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: [XX] Secondary Recovery [ ] Pressure Maintenance [ ] Disposal [ ] Storage
Application qualifies for administrative approval? [XX] 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 [X] 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.

BEFORE EXAMINER STOGNER
OIL CONSERVATION DIVISION
HANSON EXHIBIT NO. 17
CASE NO. 10685 + 10686

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 Superintender

Signature: David Sweeney Date: February 18, 1993

* 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.

_____

_____

C-108
Application For Authorization To Inject
Hanson Operating Company, Inc.
Eddy County, New Mexico

Existing Wells:	Proposed Wells to Drill:
Pueblo Federal #1 M 30-18S-31E	Ginsberg Federal #18 26-18S-30E
Ute Federal #1 N 25-18S-30E	Ginsberg Federal #19 26-18S-30E
Ginsberg Federal #17 A 26-18S-30E	Keinath Federal #6 25-18S-30E

I. The purpose of this application is to request authorization to inject into the 7 Rivers, Penrose & Middle Grayburg formation in the six above mentioned wells for the purpose of secondary recovery.

Hanson Operating Company, Inc., plans to convert 3 existing wells and drill 3 wells for injectors. The Ute Federal #1 and the Pueblo Federal #1 will inject water into the 7 Rivers formation. The Ginsberg Federals #17, #18 & #19 and the Keinath Federal #6 will inject water into the Penrose and Middle Grayburg formations.

II. Operator: Hanson Operating Company, Inc.
P. O. Box 1515
Roswell, New Mexico 88202-1515
David Sweeney 505-622-7330

III. Well Data: See Attachment A.

IV. This is not an expansion of an existing project.

V. See attached maps, Attachment B.

VI. See Attachment C.

VII. 1. Proposed average daily injection volume approximately 600 BWPD per injection well in the Penrose and Middle Grayburg formation. In the 7 Rivers formation it is proposed to inject approximately 100-250 BWPD per injection well. Maximum daily injection volume for the Penrose & Middle Grayburg formation approximately 1000 BWPD per injection well. In the 7 Rivers formation approximately 300 BWPD per injection well.

2. This will be a closed system.

3. A step rate test will be run independently in the 7 Rivers, Penrose and Middle Grayburg formations. Proposed maximum injection pressure approximately 2000 Psi.

4. It is proposed to re-enter the Lanning Federal #3 and the Lanning Federal #4 wells, which are currently SI. These 2 wells should produce sufficient amounts of water from the Penrose, Middle Grayburg formations to utilize in the proposed flood. The 7 Rivers perforations in the Lanning Federal #3 (2515-2534') will be squeezed with sufficient cement to isolate the 7 Rivers formation. The 7 Rivers perforations in the Lanning Federal #4 (2526-2544') will be squeezed with sufficient cement to isolate the 7 Rivers formation. Several water analyses are attached. Attachment D. If there is not a sufficient supply of produced water in the above mentioned wells, the City of Carlsbad Water System could be utilized.
See VI attachment for tabulation of data on these wells. Attachment C.

5. Not applicable.

VIII. 1. The zones we propose to inject into are described in descending order. (Using Hanson Operating designations).

a. Permian 7 Rivers formation "C" Zone: This zone is composed of very fine grained sub-angular to sub-rounded quartz sandstone with an approximate thickness of 20 feet. The depth of this zone is approximately +1100 feet subsea. (or at a drill depth of approximately 2470 feet).

b. Permian Queen Formation "Third" Penrose Sand: This sand is composed of very fine grained sub-angular to sub-rounded quartz sandstone with an approximate thickness of 10 feet. The depth of this zone is approximately +335 feet subsea. (or at a drill depth of approximately 3160 feet).

c. Permian Grayburg Formation "Third" Sand: This sand is composed of very fine grained sub-angular to sub-rounded quartz sandstone with an approximate thickness of 10 feet. The depth of this zone is approximately +55 feet subsea. (or at a drill depth of approximately 3440 feet).

2. A survey of drinking water sources in the area was done using New Mexico State Engineers Office data and it was found that the only drinking water sources in the area are found at a depth of less than 275 feet. These water zones are located in the Permian (or possibly Triassic) Redbeds. Survey of Hanson Operating records showed that the shallow water zones penetrated by Hanson's wells contained sulfur water and that drinking water was not found. No drinking water is present below the proposed injection zones.

IX. The proposed injection intervals in the Keinath Federal #6, Ginsberg Federal #18 & #19 (Penrose, Middle Grayburg) will be acidized with 2000 gal 15% acid and sand water fraced with 30000 gal water and 40000# sand per zone. The Pueblo Federal #1 injection interval in the 7 Rivers will be acidized with 1500 gal of 15% acid then sand water fraced with 30000 gal of water and 50000# of sand.

X. Logs will be filed in your office when the drilling is completed on the 3 wells. The Ginsberg Federal #17, Pueblo Federal #1 and Ute Federal #1 logs have been filed with your office when they were completed.

XI. One water well was located within the one mile radius of the injection wells. Records at the State Engineers Office confirmed this water well and no other wells. The water well is in Sec.26-T.18S-R.30E, SE NW SE. Depth is at 250'. Attached is a map & water analysis of Snyder Ranch water well. Attachment E & F.

XII. All relevant data available was examined to determine if any open faults or any other hydrologic connection between the disposal zones and any underground source of drinking water existed and it was determined that these geologic or engineering conditions do not exist in the flood area.

XIII. Proof of Notice

1. Certified letters sent to the surface owner and offset operators-attached. Attachment G.

2. Copy of legal advertisement attached. Attachment H.

XIV. Certification is signed.

Hanson Operating Company, Inc.
Shugart Water Flood
Proposed Injection Wells
Well Data
Attachment "A"
Page 1

Lease Name/Location	Casing Strings	Tubing	Packer	Injection Formation	Proposed Injection Interval (Perfs)	Original Purpose Of Well	Other Perfs	1-Next Higher (shallower) Oil or Gas Zone 2-Next Lower (deeper) Oil or Gas Zone
Pueblo Federal #1 M 30-18S-31E SW 1/4 SW 1/4 930' FSL & 660' FWL	13-3/8" 48# @503' (circ 50 sx). 8-5/8" 24# @1979' (TOC surface). 5-1/2" 15.5# @6125' (TOC 1900' CBL).	2-3/8" 4.7# J-55 plastic coated. To be set @2350.	Baker Model AD-1 Tension Packer plastic coated or equivalent.	7 RVRS	2469-2487'	Drilled as a Delaware Test. Presently Penrose M-GRBG Production	3639-3648'	1-None. 2-Queen formation.
..ce Federal #1 N 25-18S-30E SE 1/4 SW 1/4 930' FSL & 2310' FWL	13-3/8" 48# @362' (circ 30 sx). 8-5/8" 24# @2004' (circ 60 sx). 5-1/2" 15.5# @6000' (TOC 1850' CBL).	2-3/8" 4.7# J-55 plastic coated. To be set @2350'.	Baker Model AD-1 Tension Packer plastic coated or equivalent.	7 RVRS	2469-2487'	Drilled as a Delaware Test. Presently SI.	2463-2487' 3640-3658'	1-None. 2-Queen formation.
Ginsberg Federal #17 A 26-18S-30E NE 1/4 NE 1/4 990' FNL & 990' FEL	8-5/8" 24# @585' (circ 40 sx). 5-1/2" 15.5# & 17# @3475' (circ).	2-3/8" 4.7# J-55 plastic coated. To be set @3050'.	*Upper Packer: Baker Model AR-1. Lower Packer: Baker Model R-3.	Penrose M-GRBG	3074-3082' 3390-3398'	Developmental Oil Well.	2082-2090' 2153-2168' 2648-2658' 3074-3082' 3354-3362'	1-7 Rivers 2-Lower Grayburg
PROPOSED TO DRILL:								
Ginsberg Federal #18 26-18S-30E SW 1/4 NE 1/4	8-5/8" 24# @750' (circ). 5-1/2" 15.5# @3550' (circ).	2-3/8" 4.7# J-55 plastic coated. To be set @3050'.	*Upper Packer: Baker Model AR-1. Lower Packer: Baker Model R-3.	Penrose M-GRBG	3160-3170' 3440-3460'	To be drilled as a WIW.	None	1-7 Rivers 2-Lower Grayburg
Ginsberg Federal #19 26-18S-30E SW 1/4 NE 1/4 SE 1/4	8-5/8" 24# @750' (circ). 5-1/2" 15.5# @3550' (circ).	2-3/8" 4.7# J-55 plastic coated. To be set @3050'.	*Upper Packer: Baker Model AR-1. Lower Packer: Baker Model R-3.	Penrose M-GRBG	3190-3200' 3480-3490'	To be drilled as a WIW.	None	1-7 Rivers 2-Lower Grayburg
..inath Federal #6 25-18S-30E NW 1/4 SW 1/4	8-5/8" 24# @750' (circ). 5-1/2" 15.5# @3550' (circ).	2-3/8" 4.7# J-55 plastic coated. To be set @3050'.	*Upper Packer: Baker Model AR-1. Lower Packer: Baker Model R-3.	Penrose M-GRBG	3180-3200' 3460-3480'	To be drilled as a WIW.	None	1-7 Rivers 2-Lower Grayburg

*SEE ATTACHED DIAGRAM

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

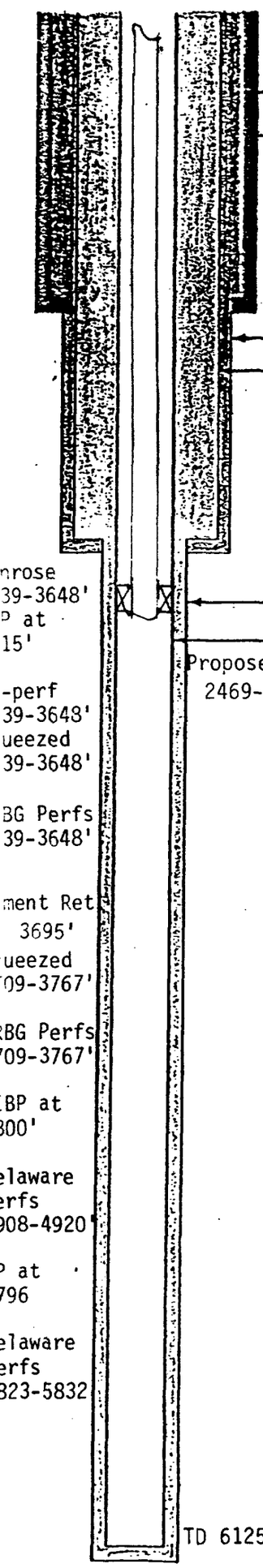
WELL BORE SKETCH

OPERATOR/LEASE/WELL Hanson Operating Company, Inc. Pueblo Fed.#1 DATE _____

LOCATION SW ¼ SW ¼ M Sec.30-T.18S-R.31E 930' FSL & 660' FWL

FIELD/POOL Shugart / Yates 7 RVRS Queen GRBG

PLUG BACK DEPTH 3695' KB _____ ELEVATION 3561'



Hole Size 17½"

SURFACES CASING:
Size 13-3/8" Weight 48# Grade J-55
Set at 503' with 450 Sacks Cement
Circulate 50 Sacks to Surface
Remarks: _____

Hole Size 12¼"

INTERMEDIATE CASING:
Size 8-5/8" Weight 24# Grade J-55
Set at 1979' with 850 Sacks Cement
Circulate _____ Sacks to Surface
Cement Top: Calculated 600 Temperature Survey _____
Remarks: Pumped 300 sx down backside. Circ 5 sx to surface

Hole Size 7-7/8"

PRODUCTION CASING:
Size 5½" Weight 15.5# Grade J-55
Set at 6125' with 1470 Sacks Cement
Cement Top: Calculated 1900' Temperature Survey CBL
Remarks: DV Tool at 3028'

TUBING: Plastic Coated
Size 2-3/8" Weight 4.7# Grade J-55
Number of Joints _____ Set at _____
Packer Set at 2120'
Bottom Arrangement: Type AD-1 Baker Model

RODS:
Size _____ Number _____
Gas Anchor Set at _____
Pump Set at _____
Arrangement: _____

It is proposed to set CIBP at 3530' and cap w/cement.
Perf 7 RVRS at 2469-2487 and inject into 7 RVRS.

ATTACHMENT A
Page 2

HANSON OPERATING COMPANY, INC.

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

Phone: (505) 622-7330

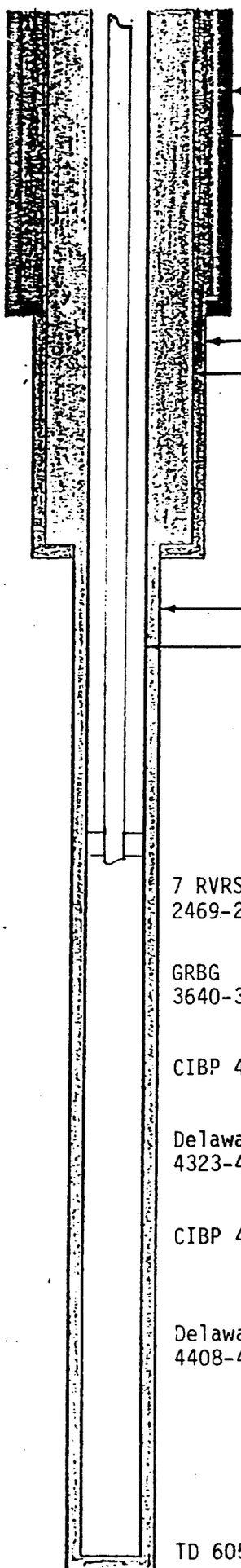
WELL BORE SKETCH

OPERATOR/LEASE/WELL Hanson Operating Company, Inc. Ute Fed. #1 DATE _____

LOCATION SE ¼ SW¼ N Sec.25-T.18S-R.30E

FIELD/POOL Shugart / yates 7 RVRS Queen GRBG

PLUG BACK DEPTH 4290' KB _____ ELEVATION 3548' GR



Hole Size 17½"

SURFACES CASING:
Size 13-3/8" Weight 48# Grade J-55
Set at 362' with 330 Sacks Cement
Circulate 30 Sacks to Surface
Remarks: _____

Hole Size 12¼"

INTERMEDIATE CASING:
Size 8-5/8" Weight 24# Grade J-55
Set at 2004' with 265 Sacks Cement
Circulate 60 Sacks to Surface
Cement Top: Calculated _____ Temperature Survey _____
Remarks: _____

Hole Size 7-7/8"

PRODUCTION CASING:
Size 5½" Weight 15.5# Grade J-55
Set at 6050' with 780 Sacks Cement
Cement Top: Calculated 1850' Temperature Survey CBL
Remarks: _____

TUBING: Plastic
Size 2-3/8" Coated Weight 4.7# Grade J-55
Number of Joints _____ Set at _____
Packer Set at 2420'
Bottom Arrangement: AD-1 Baker Model

RODS:
Size _____ Number _____
Gas Anchor Set at _____
Pump Set at _____
Arrangement: _____

It is proposed to set CIBP at 3630' cap w/ cement.
Inject into 7 RVRS zone 2469-2487'.

ATTACHMENT A
Page 3

HANSON OPERATING CO. PANY, INC.

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

Phone: (505) 622-7330

WELL BORE SKETCH

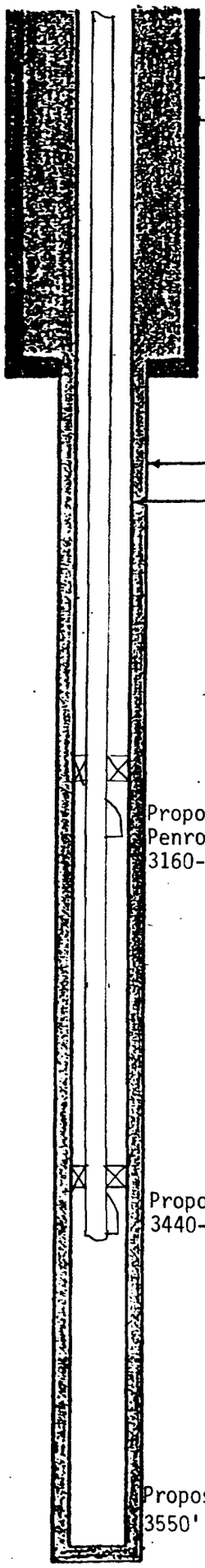
OPERATOR/LEASE/WELL Hanson Operating Company, Inc. Ginsberg Federal #18

LOCATION SWSENE Sec.26-T.18S-R.30E

FIELD/POOL Shugart / Yates 7 RVRS Queen GRBG

PLUG BACK DEPTH _____ KB _____ ELEVATION _____

Propose to drill as injector.



