KELLAHIN and KELLAHIN
Attorneys at Law
El Patio - 117 North Guadalupe
Post Office Box 2265
Santa Fe, New Mexico 87504-2265

Jason Kellahin
W. Thomas Kellahin
Karen Aubrey

Telephone 982-4285
Area Code 505

RECEIVED

March 4, 1985 MAR 1985

OIL CONSERVATION DIVISION

Mr. Richard L. Stamets
Oil Conservation Division
Post Office Box 2088
Santa Fe, New Mexico 87501

"Certified Mail-
Return Receipt"

Re: Hicks Oil & Gas, Inc.
Salt Water Disposal
Section 17, T28N, R13W, NMPM
San Juan County, New Mexico

Case 8546

Dear Mr. Stamets:

On February 18, 1985, on behalf of Hicks Oil & Gas Inc. I filed an application which is set for hearing on March 27, 1985, for approval of the SE Cha Cha Well 16, located in Unit H of the referenced Section 17 for use of the Gallup formation for disposal.

Please find enclosed two copeis of the required Division Form C-108 and attachments. By copy of this letter we are sending Form C-108 by certified mail-return receipt to the surface owner, the OCD District Office, and all operators within a one-half mile radius.

Very truly yours,

W. Thomas Kellahin

WTK:sg
Enc.

cc: Mr. Frank Chavez
Oil Conservation Div.
1000 Rio Brazos Road
Aztec, NM 87410

Mr. Mike Hicks
Hicks Oil & Gas Inc.
P. O. Drawer 3307
Farmington, NM 87499

Southland Royalty Co.
P. O. Drawer 570
Farmington, NM 87499
Attn: Mr. Robert Fielder

Bureau of Indian Affairs
Navajo Indian Irrigation Pro.
3539 E. 30th Street
N.W. Energy Bldg., Rm 103
Farmington, NM 87401

