SAMEDAN OIL CORPORATION
10 DESTA DRIVE
SUITE 240 EAST
MIDLAND, TEXAS 79705
(915) 688-3660

August 14, 1987

David Catanach
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87504-2088

Dear Mr. Catanach:

Attached please find the leasehold operators list and a copy of the correspondence sent by registered mail to each listed entity.

This has been done per our telephone conversation 7-30-87 to notify each operator of the revised injection interval into the Devonian.

Should you have any questions concerning this matter, please contact this office.

Yours truly,

Nick Hood
Engineer

NH:hc
Attachment

Release Date August 31, 1987

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SAMEDAN OIL CORPORATION
10 DESTA DRIVE
SUITE 240 EAST
MIDLAND, TEXAS 79705
(915) 688-3660

JUN 12

June 1, 1987

State Of New Mexico
Energy & Mineral Department
P. O. Box 2088
State Land Office Bldg
Santa Fe, New Mexico 87501

Attn: David Catanach

Dear Sirs:

Attached please find Samedan Oil Corporation form C-108 application for authorization to inject. The subject injection well is the Lowe SWD #1 1986' FNL & 660' FEL Sec 3, T-13-S, R-37-E, Lea County, New Mexico.

You may recall thru our recent telephone conversations that Samedan Oil Corporation previously filed for and received permission to inject (order SWD-302) into the San Andres Section of the previously mentioned well. The San Andres Section quickly pressured up to a level which exceed allowable limits. Samedan then received verbal permission to drill out thru the Wolfcamp interval and inject into open hole from 4530' to 9630'. Again pressure increased beyond allowable limits. We then requested and received verbal permission to drill out to the Devonian section for disposal purposes.

The work has now been completed and Lowe SWD #1 has been completed as a Devonian Disposal well. A well bore sketch of the completed well is attached along with the revised form C-108.

Should you need any other information please do not hesitate to call.

Yours truly,

Nick Hood

Nick Hood
Engineer

GNH/rk

SAMEDAN OIL CORP
SPEIGHT SWD #1
1986' FNL 660' FEL
SEC 3 T13S R37E
LEA CO N.M

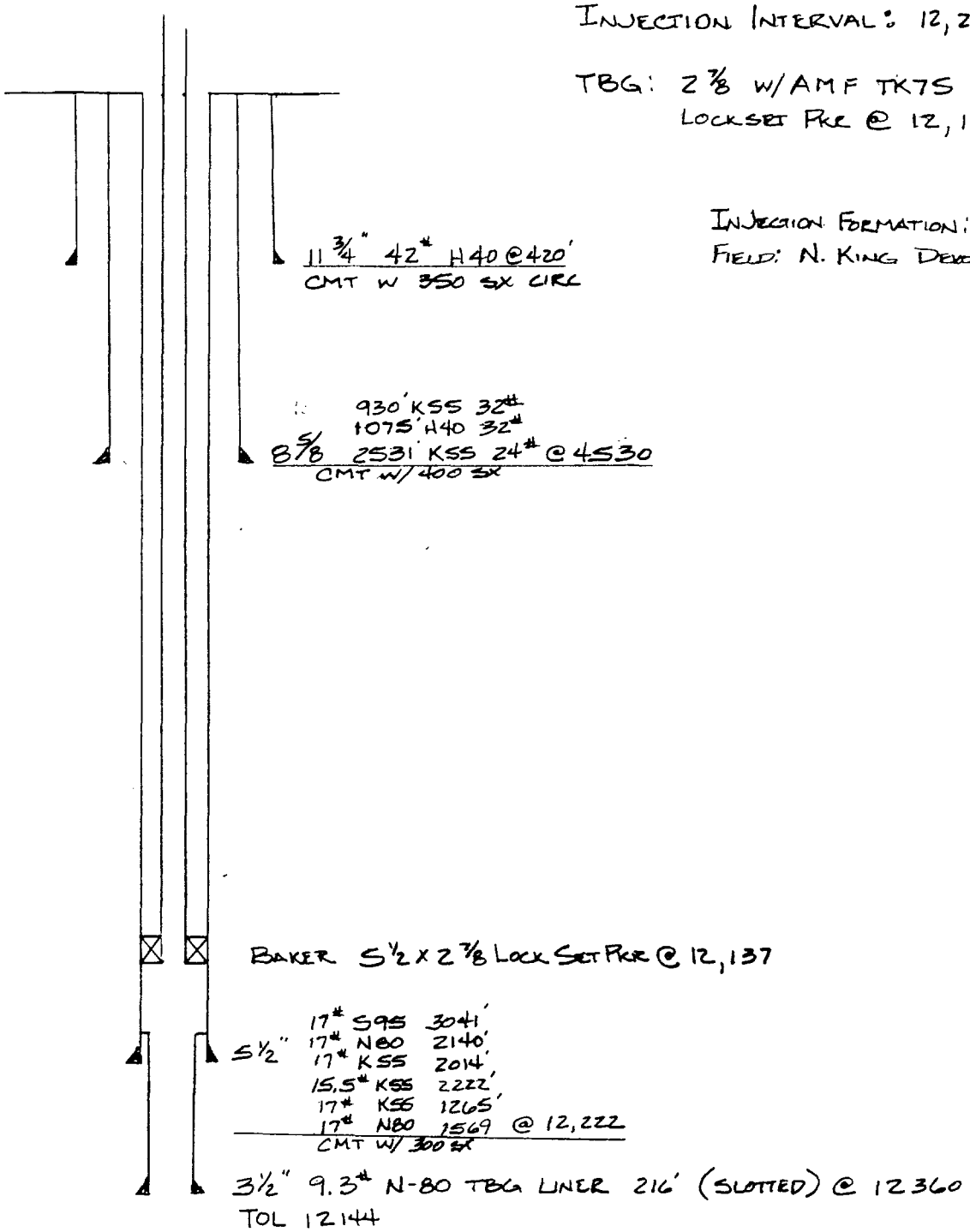
SURFACE CSG 11 3/4" CMT W 350 SX
TOC SURFACE DETERMINED BY VISUAL
HOLE SIZE 15"

