GIANT EXPLORATION &
PRODUCTION COMPANY

2200 Bloomfield Highway
Post Office Box 2810
Farmington, New Mexico
87499-2810

	FAX
505	505
326-3325	327-7987

August 27, 1993

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.

If you have any questions please call me at (505) 326-3325.

Sincerely,

Diane G. Jaramillo
Administrative Manager

/dgj

Enclosure

STATE OF NEW MEXICO
ENERGY, MINERALS and NATURAL
RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
PO BOX 2088
SANTA FE, NM 87504-2088

FORM C-108
Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: X Secondary Recovery _____ Pressure Maintenance _____ Disposal _____ Storage
Application qualifies for administrative approval? __Yes ___No

II. OPERATOR: Giant Exploration & Production Company

ADDRESS: P.O. Box 2810, Farmington, New Mexico 87499

CONTACT PARTY: Jeffrey R. Vaughan PHONE: (505) 326-3325

III. WELL DATA: Complete the data required on the reverse side of this form for each well processed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project: X Yes ___No
If yes, give the Division order number authorizing the project R-6172

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/1 or less) overlying the proposed injection zone as well as any such sources 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: Jeffrey R. Vaughan TITLE: Vice President/Operations

SIGNATURE: CJRV DATE: August 10, 1993

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be 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 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, PO Box 2088, Santa Fe, NM 87504-2088 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.

CHECKLIST for ADMINISTRATIVE INJECTION APPLICATIONS

Operator: GIANT E+P, INC. Well: CARSON No. 23-3, 33-15, 43-13

Contact: DIANE FARRELL Title: ADMIN. MGR. Phone: 326-3325

DATE IN _____ RELEASE DATE _____ DATE OUT _____

Proposed Injection Application is for: X WATERFLOOD X Expansion ___ Initial

Original Order: R- _____ ___ Secondary Recovery ___ Pressure Maintenance

SENSITIVE AREAS ___ SALT WATER DISPOSAL

___WIPP ___ Capitan Reef ___ Commercial Operation

Data is complete for proposed well(s)? ___ Additional Data _____

AREA of REVIEW WELLS

17 Total # of AOR 10 # of Plugged Wells

YES Tabulation Complete YES Schematics of P & A's

YES Cement Tops Adequate ___ AOR Repair Required

INJECTION INFORMATION

Injection Formation(s) Lower Jalmat Sand

Source of Water SAME Compatible YES

PROOF OF NOTICE

YES Copy of Legal Notice YES Information Printed Correctly

N/A Correct Operators N/A Copies of Certified Mail Receipts

___ Objection Received ___ Set to Hearing _____ Date

NOTES: MOST AOR WELLS (AND PROPOSED INJECTORS) AVERAGE ABOUT 400' CEMENT ISOLATION.

APPLICATION QUALIFIES FOR ADMINISTRATIVE APPROVAL YES

COMMUNICATION WITH CONTACT PERSON:

1st Contact: ___ Telephoned ___ Letter _____ Date Nature of Discussion _____

2nd Contact: ___ Telephoned ___ Letter _____ Date Nature of Discussion _____

3rd Contact: ___ Telephoned ___ Letter _____ Date Nature of Discussion _____

23·13
33·13
44·13
} PROPOSED INSTRUCTIONS

AOR

12·13
13·13 - P+A
14·13
21·13
22·13 - P+A
24·13
32·13
34·13 - P+A
43·14 - P+A
42·13
~~44·13~~
43·13
13·18 - P+A
14·18 - P+A
42·24 - P+A
41·24 - P+A
31·24 - P+A
11·19 - P+A

Giant Exploration & Production Company
Application for Authorization to Inject
Form C-108 Supplemental Information

Carson Unit No. 23-13
NE/4, SW/4, Sec. 13, T25N, R12W
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 as follows:

Carson Unit No. 12-13
Carson Unit No. 13-13
Carson Unit No. 14-13
Carson Unit No. 21-13
Carson Unit No. 22-13
Carson Unit No. 24-13
Carson Unit No. 32-13
Carson Unit No. 33-13
Carson Unit No. 34-13
Carson Unit No. 43-14

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 954 - 980 psi range. Maximum injection pressure will be 980 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 29' in thickness with a top of 4871' 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 well will be acidized if required to maintain injection rate and pressure.