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

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

Case 8546

FORM C-108
Revised 7-1-81

RECEIVED
1985
OIL CONSERVATION DIVISION

APPLICATION FOR AUTHORIZATION TO INJECT

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

II. Operator: Hicks Oil & Gas, Inc.

Address: P.O. Drawer 3307, Farmington, New Mexico 87499

Contact party: Mike Hicks Phone: 505/327-4902

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

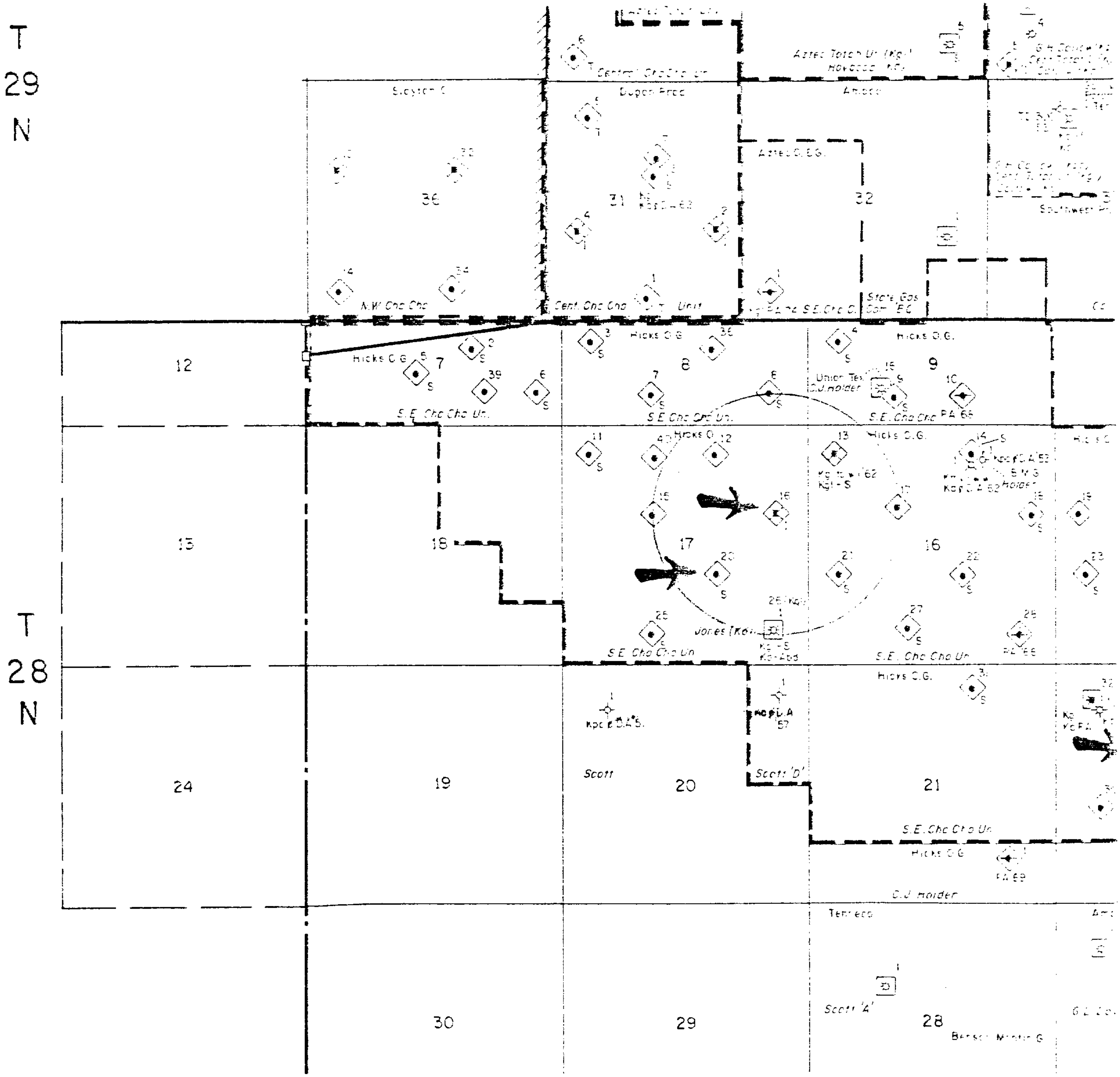
I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: Mike Hicks Title President

Signature: Mike Hicks Date: 1/17/85

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal).

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District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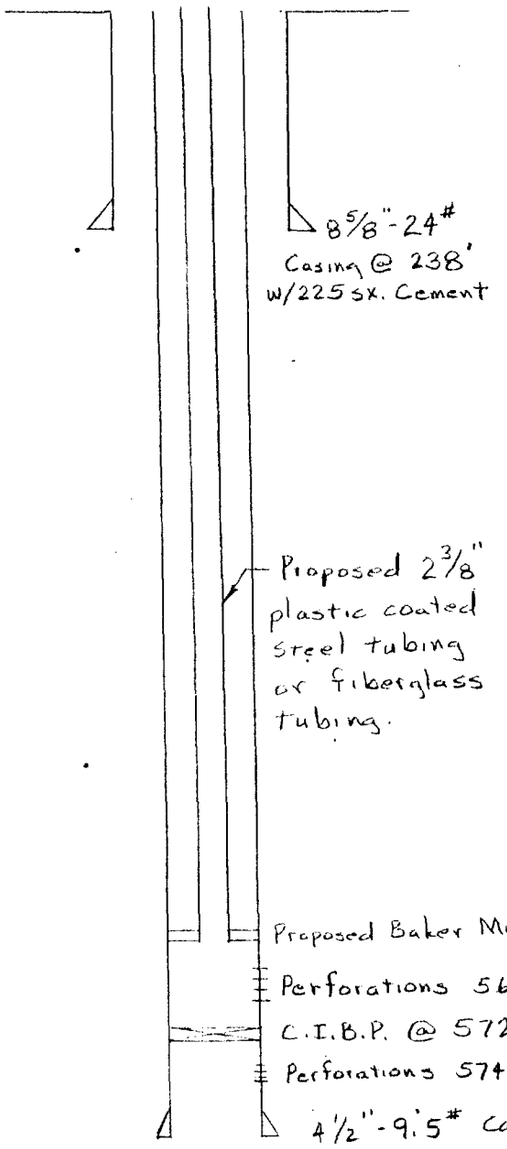
Cent. Cha Cha
Aztec Totah Un
Amoco
Hicks O.G
Union Tex
C.J. Holder
Jones
Scott
Scott 'D'
Scott 'A'
Tenneco
State Gas Com 'BC'
Southwest
Benson Montin G