INTERMEADIATE CASING 8 5/8" @ 4530
CMT W/ 400 SX TOC 2200' CALCULATED
HOLE SIZE 11"

INJECTION INTERVAL: 12,222-12,360

TBG: 2 7/8 W/AMF TK75 COATING
LOCKSET PKR @ 12,137

INJECTION FORMATION: DEVONIAN
FIELD: N. KING DEVONIAN



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: Samedan Oil Corporation

Address: 10 Desta Drive, Suite 240 East, Midland, Texas 79705

Contact party: Nick Hood Phone: 915/688-3360

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: Nick Hood Title Engineer

Signature: Nick Hood Date: June 1, 1987

* 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. Initial Submittal of C-108 was 2-17-86.

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.

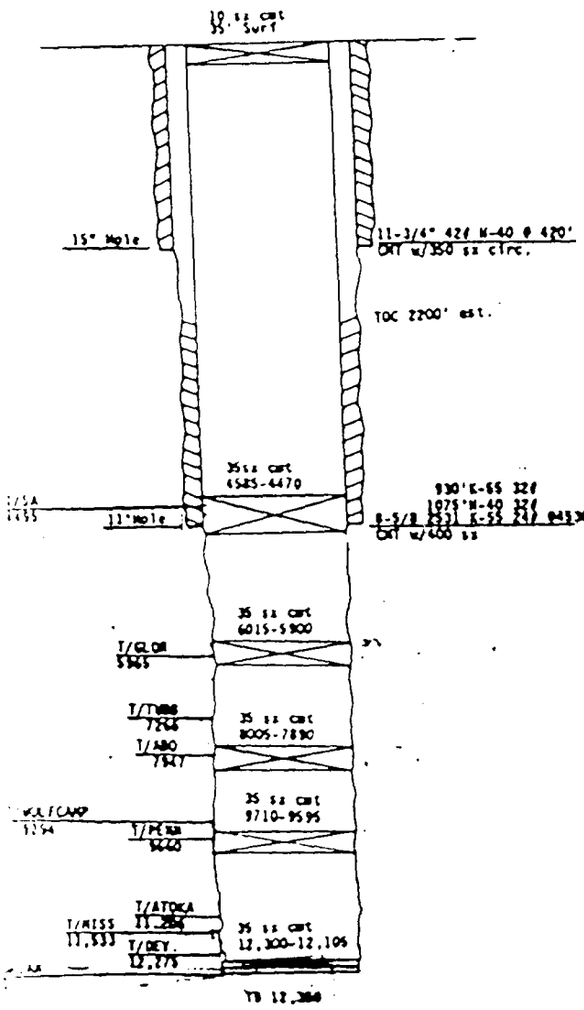
SECTION III

INJECTION WELL DATA SHEET

Samedan (OPERATOR) Lowe (LEASE)

SWD #1 (WELL NO.) 1986' FNL 660' FEL (FOOTAGE LOCATION) 3 (SECTION) 13S (TOWNSHIP) 37E (RANGE)

Schematic



Tabular Data

Surface Casing

Size 11-3/4" Cemented with 350 sx.