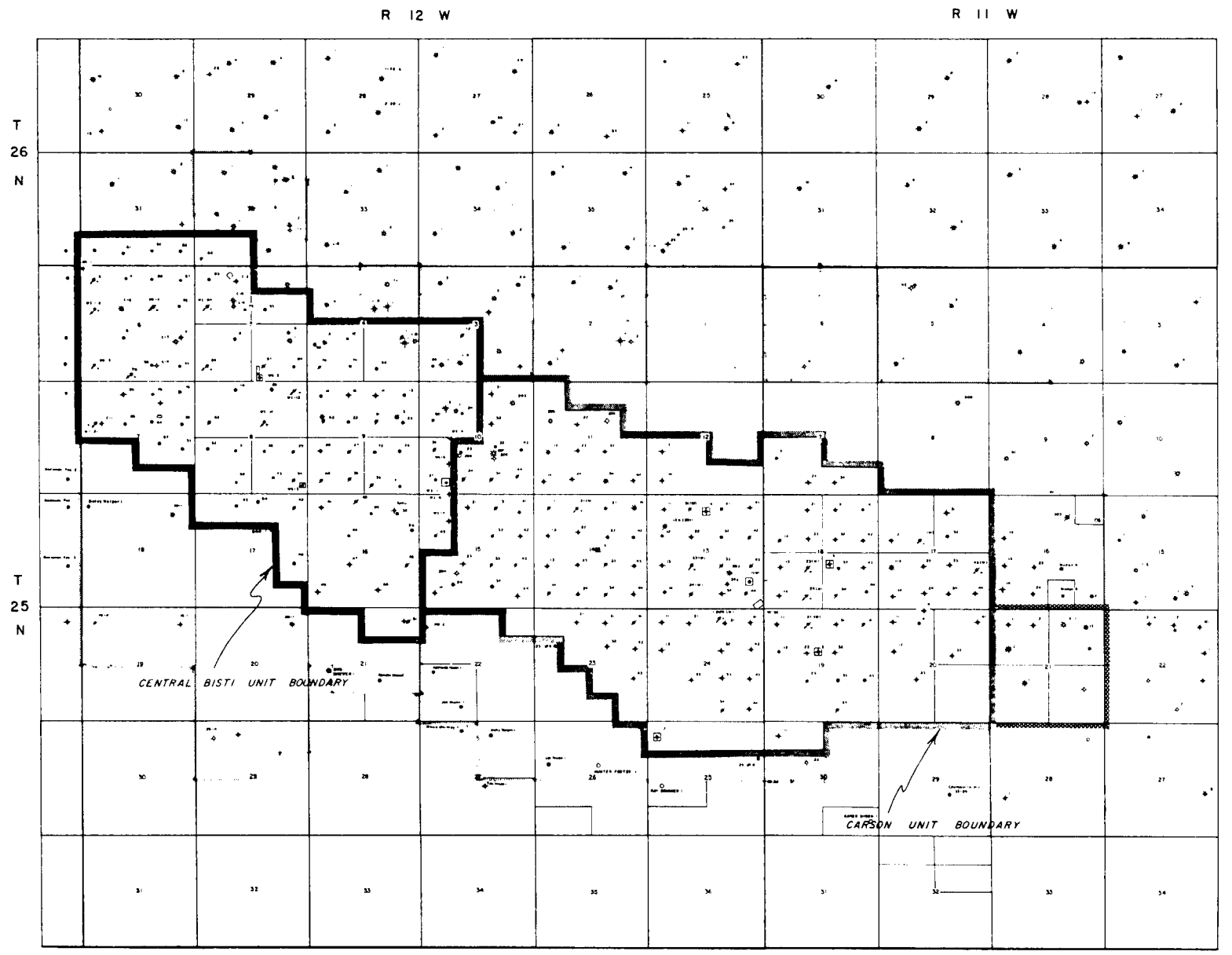
X. Logs were previously submitted.