INJECTION WELL DATA SHEET

Case 8546

OPERATION	LEASE			
Hicks Oil & Gas, Inc.	S.E. Cha Cha Unit			
16	**1980' FNL & 660' FEL**	**17**	**28N**	**13W**
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic



Tubular Data

Surface Casing

Size 8 5/8" - 24# " Cemented with 225' sx.

TOC Surface feet determined by Circulation

Hole size 12¼"

Intermediate Casing

Size _____ " Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Long string

Size 4½" - 9.5# " Cemented with 175 sx.

TOC 4350' feet determined by temperature Survey

Hole size 7 7/8"

Total depth 5825'

Injection interval

5684' feet to 5706' feet

(perforated or open-hole, indicate which)

Tubing size 2 3/8" lined with plastic or fiberglass (material) set in a

Baker Model D (brand and model) packer at 5600' feet.

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Gallup

2. Name of Field or Pool (if applicable) S.E. Cha Cha

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

If no, for what purpose was the well originally drilled? Oil Production, converted to injection well for pressure maintenance project.

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) Gallup 5748-64'

Cast iron bridge plug at 5725'.

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. Picture cluff gas zone approximately 3800' above. Dakota gas zone approximately 1500' below.

Hicks Oil & Gas, Inc.
P. O. DRAWER 3307
FARMINGTON, NM 87499
505-327-4902

1/17/85

APPLICATION FOR SALT WATER DISPOSAL

S.E. CHA CHA UNIT WELL #16

VII

1. Lease production currently averages 90 BWPD and this volume would be split between other injection wells. Also, we are planning to operate the injection well for commercial salt water disposal. At this time, it is estimated that we will be disposing of 100 bbls of water per day from wells off the lease. We do anticipate this volume to increase as the NMOCD revises it's rules concerning disposal of produced water in unlined pits. From injection records of wells in the field when the unit was actively water flooded it is estimated that 750 BWPD could be injected at 1000 psi.

2. The system will be an open system.

3. Average injection pressure 500 psi. Maximum injection pressure 1000 psi.

4. Sources of injected water.
   1. Produced water from the lease. Water analysis attatched.
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X Well logs on file with NMOCD.

XI S.E. Cha Cha water supply well #1, 910' FNL & 1850' FEL, S16, T28N, R13W
Completed in Mesa Verde 2630'-4383'
Completed in Morrison 6573'-7122'
Well is not producing and no water samples are available.
Well bore schematic attatched.

Hicks Oil & Gas, Inc.
P. O. DRAWER 3307
FARMINGTON, NM 87499
505-327-4902

XII Affirmative Statement

I, Mike Hicks, 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.

Mike Hicks
President
Hicks Oil & Gas, Inc.

