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# Hixon Development Company

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December 1, 1989

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DEC 04 1989  
OIL CON. DIV.  
DIST. 3

Mr. Frank Chavez  
New Mexico Oil Conservation Commission  
1000 Rio Brazos Road  
Aztec, New Mexico 87410

Subject: Carson Unit Well No. 23-18  
NE/4 SW/4, Sec. 18, T 25N, R 11W  
San Juan County, New Mexico

Dear Mr. Chavez:

Enclosed for your information is our Application for Authorization to Inject for the above referenced well. The original Application for Authorization to Inject has been sent to the New Mexico Oil Conservation Commission in Santa Fe for approval.

Very truly yours,

*Bruce E. Delventhal*

Bruce E. Delventhal  
Vice President - Operations

BED/das

Enclosures

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DIST. 3

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OIL CON. DIV.  
DIST. 3

## APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☐ Secondary Recovery ☒ Pressure Maintenance ☐ Disposal ☐ Storage  
Application qualifies for administrative approval? ☒ yes ☐ no
- II. Operator: Hixon Development Company  
Address: P.O. Box 2810, Farmington, New Mexico 87499  
Contact party: Bruce E. Delventhal Phone: (505) 326-3325
- 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: Bruce E. Delventhal Title Vice President - Operations  
Signature: Bruce E. Delventhal Date: December 1, 1989
- \* 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. \_\_\_\_\_

## 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.

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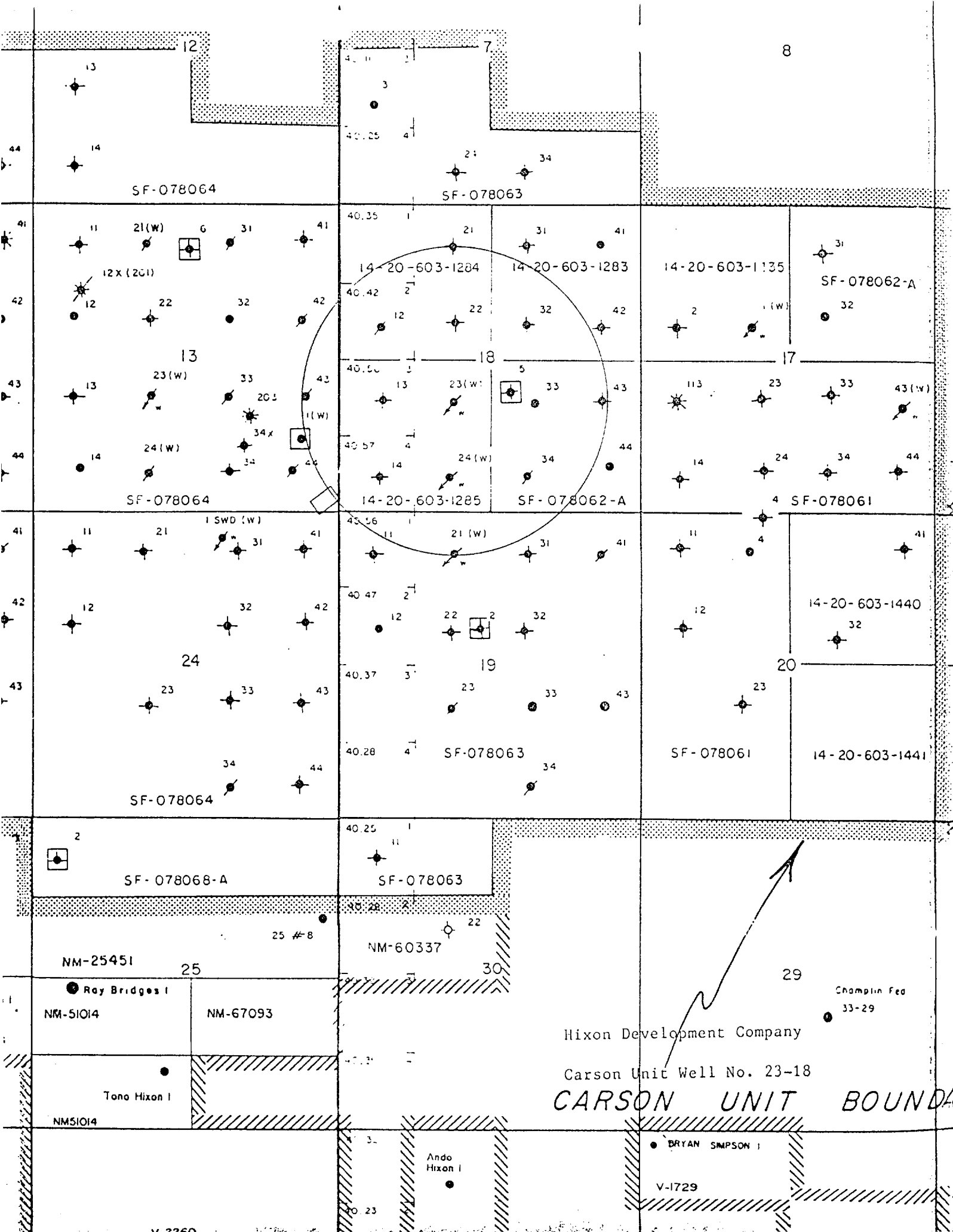
NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