TOC Surface feet determined by Visual

Hole size 15"

Intermediate Casing None

Size _____" Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Long string

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

TOC 2200 feet determined by Calculated

Hole size 11"

Total depth 4530

Injection interval

4530 feet to 5900 feet open hole
(perforated or open-hole, indicate which)

Note: Injection interval 4530-5900 is open hole

Tubing size 2-7/8 lined with AMF TK75 (material) set in a

Baker 'AD-1' Tension (brand and model) packer at 12,150 feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Devonian

2. Name of Field or Pool (if applicable) None

3. Is this a new well drilled for injection? ☐ Yes ☒ No

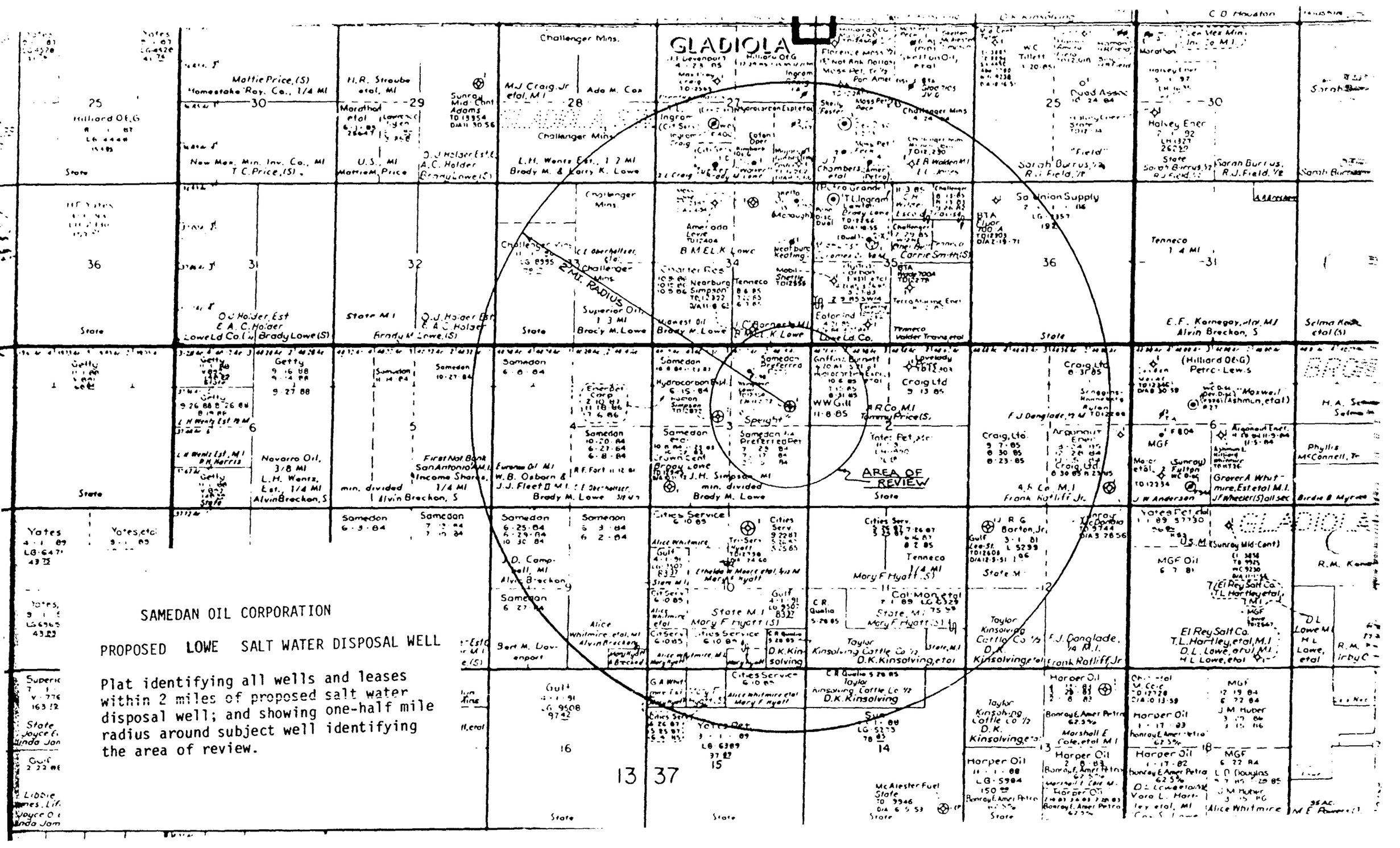
   If no, for what purpose was the well originally drilled? Silurian Test - Unsuccessful

