February 8, 1990

New Mexico Oil Conservation Division
State Land Office Building
P.O. Box 2088
Santa Fe, New Mexico 87504

Subject: Carson Unit Well No. 23-13
1980' FSL, 1980' FWL
Sec. 13, T25N, R12W
San Juan County, New Mexico

Dear Sir:

Enclosed for your approval is our Application for Authorization to Inject for the above referenced well. Upon receipt, an Affidavit of Publication will be forwarded to you.

Very truly yours,

Bruce E. Delventhal

Bruce E. Delventhal
Vice President - Operations

BED/das

Enclosures

STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

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: Aldrich L. Kuchera 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: Aldrich L. Kuchera Title President

Signature: Aldrich L. Kuchera Date: February 8, 1990

* 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.

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. 23-13
NE/4, SW/4, Section 13, T 25N, R 12W
San Juan County, New Mexico

I. Shown on Application.

II. Shown on Application.

III. Well data attached.

IV. Shown on Application.

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. 12-13
Carson Unit Well No. 13-13
Carson Unit Well No. 14-13
Carson Unit Well No. 22-13
Carson Unit Well No. 24-13
Carson Unit Well No. 32-13
Carson Unit Well No. 33-13
Carson Unit Well No. 34-13
Carson Unit Well No. 203

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 974 - 997 psi range. Maximum injection pressure will be 997 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 105' in thickness with a top of 4775' as shown on the SP log previously submitted. No known sources of drinking water exist in this area. Water well drilling in this area has shown the Ojo Alamo to be dry.

IX. The perforations 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.

Hixon Development Company

Well Bore Diagram

WELL NAME Carson Unit Well No. 23-13

LOCATION 1980' FSL, 1980' FWL **SECTION** 13 **T** 25 N **R** 12 W

COUNTY San Juan **STATE** New Mexico

GLE 6391.2

KBE 6399.9

DF 6398.7

SURFACE CASING

Hole Size: 12-1/4"

Casing: 8-5/8"

Casing Set @ 101'

with 100 sacks of cement

FORMATION TOPS

CEMENT TOP

PERFORATIONS

4871'-4900'

4907'-16'

4946'-51'

4956'-70'

4974'-84'

PBD 5005'

PRODUCTION CASING

Hole Size: 7-7/8"

Casing: 4-1/2", 9.5#

Casing Set @ 5010'

with 150 sacks of cement

5010' **TD**

WELL HISTORY

Spud date: 1/31/58

Original owner: Shell

IP_____ BOPD_____ BWPD _____

MCFD_____ GOR_____

Completion Treatment:_____

CURRENT DATA

Pumping Unit_____

Tubing 2-3/8" set at 4850'