Hixon Development Company  
Application for Authorization to Inject  
Form C-108 Supplemental Information

Carson Unit Well No. 23-18  
NE/4, SW/4, Section 18, T 25N, R 11W  
San Juan County, New Mexico

- I. Shown on Application.
- II. Shown on Application.
- III. Well data attached.
- IV. This well is located in Federal and State approved waterflood project operational since 1959.
- V. Area of review is shown on attached map.
- VI. Information for wells located in area of review are attached as follows:  
  
Carson Unit Well No. 43-13  
Carson Unit Well No. 12-18  
Carson Unit Well No. 13-18  
Carson Unit Well No. 14-18  
Carson Unit Well No. 21-18  
Carson Unit Well No. 22-18  
Carson Unit Well No. 24-18  
Carson Unit Well No. 32-18  
Carson Unit Well No. WI 33-18  
Carson Unit Well No. 34-18  
Carson Unit Well No. 43-18  
Carson Unit Well No. 21-19
- VII.
  1. Proposed average injection rate is 600 bwpd, expected maximum injection rate is 1200 bwpd.
  2. This system will be closed.
  3. Average injection pressures are expected to be in the 800-975 psi range. Maximum injection pressure will be 975 psi.
  4. Refer to the attached water analysis report. Since the formation water to be encountered is primarily previously injected water, no problems are expected in mixing the two waters.

5. This well is part of an extensive waterflood project active in the Carson Unit since 1959. All produced water is reinjected into the oil productive Lower Gallup sand to maintain pressure. Injection into the Lower Gallup sand is for waterflooding, not disposal.
- VIII. The injection zone is the Lower Gallup sandstone. This zone is to be 44' in thickness with a top of 4870' KB as shown on the SP log previously submitted. No known sources of underground drinking water exist in this area. Water well drilling in this area has shown the Ojo Alamo to be dry.
- IX. The well will be acidized if required to maintain injection rate and pressure.
- X. Logs were previously submitted.
- XI. No known sources of drinking water exist in this area.
- XII. This well is part of the existing approved waterflood operation for the Carson Unit. It is not a disposal well.
- XIII. Proof of notification attached.
- XIV. Certification shown on Application.