TABULATION OF WELLS
WITHIN ½ MILE RADIUS
OF PROPOSED SALT WATER DISPOSAL WELL
S.E. CHA CHA UNIT WELL # 16

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S.E. Cha Cha #12	B-17-28-13	8 5/8 @272'	235sx	surface	4½ @5821	175sx sq.600sx	4260' 2750'	Gallup 5684-5754	5824	3½@4582 w/75sx toc-unk.
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S.E. Cha Cha #15	F-17-28-13	8 5/8 @254'	200sx	surface	4½ @5748	175sx sq200sx	4450' 3650'	Gallup 5618-26	5748	3½ @4502 w/115sx toc-surface
S.E. Cha Cha #17	F-16-28-13	8 5/8 @208	135 sx	surface	4½ @5884	200sx	unknown	Gallup 5729-5796	5886	
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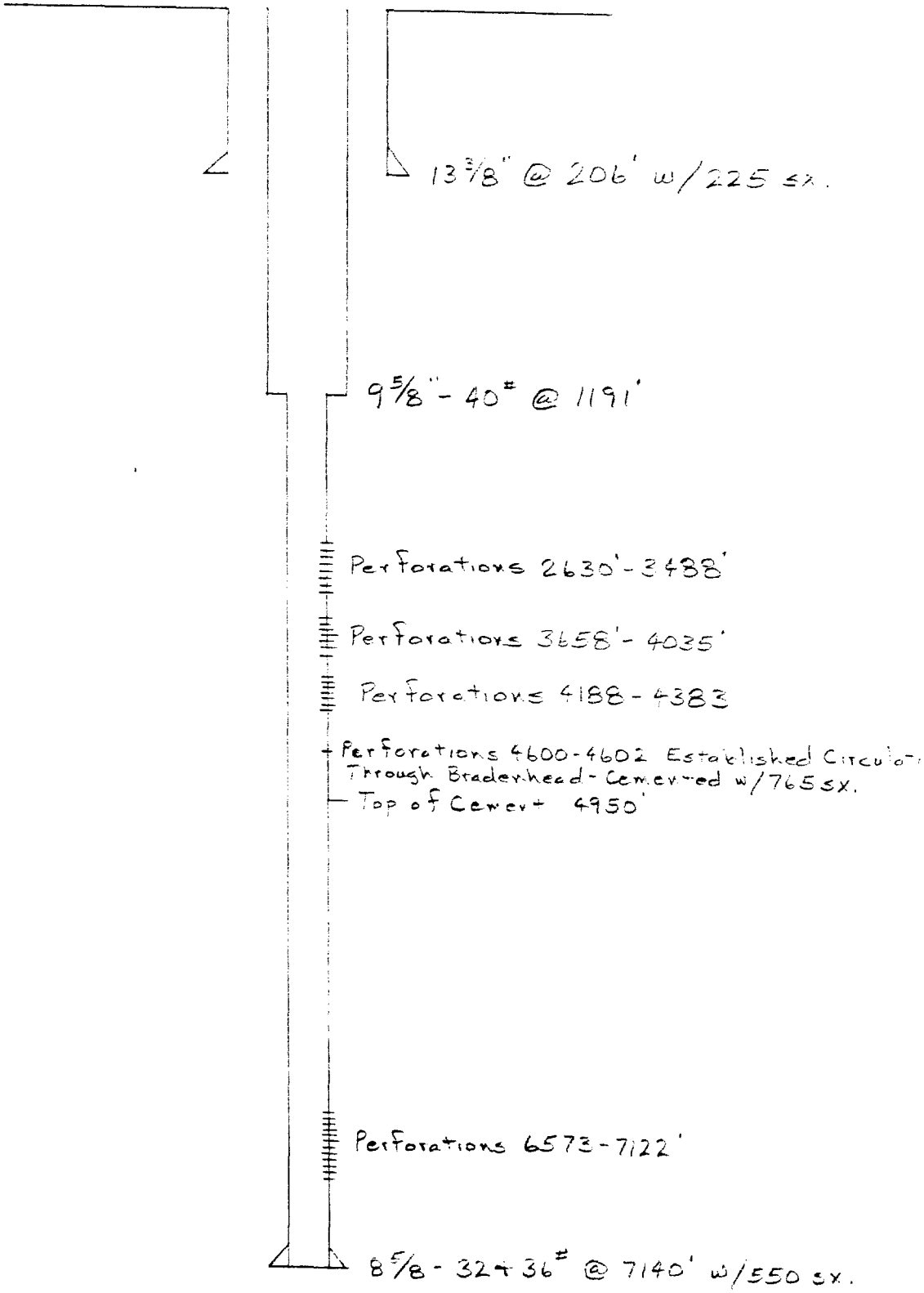
S.E. Cha Cha #21	L-16-28-13	8 5/8 @214	175sx	surface	4½ @5856	225sx	unknown	Gallup 5683-90	5860	

S.E. Cha Cha Water Supply Well #1

910' FNL & 1850' FEL, S16, T28N, R13W

San Juan County, NM



ROY L. PRITCHARD - *PETROLEUM GEOLOGIST*
Petroleum Club Plaza Suite 103 • P.O. Box 2372 • Farmington, New Mexico 87499 • Telephone: (505) 325-2209

CHA CHA GALLUP

Producing sandstone of the Cha Cha Gallup Oil Pool are the result of the transition of the regressive Carlile Seas, leaving the Gallup sandstones and the transgressive Niobrara Seas. The advancing seas caused truncation of the Gallup and deposition of new sands, silts and muds. The lower sands are cleaner and generally thought to be offshore bars deposited by currents parallel to the shore line. These basal Niobrara sandstones are oil bearing as are some of the cleaner Gallup sandstones.