Hole Size 12¼"

SURFACE CASING:
Size 8-5/8" Weight 24# Grade J-55
Set at 750' with 475 Sacks Cement
Circulate cement Sacks to Surface
Remarks: _____

Hole Size 7-7/8"

PRODUCTION CASING:
Size 5½" Weight 15.5# Grade J-55
Set at 3550' with 425 Sacks Cement
Cement Top: Calculated _____ Temperature Survey _____
Remarks: circ to surface
DV Tool set 3000'±

TUBING: Plastic
Size 2-3/8" coated Weight 4.7# Grade J-55
Number of Joints _____ Set at _____
Packer Set at 3110' & 3390'
Bottom Arrangement: AR-1 Baker Model & R-3 Baker Model

RODS:
Size _____ Number _____
Gas Anchor Set at _____
Pump Set at _____
Arrangement: _____

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

WELL BORE SKETCH

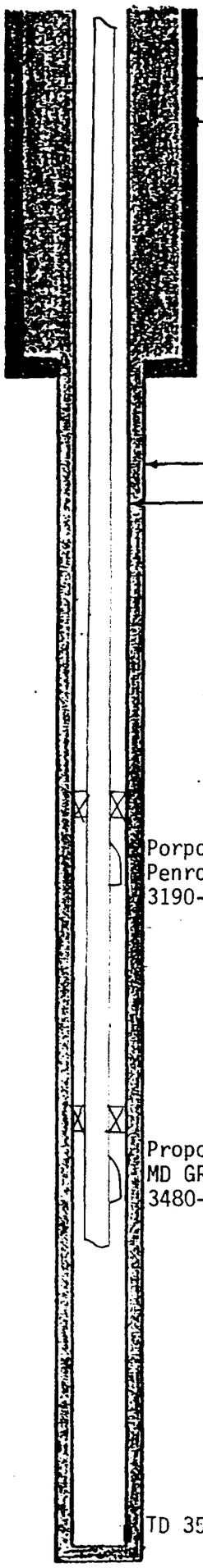
OPERATOR/LEASE/WELL Hanson Operating Company, Inc. Ginsberg Federal #19

LOCATION SWNESE Sec.26-T.18S-R.30E

FIELD/POOL Shugart / Yates 7 RVRS Queen GRBG

PLUG BACK DEPTH _____ KB _____ ELEVATION _____

Proposed to drill as injector



Hole Size 12¼"

SURFACE CASING:
Size 8-5/8" Weight 24# Grade J-55
Set at 750' with 475 Sacks Cement
Circulate cement Sacks to Surface
Remarks: _____

Hole Size 7-7/8"

PRODUCTION CASING:
Size 5½" Weight 15.5# Grade J-55
Set at 3550' with 425 Sacks Cement
Cement Top: Calculated _____ Temperature Survey _____
Remarks: Circ to surface
DV Tool set 3000'±

TUBING: Plastic
Size 2-3/8" Coated Weight 4.7# Grade J-55
Number of Joints _____ Set at _____
Packer Set at 3140' & 3430'
Bottom Arrangement: AR-1 Baker Model & R-3 Baker Model

RODS:
Size _____ Number _____
Gas Anchor Set at _____
Pump Set at _____
Arrangement: _____

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HANSON OPERATING CO PANY, INC.

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

Phone: (505) 622-7330

WELL BORE SKETCH

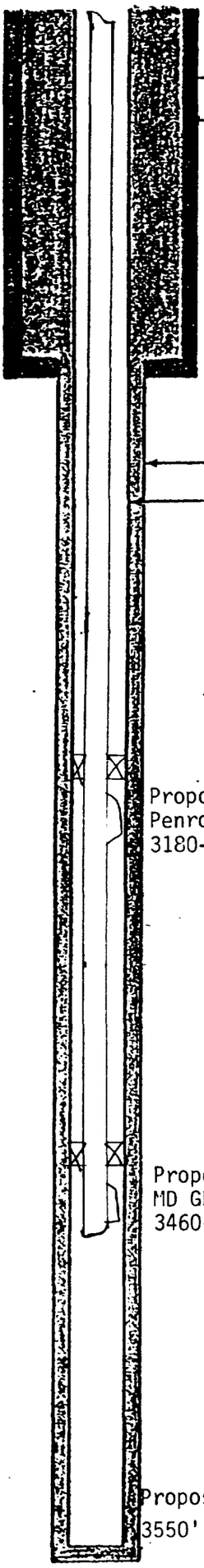
OPERATOR/LEASE/WELL Hanson Operating Company, Inc. Keinath Federal #6

LOCATION NW¼ SW ¼ Sec.25-T.18S-R.30E

FIELD/POOL Shugart / Yates 7 RVRS Queen GRBG

PLUG BACK DEPTH _____ KB _____ ELEVATION _____

Proposed to drill as injector



Hole Size 12¼"

SURFACE CASING:
Size 8-5/8" Weight 24# Grade J-55
Set at 750' with 475 Sacks Cement
Circulate cement Sacks to Surface
Remarks: _____

Hole Size 7-7/8"

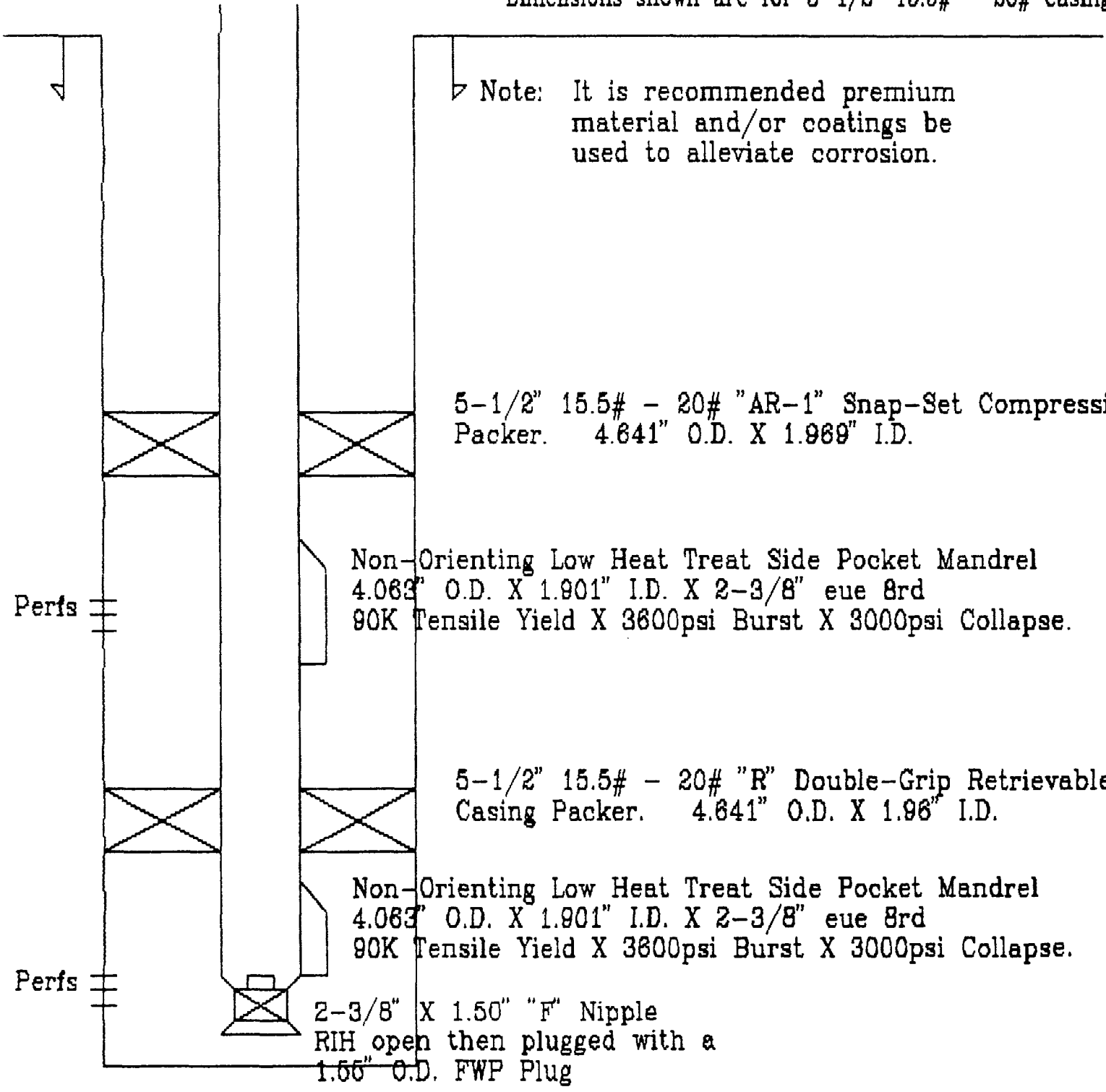
PRODUCTION CASING:
Size 5½" Weight 15.5# Grade J-55
Set at 3550' with 425 Sacks Cement
Cement Top: Calculated _____ Temperature Survey _____
Remarks: DV Tool set 3000±
Circ to surface.

TUBING: Plastic
Size 2-3/8" Coated Weight 4.7# Grade J-55
Number of Joints _____ Set at _____
Packer Set at 3130' & 3410'
Bottom Arrangement: AR-1 Baker Model & R-3 Baker Model-

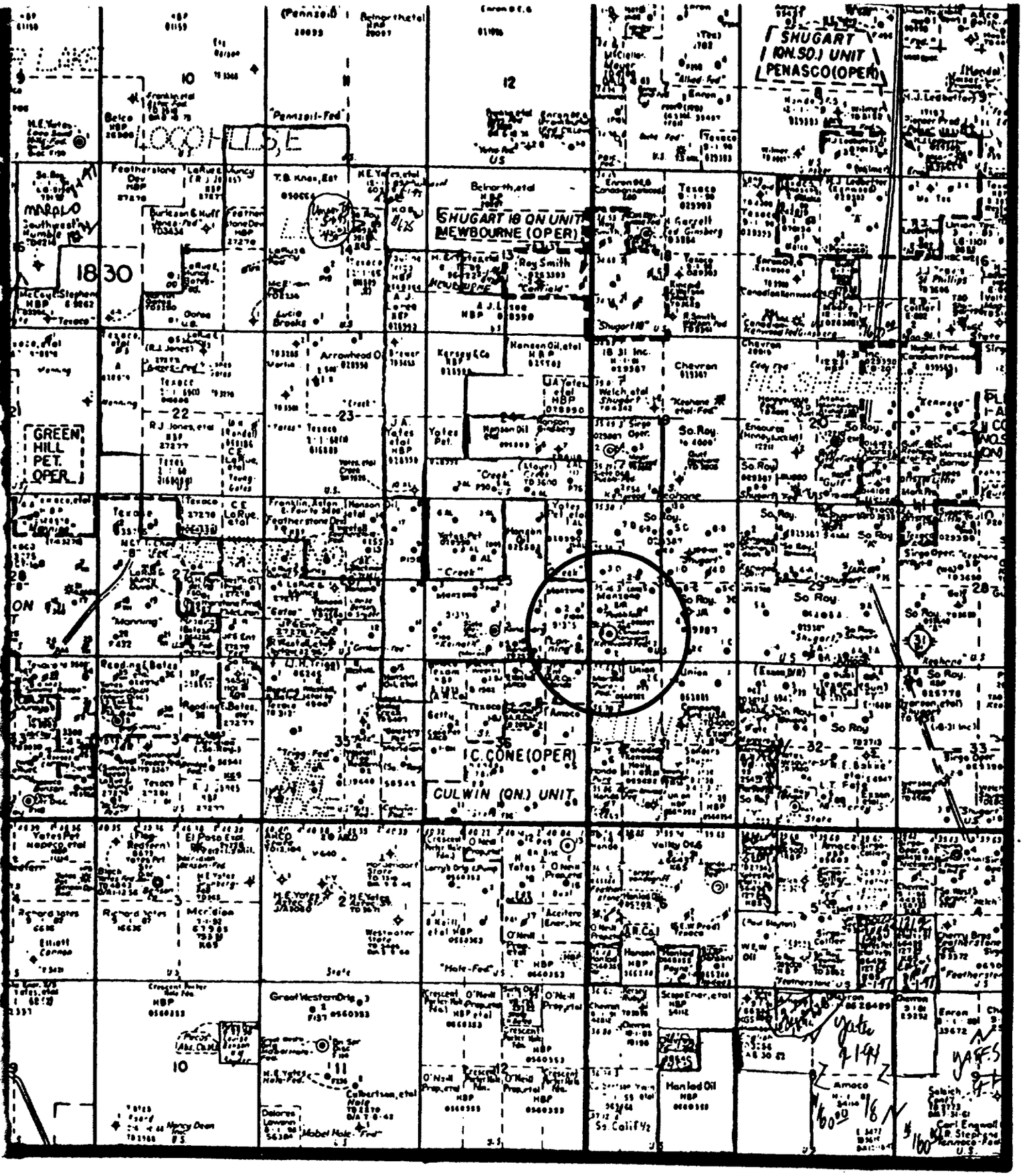
RODS:
Size _____ Number _____
Gas Anchor Set at _____
Pump Set at _____
Arrangement: _____

Two Zone St addle Using C ompression Set Packers And Compensated Flow Regulators.

Dimensions shown are for 5-1/2" 15.5# - 20# casing.



Regulators will be Jr-WF-RF 3-03 Stainless Steel Reverse Flow Waterflood Regulators with M-BK2 3-03 Stainless Steel Latches. 1" O.D. with a flow range of 200 to 900 BBL/day fresh water.



HANSON OPERATING COMPANY, INC.