Pump Size_____

Rod string_____

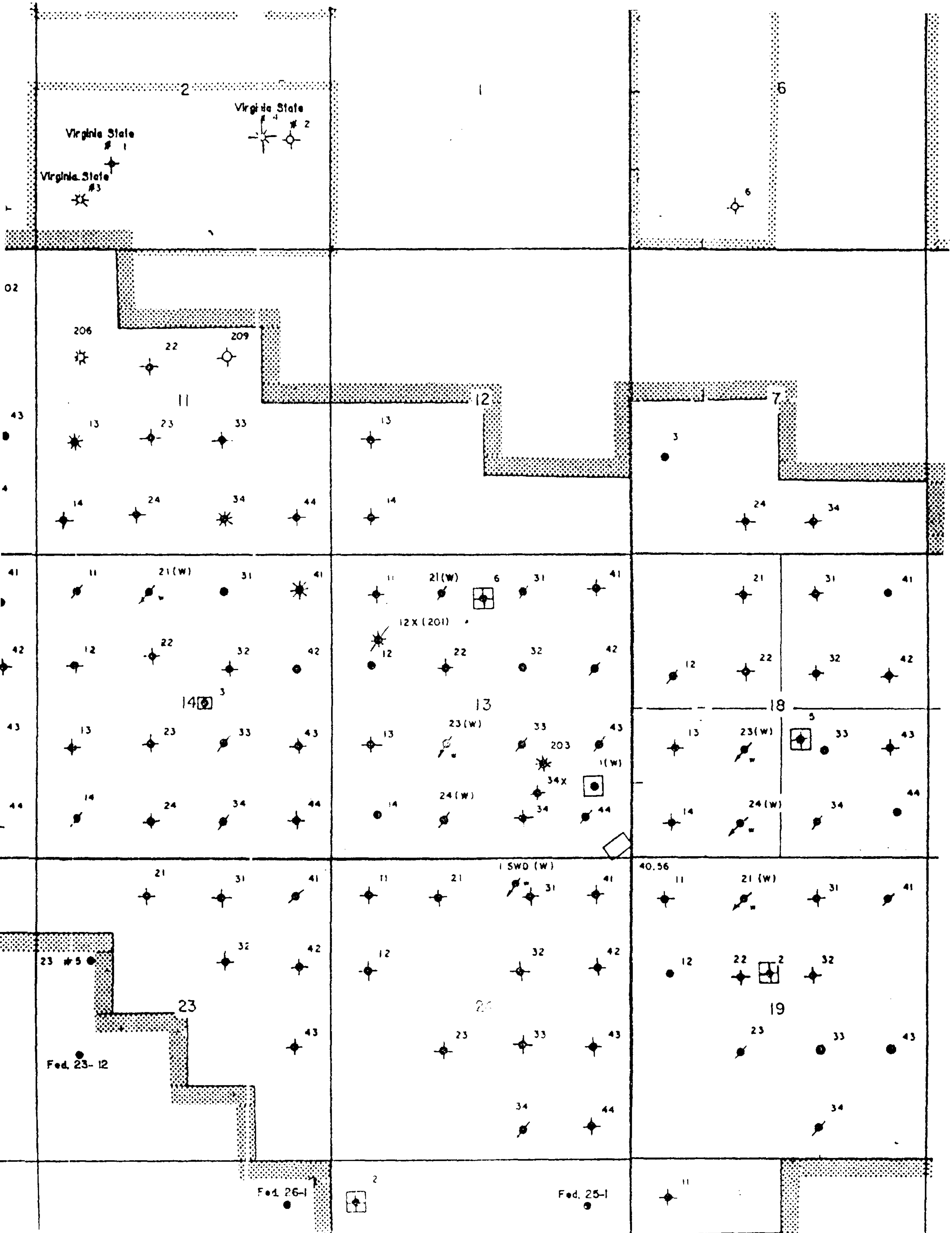
Remarks_____

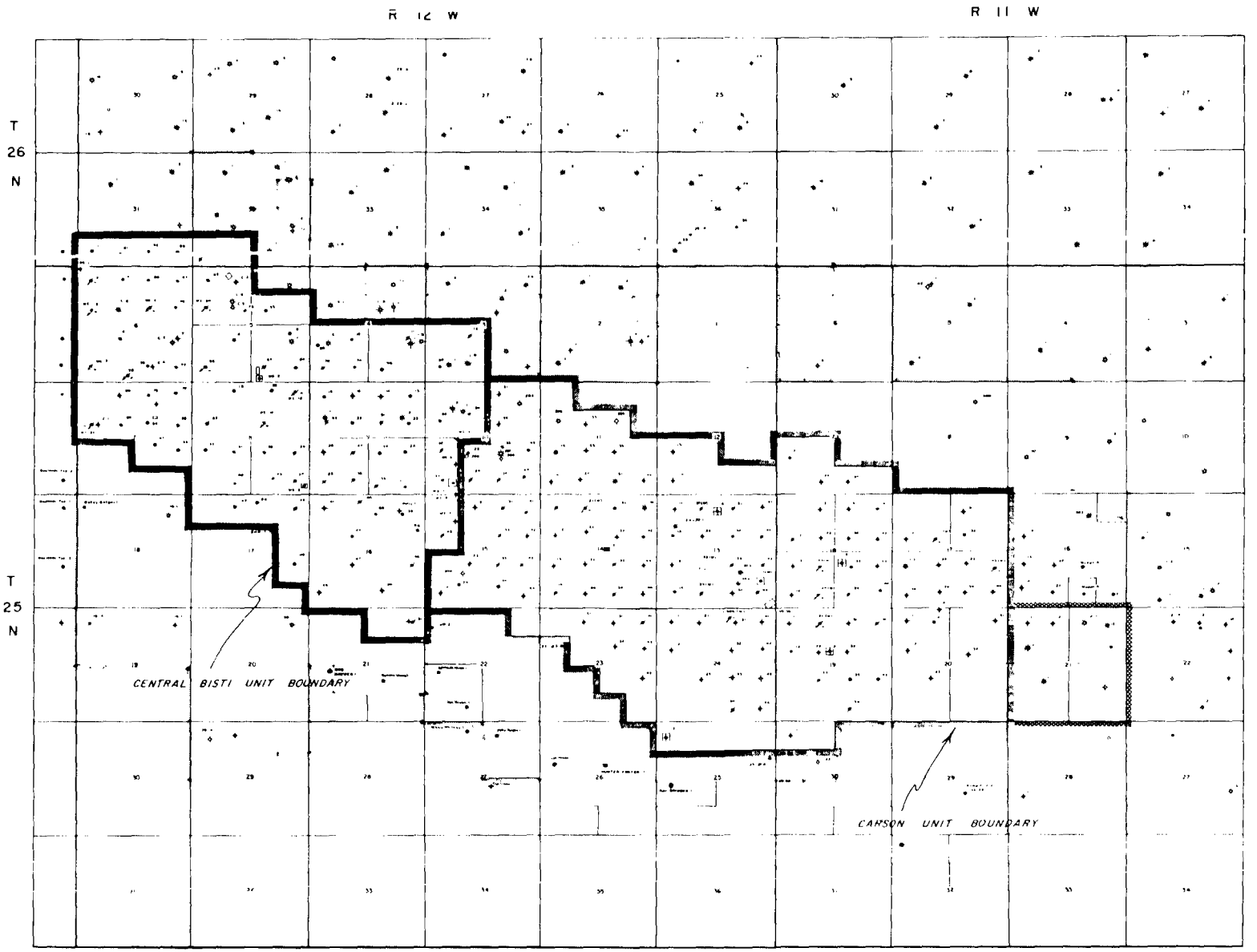
Water Injection Schematic

Baker Model "AD-1" Packer

set at 4850'

Date Last Revised: 1/30/90


2
1
6
Virginia State #4
#2
Virginia State #1
Virginia State #3
6
02
206
22
209
11
12
7
43
13
23
33
13
3
14
24
34
44
14
24
34
41
11
21(W)
31
41
11
21(W)
6
31
41
21
31
41
12X(201)
42
12
22
32
42
12
22
32
42
12
22
32
42
14
3
13
18
5
43
13
23
33
43
13
23(W)
33
203
43
13
23(W)
33
43
1(W)
34X
44
14
24
34
44
14
24(W)
34
44
14
24(W)
34
44
1 SWD (W)
40.56
21
31
41
11
21
31
41
11
21(W)
31
41
32
42
12
32
42
12
22
2
32
23 #5
23
19
43
23
33
43
23
33
43
Fed. 23-12
34
44
34
11
Fed. 26-1
2
Fed. 25-1



HIXON DEVELOPMENT COMPANY

CENTRAL BISTI - CARSON UNIT AREA

San Juan County, New Mexico

Sa. ... testing labo... ..., inc.

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

PHONE
327-4966

Date June 10, 1977

eport to Hixon Development Company

equested by A. Kuchera, Mgr. Sampled by Hixon Personnel

roject CBU #5 Location NW NW Sec. 6, T25N, R12W

ource of Material Lower Gallup Produced Water

Lab No. 24509 Water Analysis for Petroleum Engineering

TEST RESULTS

WATER ANALYSIS FOR PETROLEUM ENGINEERING

nstituent	
tal Solids	2263 ppm
	7.25
sistivity	2.94 ohms/meter @70°F
nductivity	3,400 micromhos/cm @ 70°F

mments

sentially this is a 0.2% sodium lfate solution.