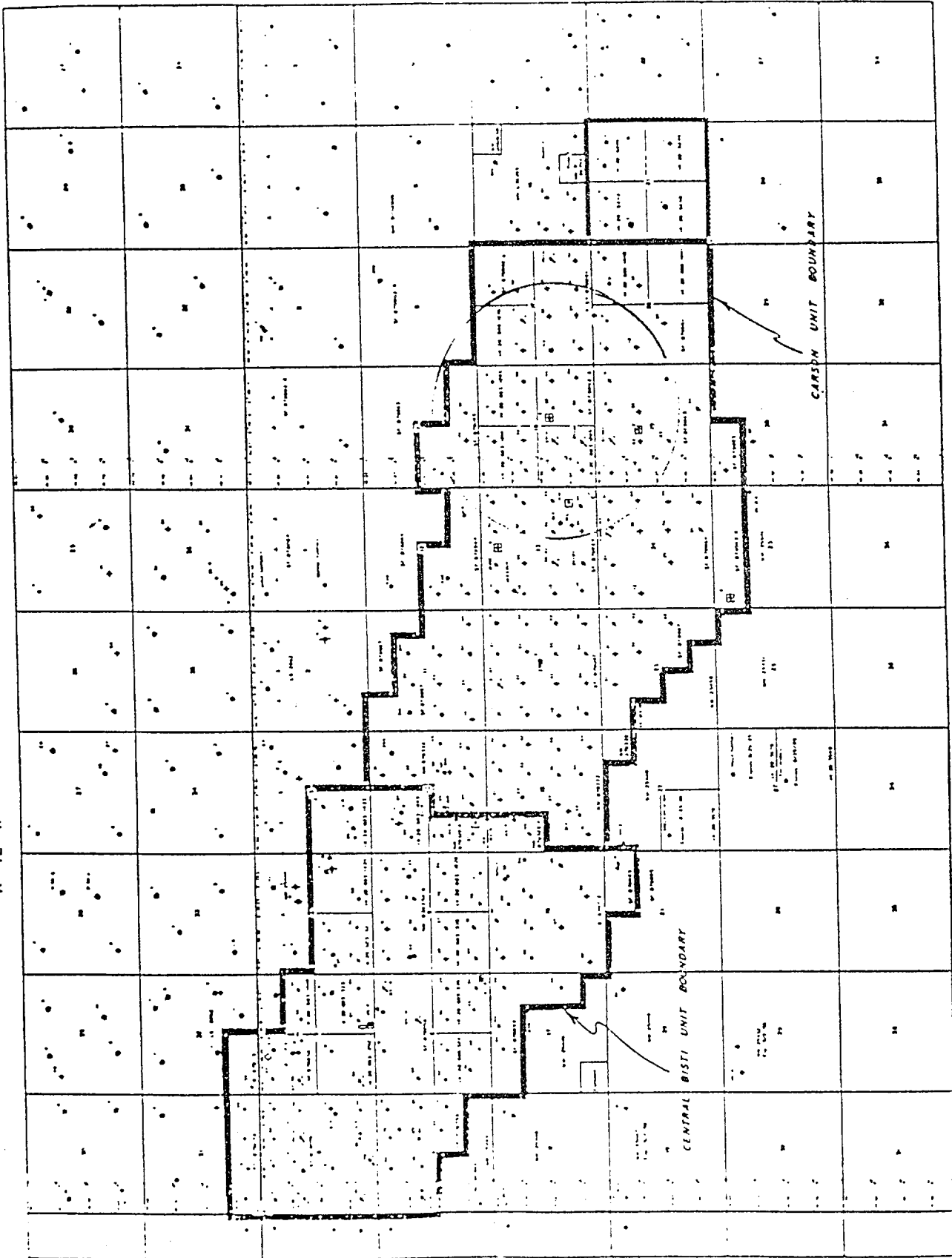


R 11 W

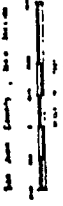
R 12 W

T 26 N

T 25 N



HIXON DEVELOPMENT COMPANY  
CENTRAL BISTI - CARSON UNIT AREA



San. n testing labo: ru, inc.

907 WEST APACHE • P O BOX 2079 • FARMINGTON, NEW MEXICO

PHONE

327-4966

Date June 10, 1977

Report to Hixon Development Company  
Requested by A. Kuchera, Mgr. Sampled by Hixon Personnel  
Project CBU #5 Location NW NW Sec. 6, T25N, R12W  
Source of Material Lower Gallup Produced Water  
Lab No. 24509 Water Analysis for Petroleum Engineering

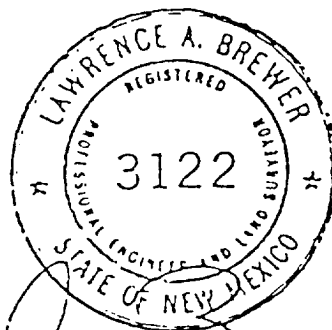
TEST RESULTS

WATER ANALYSIS FOR PETROLEUM  
ENGINEERING

<u>Constituent</u>		<u>Constituents</u>		
Total Solids	2263 ppm	Cations	Meg/L	ppm
	7.25	Sodium	29.3	674
Resistivity	2.94 ohms/meter @ 70°F	Calcium	2.3	45
Conductivity	3,400 micromhos/cm @ 70°F	Magnesium	0.5	6
		Iron	neg.	3
		Barium	0	0
<u>Comments</u>		<u>Anions</u>		
Essentially this is a 0.2% sodium sulfate solution.		Chloride	4.1	145
		Bicarbonate	4.0	244
		Carbonate	0	0
		Hydroxide	0	0
		Sulfate	24.0	1150

Copies to Hixon Development Co. (3)  
P.O. Box 2810  
Farmington, New Mexico 87401

Certified by:





# INJECTION WELL

## DATA SHEET

### III. WELL DATA

#### PART A

1. Carson Unit Well No. 23-18  
1980' FSL, 1888' FWL  
Section 18, T 25N, R 11W
2. Surface Casing  
Hole Size: 12-1/4"  
Casing: 8-5/8", 24#  
Setting Depth: 102'  
  
Production Casing  
Hole Size: 7-7/8"  
Casing: 4-1/2"  
Setting Depth: 5006'  
  
PBD: 4937'
3. Tubing: 2-3/8"  
Setting Depth: 4875'
4. Packer: Baker Model "AD-1" Packer  
Set at 4675'