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 is attached.

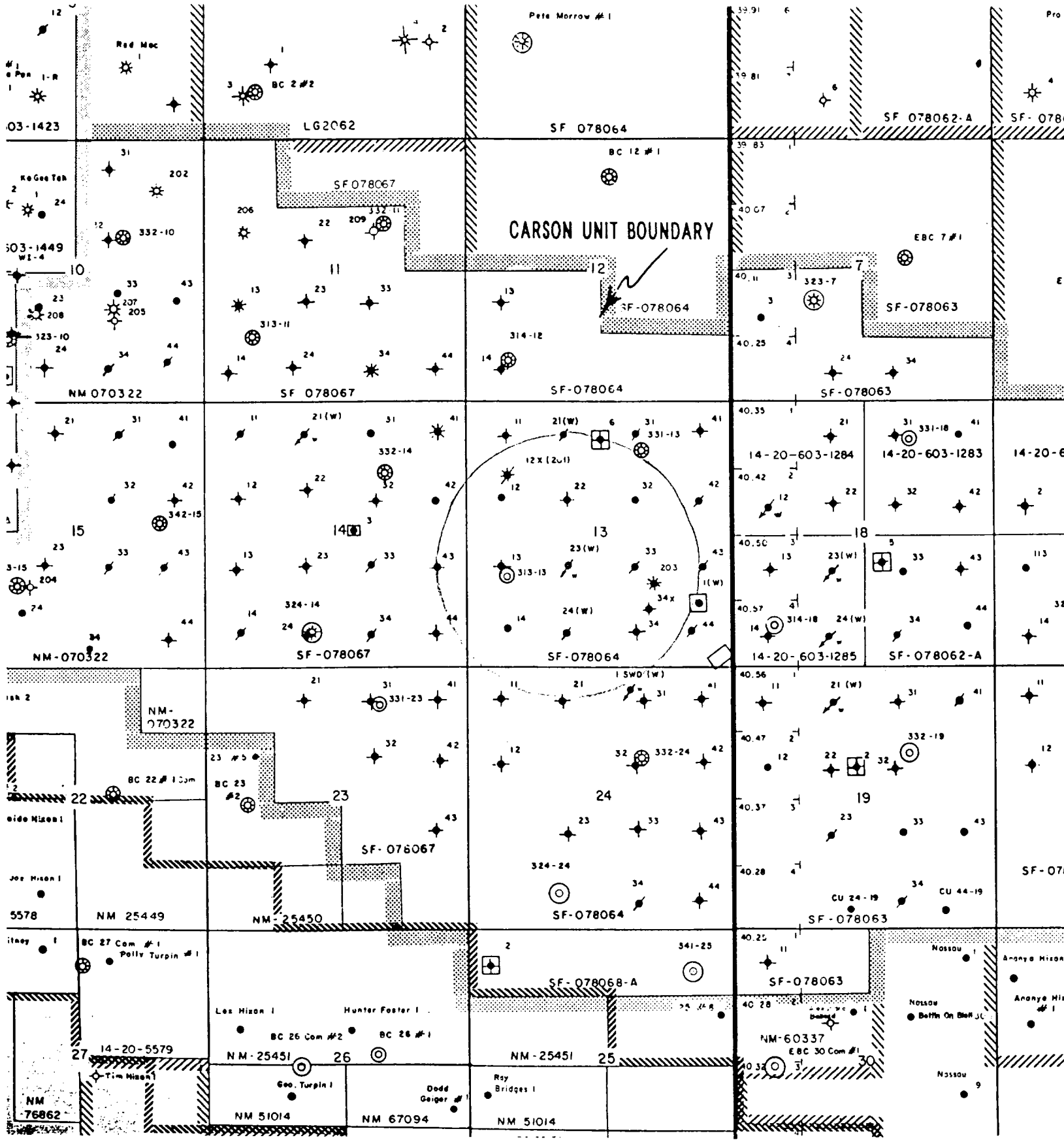
XIV. Certification shown on Application.