Constituents		
Cations	Meg/L	ppm
Sodium	29.3	674
Calcium	2.3	45
Magnesium	0.5	6
Iron	neg.	3
Barium	0	0
Anions		
Chloride	4.1	145
Bicarbonate	4.0	244
Carbonate	0	0
Hydroxide	0	0
Sulfate	24.0	1150

LAWRENCE A. BREWER REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR 3122 STATE OF NEW MEXICO

Certified by:

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

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. Injection will be into the Lower Gallup perforated interval from 4871' to 4984'. Maximum rate will be 1200 BWPD at less than 997 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 No. 23-13
NE/4 SW/4
Sec. 13, T25N, R12W

ELL DATA SHEET

Well Name:	Carson Unit #12-13
Legal Description:	1980' FSL, 660' FEL Sec. 13, T29N, R12W San Juan County, N.M.
Well Type:	Oil Well
Spud Date:	01-15-58
Surface Casing Hole Size:	12-1/4"
Surface Casing Size:	8-5/8"
Surface Casing Depth:	100'
Cementing Record:	100 sks.
Production Casing Hole Size:	7-7/8"
Production Casing Size:	4-1/2"
Production Casing Depth:	5015'
Cementing Record:	150 sks.
Perforations:	4875' - 4900' 4909' - 4921' 4947' - 4952' 4957' - 4972' 4975' - 4995'
Plug Back Depth:	---
Total Depth:	5015'

Hixon Development Company

Well Bore Diagram

WELL NAME Carson Unit Well No. 13-13

LOCATION 1930' FSL, 660' FWL **SECTION** 13 **T** 25 N **R** 12 W

COUNTY San Juan **STATE** New Mexico

GLE 6400'

KBE 6409.5'

DF 6408'

SURFACE CASING

Hole Size:

Casing: 8 5/8" @ 105

Casing Set @ 100 sx

Circ

FORMATION TOPS

Pictured Cliffs	1216'
Lewis	1434'
Cliff House	1580'
Allison-Menefee	2067'
Point Lookout	3692'
Mancos	3843'
Gallup	4771'

CEMENT TOP

PERFORATIONS

4866'-92'

4898'-4906'

4936'-40'

4949'-57'

4967'-75'

PBD

PRODUCTION CASING

Hole Size:

Casing:

Casing Set @

4 1/2 @ 5015

150 sx

TD

WELL HISTORY

Spud date: 8/25/59

Original owner: Shell Oil Co.

IP 9/12/59 BOPD 144 BWPD 0

MCFD 320 GOR 2220

Completion Treatment:

Fraced with 50,000 gal crude, 1#/gal sand, 200 rubber balls

CURRENT DATA

Pumping Unit

Tubing

Pump Size

Rod string

Remarks

Plug and abandoned 9/3/77

10 sk cmt plug at surface

20 sk cmt plug set at 180'

35 sk cmt plug set at 350'

50 sk cmt plug set at 1220'

15 sk cmt plug set across perforations (4866'-4975')

Date Last Revised: 1/31/90

WELL DATA SHEET

Well Name:	Carson Unit #14-11
Legal Description:	660' FSL, 660' FWL Sec. 13, T25N, R12W San Juan County, N.M.
Well Type:	Oil Well
Spud Date:	04-12-57
Surface Casing Hole Size:	12-1/4"
Surface Casing Size:	8-5/8"
Surface Casing Depth:	222
Cementing Record:	130 sks.
Production Casing Hole Size:	7-7/8"
Production Casing Size:	5-1/2"
Production Casing Depth:	5040'
Cementing Record:	200 sks.
Perforations:	4876' - 4891' 4943' - 4946' 4954' - 4966' 4972' - 4986'
Plug Back Depth:	5003'
Total Depth:	5040'

Hixon Development Company

Well Bore Diagram

WELL NAME Carson Unit Well No. 22-13

LOCATION 1980' FNL, 1980 FWL **SECTION** 13 **T** 25 N **R** 12 W

COUNTY San Juan **STATE** New Mexico

GLE 6375.6'

KBE 6384.8'

DF 6383.3'

SURFACE CASING

Hole Size:

Casing:

Casing Set @

FORMATION TOPS

Pictured Cliffs	1196'
Lewis	1394'
Cliff House	1553'
Allison-Menefee	2044'
Point Lookout	3680'
Mancos	3855'
Gallup	4767'

CEMENT TOP

PERFORATIONS

4864'-87'

4893'-4906'

4943'-53'

4962'-70'