4. Has the well ever been perforated in any other zone(s)? List all such perforated interval and give plugging detail (sacks of cement or bridge plug(s) used)

   well has never been perforated. P&A'd as shown in schematic.

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) this area. N. King Devonian (Top-8186)

SECTION V


GLADIOLA
2 MI. RADIUS
AREA OF REVIEW
SAMEDAN OIL CORPORATION
PROPOSED LOWE SALT WATER DISPOSAL WELL
Plat identifying all wells and leases within 2 miles of proposed salt water disposal well; and showing one-half mile radius around subject well identifying the area of review.

SECTION VI

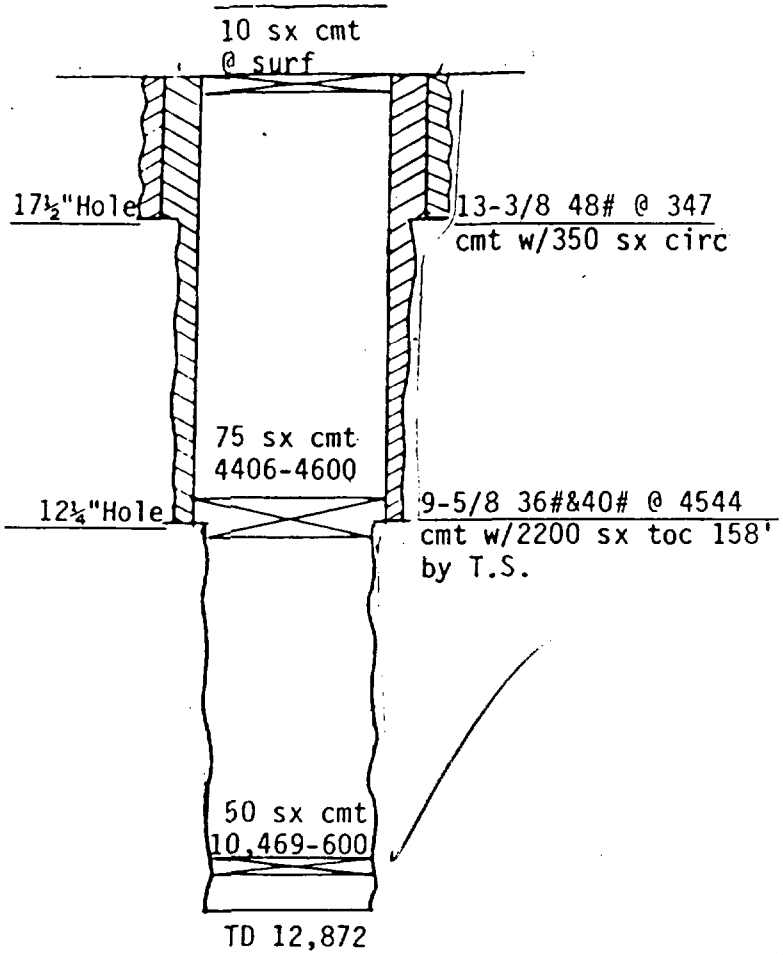
EA OF REVIEW WELL DATA SH T

Jake L. Hamon — OPERATOR
J. H. Simpson — LEASE

1	2310' FWL 2314' FNL	3	13S	37E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Spud Date 8-19-52 P&A 1-3-53 Re-entry Aug. 1956 P&A Aug. 27, 1956

SCHEMATIC



TABULAR DATA

Surface Casing

Size 13-3/8", Cmtd w/ 350 sx.

TOC Surface ft. as per circulated

Hole size 17½ "

Intermediate Casing

Size 9-5/8", Cmtd w/ 2200 SX.

TOC 158' ft. as per Temp. Surv.

Hole size 12¼ "

Long string Well P & A'd no long string set

Size _____, Cmtd w/_____sx.