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Several of the basal Niobrara sandstones are present in the Cha Cha Gallup Pool.

These sandstones have been described as follows:

> Light-gray to gray-brown, fine to coarse grained quartz sandstone with minor chert, feldspar and rock fragments. Traces of glauconite and mica are present. Cement is primarily calcite with some secondary quartz. There is porosity present and oil staining is evident.

DRINKING WATER SOURCES

Considerable effort was made to obtain chemical analyses of the water bearing rocks in Township 28 North, Range 13 West, San Juan County, N.M. These efforts failed but analyses were observed of waters taken from sources outside the township which had similar ages and depositional histories.

The analyses showed the following:

1. There is no known source of potable* water immediately below the Cha Cha Gallup producing zones.

2. The only potable water aquifers found above the injection zones (Cha Cha Gallup) are:
   a. the Cretaceous Kirtland (Farmington Sandstone) at depths of 630-815' in section 21. (This information obtained from Ed Welder, U.S.G.S., Albuquerque.

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DRINKING WATER SOURCES cont.

b. the Ojo Alamo (Tertiary Period) has water with very low solids (350-850 mg/l). This is found to a depth of 350-450' in the area of interest.

*All references herein to potable or drinking water are based on dissolved solids of 10,000 mg/l or less as found in item VIII of Application for Authorization to Inject.

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

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Application qualifies for administrative approval? ☐ yes ☐ no

II. Operator: Hicks Oil & Gas, Inc.

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Contact party: Mike Hicks Phone: 505/327-4902