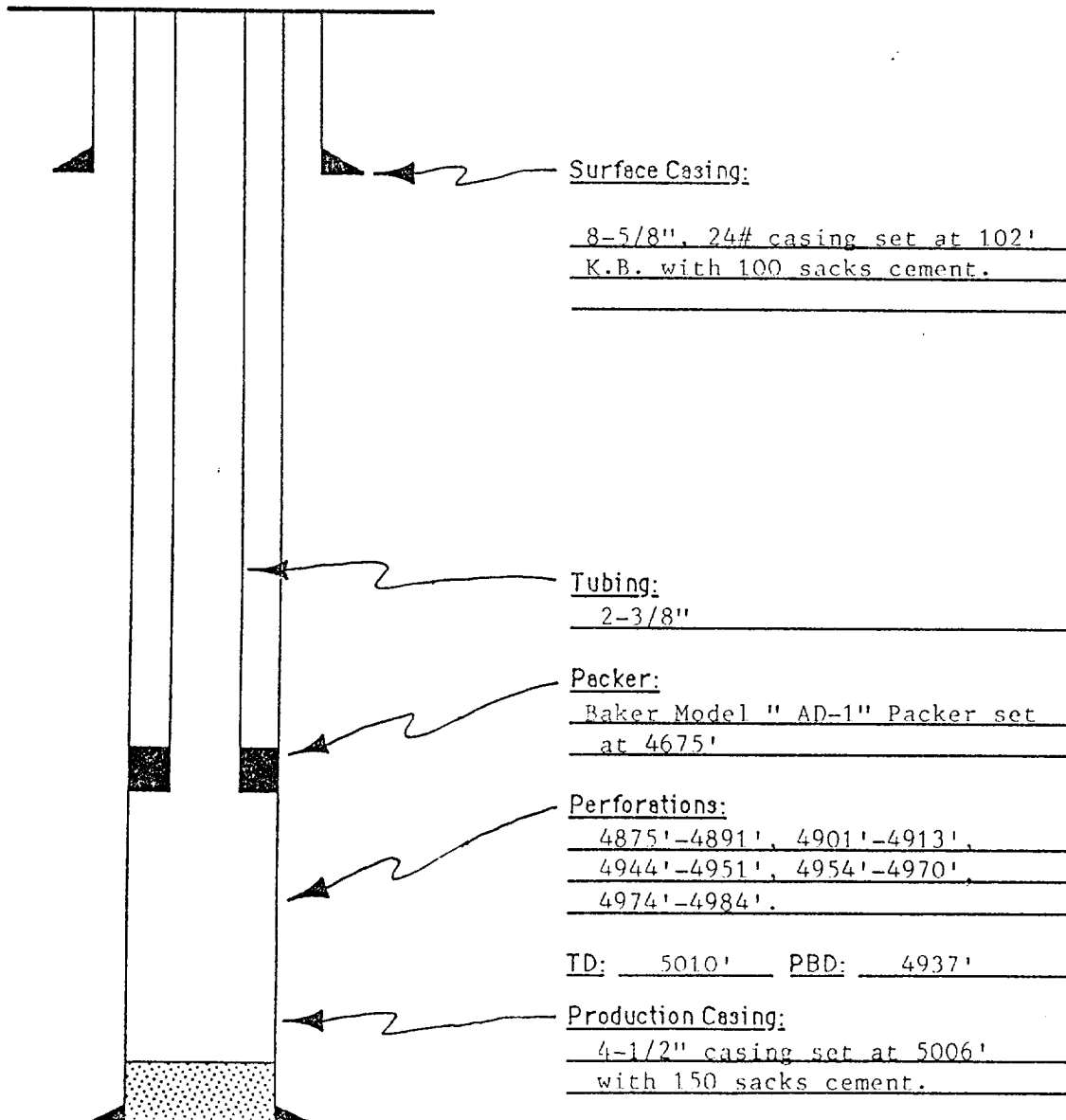
#### PART B

1. Injection Formation: Bisti Lower Gallup  
Field or Pool Name: Bisti Lower Gallup
2. Perforated Injection Intervals: 4875'-4891', 4901'-4913',  
4944'-4951', 4954'-4970',  
4974'-4984'
3. Well was drilled as a producing well.
4. None
5. Next Higher Oil and Gas Zone: Pictured Cliffs at 1198'  
Next Lower Oil and Gas Zone: Dakota at Unknown Depth

Hixon Development Company  
Injection Well Schematic

Well Name: Carson Unit Well No.1 23-18

Legal Location: 1980' FSL, 1888' FWL  
Section 18, T25N, R11W  
San Juan County, New Mexico



Hixon Development Company, P.O. Box 2810, Farmington, New Mexico 87499, (505) 326-3325, whose agent is Aldrich L. Kuchera hereby notifies interested parties that the following well is to be converted to a water injection well. Maximum rate will be 1200 BWPD at less than 975 psi. Any request for information or objections should be filed with the Oil Conservation Division, State Land Office Building, P.O. Box 2088, Santa Fe, New Mexico 87504 within 15 days.