HIXON DEVELOPMENT COMPANY

CENTRAL BISTI - CARSON UNIT AREA

San Juan County, New Mexico


CARSON UNIT BOUNDARY
LG2062
SF 078064
SF 078062-A
SF078067
SF-078064
SF-078063
NM 070322
SF 078067
SF-078064
SF-078063
14-20-603-1284
14-20-603-1283
NM-070322
SF-078067
SF-078064
14-20-603-1285
SF-078062-A
NM-070322
SF-078067
SF-078064
SF-078063
NM 25449
NM-25450
SF-078068-A
SF-078063
14-20-5579
NM-25451
NM-25451
NM-60337
NM 51014
NM 67094
NM 51014
NM 76862
Red Mac
Pete Morrow #1
BC 2 #2
BC 12 #1
EBC 7 #1
BC 22 #1 Com
BC 23 #2
BC 27 Com #1
Polly Turpin #1
Les Hixon 1
Hunter Foster 1
BC 26 Com #2
BC 26 #1
Tim Hixon 1
Geo. Turpin 1
Dodd Geiger #1
Ray Bridges 1
EBC 30 Com #1
CU 24-19
CU 44-19
Nassau
Nassau
Nassau
Joe Hixon 1

Giant Exploration & Production 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", 24#, J-55
Casing Set @ 101' with 100 sks cement containing 2% CaCl.

FORMATION TOPS

Pictured Cliffs	1207'
Lewis	1411'
Cliffhouse	1585'
Menefee	2073'
Point Lookout	3684'
Mancos	3862'
Gallup	4775'

CEMENT TOP 4235' (Calc.)

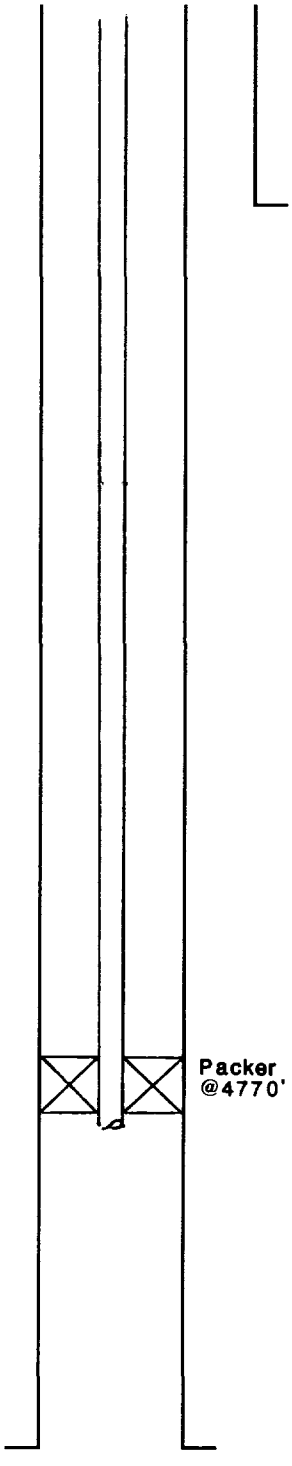
PERFORATIONS

4871'-4900'

PBD 4904' (CIBP)

PRODUCTION CASING

Hole Size: 7-7/8"
Casing: 4-1/2", 9.5#
Casing Set @ 5010' with 150 sks cement containing 4% gel.



WELL HISTORY

Spud date: 1/31/58

Original owner: Shell Oil Co.

IP 2/24/58 BOPD 493 BWPD -

MCFD 135 GOR 272

Completion Treatment:
Frac'd with 50,000 gal crude and 1 #/gal 20/40 mesh sand.