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

Name: Mike Hicks Title President

Signature: Mike Hicks Date: 1/17/85

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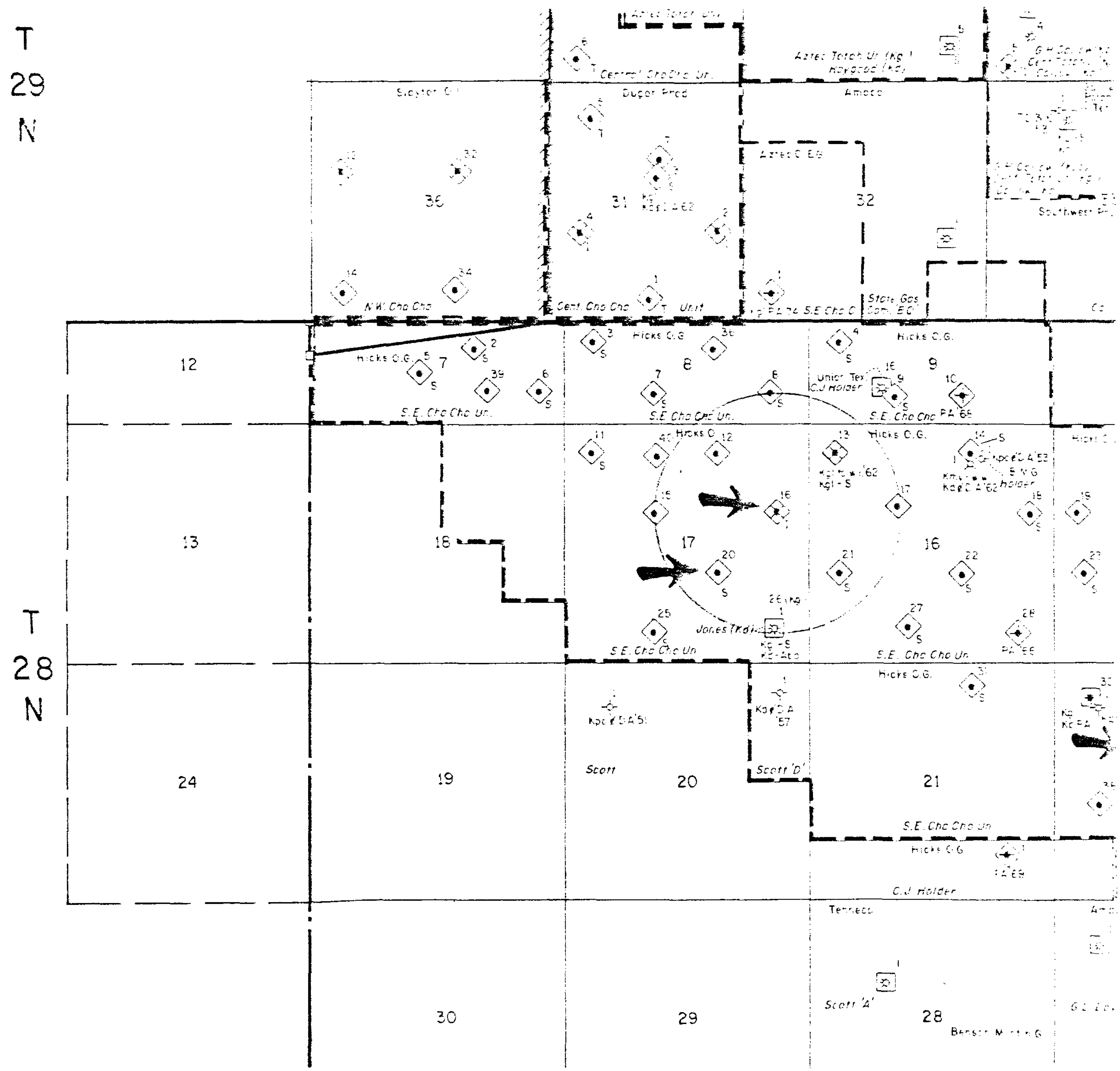
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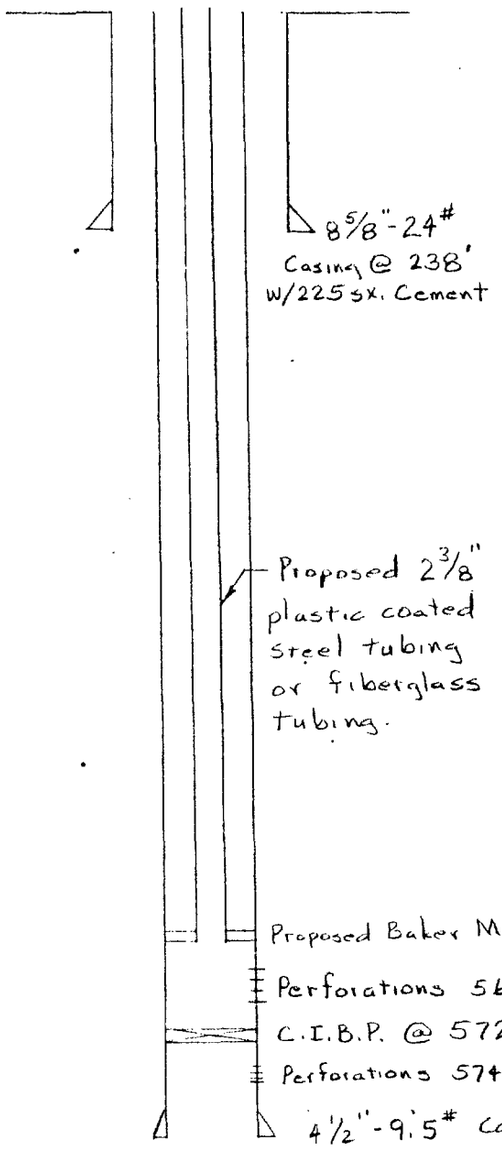
INJECTION WELL DATA SHEET

OPERATOR	LEASE			
Hicks Oil & Gas, Inc.	S.E. Cha Cha Unit			
16	1980' FNL & 660' FEL	17	28N	13W
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic



Tabular Data

Surface Casing

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(or describe any other casing-tubing seal).