Carson Unit Well #23-18, NE/4 SW/4, Sec. 18, T25N, R11W

## WELL DATA SHEET

Well Name:	Carson Unit #43-13
Legal Description:	1980' FSL, 660' FEL Sec. 13, T25N-R12W San Juan County, N.M.
Well Type:	Oil Well
Spud Date:	01/12/57
Surface Casing Hole Size:	12-1/4"
Surface Casing Size:	8-5/8"
Surface Casing Depth:	234'
Cementing Record:	150 sx.
Production Casing Hole Size:	7-7/8"
Production Casing Size:	4-1/2"
Production Casing Depth:	5033'
Cementing Record:	200 sx.
Perforations:	4889'-4897' 4900'-4914' 4922'-4927' 4972'-4982' 4990'-4994'
Plug-Back Depth:	5033'
Total Depth:	5054'

## WELL DATA SHEET

Well Name:	Carson Unit #12-18
Legal Description:	2080' FNL, 660' FWL Sec. 18, T25N-R11W San Juan County, N.M.
Well Type:	Oil Well
Spud Date:	03/11/58
Surface Casing Hole Size:	12-1/4"
Surface Casing Size:	8-5/8"
Surface Casing Depth:	103'
Cementing Record:	100 sx.
Production Casing Hole Size:	7-7/8"
Production Casing Size:	4-1/2"
Production Casing Depth:	5018'
Cementing Record:	150 sx.
Perforations:	4880'-4898' 4904'-4918' 4947'-4954' 4960'-4974' 4978'-4988'
Plug-Back Depth:	5015'
Total Depth:	5020'

## WELL DATA SHEET

Well Name: Carson Unit #13-18

Legal Description: 1980' FSL, 750' FWL  
Sec. 18, T25N-R11W  
San Juan County, N.M.

Well Type: P & A

Spud Date: 01/11/60

Surface Casing Hole Size: 12-1/4"  
Surface Casing Size: 8-5/8"  
Surface Casing Depth: 109'

Cementing Record: 100 sx.

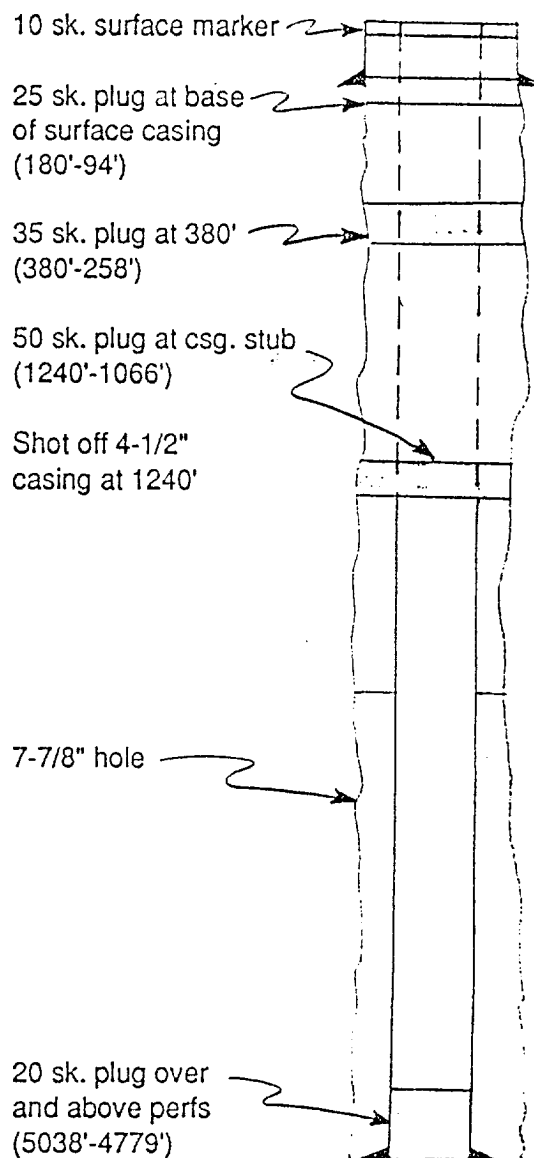
Production Casing Hole Size: 7-7/8"  
Production Casing Size: 4-1/2"  
Production Casing Depth: 5038'

Cementing Record: 150 sx.

Perforations:  
4874'-4890'  
4892'-4898'  
4904'-4912'  
4954'-4968'  
4974'-4984'

Plug-Back Depth: 5038'

Total Depth: 5040'



## WELL DATA SHEET

Well Name: Carson Unit #14-18  
Legal Description: 660' FSL, 662.8' FWL  
Sec. 18, T25N-R11W  
San Juan County, N.M.

Well Type: P & A  
Spud Date: 01/17/58

Surface Casing Hole Size: 12-1/4"  
Surface Casing Size: 8-5/8"  
Surface Casing Depth: 100.5'

Cementing Record: 100 sx.

