

Unichem International

707 North Leech P.O.Box 1499

Hobbs, New Mexico 88240

Company : STEVENS OPERATING
Date : 03-02-1990
Sample 1: McBride #1 - Fusselman H2O Tank (on 3-1-90)
Sample 2: Cibola Plains 29-9 - San Andres Water Tank (on 3-1-90)

	Sample 1	Sample 2
Specific Gravity:	1.034	1.143
Total Dissolved Solids:	47833	200387
pH:	7.30	7.56
IONIC STRENGTH:	0.975	3.617

CATIONS:		me/liter	mg/liter	me/liter	mg/liter
Calcium	(Ca^{+2})	124	2480	164	3280
Magnesium	(Mg^{+2})	124	1510	116	1410
Sodium	(Na^{+1})	587	13500	3160	72600
Iron (total)	(Fe^{+2})	0.473	13.2	1.50	42.0
Barium	(Ba^{+2})	0.003	0.200	0.003	0.200
ANIONS:					
Bicarbonate	(HCO_3^{-1})	14.4	878	15.6	952
Carbonate	(CO_3^{-2})	0	0	0	0
Hydroxide	(OH^{-1})	0	0	0	0
Sulfate	(SO_4^{-2})	30.7	1480	65.6	3150
Chloride	(Cl^{-1})	790	28000	3360	119000

SCALING INDEX (positive value indicates scale)

Temperature		Calcium Carbonate	Calcium Sulfate	Calcium Carbonate	Calcium Sulfate
86°F	30°C	0.88	-19	2.0	-5.5

WATER COMPATIBILITY CALCULATIONS

FIELD NAME:Stevens Operating

WATER A :McBride #1
SAMPLE NO:1

WATER B :Cibola Plains
SAMPLE NO:2

ION(mg/L)	100%A	90%A	75%A	50%A	25%A	10%A	100%B
Na	13500	19410	28275	43050	57825	66690	72600
Ca	2480	2560	2680	2880	3080	3200	3280
Mg	1510	1500	1485	1460	1435	1420	1410
Ba	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Sr	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cl	28000	37100	50750	73500	96250	109900	119000
SO4	1480	1647	1898	2315	2733	2983	3150
CO3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HCO3	878.0	885.4	896.5	915.0	933.5	944.6	952.0
TDS	47848	63103	85984	124120	162256	185138	200392
pH	7.30	7.30	7.40	7.40	7.50	7.50	7.60
SG	1.034	1.045	1.061	1.089	1.116	1.132	1.143
I(molar)	0.98	1.24	1.64	2.30	2.96	3.35	3.62

WATER INJECTION SYSTEM

CALCIUM CARBONATE SCALING CALCULATIONS

	Upstream of Pump						Downstream of Pump					
%A	TF	Psia	XCO2	pHc	SI	PTB	Is	TF	Psia	pHd	SId	PTB	Is
100	100	15	0	****	1.13	456.1	****	100	15	7.3	1.13	456.1	*****
90	100	15	0	****	1.12	459.7	****	100	15	7.32	1.12	459.7	*****
75	100	15	0	****	1.18	472.1	****	100	15	7.35	1.18	472.1	*****
50	100	15	0	****	1.43	500.6	****	100	15	7.41	1.43	500.6	*****
25	100	15	0	****	1.77	524.2	****	100	15	7.48	1.77	524.2	*****
10	100	15	0	****	2	535.3	****	100	15	7.53	2	535.3	*****
0	100	15	0	****	*****	*******	****	100	15	7.56	*****	**********	

SULFATE SCALE CALCULATIONS

			CaSO4		BaSO4		SrSO4	
%A	TF	Psia	SR	PTB	SR	PTB	SR	PTB
100	100	15	.5	-537.5	1.9	.1	0	-58.6
90	100	15	.5	-593	1.8	.1	0	-60.3
75	100	15	.5	-628.5	1.7	0	0	-60.7
50	100	15	.6	-577.9	1.6	0	0	-57.2
25	100	15	.7	-415.8	1.7	0	0	-51
10	100	15	.8	-275.3	1.7	0	*****	*******
0	100	15	.9	-166.5	1.7	0	*****	*******

NOTE: Values of SI & PTB for CaCO3, and SR & PTB for CaSO4 and BaSO4 are calculated at 14.7 psia.

HANSON OPERATING COMPANY, INC.
P. O. Box 1515
Roswell, New Mexico 88202-1515

FORM C-108

VIII. Attach appropriate geological data on the injection zone:

Lithology - slightly calcic dolomite
Geologic name - San Andres (P_1)
Thickness - Top San Andres to base of porosity - 630'
Porosity thickness - 48'
Depth - Top San Andres - 1450'
Top San Andres Porosity - 2034'
Potable water - No known fresh water aquifers.