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1. Name of the injection formation Gallup

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Cast iron bridge plug at 5725'.

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P. O. DRAWER 3307
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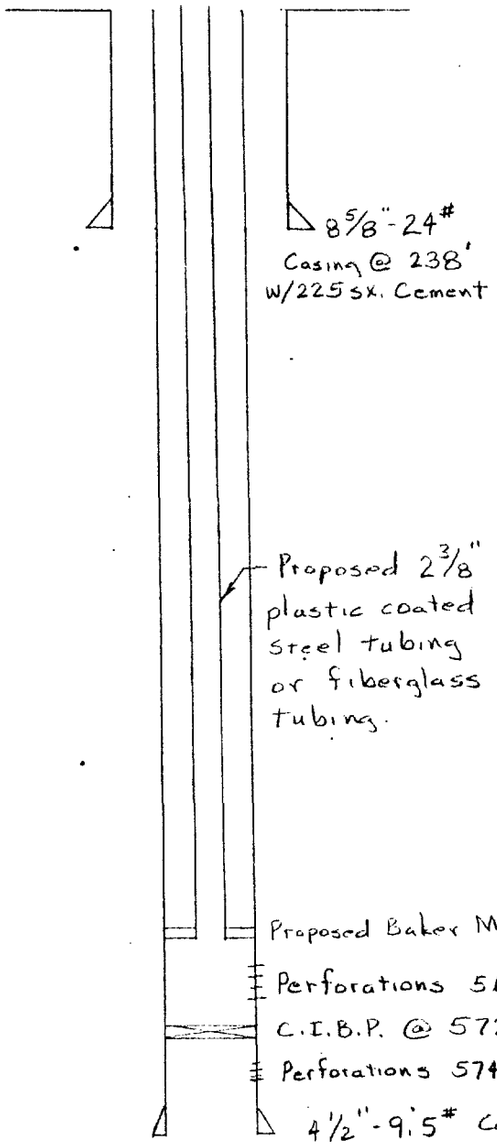

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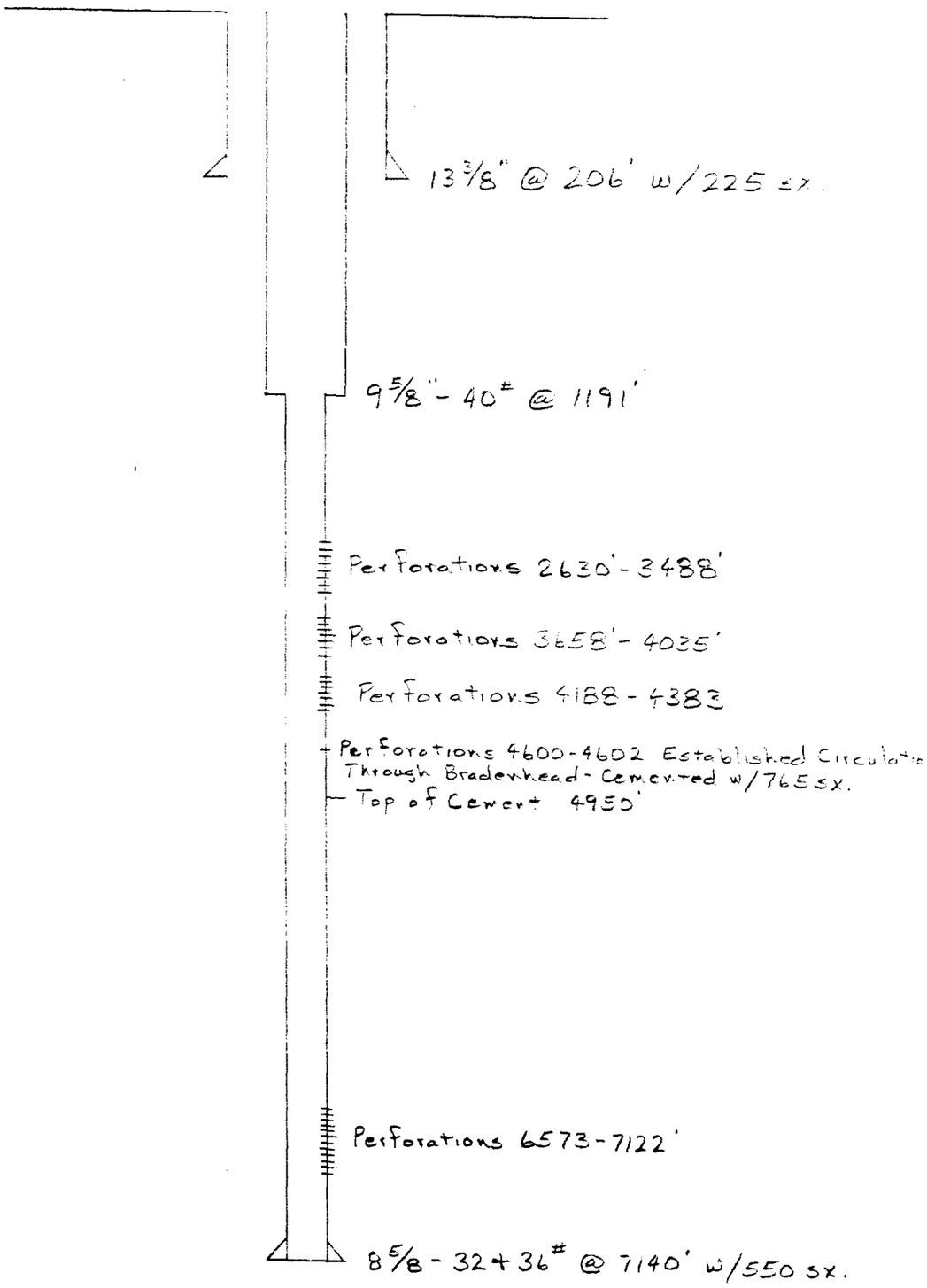
San Juan County, NM