P.O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515

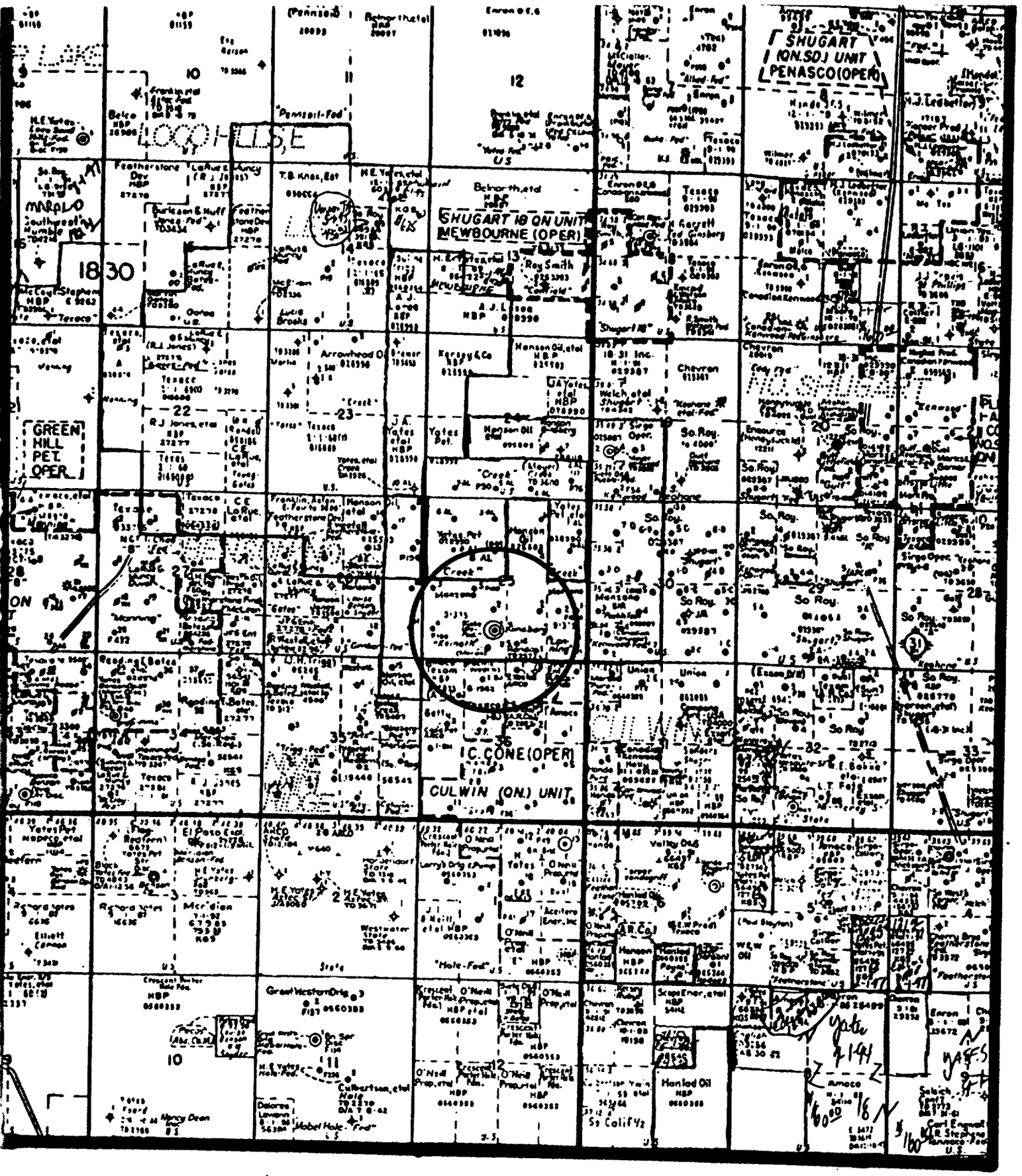
PUEBLO FEDERAL #1

PROPOSED INJECTION WELL

sec 30-T18S-R31E
sw sw (930 FSL & 660 FWL)

EDDY COUNTY, NEW MEXICO

ATTACHMENT B



HANSON OPERATING COMPANY, INC.

P.O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515

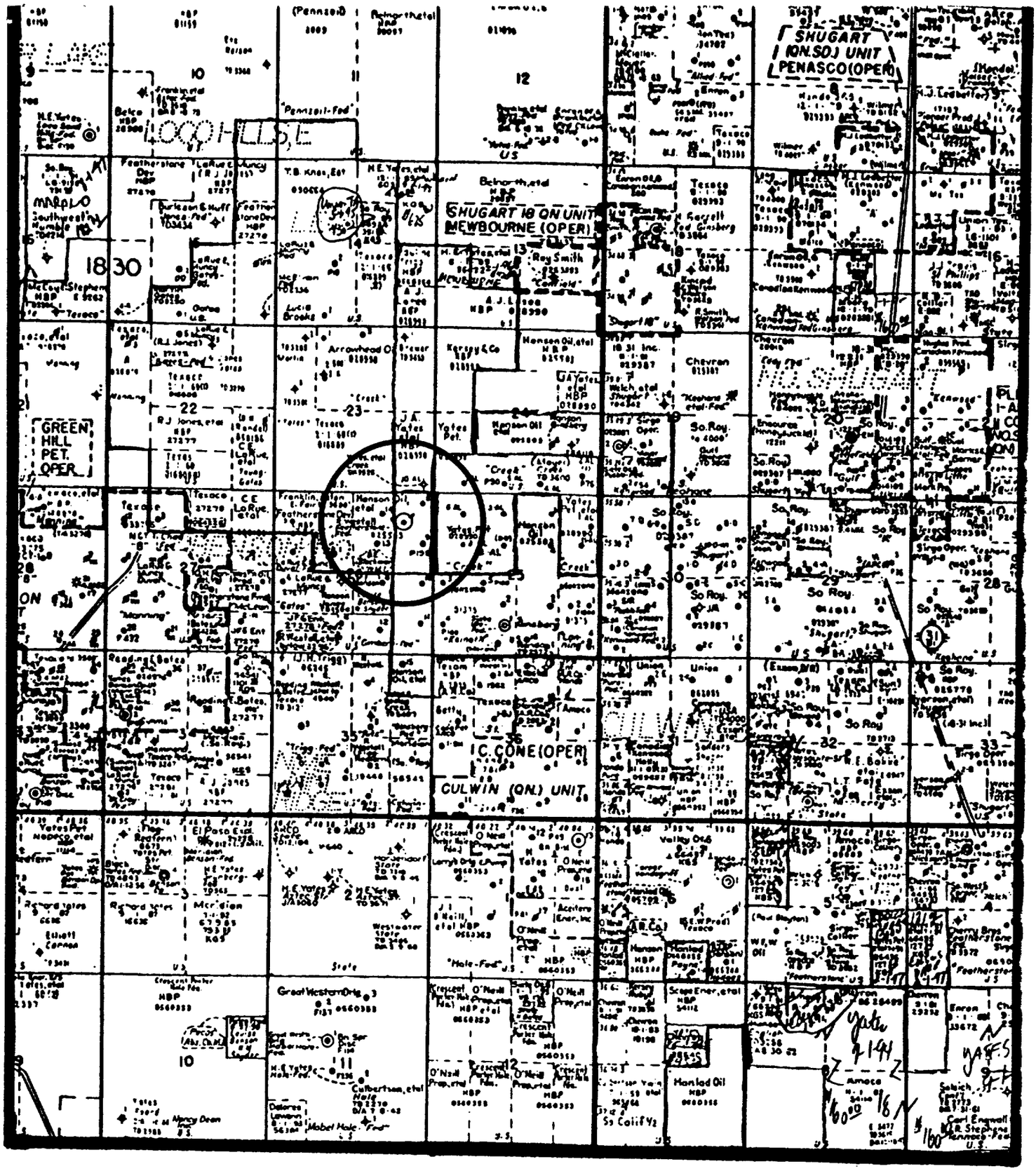
UTE FEDERAL #1

PROPOSED INJECTION WELL

sec 25-T18S-R30E
se sw (930 FSL & 2310 FWL)

EDDY COUNTY, NEW MEXICO

ATTACHMENT B



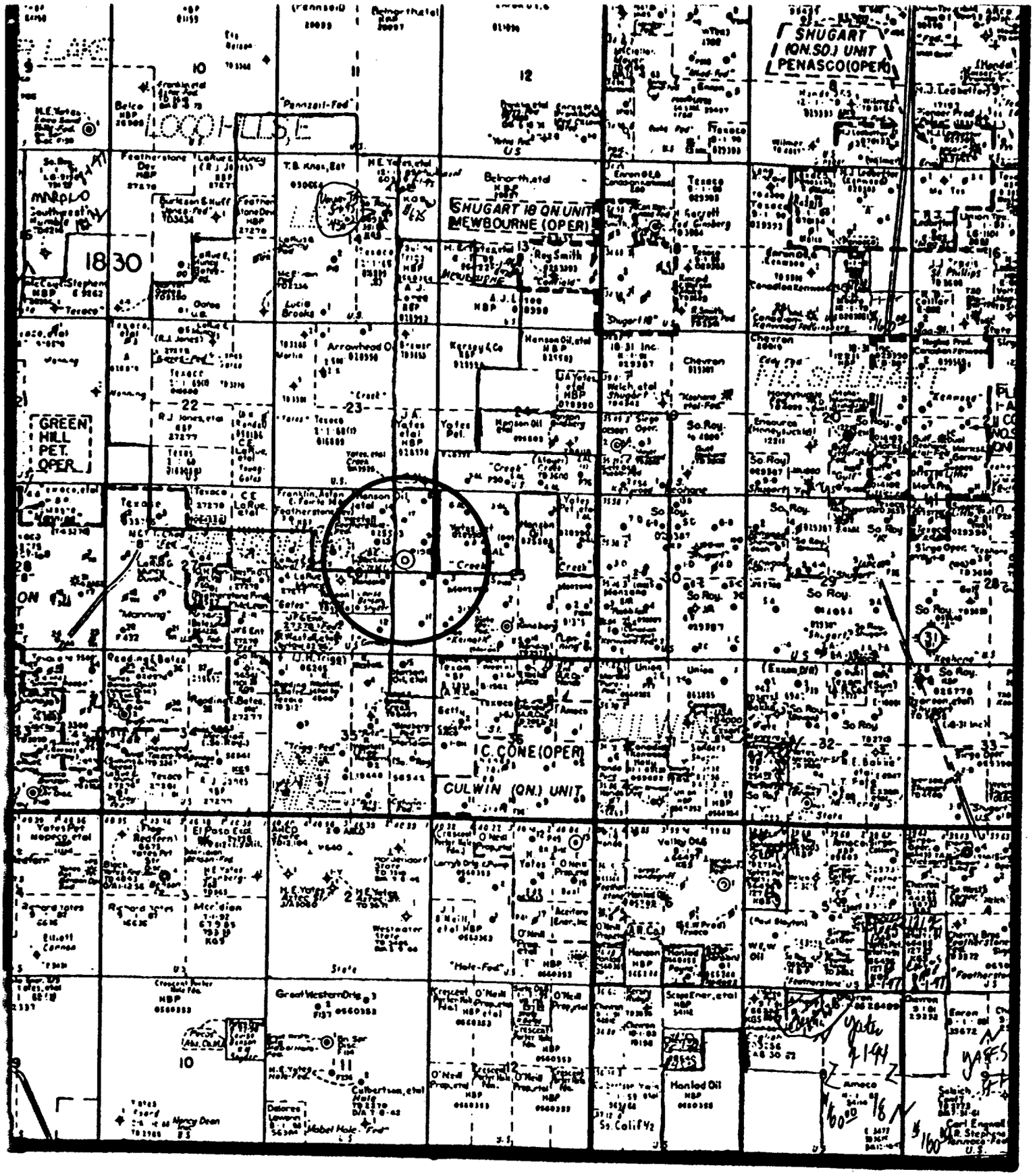
GINSBERG FEDERAL #17

PROPOSED INJECTION WELL

sec 26-T18S-R30E
sw ne ne (990 FNL & 990 FEL)

EDDY COUNTY, NEW MEXICO

ATTACHMENT B
Page 3



HANSON OPERATING COMPANY, INC.

P. O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515

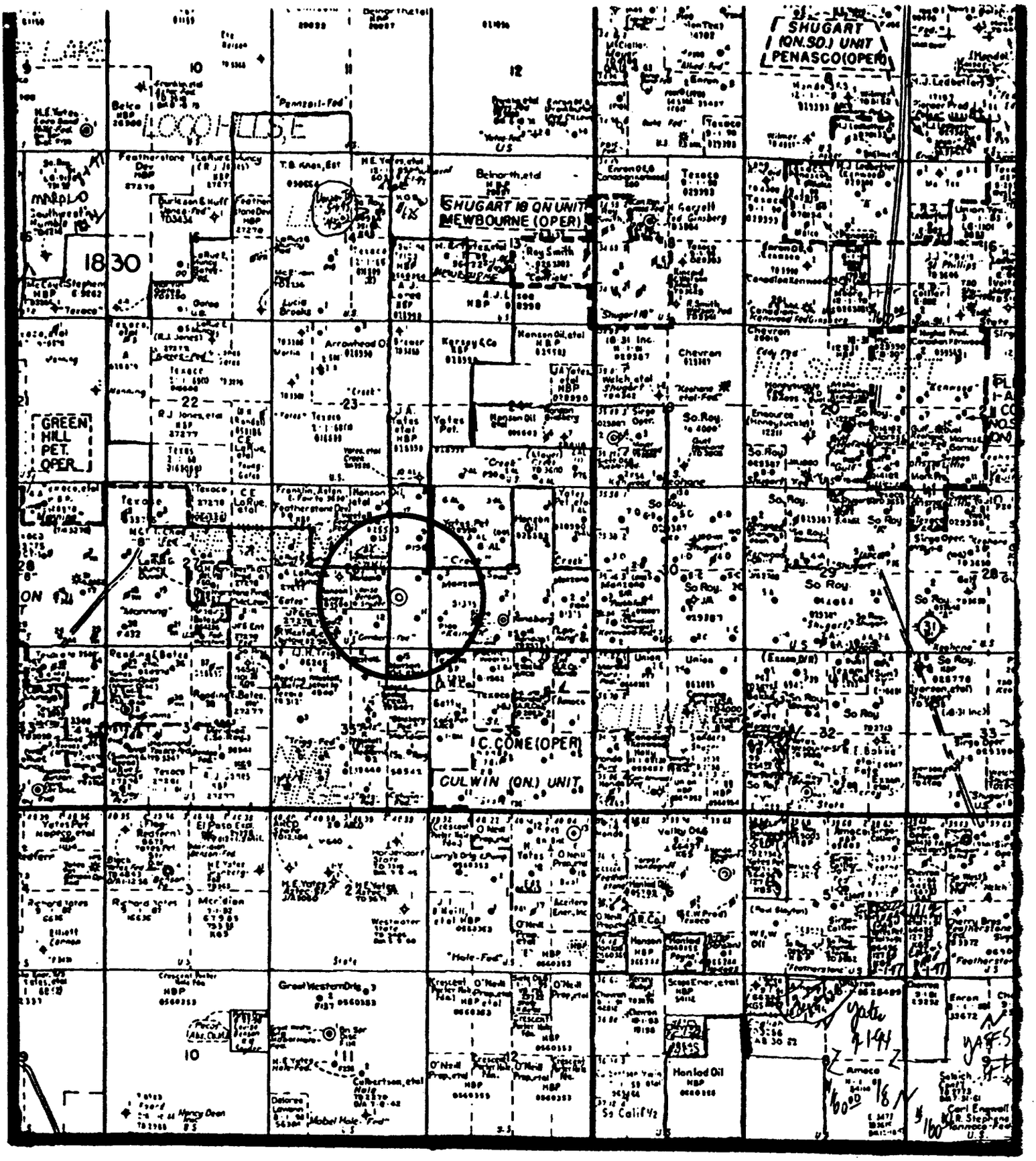
GINSBERG FEDERAL #18

PROPOSED INJECTION WELL

sec 26-T18S-R30E
sw se ne (2254' FNL & 1044 FEL)

EDDY COUNTY, NEW MEXICO

ATTACHMENT B
Page 4



HANSON OPERATING COMPANY, INC.