TOC _____ft. as per _____

Hole size _____"

Liner

Size _____", from_____'to_____

Cmtd. w/_____sx, TOC_____

Hole size _____"

Total Depth _____

Other Data

1. Name of Field or Pool (if applicable) None

2. Is this a new well drilled for injection _____Yes x No
If no, for what purpose was the well originally drilled? Devonian Test Unsucessful

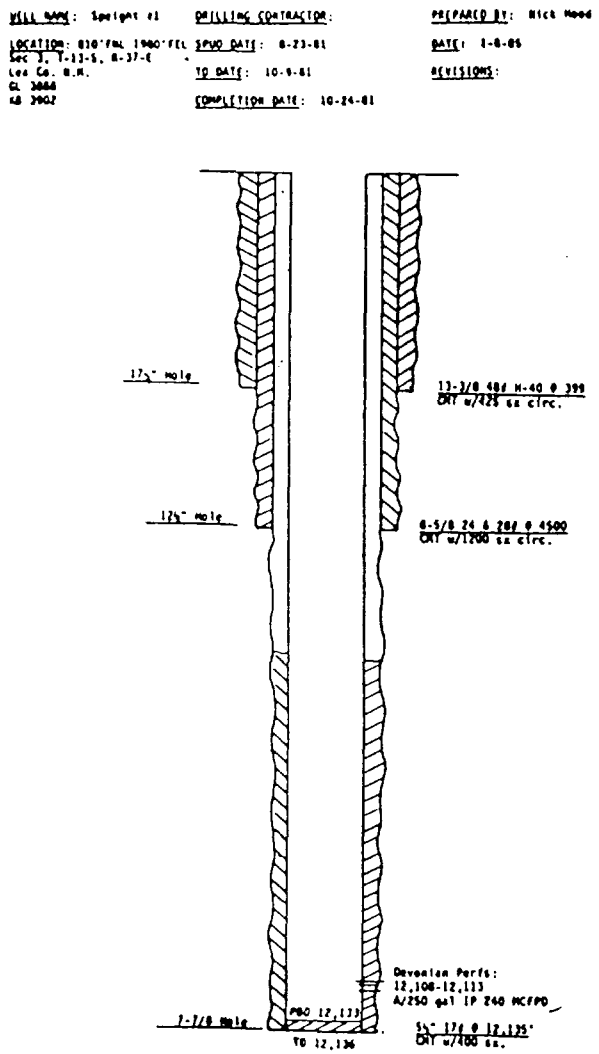
3. Has the well ever been perforated in any other zone (s) ? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug (s) used) None

AREA OF REVIEW WELL DATA SHEET

Samedan	Speight			
OPERATOR	LEASE			
1	810' FNL & 1980' FEL	3	13-S	37E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Lea County, New Mexico

SCHEMATIC



TABULAR DATA

Surface Casing

Size 13-3/8, Cmtd w/ 425 sx.

TOC Circ ft. as per drilling rpt.

Hole size 17-1/2 "

Intermediate Casing

Size 8-5/8, Cmtd w/ 400 SX.

TOC surf ft. as per drilling report

Hole size 12-1/4 "

Long string

Size 5-1/2, Cmtd w/ 400 sx.

TOC unknown ft. as per _____

Hole size 7-7/8 "

Liner NONE

Size _____", from _____'to _____

Cmtd. w/ _____sx, TOC _____

Hole size _____"

Total Depth _____

1. Name of Field or Pool (if applicable) North King Devonian

2. Is this a new well drilled for injection ____ Yes X No
   If no, for what purpose was the well originally drilled? Devonian Test

3. 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 perforations other than Devonian.

OPERATIONS DATA SHEET

SECTION VII - DATA ON THE PROPOSED SPEIGHT

SALT WATER DISPOSAL OPERATION IS AS FOLLOWS:

1) Proposed average daily rate of produced water injection - 2000 BWPD

   Proposed maximum daily rate of produced water injection - 3000 BWPD

   Monthly volumes estimated @ 60,000 - 90,000 barrels

2) The proposed system would be open

3) The proposed average and maximum injection pressures are estimated to be in the range of 600 to 1200 PSIG at the triplex pump.

4) The primary source of injected fluid will be produced water from the N. King Devonian Field of Lea County, New Mexico and other nearby Devonian Production. A Devonian section will be the receiving formation. The bulk of the water (approx. 80% to 90%) will be produced Devonian water being re-injected into the Devonian formation. Chemical analysis of water from the Devonian reservoir involved are submitted herewith.