ROY L. PRITCHARD - PETROLEUM GEOLOGIST
Petroleum Club Plaza Suite 103 • P.O. Box 2372 • Farmington, New Mexico 87499 • Telephone: (505) 325-2209

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> Light-gray to gray-brown, fine to coarse grained quartz sandstone with minor chert, feldspar and rock fragments. Traces of glauconite and mica are present. Cement is primarily calcite with some secondary quartz. There is porosity present and oil staining is evident.

DRINKING WATER SOURCES

Considerable effort was made to obtain chemical analyses of the water bearing rocks in Township 28 North, Range 13 West, San Juan County, N.M. These efforts failed but analyses were observed of waters taken from sources outside the township which had similar ages and depositional histories.

The analyses showed the following:

1. There is no known source of potable* water immediately below the Cha Cha Gallup producing zones.

2. The only potable water aquifers found above the injection zones (Cha Cha Gallup) are:
   a. the Cretaceous Kirtland (Farmington Sandstone) at depths of 630-815' in section 21. (This information obtained from Ed Welder, U.S.G.S., Albuquerque.

ROY L. PRITCHARD - *PETROLEUM GEOLOGIST*
Petroleum Club Plaza Suite 103 • P.O. Box 2372 • Farmington, New Mexico 87499 • Telephone: (505) 325-2209

DRINKING WATER SOURCES cont.

b. the Ojo Alamo (Tertiary Period) has water with very low solids (350-850 mg/l). This is found to a depth of 350-450' in the area of interest.

*All references herein to potable or drinking water are based on dissolved solids of 10,000 mg/l or less as found in item VIII of Application for Authorization to Inject.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178

OIL CONSERVATION DIVISION
BOX 2088
SANTA FE, NEW MEXICO 87501

DATE 3-20-85

RE: Proposed MC _____
Proposed DHC _____
Proposed NSL _____
Proposed SWD X
Proposed WFX _____
Proposed PMX _____

Gentlemen:

I have examined the application dated 3-5-85

for the Hicks Oil & Gas SE Chaco Unit #16 H-17-28N-13W
Operator Lease and Well No. Unit, S-T-R

and my recommendations are as follows:

Docketed for hearing March 27th

Yours truly,

Ernie Busch