P. O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515

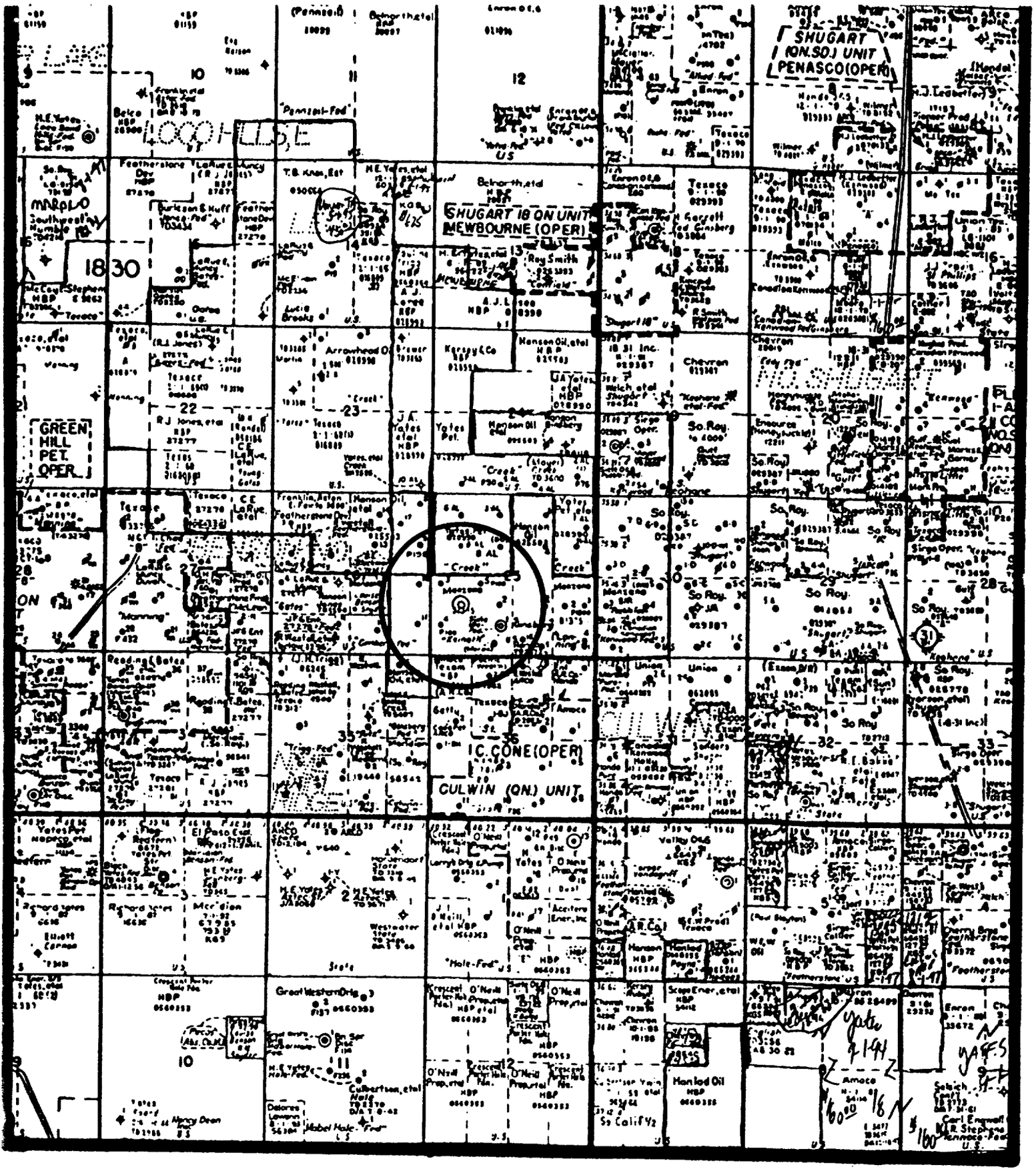
GINSBERG FEDERAL #19

PROPOSED INJECTION WELL

sec 26-T18S-R30E
sw ne se (1591 FSL & 1048 FEL)

EDDY COUNTY, NEW MEXICO

ATTACHMENT B



HANSON OPERATING COMPANY, INC.

P. O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515

KEINATH FEDERAL #6

PROPOSED INJECTION WELL

sec 25-T18S-R30E
nw sw (1631 FSL & 1012 FWL)

EDDY COUNTY, NEW MEXICO

ATTACHMENT B

Hanson Operating Company, Inc.
Shugart Waterflood
Well Data Information
Attachment "C"
Page #1

Well Name	Operator	Type	Spud	Completion	Total Depth	Producing Zone	Perforations	Completion Information	Comments
Ginsberg Federal #1 O 25-18S-30E SW 1/4 SE 1/4	HOCI	Oil	09/16/61	10/18/61	2533'	7 RVRS	2490-2500'	8-5/8" 24# @866' w/50 sx. Squeezed w/add 50 sx. 5-1/2" 14# @2532' w/150 sx. (TOC 1500' calc). 2-3/8" tbg.	Cable Tools.
nsberg Federal #2 25-18S-30E NW 1/4 SE 1/4	HOCI	Oil	11/25/61	01/03/62	2530'	7 RVRS	2489-2492'	8-5/8" 24# @790' w/300 sx (circ). 5-1/2" 15.5# @2521 w/200sx. (TOC 1000' calc). 2-3/8" tbg.	Cable Tools.
Ginsberg Federal #3 B 25-18S-30E NW 1/4 NE 1/4	HOCI	Oil	04/10/69	05/24/69	3473'	Penrose	3364-3386' 3427-3437'	8-5/8" 28# @774' w/205 sx. 5-1/2" 15.5# @3473' w/260 sx (TOC 2000' calc). 2-3/8" tbg.	Cable Tools.
Ginsberg Federal #4 O 25-18S-30E SW 1/4 NE 1/4	HOCI	Oil	06/16/69	08/08/69	3701'	Q, Penrose, M-GRBG	3220-3230' 3344-3354' 3398-3404' 3458-3468' 3528-3532' 3610-3616' 3670-3675' 3705-3710'	8-5/8" 28# @755' w/255 sx (circ). 5-1/2" 15.5# @3716' w/250 sx. (TOC 2200' calc). 2-3/8" tbg.	Cable Tools. CIBP @3575'. Q-Penrose Production only.
Ginsberg Federal #16 O 25-18S-30E SW 1/4 SE 1/4	HOCI	Oil	11/21/84	12/12/84	3975'	7 RVRS, Q, Penrose, M-GRBG, SA	2318-2340' 2410-2424' 2470-2490' 3189-3204' 3312-3322' 3648-3652' 3660-3668' 3902-3937'	8-5/8" 24# @560' w/250 sx (circ). 5-1/2" 15.5# @3998' w/700 sx. (TOC 1775' calc). 3 stage. 2-3/8" tbg.	7 RVRS production only. CIBP @3160'
Ginsberg Federal #15 A 26-18S-30E NE 1/4 NE 1/4	HOCI	Oil	11/29/79	02/14/80	3510'	Yates, 7 RVRS, Q, Penrose, M-GRBG	1935-2071' 2141-2187' 2243-2320' 3012-3018' 3156-3177' 3226-3233' 3426-3433' 3476-3479' 3494-3499' 3537-3554'	8-5/8" 24# @691' w/375 sx (circ). 5-1/2" 14# @3612' w/895 sx (circ). 2-3/8" tbg.	CIBP @3460'.

Hanson Operating Company, Inc.
Shugart Waterflood
Well Data Information
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Well Name	Operator	Type	Spud	Completion	Total Depth	Producing Zone	Perforations	Completion Information	Comments
Ginsberg Federal #14 B 26-18S-30E NW 1/4 NE 1/4	HOCI	Oil	06/15/72	04/05/72	3495'	Penrose M-GRBG	3109-3113' 3314-3318' 3376-3382'	12-3/4" 34# @716' w/600 sx (circ). 8-5/8" 24# @1730 w/50 sx. Pulled 1530'. Ran 5-1/2" 15.5 @3495' w/ 1000 sx (circ). 2-3/8" tbg.	Rotary.
nsberg Federal #8 26-18S-30E NE 1/4 NE 1/4	HOCI	Oil	10/29/71	11/18/71	3550'	Penrose, M-GRBG	3187-3191' 3461-3465'	12-3/4" 49# @704' w/600 sx (circ). 8-5/8" 24# @1748' w/50 sx. Pulled 1508'. Ran 5-1/2" 15.5# @3545' w/ 1150 sx. (1" to surface). 2-3/8" tbg.	Rotary.
Ginsberg Federal #9 H 26-18S-30E SE 1/4 NE 1/4	HOCI	Oil	10/14/71	10/31/71	3859'	Penrose, M-GRBG	3166-3171' 3440-3444'	12-3/4" 49# @758' w/400 sx (circ). 8-5/8" 24# @1744' w/50 sx. Pulled 1468'. Ran 5-1/2" 15.5# @3859' w/ 1460 sx (circ). 2-3/8" tbg.	Rotary.
Ginsberg Federal #13 G 26-18S-30E SW 1/4 NE 1/4	HOCI	Oil	02/07/72	02/21/72	3515'	Penrose, M-GRBG	2035-2069' 3046-3065' 3107-3111' 3316-3320' 3387-3393' 3414-3418'	12-3/4" 34# @720' w/600 sx (circ). 8-5/8" 24# @1740' w/50 sx. Pulled 1400'. Ran 5-1/2" 14# @3515' w/ 1050 sx (circ). 2-3/8" tbg.	Rotary.
Louise Benson #1 J 26-18S-30E NW 1/4 SE 1/4	HOCI	Oil	01/08/72	01/15/72	3534'	Penrose, M-GRBG	3163-3167' 3446-3452'	8-5/8" 24# @715' w/300 sx (3 yds Ready Mix) 5-1/2" 15.5# @3534' w/350 sx. (TOC 1500' calc). 2-3/8" tbg.	Rotary.
Ginsberg Federal #10 I 26-18S-30E NE 1/4 SE 1/4	HOCI	Oil	11/10/71	11/19/71	3520'	Penrose, GRBG, M-GRBG	3111-3117' 3160-3164' 3234-3239' 3280-3290' 3301-3306' 3313-3318' 3322-3324' 3362-3369' 3442-3448'	8-5/8" 36# @718' w/300 sx (circ). 5-1/2" 15.5# @3520' w/350 sx. (TOC 1500 calc). 2-3/8" tbg.	Rotary.

Hanson Operating Company, Inc.
Shugart Waterflood
Well Data Information
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Well Name	Operator	Type	Spud	Completion	Total Depth	Producing Zone	Perforations	Completion Information	Comments
Ginsberg Federal #11 / P 26-18S-30E SE 1/4 SE 1/4	HOCI	Oil	11/17/71	12/02/71	3560'	Q, 7 RVRS, Penrose, GRBG, M-GRBG	2265-2290' 2342-2348' 3021-3030' 3136-3147' 3190-3194' 3251-3260' 3269-3278' 3302-3312' 3382-3390' 3489-3491' 3493-3497'	8-5/8" 32# @710' w/300 sx (circ). 5-1/2" 15.5# @3558' w/350 sx. (TOC 1500' calc). 2-3/8" tbg.	Rotary.
Ginsberg Federal #12 O 26-18S-30E SW 1/4 SE 1/4	HOCI	Oil	01/28/72	02/13/72	3580'	Penrose, M-GRBG	3191-3195' 3469-3475'	8-5/8" 24# @715' w/350 sx (circ). 5-1/2" 15.5# @3580' w/350 sx. (TOC 1500' calc). 2-3/8" tbg.	Rotary.
Lanning Federal #1 P 25-18S-30E SE 1/4 SE 1/4	HOCI	Oil	08/16/61	09/01/61	2564'	7 RVRS	2529-2539' 2545-2548'	8-5/8" 24# @788' w/50 sx . (TOC 450' calc). 5-1/2" 15.5# @2564' w/100 sx. (TOC 1650' calc). 2-3/8" tbg.	Cable Tools. Currently SI. August '92 Last production.
Lanning Federal #2 I 25-18S-30E NE 1/4 SE 1/4	HOCI	Oil	02/04/62	02/22/62	2547'	7 RVRS	2513-2523'	8-5/8" 24# @800' w/505 sx. (TOC 450' calc). 5-1/2" 15.5# @2547' w/100 sx. (TOC 1650' calc). 2-3/8" tbg.	Cable Tools.
nning Federal #3 25-18S-30E NE 1/4 SE 1/4	HOCI	Oil	08/14/76	09/01/76	3800'	7 RVRS, Q, Penrose, M-GRBG,	2515-2534' 3108-3306' 3330-3406' 3504-3521' 3537-3553' 3601-3688' 3706-3716'	8-5/8" 24# @821' w/350 sx (circ). 5-1/2" 14# @3800' w/300 sx. (TOC 2250' calc). 2-3/8" tbg.	Rotary. CIBP @2624'. Producing f/7 RV
Lannings Federal #4 P 25-18S-30E SE 1/4 SE 1/4	HOCI	Oil	09/04/76	02/15/77	3800'	7 RVRS, Q, Penrose, M-GRBG,	2524-2544' 3226-3246' 3340-3386' 3510-3530' 3607-3686'	8-5/8" 20# @814' w/350 sx (circ). 5-1/2" 14# @3731' w/300 sx. 2-3/8" tbg. TOC 2301	Rotary. Currently SI. CIBP @3150'. August '92 Last production.

Well Name	Operator	Type	Spud	Completion	Total Depth	Producing Zone	Perforations	Completion Information	Comments
Pueblo Federal #1 M 30-18S-31E SW 1/4 SW 1/4	HOCI	Oil	08/16/88	11/02/88	6125'	Penrose M-GRBG	3543-3563' 3639-3648'	13-3/8" 56# @503' w/450 sx (circ). 8-5/8" 24# @1979' w/850 sx. Pmpd 300 sx f/surface. TOC (5 sx @surface). 5-1/2" 15.5# @6125' w/1470 sx. (DV tool). Tie back to 8-5/8" csg. CBL 1900'. Squeeze Bradenhead w/12 sx cem @2300 Psi. 2-3/8" tbg.	Rotary. Drld as a Delawa Test. RBP @3615'
Keinath Federal #1 N 25-18S-30E SE 1/4 SW 1/4	HOCI re-entry:	Oil	11/09/59 04/03/61	12/23/59 P&A 04/30/61	3260' 2556'	7 RVRS	2484-2488' 2493-2500'	7" 23# @864' w/75 sx. (TOC 350' calc). 5-1/2" 15.5# @2556' w/100 sx (TOC 1600' calc). 2-3/8" tbg.	Rotary.
Keinath Federal #2 K 25-18S-30E NE 1/4 SW 1/4	HOCI	Oil	06/19/62	08/31/62	2520'	7 RVRS	2454-2457' 2463-2470'	8-5/8" 24# @751' w/100 sx. (TOC 250' calc). 5-1/2" 15.5# @2519' w/200sx. (TOC 750' calc). 2-3/8" tbg.	Rotary.
Keinath Federal #3 L 25-18S-30E NW 1/4 SW 1/4	HOCI	Oil	12/11/71	01/08/72	3530'	Penrose, M-GRBG	3177-3183' 3457-3467' 3484-3490'	8-5/8" 32# @710' w/300 sx (circ). 5-1/2" 15.5# & 17# @3500' w/350 sx. (TOC 500' calc). 2-3/8" tbg.	Rotary.
Keinath Federal #4 M 25-18S-30E SW 1/4 SW 1/4	HOCI	Oil	01/17/72	02/14/72	3558'	Penrose, M-GRBG	3194-3200' 3467-3477' 3489-3496'	8-5/8" 32# @716' w/350 sx (circ). 5-1/2" 15.5# & 17# @3558' w/450 sx. (TOC 500' calc). 2-3/8" tbg.	Rotary.
inath Federal #5 25-18S-30E NE 1/4 SW 1/4	HOCI	Oil	12/07/72	02/15/73	3650'	Penrose, M-GRBG	3232-3234' 3262-3271' 3288-3294' 3394-3396' 3555-3559' 3574-3580'	8-5/8" 32# @823' w/200 sx. (TOC 50' calc). 5-1/2" 15.5# & 17# @3650' w/450 sx. (TOC 500' calc). 2-3/8" tbg.	Rotary.
Kenwood Federal #1 N 30-18S-31E SE 1/4 SW 1/4	HOCI	Oil	09/04/61	10/25/61 PTD:	3661' 2650'	7 RVRS	2570-2580'	8-5/8" 24# @820' w/50 sx. (TOC 500' calc). 5-1/2" 15.5 @2650' w/100 sx. Psi csg & split collar. 820' 5-1/2" csg pulled. Ran 820' 7" 20# csg w/100 sx. 2-3/8" tbg.	Cable Tools. Currently SI. August '92 last production.
Kenwood Federal #2 M 30-18S-31E SW 1/4 SW 1/4	HOCI	Oil	10/18/61	12/15/61	2604'	7 RVRS	2403-2530' 2572-2582'	8-5/8" 24# @809' w/50 sx. (TOC 500' calc). 5-1/2" 15.5# @2604' w/100 sx. (TOC 1700' calc). 2-3/8" tbg.	Cable Tools.