CURRENT DATA

Pumping Unit
Tubing
Pump Size
Rod string
Remarks

Proposed water injection schematic.

Date Last Revised: 8/18/93

WELL DATA SHEET

Well Name:	Carson Unit #23-13
Legal Description:	1980' FSL, 1980' FWL Sec. 13, T25N, R12W San Juan County, N.M.
Well Type:	Water Injection (Waiting on Approval)
Spud Date:	01-31-58
Surface Casing Hole Size:	12-1/4"
Surface Casing Size:	8-5/8"
Surface Casing Depth:	101'
Cementing Record:	100 sks.
Production Casing Hole Size:	7-7/8"
Production Casing Size:	4-1/2"
Production Casing Depth:	5010'
Cementing Record:	150 sks.
Perforation:	4871' - 4900'
Plug Back Depth:	4904'
Total Depth:	5010'

WELL DATA SHEET

Well Name:	Carson Unit #12-13
Legal Description:	1980' FSL, 660' FWL Sec. 13, T25N, 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.
Perforation:	4875' - 4900' 4909' - 4921' 4947' - 4952' 4957' - 4971' 4975' - 4992'
Plug Back Depth:	4975'
Total Depth:	5015'

Hixon Development Compar.

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:

Casing Set @

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'

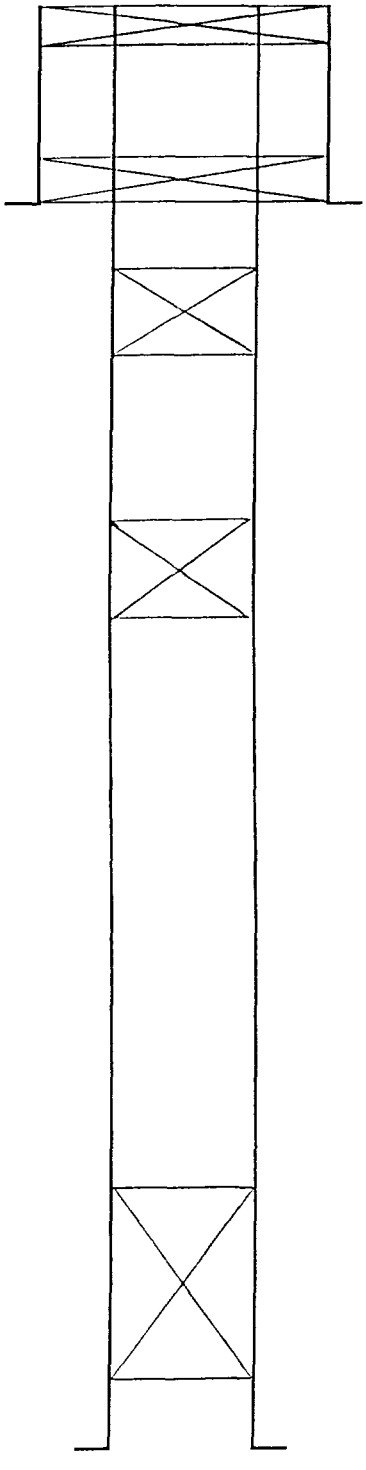
PBD

PRODUCTION CASING

Hole Size:

Casing:

Casing Set @



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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 #14-13
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.
Perforation:	4876' - 4891' 4943' - 4948' 4954' - 4966' 4972' - 4986'
Plug Back Depth:	5003'
Total Depth:	5040'

WELL DATA SHEET

Well Name:	Carson Unit #21-13
Legal Description:	660' FNL, 1880' FWL Sec. 13, T25N, R12W San Juan County, N.M.
Well Type:	Water Injection
Spud Date:	04-15-58
Surface Casing Hole Size:	12-1/4"
Surface Casing Size:	8-5/8"
Surface Casing Depth:	103'
Cementing Record:	100 sks.
Production Casing Hole Size:	7-7/8"
Production Casing Size:	4-1/2"
Production Casing Depth:	5007'
Cementing Record:	150 sks.
Perforation:	4860' - 4886' 4890' - 4900' 4940' - 4954' 4958' - 4974'
Plug Back Depth:	5002'
Total Depth:	5010'