Production Casing Hole Size: 7-7/8"  
Production Casing Size: 4-1/2"  
Production Casing Depth: 5023'

Cementing Record: 150 sx.

Perforations:  
4877'-4904'  
4911'-4923'  
4951'-4957'  
4962'-4976'  
4980'-4997'

Plug-Back Depth: 5020'

Total Depth: 5025'

Abandonment marker

25 sk. plug at base  
of surface casing  
(100'-15')

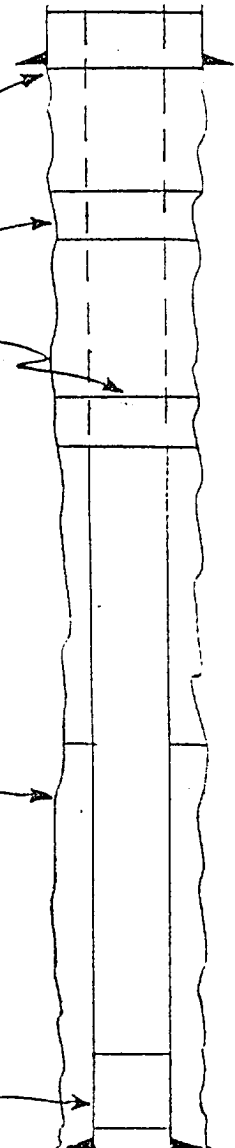
35 sk. plug at 320'  
(380'-201')

45 sk. plug at csg. stub  
(1400'-1247')

Shot off 4-1/2"  
casing at 1400'

7-7/8" hole

25 sk. plug over  
perforations  
(4941'-4626')



## WELL DATA SHEET

Well Name: Carson Unit #21-18

Legal Description: 660' FNL, 1973' FWL  
Sec. 18, T25N-R11W  
San Juan County, N.M.

Well Type: P & A

Spud Date: 07/29/58

Surface Casing Hole Size: 12-1/4"  
Surface Casing Size: 8-5/8"  
Surface Casing Depth: 106'

Cementing Record: 100 sx.

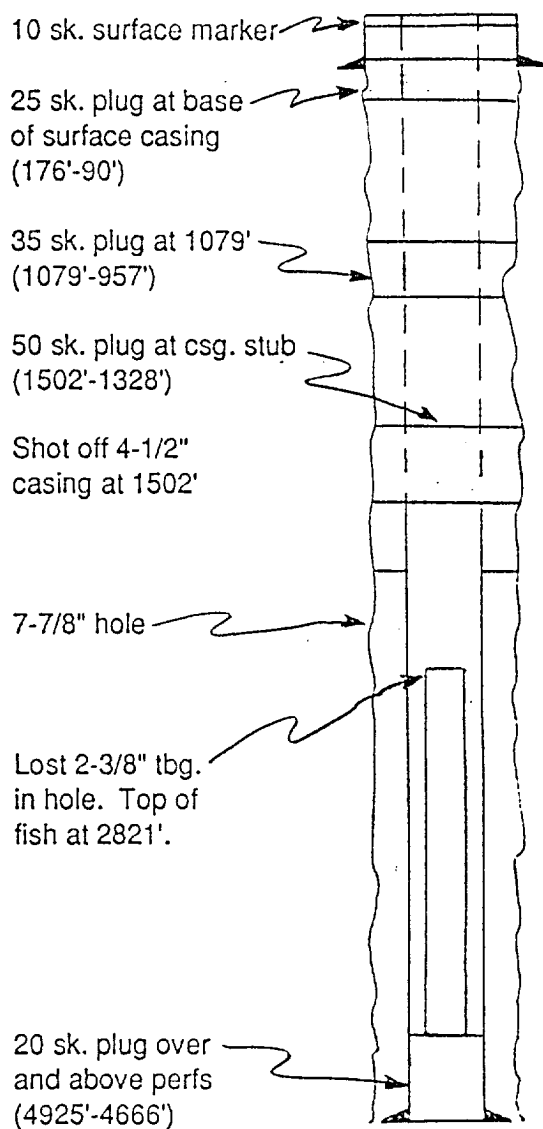
Production Casing Hole Size: 7-7/8"  
Production Casing Size: 4-1/2"  
Production Casing Depth: 5015'

Cementing Record: 150 sx.

Perforations: 4883'-4912'  
4936'-4942'  
4950'-4965'  
4968'-4980'

Plug-Back Depth: 5015'

Total Depth: 5024'





## WELL DATA SHEET

Well Name: Carson Unit #22-18

Legal Description: 1980' FNL, 1980' FWL  
Sec. 18, T25N-R11W  
San Juan County, N.M.

Well Type: P & A

Spud Date: 01/19/60

Surface Casing Hole Size: 12-1/4"  
Surface Casing Size: 8-5/8"  
Surface Casing Depth: 109'

Cementing Record: 100 sx.