IX. Describe the proposed stimulation program, if any -

No stimulation is planned at this time.

X. Attach appropriate logging and test data on the well -

Logs and test data were sent to the NMOCD, Artesia, on 12/29/86 and 12/31/86, upon completion of the well.

XI. Attach a chemical analysis of fresh water from two or more fresh water wells within one mile of any injection or disposal well -

No known fresh water wells are within 1 mile of the area.

HANSON OPERATING COMPANY, INC.
P. O. Box 1515
Roswell, New Mexico

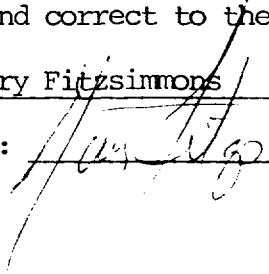
FORM C-108

XII. To date, we have not identified any fresh water zones in the area. Our wells have been drilled by cable tool and all water zones drilled have contained salt water. On March 16, 1990, Ken Fresquez, of the New Mexico State Engineering Office, confirmed that there are no known fresh water zones in the area. In addition, no faults have been identified in the San Andres formation, or shallower, and it is my opinion no faulting occurs in San Andres, and younger, rock in this area.

Therefore, there is no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

I hereby certify that the information submitted in this statement is true and correct to the best of my knowledge and belief.

Name: Gary Fitzsimmons Title: Geologist

Signature:  Date: 03/21/90

FORM C-108, Sec. XIII

CAMPBELL & BLACK, P.A.
LAWYERS

JACK M. CAMPBELL
BRUCE D. BLACK
MICHAEL B. CAMPBELL
WILLIAM F. CARR
BRADFORD C. BERGE
MARK F. SHERIDAN
WILLIAM P. SLATTERY
PATRICIA A. MATTHEWS

JEFFERSON PLACE
SUITE I - 110 NORTH GUADALUPE
POST OFFICE BOX 2208
SANTA FE, NEW MEXICO 87504-2208
TELEPHONE: (505) 988-4421
TELECOPIER: (505) 983-6043

March 15, 1990

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Commissioner of Public Lands
New Mexico State Land Office
Post Office Box 1148
Santa Fe, New Mexico 87504

Re: Application of Hanson Operating Company, Inc. for Approval of Salt Water Disposal, Chaves County, New Mexico

Gentlemen:

This letter is to advise you that Hanson Operating Company, Inc. has filed an application with the New Mexico Oil Conservation Division seeking authority to dispose of produced salt water by injection into the San Andres formation (Diablo San Andres Pool) in its Hanlad A State No. 1 Well located 1650 feet from the South line and 330 feet from the East line (Unit I), Section 28, Township 10 South, Range 27 East, N.M.P.M., Chaves County, New Mexico.

This application has been set for hearing before an Examiner of the Oil Conservation Division on April 4, 1990. You do not need to be present at the hearing, but failure to appear at the hearing or otherwise become a party of record in this case will preclude you from challenging the matter at a later date.

Very truly yours,

WILLIAM F. CARR
ATTORNEY FOR HANSON OPERATING COMPANY, INC.
WFC:mlh

FORM C-108, Sec. XIII

CAMPBELL & BLACK, P.A.
LAWYERS

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JEFFERSON PLACE
SUITE 1 - 110 NORTH GUADALUPE
POST OFFICE BOX 2208
SANTA FE, NEW MEXICO 87504-2208
TELEPHONE: (505) 988-4421
TELECOPIER: (505) 983-6043

March 15, 1990

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Yates Petroleum Corporation
105 South Fourth Street
Artesia, New Mexico 88210

Re: Application of Hanson Operating Company, Inc. for Approval of Salt Water Disposal, Chaves County, New Mexico

Gentlemen:

This letter is to advise you that Hanson Operating Company, Inc. has filed an application with the New Mexico Oil Conservation Division seeking authority to dispose of produced salt water by injection into the San Andres formation (Diablo San Andres Pool) in its Hanlad A State No. 1 Well located 1650 feet from the South line and 330 feet from the East line (Unit I), Section 28, Township 10 South, Range 27 East, N.M.P.M., Chaves County, New Mexico.

This application has been set for hearing before an Examiner of the Oil Conservation Division on April 4, 1990. You do not need to be present at the hearing, but failure to appear at the hearing or otherwise become a party of record in this case will preclude you from challenging the matter at a later date.

Very truly yours,

WILLIAM F. CARR
ATTORNEY FOR HANSON OPERATING COMPANY, INC.
WFC:mlh