Hixon Development Compa.
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

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'

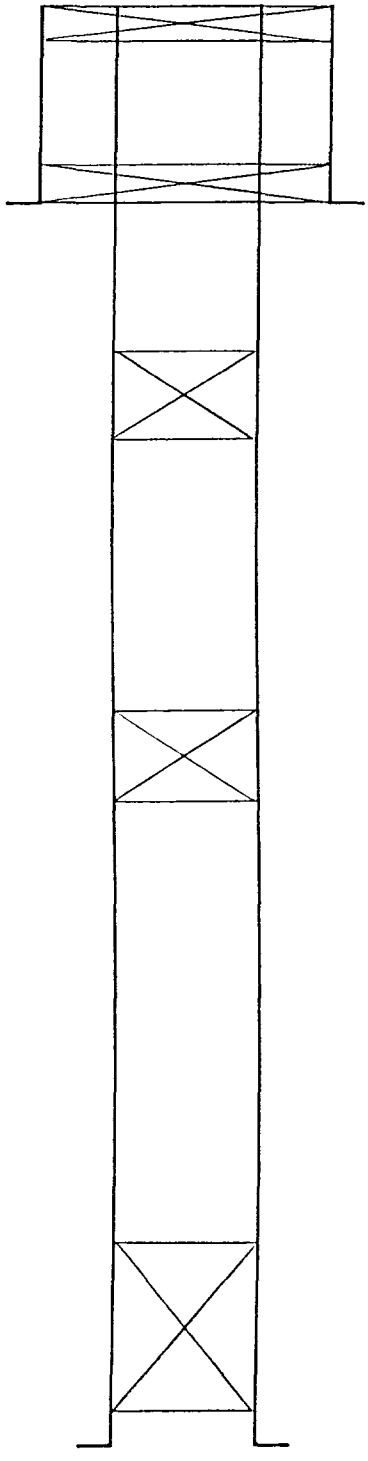
PBD

PRODUCTION CASING

Hole Size:

Casing:

Casing Set @



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GLE 6375.6'

KBE 6384.8'

DF 6383.3'

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
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.
Perforation:	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.
Perforation:	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:	Water Injection Well (Waiting on Approval)
Spud Date:	07-03-59
Surface Casing Hole Size:	12-1/4"
Surface Casing Size:	8-5/8"
Surface Casing Depth:	104'
Cementing Record:	100 sks.
Production Casing Hole Size:	7-7/8"
Production Casing Size:	4-1/2"
Production Casing Depth:	5038'
Cementing Record:	150 sks.
Perforation:	4876' - 4898'
Plug Back Depth:	4904'
Total Depth:	5040'

Giant Exploration & Production Company

Well Bore Diagram

WELL NAME Carson Unit Well No. 34-13

LOCATION 660' FSL, 1976' FEL **SECTION** 13 **T** 25 N **R** 12 W

COUNTY San Juan **STATE** New Mexico

GLE 6412.1'

KBE 6421.1'

DF 6420'

SURFACE CASING

Hole Size: 12-1/4"
Casing: 8-5/8", 24#, J-55
Casing Set @ 218' with 130 sks cement containing 2% CaCl.

FORMATION TOPS

Pictured Cliffs	1213'
Lewis	1417'
Cliffhouse	1590'
Menefee	2068'
Point Lookout	3693'
Mancos	3874'
Gallup	4778'

CEMENT TOP 4100' (Calc.)