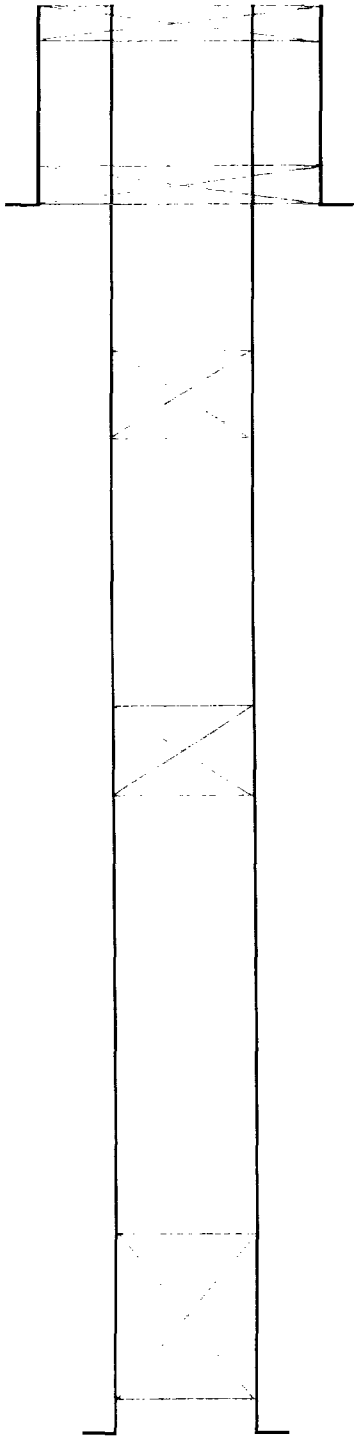
PBD

PRODUCTION CASING

Hole Size:

Casing:

Casing Set @



TD

WELL HISTORY

Spud date: 11/24/59

Original owner: Shell Oil Co.

IP 1/4/60 BOPD 30 BWPD 0

MCFD 48 GOR 1600

Completion Treatment:

Fraced with 50,000 gal crude
1 lb/gal sand and 140 balls.

CURRENT DATA

Pumping Unit

Tubing

Pump Size

Rod string

Remarks

Plug and abandoned 3/25/75

10 sk cmt plug at surface
25 sk cmt plug set at 121'
35 sk cmt plug set at 295'
45 sk cmt plug set at 1375'
30 sk cmt plug set at 1824'
20 sk cmt plug set across
perforations (4864'-4970')

Date Last Revised: 1/31/90

WELL DATA SHEET

Well Name:	Carson Unit #24-13
Legal Description:	660' FSL, 1980' FWL Sec. 13, T25N, R12W San Juan County, N.M.
Well Type:	Water Injection Well
Spud Date:	12-01-59
Surface Casing Hole Size:	12-1/4"
Surface Casing Size:	8-5/8"
Surface Casing Depth:	111'
Cementing Record:	100 sks.
Production Casing Hole Size:	7-7/8"
Production Casing Size:	4-1/2"
Production Casing Depth:	5031'
Cementing Record:	150 sks.
Perforations:	4864' - 4888' 4897' - 4905' 4932' - 4938' 4946' - 4958' 4964' - 4978'
Plug Back Depth:	5031'
Total Depth:	5035'

WELL DATA SHEET

Well Name:	Carson Unit #32-13
Legal Description:	1980' FNL, 1980' FEL Sec. 13, T25N, R12W San Juan County, N.M.
Well Type:	Oil Well
Spud Date:	04-30-58
Surface Casing Hole Size:	12-1/4"
Surface Casing Size:	8-5/8"
Surface Casing Depth:	110'
Cementing Record:	100 sks.
Production Casing Hole Size:	7-7/8"
Production Casing Size:	4-1/2"
Production Casing Depth:	5006'
Cementing Record:	150 sks.
Perforations:	4877' - 4901' 4905' - 4916' 4956' - 4971' 4974' - 4992'
Plug Back Depth:	5001'
Total Depth:	5010'