Well Name	Operator	Type	Spud	Completion	Total Depth	Producing Zone	Perforations	Completion Information	Comments
Kenwood Federal #3 L 30-18S-31E NE 1/4 SW 1/4	HOCI	Oil	04/05/62	05/05/62	2542'	7 RVRS	2498-2510'	8-5/8" 24# @810' w/50 sx. (TOC 500' calc). 5-1/2" 14# @2542' w/200 sx. (TOC 1000' calc). 2-3/8" tbg.	Cable Tools. Currently SI. August '92 last production.
nwood Federal #4 30-18S-31E NE 1/4 SW 1/4	HOCI	Oil	05/25/62	06/30/62	2540'	7 RVRS	2485-2498' 2500-2506'	8-5/8" 24# @811'w/50 sx. (TOC 595' calc). 5-1/2" 14# @2540' w/200 sx. (TOC 1274' calc). 2-3/8" tbg.	02/01/80 Well was converted to WIW. Would not take water. Put back into production 02/04/80. Currently SI.
Kenwood Federal #5 K 30-18S-31E NE 1/4 SW 1/4	HOCI	WIW	12/29/64	02/15/65	3755'	Q, Penrose, M-GRBG	3379-3397' 3414-3427' 3442-3447' 3486',3542' 3497-3504' 3574-3582' 3609-3614'	8-5/8" 24# @787' w/50 sx. (TOC 550' calc). 5-1/2" 14# @3755' w/350 sx. (TOC 2300' calc). Pmpd 100 sx behind 5-1/2" @surface. 2-3/8" tbg.	Cable Tools. 02/10/65 P&A'd well. Re-entered April '73. March 22, 1979 app. to inject water.
Kenwood Federal #6 M 30-18S-31E NW 1/4 SW 1/4	HOCI	Oil	12/26/79	02/10/80	2700'	7 RVRS	2386-2400' 2416-2432' 2474-2480' 2486',2490' 2504',2508' 2552-2556' 2560-2562' 2568' 2572-2574'	8-5/8" 20# @808' w/325 sx (circ). 5-1/2" 14# @2702' w/350 sx (CBL 1600'). 2-3/8" tbg.	Rotary.

Hanson Operating Company, Inc.
Shugart Waterflood
Well Data Information
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Well Name	Operator	Type	Spud	Completion	Total Depth	Producing Zone	Perforations	Completion Information	Comments
Creek AL #1 A 25-18S-30E	YPC	Oil	11/63	01/64	3789'	Penrose	3383-3456'	8-5/8" 24# J-55 @777' w/50 sx. 5-1/2" 14# J-55 @3544' w/100 sx. (TOC 3050' TS) 2-3/8" tbg	PBTD 3501'.
Creek AL #2 24-18S-30E	Len Mayer YPC	Oil Oil	05/61 03/64	08/61 03/64	3602' 3602'	Penrose	3417-3435'	8-5/8" 24# @748' w/50 sx. 4-1/2" 9.5# J-55 @3540' w/200 sx. (TOC 1814' calc). 2-3/8" tbg	D&A. OWWO.
Creek AL #3 C 25-18S-30E	YPC	Oil	07/69	08/69	3426'	Penrose	3302-3376'	8-5/8" 29# @770' w/100sx. 5-1/2" 14# J-55 @3426' w/200 sx. (TOC 2785' calc). 2-3/8" tbg	
Creek AL #4 O 24-18S-30E	YPC	Oil	08/69	10/69	3485	Penrose	3358-3384'	8-5/8" 24# J-55 @780' w/100sx. 5-1/2" 15# J-55 @3476' w/150 sx. (TOC 2995' calc). 2-3/8" tbg	
Creek AL #5 N 24-18S-30E	YPC	Oil	10/69	12/69	3422'	Penrose	3292-3364'	8-5/8" 24# @782' w/100 sx. 5-1/2" 15.5# J-55 @3422' w/150 sx. (TOC 2941' calc). 2-3/8" tbg.	
Creek AL #6 D 25-18S-30E	YPC	Oil	12/69 12/70	02/70 12/70	3286' 3578'	Penrose, M-GRBG	3172-3240' 3438-3578' (open hole)	8-5/8" 24# J-55 @719' w/200 sx. 5-1/2" 14# & 15.5# J-55 @3286' w/500 sx. (TOC 600' TS). 2-3/8" tbg.	Deepen (12/70).
eek AL #7 24-18S-30E	YPC	Oil	02/70	04/70	3314'	Penrose	3189-3258'	8-5/8" 24# @729' w/200 sx. 5-1/2" 14# J-55 @3306' w/600 sx (circ). 2-3/8" tbg.	
Creek AL #8 F 25-18S-30E	YPC	Oil	04/70 07/72	06/70 08/72	3416' 3705'	Penrose, M-GRBG	3305-3378' 3580-3705' (open hole)	8-5/8" 20# @773' w/100 sx. 5-1/2" 14# J-55 @3416' w/200 sx. (TOC 2782' calc). 2-3/8" tbg.	Deepen (07/72).

Hanson Operating Company, Inc.
Shugart Waterflood
Well Data Information
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Well Name	Operator	Type	Spud	Completion	Total Depth	Producing Zone	Perforations	Completion Information	Comments
Creek AL #9 E 25-18S-30E	YPC	Oil	06/70	09/70	3594'	Q, Penrose, M-GRBG	2944-2955' 3150-3221' 3420-3568' (open hole)	8-5/8" 20# @712' w/200 sx. 5-1/2" 14# @3316' w/600 sx (circ). 2-3/8" tbg.	PBTD 3568'.
Creek AL #10 23-18S-30E	YPC	Oil	11/72		3519			10-3/4" 30# J-55 @738' w/250 sx. 8-5/8" 24# J-55 @1750' w/250 sx.	TA.
Creek AL #11 H 25-18S-30E	YPC	Oil	08/72	12/72	3728'	Penrose M-GRBG	3351.5-3538' 3621.5-3626'	8-5/8" 24# J-55 @735' w/100 sx. 5-1/2 15.5# J-55 @3728' w/150 sx. (TOC 3252' calc). 2-3/8" tbg.	
Ritz #4 35-18S-30E 890' FNL & 2110' FEL	Ray Westall	Oil	01/01/85	05/09/85	3988'	Q, Penrose	3314-3342	8-5/8" 24# @521' w/300 sx (circ). 5-1/2" 17# @3971' w/113 sx. (TOC 2300' calc). 2-3/8" tbg.	
Arco #1 B 36-18S-30E 330' FNL & 2310' FEL	Ray Westall	Oil	02/24/84	03/04/84	2560'	7 RVRS	2504-2514'	8-5/8" 23# @831'. 4-1/2" 9.5# 2560' w/150 sx. (TOC 2000' calc). 2-3/8" tbg.	
Arco Hondo #1 A 36-18S-30E 330' FEL & 330' FNL	Bearing Service & Supply	Oil	07/14/77	11/03/77	3410'	Yates, 7 RVRS	2472-2478' 2542-2550'	8-5/8" 20# @787 w/350 sx (circ). 5-1/2" 17# @3410' w/825 sx (circ). 2-3/8" tbg.	
Federal E #2 C 31-18S-31E 1/4 NW 1/4	SDX Resources Inc.	Oil	09/29/60	11/03/60	3650'	Q	3594-3604'	8-5/8" 24# @816' w/150 sx. (TOC 300' calc). 5-1/2" 15#, 17# & 20# @3649' w/250 sx. (TOC 1200' calc). 2-3/8" tbg.	
Federal N #1 N 26-18S-30E 990' FSL & 2310' FWL	FAF	Oil	03/29/72	05/01/72	3600'	Q	3214-3218'	8-5/8" 20# @720' w/350 sx (circ to surface). 5-1/2" 14# @3690' w/300 sx. (TOC 1000'calc) 2-3/8" tbg.	

HANSON OPERATING COMPANY, INC.

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

Phone: (505) 622-7330

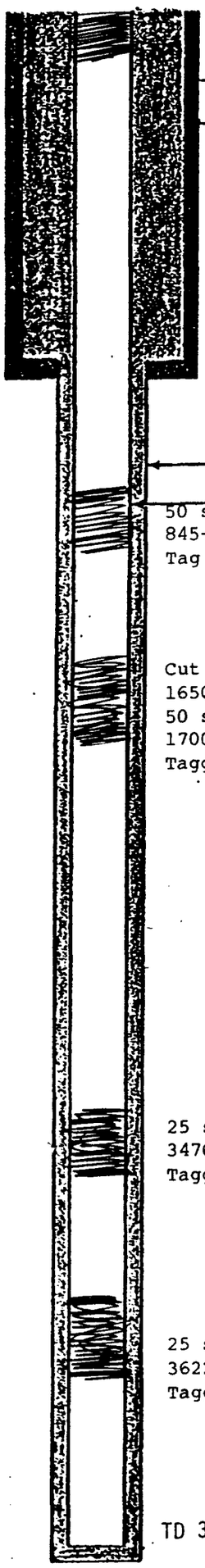
WELL BORE SKETCH

OPERATOR/LEASE/WELL Marbob Energy Corporation Pure Federal #1

LOCATION 330' FNL & 844' FWL Sec.31-T.18S-R.31E Eddy County, New Mexico

FIELD/POOL Shugart /

PLUG BACK DEPTH _____ KB _____ ELEVATION 3568' DF



50' plug
at surface

Hole Size 11"

SURFACE CASING:
Size 8-5/8" Weight 24# Grade _____
Set at 800' with 50 Sacks Cement
Circulate _____ Sacks to Surface
Remarks: _____

Hole Size 7-7/8"

PRODUCTION CASING:
Size 4-1/2" Weight 10.5 Grade _____
Set at 3577' with 265 Sacks Cement
Cement Top: Calculated _____ Temperature Survey _____
Remarks: _____

50 sx plug
845-745'
Tag at 724'

Cut & pulled
1650' 4-1/2" csg.
50 sx plug
1700-1480'
Tagged at 1480'

TUBING:
Size _____ Weight _____ Grade _____
Number of Joints _____ Set at _____
Packer Set at _____
Bottom Arrangement: _____

25 sx plug
3476-3300'
Tagged at 3300'

RODS:
Size _____ Number _____
Gas Anchor Set at _____
Pump Set at _____
Arrangement: _____

25 sx plug
3622-3476'
Tagged at 3476'

Plugged January 17, 1984

TD 3597'

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

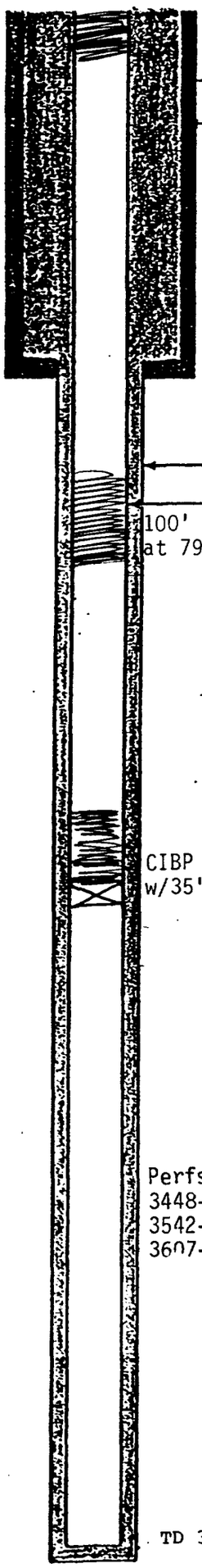
WELL BORE SKETCH

OPERATOR/LEASE/WELL Getty Oil State BJ Well #2

LOCATION 660' FNL & 1980' FWL Sec.36-T.18S-R.30E Eddy County, New Mexico

FIELD/POOL _____ / _____

PLUG BACK DEPTH _____ KB _____ ELEVATION 3534' DF



Hole Size 12¼"

SURFACE CASING:
Size 8-5/8" Weight 24# Grade _____
Set at 780' with _____ Sacks Cement
Circulate 40 Sacks to Surface
Remarks: _____

Hole Size 7-7/8"

PRODUCTION CASING:
Size 5-1/2" Weight 15.5# Grade _____
Set at 3699' with _____ Sacks Cement
Cement Top: Calculated _____ Temperature Survey _____
Remarks: 55 sx to surface

TUBING:
Size _____ Weight _____ Grade _____
Number of Joints _____ Set at _____
Packer Set at _____
Bottom Arrangement: _____

RODS:
Size _____ Number _____
Gas Anchor Set at _____
Pump Set at _____
Arrangement: _____

Plugged November 20, 1975

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

D

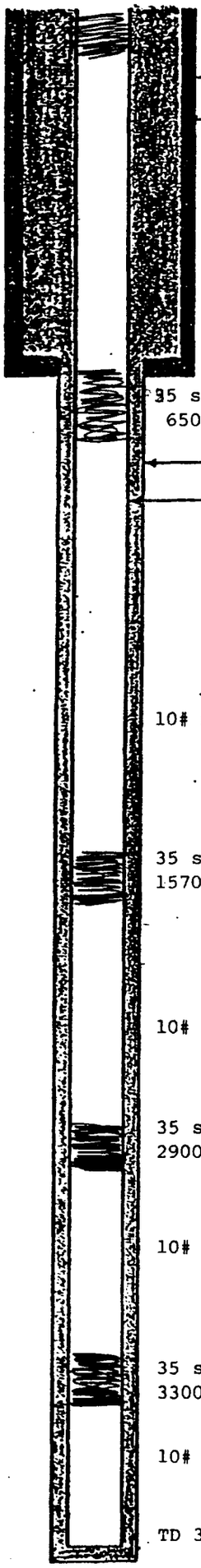
WELL BORE SKETCH

OPERATOR/LEASE/WELL Hanson Operating Company, Inc. Jones Federal #1

LOCATION 2310' FSL & 2310' FWL Sec.26-T.18S-R.30E, Eddy County New Mexico

FIELD/POOL Shugart / 7 RVRS, Queen Penrose GRBG

PLUG BACK DEPTH _____ KB _____ ELEVATION 3467.8'



Hole Size 12¼"

SURFACE CASING:
Size 8-5/8" Weight 24# Grade J-55
Set at 708' with 200 Sacks Cement
Circulate _____ Sacks to Surface
Remarks: _____

Hole Size 7-7/8"

PRODUCTION CASING:
Size _____ Weight _____ Grade _____
Set at _____ with _____ Sacks Cement
Cement Top: Calculated _____ Temperature Survey _____
Remarks: _____

TUBING:
Size _____ Weight _____ Grade _____
Number of Joints _____ Set at _____
Packer Set at _____
Bottom Arrangement: _____

RODS:
Size _____ Number _____
Gas Anchor Set at _____
Pump Set at _____
Arrangement: _____

Plugged on April 30, 1972
Csg was never set.

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

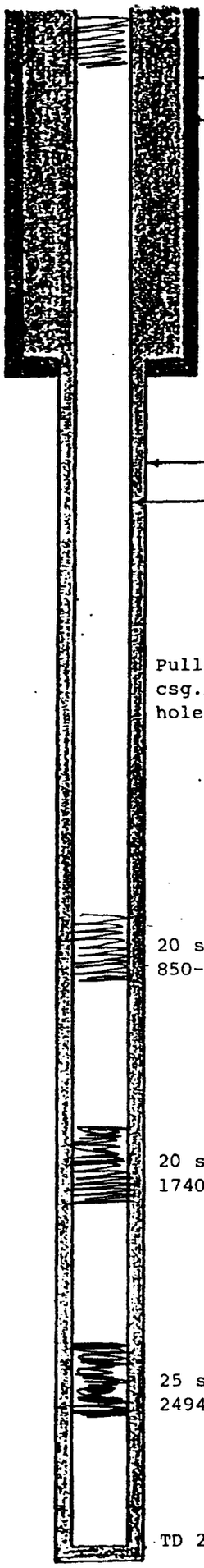
WELL BORE SKETCH

OPERATOR/LEASE/WELL Hondo Oil & Gas Company State "RD" #9

LOCATION NW¼ NE¼ B Sec.36-T.18S-R.30E Eddy County, New Mexico

FIELD/POOL Culwin / Queen

PLUG BACK DEPTH _____ KB _____ ELEVATION _____



Hole Size 12¼"

SURFACE CASING:
Size 8-5/8" Weight _____ Grade _____
Set at 880' with _____ Sacks Cement
Circulate _____ Sacks to Surface
Remarks: _____

Hole Size _____

PRODUCTION CASING:
Size _____ Weight _____ Grade _____
Set at _____ with _____ Sacks Cement
Cement Top: Calculated _____ Temperature Survey _____
Remarks: _____

Pulled 630' of 8-5/8" csg. Left 250' in hole.