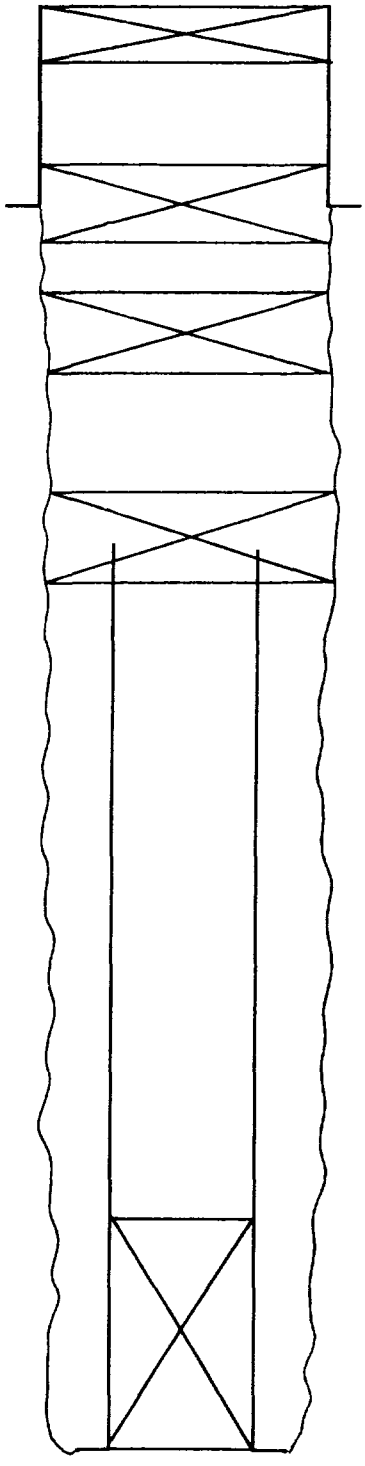
PERFORATIONS

4876'-4900'
4908'-16'
4944'-52'
4958'-72'
4976'-94'

PBD 5036'

PRODUCTION CASING

Hole Size: 7-7/8"
Casing: 4-1/2", 9.5#
Casing Set @ 5096' with 150 sks cement containing 4% gel.



5104' **TD**

WELL HISTORY

Spud date: 5/13/57

Original owner: Shell Oil Co.

IP 2/13/58 BOPD 100 BWPD -

MCFD 360 GOR 356

Completion Treatment:
2 Stage frac w/72,000 gal oil and 1 #/gal 20/40 mesh sand.

CURRENT DATA

Pumping Unit
Tubing
Pump Size
Rod string
Remarks
Well was P&A'd in 1977.

Gallup perforations were plugged in 1975. Cement top in casing calculated at 4585'.
Casing shot off at 1180'
50 sk plug set across casing stub, Pictured Cliffs, and Fruitland Coal.
35 sk plug placed over Ojo Alamo.
25 sk plug placed over surface casing shoe.
10 sk plug set at surface.

Date Last Revised: 8/9/93

Giant Exploration & Production Company

Well Bore Diagram

WELL NAME Carson Unit Well No. 43-14

LOCATION 1980' FSL, 660' FEL **SECTION** 14 **T** 25 N **R** 12 W

COUNTY San Juan **STATE** New Mexico

GLE 6406.55'

KBE 6416.10'

DF 6414.90'

SURFACE CASING

Hole Size: 12-1/4"
Casing: 8-5/8", 24#, J-55
Casing Set @ 103' with 100 sks cement containing 2% CaCl.

FORMATION TOPS

Pictured Cliffs	1248'
Lewis	1419'
Cliffhouse	1593'
Menefee	2084'
Point Lookout	3700'
Mancos	3871'
Gallup	4777'

CEMENT TOP 4025' (Calc.)