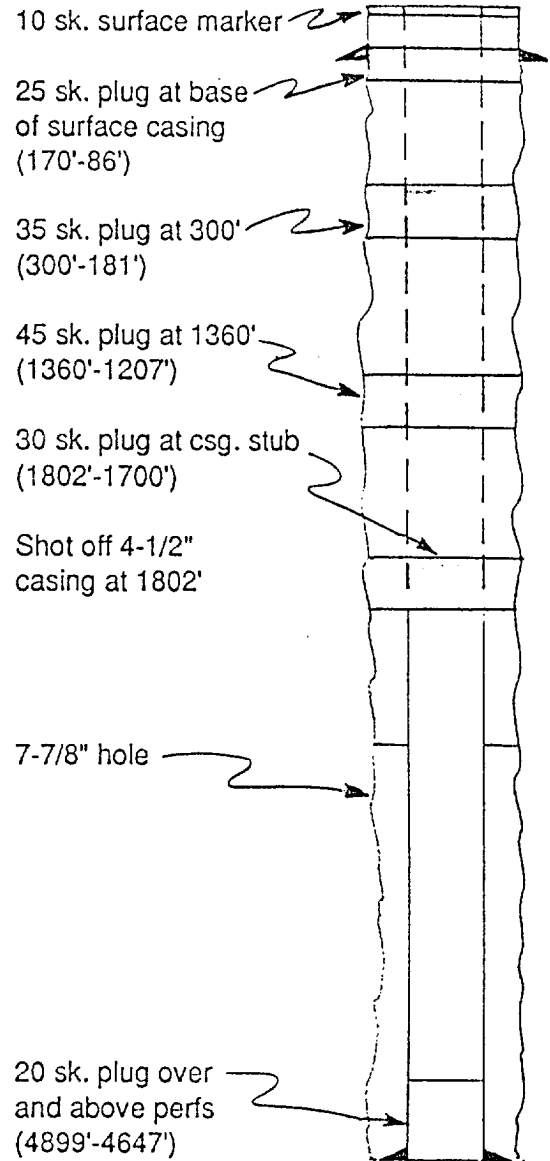
Production Casing Hole Size: 7-7/8"  
Production Casing Size: 4-1/2"  
Production Casing Depth: 5024'

Cementing Record: 150 sx.

Perforations:  
4881'-4891'  
4895'-4913'  
4940'-4944'  
4954'-4966'  
4972'-4982'

Plug-Back Depth: 5024'

Total Depth: 5025'



## WELL DATA SHEET

Well Name:	Carson Unit #24-18
Legal Description:	660' FSL, 1930' FWL Sec. 18, T25N-R11W San Juan County, N.M.
Well Type:	Gas Storage Well (awaiting approval)
Spud Date:	04/28/59
Surface Casing Hole Size:	12-1/4"
Surface Casing Size:	8-5/8"
Surface Casing Depth:	106'
Cementing Record:	100 sx.
Production Casing Hole Size:	7-7/8"
Production Casing Size:	4-1/2"
Production Casing Depth:	5007'
Cementing Record:	150 sx.
Perforations:	4861'-4889' 4894'-4902' 4934'-4941' 4946'-4960' 4963'-4976'
Plug-Back Depth:	5007'
Total Depth:	5010'

## WELL DATA SHEET

Well Name:	Carson Unit #32-18	10 sk. surface marker	
Legal Description:	1980' FNL, 1980' FEL Sec. 18, T25N-R11W San Juan County, N.M.	25 sk. plug at base of surface casing (195'-109')	
Well Type:	P & A	50 sk. plug at 450' (450'-276')	
Spud Date:	11/17/57	50 sk. plug at csg. stub (1297'-1123')	
Surface Casing Hole Size:	12-1/4"	Shot off 4-1/2" casing at 1297'	
Surface Casing Size:	8-5/8"		
Surface Casing Depth:	124'		
Cementing Record:	100 sx.		
Production Casing Hole Size:	7-7/8"	7-7/8" hole	
Production Casing Size:	4-1/2"		
Production Casing Depth:	5020'		
Cementing Record:	150 sx.		
Perforations:	4924'-4935' 4940'-4957' 4984'-4990' 4998'-5010'	20 sk. plug over and above perfs (5016'-4757')	
Plug-Back Depth:	5016'		
Total Depth:	5030'		