TUBING:
Size _____ Weight _____ Grade _____
Number of Joints _____ Set at _____
Packer Set at _____
Bottom Arrangement: _____

RODS:
Size _____ Number _____
Gas Anchor Set at _____
Pump Set at _____
Arrangement: _____

Plugged November 18, 1961
Csg was not set and well was never perf.

SCALE PROGRAM FOR MIXING 2 WATERS

Hanson Oil Company
Pueblo Fed #1 Penrose, Middle Grayburg
Ginsberg Fed #9 Penrose, Middle Grayburg

TEMPERATURE(F)= 60.0

ION	CONCENTRATION (MG/L) WATER NO. 1	WATER NO. 2
SODIUM	49462.	46060.
CALCIUM	6315.	4650.
MAGNESIUM	2063.	1768.
CHLORIDE	93000.	84000.
BICARBONATE	336.	244.
CARBONATE	0.	0.
SULFATE	400.	400.
PH	7.50	7.00
SPECIFIC GRAVITY	1.1077	1.0979
RESISTIVITY	0.06	0.07
IONIC STRENGTH	2.8838	2.5748
TDS	151576.	137122.

TYPE OF SCALE	SOLUBILITY (PTB)	SCALE INDEX	SCALE (PTB)	SCALING TENDENCY
100.0 % WATER NO. 1	0.0 % WATER NO. 2			
CALCIUM SULFATE	1082.	-0.67	-831.	NONE
CALCIUM CARBONATE	13.	1.18	180.	MODERATE
90.0 % WATER NO. 1	10.0 % WATER NO. 2			
CALCIUM SULFATE	1105.	-0.68	-854.	NONE
CALCIUM CARBONATE	17.	1.06	171.	MODERATE
80.0 % WATER NO. 1	20.0 % WATER NO. 2			
CALCIUM SULFATE	1129.	-0.69	-878.	NONE
CALCIUM CARBONATE	21.	0.96	162.	MODERATE
70.0 % WATER NO. 1	30.0 % WATER NO. 2			
CALCIUM SULFATE	1154.	-0.71	-903.	NONE
CALCIUM CARBONATE	25.	0.86	152.	MODERATE

NOTE: PTB = POUNDS PER THOUSAND BARRELS

Hanson Oil Company
Pueblo Fed #1 Penrose, Middle Grayburg
Ginsberg Fed #9 Penrose, Middle Grayburg

TYPE OF SCALE	SOLUBILITY (PTB)	SCALE INDEX	SCALE (PTB)	SCALING TENDENCY
60.0 % WATER NO. 1	40.0 % WATER NO. 2			
CALCIUM SULFATE	1181.	-0.72	-930.	NONE
CALCIUM CARBONATE	30.	0.77	142.	MODERATE
50.0 % WATER NO. 1	50.0 % WATER NO. 2			
CALCIUM SULFATE	1207.	-0.73	-956.	NONE
CALCIUM CARBONATE	35.	0.69	131.	MODERATE
40.0 % WATER NO. 1	60.0 % WATER NO. 2			
CALCIUM SULFATE	1234.	-0.74	-983.	NONE
CALCIUM CARBONATE	41.	0.61	120.	MODERATE
30.0 % WATER NO. 1	70.0 % WATER NO. 2			
CALCIUM SULFATE	1263.	-0.75	-1012.	NONE
CALCIUM CARBONATE	47.	0.53	109.	MODERATE
20.0 % WATER NO. 1	80.0 % WATER NO. 2			
CALCIUM SULFATE	1292.	-0.77	-1041.	NONE
CALCIUM CARBONATE	54.	0.45	96.	SLIGHT
10.0 % WATER NO. 1	90.0 % WATER NO. 2			
CALCIUM SULFATE	1323.	-0.78	-1072.	NONE
CALCIUM CARBONATE	62.	0.38	84.	SLIGHT
0.0 % WATER NO. 1	100.0 % WATER NO. 2			
CALCIUM SULFATE	1355.	-0.80	-1104.	NONE
CALCIUM CARBONATE	70.	0.31	70.	SLIGHT

NOTE: PTB = POUNDS PER THOUSAND BARRELS

SCALE PROGRAM FOR MIXING 2 WATERS

Hanson Oil Company
Pueblo Fed #1 Penrose, Middle Grayburg
Ginsberg Fed #16 Seven Rivers

TEMPERATURE(F)= 60.0

ION	CONCENTRATION (MG/L) WATER NO. 1	WATER NO. 2
SODIUM	49462.	47401.
CALCIUM	6315.	4025.
MAGNESIUM	2063.	1095.
CHLORIDE	93000.	83000.
BICARBONATE	336.	244.
CARBONATE	0.	0.
SULFATE	400.	400.
PH	7.50	7.20
SPECIFIC GRAVITY	1.1077	1.0968
RESISTIVITY	0.06	0.07
IONIC STRENGTH	2.8838	2.5033
TDS	151576.	136165.

TYPE OF SCALE	SOLUBILITY (PTB)	SCALE INDEX	SCALE (PTB)	SCALING TENDENCY
100.0 % WATER NO. 1	0.0 % WATER NO. 2			
CALCIUM SULFATE	1082.	-0.67	-831.	NONE
CALCIUM CARBONATE	13.	1.18	180.	MODERATE
90.0 % WATER NO. 1	10.0 % WATER NO. 2			
CALCIUM SULFATE	1114.	-0.69	-863.	NONE
CALCIUM CARBONATE	15.	1.10	172.	MODERATE
80.0 % WATER NO. 1	20.0 % WATER NO. 2			
CALCIUM SULFATE	1148.	-0.70	-897.	NONE
CALCIUM CARBONATE	18.	1.02	164.	MODERATE
70.0 % WATER NO. 1	30.0 % WATER NO. 2			
CALCIUM SULFATE	1185.	-0.72	-934.	NONE
CALCIUM CARBONATE	21.	0.94	156.	MODERATE

NOTE: PTB = POUNDS PER THOUSAND BARRELS

Hanson Oil Company
Pueblo Fed #1 Penrose, Middle Grayburg
Ginsberg Fed #16 Seven Rivers

TYPE OF SCALE	SOLUBILITY (PTB)	SCALE INDEX	SCALE (PTB)	SCALING TENDENCY
60.0 % WATER NO. 1	40.0 % WATER NO. 2			
CALCIUM SULFATE	1222.	-0.74	-971.	NONE
CALCIUM CARBONATE	24.	0.87	148.	MODERATE
50.0 % WATER NO. 1	50.0 % WATER NO. 2			
CALCIUM SULFATE	1261.	-0.75	-1010.	NONE
CALCIUM CARBONATE	28.	0.79	139.	MODERATE
40.0 % WATER NO. 1	60.0 % WATER NO. 2			
CALCIUM SULFATE	1302.	-0.77	-1051.	NONE
CALCIUM CARBONATE	32.	0.72	129.	MODERATE
30.0 % WATER NO. 1	70.0 % WATER NO. 2			
CALCIUM SULFATE	1346.	-0.79	-1095.	NONE
CALCIUM CARBONATE	36.	0.64	120.	MODERATE
20.0 % WATER NO. 1	80.0 % WATER NO. 2			
CALCIUM SULFATE	1393.	-0.81	-1142.	NONE
CALCIUM CARBONATE	42.	0.57	109.	MODERATE
10.0 % WATER NO. 1	90.0 % WATER NO. 2			
CALCIUM SULFATE	1442.	-0.83	-1191.	NONE
CALCIUM CARBONATE	48.	0.50	98.	SLIGHT
0.0 % WATER NO. 1	100.0 % WATER NO. 2			
CALCIUM SULFATE	1495.	-0.86	-1244.	NONE
CALCIUM CARBONATE	54.	0.42	86.	SLIGHT

NOTE: PTB = POUNDS PER THOUSAND BARRELS

SCALE PROGRAM FOR MIXING 2 WATERS

Hanson Oil Company
Pueblo Fed #1 Penrose, Middle Grayburg
Kingwood Fed #6 Seven Rivers

TEMPERATURE(F)= 60.0

ION	CONCENTRATION (MG/L) WATER NO. 1	WATER NO. 2
SODIUM	49462.	86007.
CALCIUM	6315.	4997.
MAGNESIUM	2063.	3115.
CHLORIDE	93000.	150000.
BICARBONATE	336.	274.
CARBONATE	0.	0.
SULFATE	400.	600.
PH	7.50	7.20
SPECIFIC GRAVITY	1.1077	1.1643
RESISTIVITY	0.06	0.05
IONIC STRENGTH	2.8838	4.5074
TDS	151576.	244993.

TYPE OF SCALE	SOLUBILITY (PTB)	SCALE INDEX	SCALE (PTB)	SCALING TENDENCY
100.0 % WATER NO. 1	0.0 % WATER NO. 2			
CALCIUM SULFATE	1082.	-0.67	-831.	NONE
CALCIUM CARBONATE	13.	1.18	180.	MODERATE
90.0 % WATER NO. 1	10.0 % WATER NO. 2			
CALCIUM SULFATE	1105.	-0.66	-841.	NONE
CALCIUM CARBONATE	13.	1.17	176.	MODERATE
80.0 % WATER NO. 1	20.0 % WATER NO. 2			
CALCIUM SULFATE	1124.	-0.65	-848.	NONE
CALCIUM CARBONATE	13.	1.17	173.	MODERATE
70.0 % WATER NO. 1	30.0 % WATER NO. 2			
CALCIUM SULFATE	1139.	-0.64	-850.	NONE
CALCIUM CARBONATE	13.	1.18	170.	MODERATE

NOTE: PTB = POUNDS PER THOUSAND BARRELS

Hanson Oil Company
Pueblo Fed #1 Penrose, Middle Grayburg
Kingwood Fed #6 Seven Rivers

TYPE OF SCALE	SOLUBILITY (PTB)	SCALE INDEX	SCALE (PTB)	SCALING TENDENCY
60.0 % WATER NO. 1	40.0 % WATER NO. 2			
CALCIUM SULFATE	1152.	-0.62	-851.	NONE
CALCIUM CARBONATE	12.	1.18	166.	MODERATE
50.0 % WATER NO. 1	50.0 % WATER NO. 2			
CALCIUM SULFATE	1160.	-0.61	-847.	NONE
CALCIUM CARBONATE	12.	1.19	163.	MODERATE
40.0 % WATER NO. 1	60.0 % WATER NO. 2			
CALCIUM SULFATE	1166.	-0.59	-840.	NONE
CALCIUM CARBONATE	11.	1.21	161.	MODERATE
30.0 % WATER NO. 1	70.0 % WATER NO. 2			
CALCIUM SULFATE	1169.	-0.58	-831.	NONE
CALCIUM CARBONATE	*** UPPER IONIC STRENGTH LIMIT IS 4.0 ***			
20.0 % WATER NO. 1	80.0 % WATER NO. 2			
CALCIUM SULFATE	1169.	-0.56	-818.	NONE
CALCIUM CARBONATE	*** UPPER IONIC STRENGTH LIMIT IS 4.0 ***			
10.0 % WATER NO. 1	90.0 % WATER NO. 2			
CALCIUM SULFATE	1167.	-0.55	-803.	NONE
CALCIUM CARBONATE	*** UPPER IONIC STRENGTH LIMIT IS 4.0 ***			
0.0 % WATER NO. 1	100.0 % WATER NO. 2			
CALCIUM SULFATE	1162.	-0.53	-786.	NONE
CALCIUM CARBONATE	*** UPPER IONIC STRENGTH LIMIT IS 4.0 ***			

NOTE: PTB = POUNDS PER THOUSAND BARRELS

HALLIBURTON DIVISION LABORATO

HALLIBURTON SERVICES

ARTESIA DISTRICT

LABORATORY REPORT

No. W66, W67, & W68-93

TO Hanson Operating

P. O. Box 1515

Roswell, NM 88201

Date February 15, 1993

Submitted by _____ Date Rec. _____

Well No. _____ Depth _____ Formation _____

Field _____ County _____ Source _____

	Pueblo Fed. #1	Kingwood Fed. #6	Benson Fed. #1
Resistivity	0.063 @ 70°	0.053 @ 70°	
Specific Gravity ..	1.1077 @ 70°	1.1643 @ 70°	
pH	7.5	7.2	
Calcium	6,315	4,997	
Magnesium	2,063	3,115	
Chlorides	93,000	150,000	
Sulfates	400	600	
Bicarbonates	336	274	
Soluble Iron	0	25	
- - - - - - - - - -			All Oil
- - - - - - - - - -			
- - - - - - - - - -			

Remarks:

Respectfully submitted

Analyst: Eric Jacobson - Operations Engineer

HALLIBURTON SERVICES

HALLIBURTON DIVISION LABORATC

HALLIBURTON SERVICES

ARTESIA DISTRICT

LABORATORY REPORT No. W69, W70, & W71-93

TO Hanson Operating

P. O. Box 1515

Roswell, NM 88201

Date February 15, 1993

Submitted by _____ **Date Rec.** _____

Well No. _____ **Depth** _____ **Formation** _____

Field _____ **County** _____ **Source** _____

	Ginsberg Fed. #9	Ginsberg Fed. #16	Ginsberg Fed. #1
Resistivity	0.066 @ 70°	0.067 @ 70°	
Specific Gravity ..	1.0979 @ 70°	1.0968 @ 70°	
pH	7.0	8.0	
Calcium	4,650	4,025	
Magnesium	1,768	1,095	
Chlorides	84,000	83,000	
Sulfates	400	400	
Bicarbonates	244	244	
Soluble Iron	3	0	
- - - - - - - - - -			All Oil
- - - - - - - - - -			
- - - - - - - - - -			

Remarks:

E D Jacobson

Respectfully submitted

Analyst: Eric Jacobson - Operations Engineer

HALLIBURTON SERVICES

SCALE PROGRAM FOR MIXING 2 WATERS

ANSON OPERATING(WAWA)
~~REEK"AL" "AA"~~ City of Carlsbad
UN BARREL
INSBERG #1

EMPERATURE(F)= 75.0

ON	CONCENTRATION (MG/L) WATER NO. 1	WATER NO. 2
ODIUM	187.	518.
ALCIUM	120.	10980.
AGNESIUM	19.	23680.
HLORIDE	426.	88000.
ICARBONATE	195.	305.
RBONATE	0.	0.
LFATE	25.	1500.
H	7.20	6.90
PECIFIC GRAVITY	1.0000	1.1000
ESISTIVITY	-1.00	0.06
ONIC STRENGTH	0.0198	3.7822
DS	973.	124983.