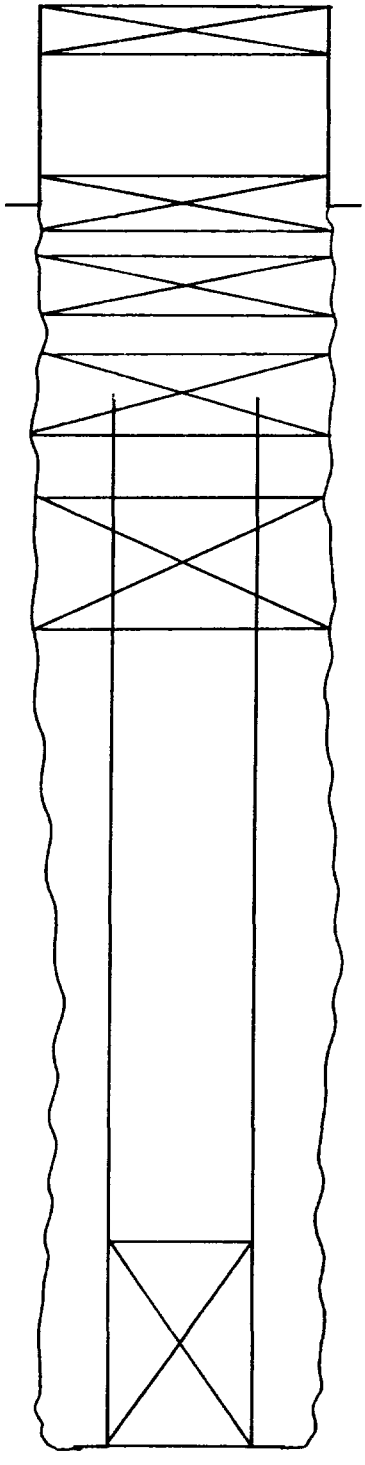
PERFORATIONS

4874'-99'
4911'-16'
4945'-68'
4973'-89'

PBD

PRODUCTION CASING

Hole Size: 7-7/8"
Casing: 4-1/2", 9.5#
Casing Set @ 5023' with 150 sks cement containing 4% gel.



5025' **TD**

WELL HISTORY

Spud date: 1/10/58

Original owner: Shell Oil Co.

IP 2/28/58 BOPD 120 BWPD -

MCFD 72 GOR 600

Completion Treatment:
Frac w/50,000 gal crude and 1 #/gal 20/40 mesh sand.

CURRENT DATA

Pumping Unit
Tubing
Pump Size
Rod string
Remarks
Well was P&A'd in 1977.

25 sk plug set across Gallup perfs. Backed tubing off at 1603' (anchor was stuck). Perf'd at 1220'. Spotted 50 sk plug across Pictured Cliffs and Fruitland Coal. Shot casing off at 720'. Set 35 sk plug across csg stub. 35 sk plug placed over Ojo Alamo.
25 sk plug placed over surface casing shoe.
10 sk plug set at surface.

Date Last Revised: 8/9/93

San Juan testing laboratory, 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

Constituent	
Total Solids	2263 ppm
pH	7.25
Resistivity	2.94 ohms/meter @70°F
Conductivity	3,400 micromhos/cm @ 70°F

Comments

Essentially this is a 0.2% sodium sulfate solution.

Constituents		
Cations	**Meq/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

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

Certified by:

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

AFFIDAVIT OF PUBLICATION

No. 32183

STATE OF NEW MEXICO,
County of San Juan:

C.J. SALAZAR being duly sworn, says: "That she is the CLASSIFIED MANAGER of The Farmington Daily Times, a daily newspaper of general circulation published in English in 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) (//////) on the same day as follows:

First Publication SATURDAY, AUGUST 21, 1993

Second Publication

Third Publication

Fourth Publication

and the cost of publication was $ 19.99

C J Salazar

On 8-27-93 C.J. Salazar appeared before me, whom I know personally to be the person who signed the above document.

Penny Beck

Notary Public, San Juan County, New Mexico

My Comm expires: April 2, 1996.

COPY OF PUBLICATI

PUBLIC NOTICE

Giant Exploration & Production Company, P.O. Box 2810, Farmington, New Mexico 87499, (505) 326-3325, whose agent is Jeffrey R. Vaughan 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 4900'. Maximum rate will be 1200 BWPD at less than 980 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 No. 23-13
NE/4, SW/4
Sec. 13, T25N, R12W

Legal No. 32183 published in the Farmington Daily Times, Farmington, New Mexico on Saturday, August 21, 1993.