WELL DATA SHEET

Well Name:	Carson Unit #33-13
Legal Description:	1980' FSL, 1980' FEL Sec. 13, T25N, R12W San Juan County, N.M.
Well Type:	Oil Well
Spud Date:	07-03-59
Surface Casing Hole Size:	12-1/4"
Surface Casing Size:	8-5/8"
Surface Casing Depth:	100'
Cementing Record:	104 sks.
Production Casing Hole Size:	7-7/8"
Production Casing Size:	4-1/2"
Production Casing Depth:	5038'
Cementing Record:	150 sks.
Perforations:	4876' - 4878' 4907' - 4914' 4945' - 4951' 4959' - 4968' 4979' - 4982'
Plug Back Depth:	---
Total Depth:	5040'

WELL DATA SHEET

Well Name:	Carson Unit #34-13
Legal Description:	660' FSL, 1976' FEL Sec. 13, T25N, R12W San Juan County, N.M.
Well Type:	Oil Well
Spud Date:	05-13-57
Surface Casing Hole Size:	12-1/4"
Surface Casing Size:	8-5/8"
Surface Casing Depth:	218'
Cementing Record:	130 sks.
Production Casing Hole Size:	7-7/8"
Production Casing Size:	4-1/2"
Production Casing Depth:	5096'
Cementing Record:	150 sks.
Perforations:	4876' - 4900' 4908' - 4916' 4944' - 4952' 4958' - 4972' 4976' - 4994'
Plug Back Depth:	5060'
Total Depth:	5100'

Hixon Development Company

Well Bore Diagram

WELL NAME Carson Unit Well No. 203

LOCATION 1620' FSL, 1630 FEL **SECTION** 13 **T** 25 N **R** 12 W

COUNTY San Juan **STATE** New Mexico

GLE 6400'

KBE 6405'

DF

SURFACE CASING

Hole Size:

Casing: 7", 23#, K-55

Casing Set @ 94' with Class "B" containing 2% CaCl.

50 SX

FORMATION TOPS

CEMENT TOP

PERFORATIONS

1200'-1211'

PBD 1236'

PRODUCTION CASING

Hole Size:

Casing: 2-7/8", 6.5#, J-55

Casing Set @ 1300' Light tail-in with 50:50 pozmix, 2% gel.

230 SX

1305' **TD**

WELL HISTORY

Spud date:

Original owner:

IP BOPD BWPD

MCFD GOR

Completion Treatment:

CURRENT DATA

Pumping Unit

Tubing

Pump Size

Rod string

Remarks

Plug and abandoned 10/22/84

35 sk cement plug set at 1211'.

Date Last Revised: 1/31/90

AFFIDAVIT OF PUBLICATION

No. 24777

STATE OF NEW MEXICO,
County of San Juan:

Betty Shipp being duly

sworn, says: That he is the Nat'l. Adv. Manager of

THE FARMINGTON DAILY TIMES, a daily newspaper of general circulation published in English at Farmington, said county and state, and that the hereto attached legal notice

was published in a regular and entire issue of the said FARMINGTON DAILY TIMES, a daily newspaper duly qualified for the purpose within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico for one consecutive (days) (weeks) on the same day as follows:

First Publication Sunday, February 11, 1990

Second Publication

Third Publication

Fourth Publication

and that payment therefor in the amount of $ 9.40

has been made.

Betty Shipp

Subscribed and sworn to before me this 12th day of February 19 90.

NOTARY PUBLIC, SAN JUAN COUNTY, NEW MEXICO

My Commission expires: June 23, 1990

Copy of Publication

NOTICE

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. Injection will be into the Lower Gallup perforated interval from 4871' to 4984'. Maximum rate will be 1200 BWPD at less than 997 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
No. 23-13
NE/4 SW/4
Sec. 13, T25N, R12W

Legal No. 24777 published in the Farmington Daily Times, Farmington, New Mexico on Sunday, February 11, 1990.

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

GARREY CARRUTHERS
GOVERNOR

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

Date: 2-26-90

ATTN:
David Catanach

Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504-2088

'90 FEB 27 AM 8 44
OIL CONSERVATION DIVISION

Re: Proposed MC_____
Proposed DHC_____
Proposed NSL_____
Proposed SWD_____
Proposed WFX_____
Proposed PMX X

Gentlemen:

I have examined the application dated 2-9-90
for the Hixon Development Co. CARSON Unit # 23-B
Operator Lease & Well No.

K-13-25N-12W and my recommendations are as follows:
Unit, S-T-R

Approve

Yours truly,

Frank Chavez