YPE OF SCALE	SOLUBILITY (PTB)	SCALE INDEX	SCALE (PTB)	SCALING TENDENCY
00.0 % WATER NO. 1	0.0 % WATER NO. 2			
ALCIUM SULFATE	675.	-2.30	-659.	NONE
ALCIUM CARBONATE	94.	0.09	11.	SLIGHT
90.0 % WATER NO. 1	10.0 % WATER NO. 2			
ALCIUM SULFATE	1122.	-1.21	-1014.	NONE
ALCIUM CARBONATE	103.	0.07	16.	SLIGHT
80.0 % WATER NO. 1	20.0 % WATER NO. 2			
ALCIUM SULFATE	1212.	-0.89	-1011.	NONE
ALCIUM CARBONATE	106.	0.07	18.	SLIGHT
70.0 % WATER NO. 1	30.0 % WATER NO. 2			
ALCIUM SULFATE	1208.	-0.69	-914.	NONE
ALCIUM CARBONATE	95.	0.14	36.	SLIGHT

OTE: PTB = POUNDS PER THOUSAND BARRELS

ANSON OPERATING(WAWA)
~~REEK"AL" "AA"~~ City of Carlsbad
UN BARREL
INSBERG #1

YPE OF SCALE	SOLUBILITY (PTB)	SCALE INDEX	SCALE (PTB)	SCALING TENDENCY
60.0 % WATER NO. 1	40.0 % WATER NO. 2			
ALCIUM SULFATE	1166.	-0.53	-780.	NONE
ALCIUM CARBONATE	78.	0.25	59.	SLIGHT
50.0 % WATER NO. 1	50.0 % WATER NO. 2			
ALCIUM SULFATE	1098.	-0.39	-619.	NONE
ALCIUM CARBONATE	59.	0.39	85.	SLIGHT
40.0 % WATER NO. 1	60.0 % WATER NO. 2			
ALCIUM SULFATE	1019.	-0.27	-448.	NONE
ALCIUM CARBONATE	43.	0.55	107.	MODERATE
30.0 % WATER NO. 1	70.0 % WATER NO. 2			
ALCIUM SULFATE	931.	-0.16	-267.	NONE
ALCIUM CARBONATE	30.	0.72	126.	MODERATE
20.0 % WATER NO. 1	80.0 % WATER NO. 2			
ALCIUM SULFATE	841.	-0.05	-85.	NONE
ALCIUM CARBONATE	21.	0.90	142.	MODERATE
10.0 % WATER NO. 1	90.0 % WATER NO. 2			
ALCIUM SULFATE	750.	0.06	99.	SLIGHT
ALCIUM CARBONATE	14.	1.08	154.	MODERATE
0.0 % WATER NO. 1	100.0 % WATER NO. 2			
ALCIUM SULFATE	662.	0.16	279.	STRONG
ALCIUM CARBONATE	9.	1.29	166.	MODERATE

OTE: PTB = POUNDS PER THOUSAND BARRELS

SCALE PROGRAM FOR MIXING 2 WATERS

IANSON OPERATING(WAWA)
~~REEK "AL" "AA"~~ City of Carlsbad
UN BARREL
INSBERG #2

EMPERATURE(F)= 75.0

ON	CONCENTRATION (MG/L) WATER NO. 1	WATER NO. 2
ODIUM	187.	17918.
ALCIUM	120.	6100.
AGNESIUM	19.	26344.
HLORIDE	426.	114000.
ICARBONATE	195.	397.
ARBONATE	0.	0.
ULFATE	25.	1400.
H	7.30	6.90
PECIFIC GRAVITY	1.0000	1.1280
ESISTIVITY	-1.00	0.06
ONIC STRENGTH	0.0198	4.5019
DS	973.	166159.

YPE OF SCALE	SOLUBILITY (PTB)	SCALE INDEX	SCALE (PTB)	SCALING TENDENCY
00.0 % WATER NO. 1	0.0 % WATER NO. 2			
ALCIUM SULFATE	675.	-2.30	-659.	NONE
ALCIUM CARBONATE	94.	0.09	11.	SLIGHT
90.0 % WATER NO. 1	10.0 % WATER NO. 2			
ALCIUM SULFATE	1477.	-1.52	-1375.	NONE
ALCIUM CARBONATE	181.	-0.20	-58.	NONE
80.0 % WATER NO. 1	20.0 % WATER NO. 2			
ALCIUM SULFATE	1743.	-1.22	-1554.	NONE
ALCIUM CARBONATE	194.	-0.18	-59.	NONE
70.0 % WATER NO. 1	30.0 % WATER NO. 2			
ALCIUM SULFATE	1833.	-1.01	-1559.	NONE
ALCIUM CARBONATE	169.	-0.07	-22.	NONE

NOTE: PTB = POUNDS PER THOUSAND BARRELS

ANSON OPERATING(WAWA)
~~CREEK "AL" "AA"~~ City of Carlsbad
UN BARREL
INSBERG #2

TYPE OF SCALE	SOLUBILITY (PTB)	SCALE INDEX	SCALE (PTB)	SCALING TENDENCY
60.0 % WATER NO. 1	40.0 % WATER NO. 2			
CALCIUM SULFATE	1832.	-0.85	-1471.	NONE
CALCIUM CARBONATE	125.	0.11	33.	SLIGHT
50.0 % WATER NO. 1	50.0 % WATER NO. 2			
CALCIUM SULFATE	1767.	-0.70	-1320.	NONE
CALCIUM CARBONATE	87.	0.30	82.	SLIGHT
40.0 % WATER NO. 1	60.0 % WATER NO. 2			
CALCIUM SULFATE	1657.	-0.57	-1124.	NONE
CALCIUM CARBONATE	58.	0.51	124.	MODERATE
30.0 % WATER NO. 1	70.0 % WATER NO. 2			
CALCIUM SULFATE	1518.	-0.45	-898.	NONE
CALCIUM CARBONATE	37.	0.73	156.	MODERATE
20.0 % WATER NO. 1	80.0 % WATER NO. 2			
CALCIUM SULFATE	1361.	-0.32	-655.	NONE
CALCIUM CARBONATE	24.	0.95	181.	MODERATE
10.0 % WATER NO. 1	90.0 % WATER NO. 2			
CALCIUM SULFATE	1197.	-0.20	-404.	NONE
CALCIUM CARBONATE	*** UPPER IONIC STRENGTH LIMIT IS 4.0 ***			
0.0 % WATER NO. 1	100.0 % WATER NO. 2			
CALCIUM SULFATE	1033.	-0.08	-154.	NONE
CALCIUM CARBONATE	*** UPPER IONIC STRENGTH LIMIT IS 4.0 ***			

NOTE: PTB = POUNDS PER THOUSAND BARRELS

SCALE PROGRAM FOR MIXING 2 WATERS

IANSON OPERATING(WAWA)
~~REEK"AL" "AA"~~ City of Carlsbad
UN BARREL
INSBERG ~~#16~~ 11

EMPERATURE(F)= 75.0

ON	CONCENTRATION (MG/L) WATER NO. 1	WATER NO. 2
ODIUM	187.	44827.
ALCIUM	120.	6954.
AGNESIUM	19.	1998.
HLORIDE	424.	86000.
ICARBONATE	195.	427.
ARBONATE	0.	0.
ULFATE	25.	1400.
H	7.20	7.10
PECIFIC GRAVITY	1.0000	1.0990
ESISTIVITY	-1.00	0.06
ONIC STRENGTH	0.0198	2.7324
DS	973.	141606.

YPE OF SCALE	SOLUBILITY (PTB)	SCALE INDEX	SCALE (PTB)	SCALING TENDENCY
00.0 % WATER NO. 1	0.0 % WATER NO. 2			
ALCIUM SULFATE	675.	-2.30	-659.	NONE
ALCIUM CARBONATE	94.	0.09	11.	SLIGHT
90.0 % WATER NO. 1	10.0 % WATER NO. 2			
ALCIUM SULFATE	1117.	-1.30	-1015.	NONE
ALCIUM CARBONATE	106.	0.08	19.	SLIGHT
80.0 % WATER NO. 1	20.0 % WATER NO. 2			
ALCIUM SULFATE	1268.	-1.00	-1080.	NONE
ALCIUM CARBONATE	113.	0.10	25.	SLIGHT
70.0 % WATER NO. 1	30.0 % WATER NO. 2			
ALCIUM SULFATE	1327.	-0.81	-1053.	NONE
ALCIUM CARBONATE	108.	0.16	44.	SLIGHT

NOTE: PTB = POUNDS PER THOUSAND BARRELS

ANSON OPERATING(WAWA)
~~REEK"AL" "AA"~~ City of Caldwell
UN BARREL
INSBERG #~~EG~~ 11

TYPE OF SCALE	SOLUBILITY (PTB)	SCALE INDEX	SCALE (PTB)	SCALING TENDENCY
60.0 % WATER NO. 1	40.0 % WATER NO. 2			
ALCIUM SULFATE	1337.	-0.66	-976.	NONE
ALCIUM CARBONATE	96.	0.25	69.	SLIGHT
50.0 % WATER NO. 1	50.0 % WATER NO. 2			
ALCIUM SULFATE	1321.	-0.54	-874.	NONE
ALCIUM CARBONATE	83.	0.35	96.	SLIGHT
40.0 % WATER NO. 1	60.0 % WATER NO. 2			
ALCIUM SULFATE	1285.	-0.43	-752.	NONE
ALCIUM CARBONATE	67.	0.47	125.	MODERATE
30.0 % WATER NO. 1	70.0 % WATER NO. 2			
ALCIUM SULFATE	1237.	-0.34	-617.	NONE
ALCIUM CARBONATE	53.	0.60	152.	MODERATE
20.0 % WATER NO. 1	80.0 % WATER NO. 2			
ALCIUM SULFATE	1179.	-0.25	-473.	NONE
ALCIUM CARBONATE	41.	0.74	177.	MODERATE
10.0 % WATER NO. 1	90.0 % WATER NO. 2			
CALCIUM SULFATE	1115.	-0.16	-323.	NONE
CALCIUM CARBONATE	32.	0.88	200.	MODERATE
0.0 % WATER NO. 1	100.0 % WATER NO. 2			
CALCIUM SULFATE	1047.	-0.08	-168.	NONE
CALCIUM CARBONATE	24.	1.03	221.	MODERATE

NOTE: PTB = POUNDS PER THOUSAND BARRELS

SCALE PROGRAM FOR MIXING 2 WATERS

ANSON OPERATING(WAWA)
REEK"AL~~"AA~~" City of Cimarron
UN BARREL
INSBERG #16

EMPERATURE(F)= 75.0

ON	CONCENTRATION (MG/L) WATER NO. 1	WATER NO. 2
DIUM	187.	19834.
LCIUM	120.	4148.
GNESIUM	19.	1155.
LORIDE	426.	40000.
CARBONATE	195.	336.
RBONATE	0.	0.
LFATE	25.	1500.
	7.20	7.60
PECIFIC GRAVITY	1.0000	1.0400
ESISTIVITY	-1.00	0.12
ONIC STRENGTH	0.0198	1.3317
DS	973.	66973.

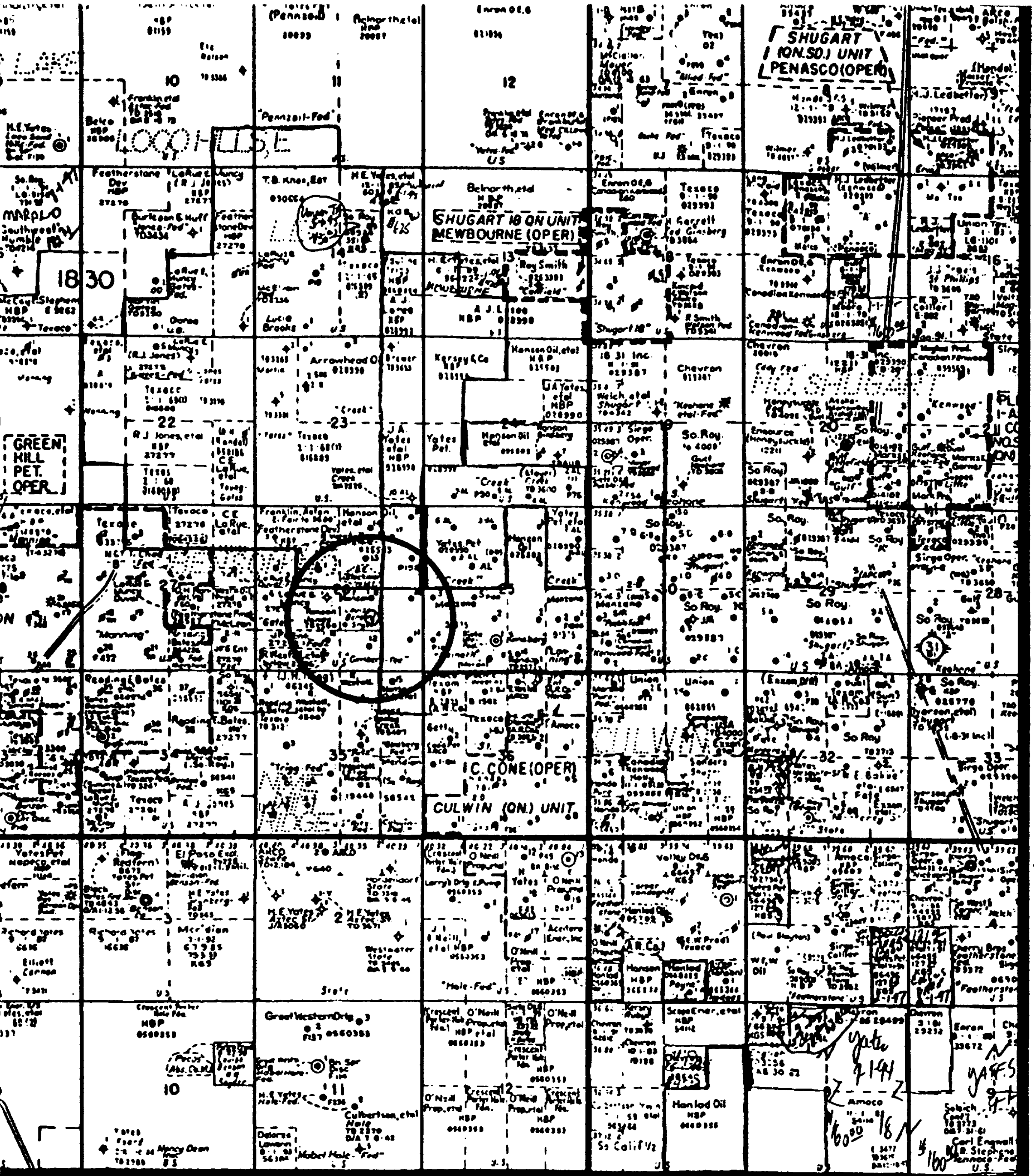
YPE OF SCALE	SOLUBILITY (PTB)	SCALE INDEX	SCALE (PTB)	SCALING TENDENCY
00.0 % WATER NO. 1	0.0 % WATER NO. 2			
LCIUM SULFATE	675.	-2.30	-659.	NONE
LCIUM CARBONATE	94.	0.09	11.	SLIGHT
90.0 % WATER NO. 1	10.0 % WATER NO. 2			
ALCIUM SULFATE	938.	-1.25	-829.	NONE
ALCIUM CARBONATE	79.	0.23	42.	SLIGHT
80.0 % WATER NO. 1	20.0 % WATER NO. 2			
ALCIUM SULFATE	1071.	-0.94	-870.	NONE
ALCIUM CARBONATE	79.	0.24	49.	SLIGHT
70.0 % WATER NO. 1	30.0 % WATER NO. 2			
ALCIUM SULFATE	1150.	-0.75	-857.	NONE
ALCIUM CARBONATE	75.	0.28	61.	SLIGHT

OTE: PTB = POUNDS PER THOUSAND BARRELS

HANSON OPERATING(WAWA)
~~CREEK"AL" "AA"~~ City of Carlsbad
GUN BARREL
GINSBERG #16

TYPE OF SCALE	SOLUBILITY (PTB)	SCALE INDEX	SCALE (PTB)	SCALING TENDENCY
60.0 % WATER NO. 1	40.0 % WATER NO. 2			
CALCIUM SULFATE	1199.	-0.61	-813.	NONE
CALCIUM CARBONATE	70.	0.34	75.	SLIGHT
50.0 % WATER NO. 1	50.0 % WATER NO. 2			
CALCIUM SULFATE	1229.	-0.50	-750.	NONE
CALCIUM CARBONATE	63.	0.41	90.	SLIGHT
40.0 % WATER NO. 1	60.0 % WATER NO. 2			
CALCIUM SULFATE	1245.	-0.41	-674.	NONE
CALCIUM CARBONATE	55.	0.49	106.	MODERATE
30.0 % WATER NO. 1	70.0 % WATER NO. 2			
CALCIUM SULFATE	1251.	-0.33	-588.	NONE
CALCIUM CARBONATE	47.	0.58	122.	MODERATE
20.0 % WATER NO. 1	80.0 % WATER NO. 2			
CALCIUM SULFATE	1248.	-0.26	-492.	NONE
CALCIUM CARBONATE	39.	0.68	138.	MODERATE
10.0 % WATER NO. 1	90.0 % WATER NO. 2			
CALCIUM SULFATE	1241.	-0.19	-392.	NONE
CALCIUM CARBONATE	32.	0.79	153.	MODERATE
0.0 % WATER NO. 1	100.0 % WATER NO. 2			
CALCIUM SULFATE	1228.	-0.13	-286.	NONE
CALCIUM CARBONATE	25.	0.90	168.	MODERATE

NOTE: PTB = POUNDS PER THOUSAND BARRELS



HANSON OPERATING COMPANY, INC.