## WELL DATA SHEET

Well Name:	Carson Unit #33-18
Legal Description:	1930' FSL, 1980' FEL Sec. 18, T25N-R11W San Juan County, N.M.
Well Type:	Water Injection Well
Spud Date:	05/06/59
Surface Casing Hole Size:	12-1/4"
Surface Casing Size:	8-5/8"
Surface Casing Depth:	109'
Cementing Record:	100 sx.
Production Casing Hole Size:	7-7/8"
Production Casing Size:	4-1/2"
Production Casing Depth:	5045'
Cementing Record:	150 sx.
Perforations:	4899'-4919' 4928'-4940' 4969'-4975' 4982'-4997' 5001'-5018'
Plug-Back Depth:	5045'
Total Depth:	5050'

## WELL DATA SHEET

Well Name:	Carson Unit #34-18
Legal Description:	660' FSL, 1980' FEL Sec. 18, T25N-R11W San Juan County, N.M.
Well Type:	Oil Well
Spud Date:	08/17/57
Surface Casing Hole Size:	12-1/4"
Surface Casing Size:	8-5/8"
Surface Casing Depth:	176'
Cementing Record:	100 sx.
Production Casing Hole Size:	7-7/8"
Production Casing Size:	4-1/2"
Production Casing Depth:	5010'
Cementing Record:	150 sx.
Perforations:	4869'-4886' 4900'-4908' 4952'-4958' 4971'-4978'
Plug-Back Depth:	4995'
Total Depth:	5014'

## WELL DATA SHEET

Well Name: Carson Unit #43-18

Legal Description: 1980' FSL, 660' FEL  
Sec. 18, T25N-R11W  
San Juan County, N.M.

Well Type: P & A

Spud Date: 02/08/58

Surface Casing Hole Size: 12-1/4"  
Surface Casing Size: 8-5/8"  
Surface Casing Depth: 111'

Cementing Record: 100 sx.

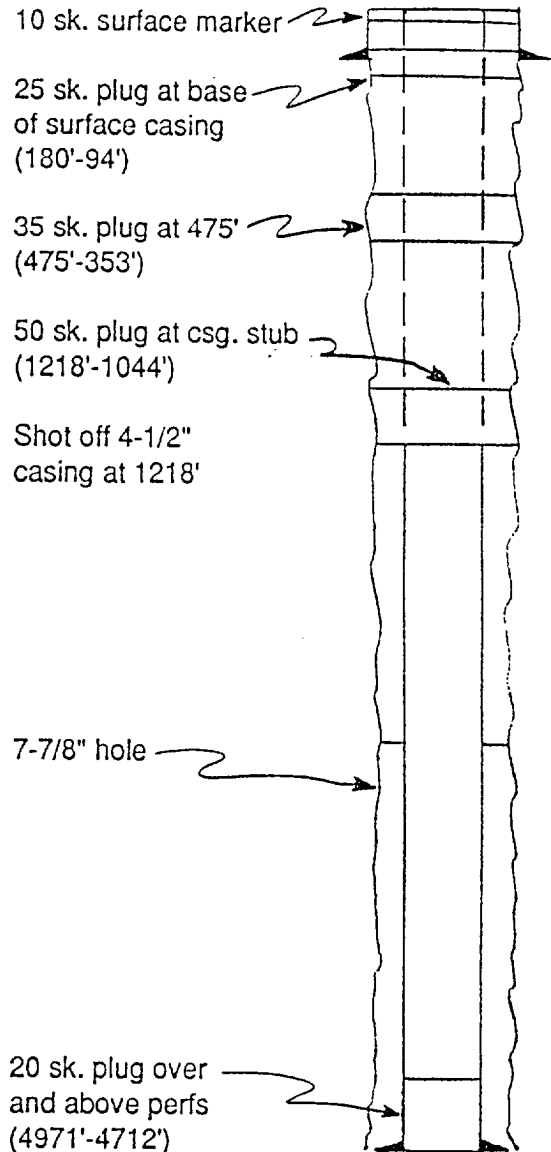
Production Casing Hole Size: 7-7/8"  
Production Casing Size: 4-1/2"  
Production Casing Depth: 5070'

Cementing Record: 150 sx.

Perforations: 4932'-4946'  
4953'-4971'  
4995'-5003'  
5010'-5024'  
5028'-5040'

Plug-Back Depth: 5070'

Total Depth: 5071'



## WELL DATA SHEET

Well Name:	Carson Unit #21-19
Legal Description:	660' FNL, 1980' FWL Sec. 19, T25N-R11W San Juan County, N.M.
Well Type:	Water Injection Well (awaiting approval)
Spud Date:	06/22/57
Surface Casing Hole Size:	12-1/4"
Surface Casing Size:	8-5/8"
Surface Casing Depth:	213'
Cementing Record:	130 sx.
Production Casing Hole Size:	7-7/8"
Production Casing Size:	4-1/2"
Production Casing Depth:	5022'
Cementing Record:	150 sx.
Perforations:	4866'-4892' 4900'-4908' 4939'-4944' 4951'-4962' 4969'-4978'
Plug-Back Depth:	5022'
Total Depth:	5026'