5) The Proposed water injection is for disposal purposes into the Devonian section of an abandoned dry hole. There is Devonian production within one mile of the proposed disposal well. The Chemical analysis of the Devonian section representative of the proposed injection zone.

SECTION VIII GEOLOGICAL DATA ON INJECTED ONE

Section VIII - The Devonian formation in the proposed injection well is 150 feet in vertical thickness with the top at 12,200 feet and the base at 12,350 feet. The lithology is predominately a Dolomitic Lime section. The only underground source of drinking water with total dissolved solids concentrations of 10,000 mg/1 or less is the Ogallala formation, occurring at depths of 100 to 300 feet from the surface. There is no known source of drinking water underlying the Devonian.

SECTION 1X PROPOSED STIMULATION PROGRAM

All stimulation & treating of the proposed injection zone be approximately 2000 Gal 15% acid.

SECTION X

Logs were filed w/Samedan Oil Corporation original Application for authorization to inject dated 2-17-86.

SECTION XI ANALYSIS OF FRESH WATER

A plat identifying water wells and their location is attached, along with water analysis of samples from these wells.

WATER ANALYSIS REPORT

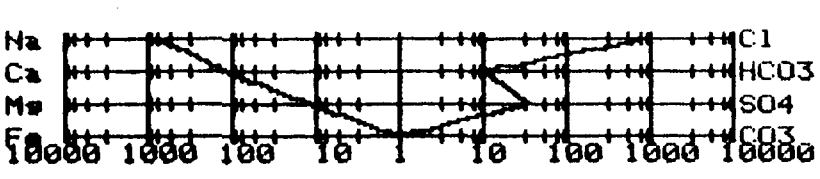
SAMPLE

LOCATION: SPEISHT # 1 DATE: 4-MAY-1985
COMPANY : PRO-KEM INC. FORMATION _____
REF. : SAMEDAN
REMARKS : _____

ANALYSIS

			MG/L		EQ. WT.		*MEQ/L
1.	PH	7.5					
2.	SPECIFIC GRAVITY	1.040					
3.	HYDROGEN SULFIDE	NEGATIVE					
4.	CARBON DIOXIDE	NOT DETERMINED					
5.	DISSOLVED OXYGEN	NOT DETERMINED					
6.	BICARBONATE (HCO3)		599	/	61.1	=	10
7.	CHLORIDES (CL)		26994	/	35.5	=	760
8.	SULFATES (SO4)		1625	/	48.8	=	33
9.	CALCIUM (CA)		2165	/	20.1	=	108
10.	MAGNESIUM (MG)		131	/	12.2	=	11
11.	SODIUM (NA)		15755	/	23.0	=	685
12.	BARIUM (BA)	NOT DETERMINED		/	68.7	=	0
13.	TOTAL IRON (FE)		3				
14.	TOTAL DISSOLVED SOLIDS		47269				
15.	TOTAL HARDNESS (CACO3)		5940				

LOGARITHMIC WATER PATTERN



*MILLI EQUIVALENTS PER LITER
CALCULATED CALCIUM SULFATE SOLUBILITY
IN THIS BRINE IS 3536 MG/L

PROBABLE MINERAL COMPOSITION

COMPOUND	EQ. WT.	X *MEQ/L	= MG/L
CA(HCO3)2	81.04	10	796
CASO4	68.07	33	2267
CACL2	55.50	65	3615
MG(HCO3)	73.17	0	0
MGSO4	60.19	0	0
MGCL2	47.62	11	511
NAHCO3	84.00	0	0
NASO4	71.03	0	0
NACL	58.46	685	40017

ESTIMATED TEMPERATURE OF CALCIUM CARBONATE INSTABILITY IS 59 DEGREES F.

REMARKS : _____

SECTION XII APPLICANTS AFFIRMATIVE STATEMENT

The only underground source of drinking water in this general area is the Ogallala Formation, occurring at a depth of 100 to 300 feet from the surface. The top of the Devonian Formation, proposed injection zone, is at 12,200 feet. I have examined available geologic and engineering data of this general area and I find no evidence of open faults or any other hydrologic connection between the proposed disposal zone and any underground source of drinking water.

SECTION XIV PROOF OF NOTICE

Proof on Notice of the proposed disposal well has been previously submitted and is on file w/The Energy and Minerals Department.