P. O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515

SNYDER RANCH WATER WELL

se nw se sec 26-T18s-R30e

ATTACHMENT E

'ALLIBURTON DIVISION LABORATO

HALLIBURTON SERVICES

ARTESIA DISTRICT

LABORATORY REPORT

No. W79-93

TO Hanson Operating

P. O. Box 1515

Roswell, NM 88201

Date February 18, 1993

Submitted by _____ Date Rec. February 18, 1993

Well No. Snyder Ranch Depth _____ Formation _____

Field _____ County _____ Source _____

Resistivity	2.4 @ 70°		
Specific Gravity ..	1.0026 @ 70°		
pH	8.0		
Calcium	1,735		
Magnesium	421		
Chlorides	1,600		
Sulfates	600		
Bicarbonates	274		
Soluble Iron	0		

Remarks:

Respectfully submitted

Analyst: Eric Jacobson - Operations Engineer

HALLIBURTON SERVICES

ATTACHMENT F
Page 1

ATTACHMENT G

HANSON OPERATING COMPANY, INC.

P.O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515 PHONE AC 505-622-7330

February 19, 1993

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Meridian Oil, Inc.
Post Office Box 51810
Midland, Texas 79710-1810

Re: BENSON SHUGART WATERFLOOD UNIT
EDDY COUNTY, NEW MEXICO

Gentlemen:

In accordance with the requirements of the New Mexico Oil Conservation Division Form C-108 (Application for Authorization to Inject), please find attached a copy for Hanson Operating Company, Inc. Benson Shugart Waterflood Unit located in Sections 25, 26 and 35 of T. 18 S., R. 30 E., and Section 30, T. 18 S., R. 31 E., Eddy County, New Mexico.

If you have any questions, please feel free to contact me at 505/622-7330.

Thank you.

Yours very truly,

HANSON OPERATING COMPANY, INC.

David Sweeney
Drilling & Production Superintendent

DS:jmc
Attachment

HANSON OPERATING COMPANY, INC.

P.O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515 PHONE AC 505-622-7330

February 19, 1993

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ray Westall
Post Office Box 4
Loco Hills, New Mexico 88255

Re: BENSON SHUGART WATERFLOOD UNIT
EDDY COUNTY, NEW MEXICO

Gentlemen:

In accordance with the requirements of the New Mexico Oil Conservation Division Form C-108 (Application for Authorization to Inject), please find attached a copy for Hanson Operating Company, Inc. Benson Shugart Waterflood Unit located in Sections 25, 26 and 35 of T. 18 S., R. 30 E., and Section 30, T. 18 S., R. 31 E., Eddy County, New Mexico.

If you have any questions, please feel free to contact me at 505/622-7330.

Thank you.

Yours very truly,

HANSON OPERATING COMPANY, INC.

David Sweeney
Drilling & Production Superintendent

DS:jmc
Attachment

50

HANSON OPERATING COMPANY, INC.

P.O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515 PHONE AC 505-622-7330

February 19, 1993

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

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

Re: BENSON SHUGART WATERFLOOD UNIT
EDDY COUNTY, NEW MEXICO

Gentlemen:

In accordance with the requirements of the New Mexico Oil Conservation Division Form C-108 (Application for Authorization to Inject), please find attached a copy for Hanson Operating Company, Inc. Benson Shugart Waterflood Unit located in Sections 25, 26 and 35 of T. 18 S., R. 30 E., and Section 30, T. 18 S., R. 31 E., Eddy County, New Mexico.

If you have any questions, please feel free to contact me at 505/622-7330.

Thank you.

Yours very truly,

HANSON OPERATING COMPANY, INC.

David Sweeney

David Sweeney
Drilling & Production Superintendent

DS:jmc
Attachment

HANSON OPERATING COMPANY, INC.

P.O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515 PHONE AC 505-622-7330

February 19, 1993

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

JFG Enterprises
Post Office Box 100
Artesia, New Mexico 88210

Re: BENSON SHUGART WATERFLOOD UNIT
EDDY COUNTY, NEW MEXICO

Gentlemen:

In accordance with the requirements of the New Mexico Oil Conservation Division Form C-108 (Application for Authorization to Inject), please find attached a copy for Hanson Operating Company, Inc. Benson Shugart Waterflood Unit located in Sections 25, 26 and 35 of T. 18 S., R. 30 E., and Section 30, T. 18 S., R. 31 E., Eddy County, New Mexico.

If you have any questions, please feel free to contact me at 505/622-7330.

Thank you.

Yours very truly,

HANSON OPERATING COMPANY, INC.

David Sweeney

David Sweeney
Drilling & Production Superintendent

DS:jmc
Attachment

52

HANSON OPERATING COMPANY, INC.

P.O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515 PHONE AC 505-622-7330

February 19, 1993

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Merit Energy Company
12221 Merit Drive, Suite 500
Dallas, Texas 75251

Re: BENSON SHUGART WATERFLOOD UNIT
EDDY COUNTY, NEW MEXICO

Gentlemen:

In accordance with the requirements of the New Mexico Oil Conservation Division Form C-108 (Application for Authorization to Inject), please find attached a copy for Hanson Operating Company, Inc. Benson Shugart Waterflood Unit located in Sections 25, 26 and 35 of T. 18 S., R. 30 E., and Section 30, T. 18 S., R. 31 E., Eddy County, New Mexico.

If you have any questions, please feel free to contact me at 505/622-7330.

Thank you.

Yours very truly,

HANSON OPERATING COMPANY, INC.

David Sweeney

David Sweeney
Drilling & Production Superintendent

DS:jmc
Attachment

55

HANSON OPERATING COMPANY, INC.

P.O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515 PHONE AC 505-622-7330

February 19, 1993

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

B & A Operating Co.
Post Office Box 136
Lovington, New Mexico 88260

Re: BENSON SHUGART WATERFLOOD UNIT
EDDY COUNTY, NEW MEXICO

Gentlemen:

In accordance with the requirements of the New Mexico Oil Conservation Division Form C-108 (Application for Authorization to Inject), please find attached a copy for Hanson Operating Company, Inc. Benson Shugart Waterflood Unit located in Sections 25, 26 and 35 of T. 18 S., R. 30 E., and Section 30, T. 18 S., R. 31 E., Eddy County, New Mexico.

If you have any questions, please feel free to contact me at 505/622-7330.

Thank you.

Yours very truly,

HANSON OPERATING COMPANY, INC.

David Sweeney

David Sweeney
Drilling & Production Superintendent

DS:jmc
Attachment

54

HANSON OPERATING COMPANY, INC.

P.O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515 PHONE AC 505-622-7330

February 19, 1993

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Ozark Exploration
Suite 1525
Two Turtle Creek Village
Dallas, Texas 75219

Re: BENSON SHUGART WATERFLOOD UNIT
EDDY COUNTY, NEW MEXICO

Gentlemen:

In accordance with the requirements of the New Mexico Oil Conservation Division Form C-108 (Application for Authorization to Inject), please find attached a copy for Hanson Operating Company, Inc. Benson Shugart Waterflood Unit located in Sections 25, 26 and 35 of T. 18 S., R. 30 E., and Section 30, T. 18 S., R. 31 E., Eddy County, New Mexico.

If you have any questions, please feel free to contact me at 505/622-7330.

Thank you.

Yours very truly,

HANSON OPERATING COMPANY, INC.

David Sweeney

David Sweeney
Drilling & Production Superintendent

DS:jmc
Attachment

55

HANSON OPERATING COMPANY, INC.

P.O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515 PHONE AC 505-622-7330

February 19, 1993

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

SDX Resources, Inc.
Post Office Box 5061
Midland, Texas 79704

Re: BENSON SHUGART WATERFLOOD UNIT
EDDY COUNTY, NEW MEXICO

Gentlemen:

In accordance with the requirements of the New Mexico Oil Conservation Division Form C-108 (Application for Authorization to Inject), please find attached a copy for Hanson Operating Company, Inc. Benson Shugart Waterflood Unit located in Sections 25, 26 and 35 of T. 18 S., R. 30 E., and Section 30, T. 18 S., R. 31 E., Eddy County, New Mexico.

If you have any questions, please feel free to contact me at 505/622-7330.

Thank you.

Yours very truly,

HANSON OPERATING COMPANY, INC.

David Sweeney

David Sweeney
Drilling & Production Superintendent

DS:jmc
Attachment

HANSON OPERATING COMPANY, INC.

P.O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515 PHONE AC 505-622-7330

February 19, 1993

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Trigg Family Trust
Post Office Box 520
Roswell, New Mexico 88202-0520

Re: BENSON SHUGART WATERFLOOD UNIT
EDDY COUNTY, NEW MEXICO

Gentlemen:

In accordance with the requirements of the New Mexico Oil Conservation Division Form C-108 (Application for Authorization to Inject), please find attached a copy for Hanson Operating Company, Inc. Benson Shugart Waterflood Unit located in Sections 25, 26 and 35 of T. 18 S., R. 30 E., and Section 30, T. 18 S., R. 31 E., Eddy County, New Mexico.

If you have any questions, please feel free to contact me at 505/622-7330.

Thank you.

Yours very truly,

HANSON OPERATING COMPANY, INC.

David Sweeney

David Sweeney
Drilling & Production Superintendent

DS:jmc
Attachment

57

HANSON OPERATING COMPANY, INC.

P.O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515 PHONE AC 505-622-7330

February 19, 1993

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Manzano Oil Corporation
Post Office Box 2107
Roswell, New Mexico 88202-2107

Re: BENSON SHUGART WATERFLOOD UNIT
EDDY COUNTY, NEW MEXICO

Gentlemen:

In accordance with the requirements of the New Mexico Oil Conservation Division Form C-108 (Application for Authorization to Inject), please find attached a copy for Hanson Operating Company, Inc. Benson Shugart Waterflood Unit located in Sections 25, 26 and 35 of T. 18 S., R. 30 E., and Section 30, T. 18 S., R. 31 E., Eddy County, New Mexico.

If you have any questions, please feel free to contact me at 505/622-7330.

Thank you.

Yours very truly,

HANSON OPERATING COMPANY, INC.

David Sweeney
Drilling & Production Superintendent

DS:jmc
Attachment

5-8

HANSON OPERATING COMPANY, INC.

P.O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515 PHONE AC 505-622-7330

February 19, 1993

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

C. E. LaRue
B. N. Muncy, Jr.
Post Office Box 196
Artesia, New Mexico 88210

Re: BENSON SHUGART WATERFLOOD UNIT
EDDY COUNTY, NEW MEXICO

Gentlemen:

In accordance with the requirements of the New Mexico Oil Conservation Division Form C-108 (Application for Authorization to Inject), please find attached a copy for Hanson Operating Company, Inc. Benson Shugart Waterflood Unit located in Sections 25, 26 and 35 of T. 18 S., R. 30 E., and Section 30, T. 18 S., R. 31 E., Eddy County, New Mexico.

If you have any questions, please feel free to contact me at 505/622-7330.

Thank you.

Yours very truly,

HANSON OPERATING COMPANY, INC.

David Sweeney
Drilling & Production Superintendent

DS:jmc
Attachment

HANSON OPERATING COMPANY, INC.

P.O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515 PHONE AC 505-622-7330

February 19, 1993

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mack Energy Corp.
Post Office Box 276
Artesia, New Mexico 88210

Re: BENSON SHUGART WATERFLOOD UNIT
EDDY COUNTY, NEW MEXICO

Gentlemen:

In accordance with the requirements of the New Mexico Oil Conservation Division Form C-108 (Application for Authorization to Inject), please find attached a copy for Hanson Operating Company, Inc. Benson Shugart Waterflood Unit located in Sections 25, 26 and 35 of T. 18 S., R. 30 E., and Section 30, T. 18 S., R. 31 E., Eddy County, New Mexico.

If you have any questions, please feel free to contact me at 505/622-7330.

Thank you.

Yours very truly,

HANSON OPERATING COMPANY, INC.

David Sweeney

David Sweeney
Drilling & Production Superintendent

DS:jmc
Attachment

60

HANSON OPERATING COMPANY, INC.

P.O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515 PHONE AC 505-622-7330

February 19, 1993

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Xeric Oil & Gas Company
Post Office Box 51311
Midland, Texas 79710

Re: BENSON SHUGART WATERFLOOD UNIT
EDDY COUNTY, NEW MEXICO

Gentlemen:

In accordance with the requirements of the New Mexico Oil Conservation Division Form C-108 (Application for Authorization to Inject), please find attached a copy for Hanson Operating Company, Inc. Benson Shugart Waterflood Unit located in Sections 25, 26 and 35 of T. 18 S., R. 30 E., and Section 30, T. 18 S., R. 31 E., Eddy County, New Mexico.

If you have any questions, please feel free to contact me at 505/622-7330.

Thank you.

Yours very truly,

HANSON OPERATING COMPANY, INC.

David Sweeney

David Sweeney
Drilling & Production Superintendent

DS:jmc
Attachment

01

HANSON OPERATING COMPANY, INC.

P.O. BOX 1515 ROSWELL, NEW MEXICO 88202-1515 PHONE AC 505-622-7330

February 19, 1993

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Siete Oil & Gas Corporation
Post Office Box 2523
Roswell, New Mexico 88202-2523

Re: BENSON SHUGART WATERFLOOD UNIT
EDDY COUNTY, NEW MEXICO

Gentlemen:

In accordance with the requirements of the New Mexico Oil Conservation Division Form C-108 (Application for Authorization to Inject), please find attached a copy for Hanson Operating Company, Inc. Benson Shugart Waterflood Unit located in Sections 25, 26 and 35 of T. 18 S., R. 30 E., and Section 30, T. 18 S., R. 31 E., Eddy County, New Mexico.

If you have any questions, please feel free to contact me at 505/622-7330.

Thank you.

Yours very truly,

HANSON OPERATING COMPANY, INC.

David Sweeney
Drilling & Production Superintendent

DS:jmc
Attachment

62

Affidavit of Publication

No. 14224

STATE OF NEW MEXICO,

County of Eddy:

Gary D. Scott being duly sworn, says: That he is the Publisher of The Artesia Daily Press, a daily newspaper of general circulation, published in English at Artesia, said county and state, and that the hereto attached Legal Notice

was published in a regular and entire issue of the said Artesia Daily Press, a daily newspaper duly qualified for that purpose within the meaning of Chapter 167 of the 1937 Session Laws of the state of New Mexico for 1 consecutive days weeks on the same day as follows:

First Publication February 17, 1993

Second Publication

Third Publication

Fourth Publication

Gary D. Scott

Subscribed and sworn to before me this 17th day of February 19 93

Barbara Ann Boaz

Notary Public, Eddy County, New Mexico

My Commission expires September 23, 1996

Copy of Publication

LEGAL NOTICE

Hanson Operating Company, Inc., United Bank Plaza, Suite 1200, 400 North Pennsylvania Avenue, Roswell, New Mexico 88201, has filed form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for six injection wells. The proposed wells, the Ginsberg Federal #17 located 990'FNL & 990'FEL Section 26, T. 18 S., R. 30 E.; the Ute Federal #1 located 930'FSL & 2310'FWL Section 25, T. 18 S., R. 30 E.; the Ginsberg Federal #18 located 2254'FNL & 1044'FEL Section 26, T. 18 S., R. 30 E.; the Ginsberg Federal #19 located 1591'FSL & 1048'FEL Section 26, T. 18 S., R. 30 E.; the Keinath Federal #6 located 1631'FSL & 1012'FWL Section 25, T. 18 S., R. 30 E.; and the Pueblo Federal #1 located 930'FSL & 660'FWL Section 30, T. 18 S., R. 31 E. of Eddy County, New Mexico, will be used for pressure maintenance. Produced waters from the Penrose, Middle Grayburg will be injected into the 7 Rivers, Penrose, Middle Grayburg formation at a depth of 2430'-2500'; 3165'-3175'; and 3440'-3450' respectively with a maximum pressure of 1600 psi and a maximum rate of an estimated 400 BWPD.

All interested parties opposing the aforementioned must file objections or requests for a hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, NM 87501, within 15 days. Additional information can be obtained by contacting David Sweeney at (505) 622-7330.

Published in the Artesia Daily Press, Artesia, NM February 17, 1993.

Legal 14224

ATTACHMENT H
Page 1