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

RECEIVED
DEC 19 1997
OIL CON. DIV.
DIST. 3

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: ____ Secondary Recovery ____ Pressure Maintenance X Disposal ____ Storage
Application qualifies for administrative approval? X Yes ___ No

II. OPERATOR: Dugan Production Corp.

ADDRESS: P. O. Box 420, Farmington, NM 87499-0420

CONTACT PARTY: John Alexander PHONE: (505)325-1821

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: ___ Yes X 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/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: John Alexander TITLE: Vice-President

SIGNATURE: John Alexander DATE: 12/4/97

* 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.

Application for Authorization to Inject

Dugan Production Corp.

Sanchez O'Brien No. 1

General Information

Dugan Production Corp. re-entered the Sanchez O'Brien No.1 (formally the Federal 1-6, operated by Webb and Connley) in preparation for making this application (with approval of the BLM). The plugs were drilled out to the top of the Gallup plug, which was found at 4756'. The casing above 3280' (DV tool depth) was pressure tested to 1,000 psi, with no leaks, as was the plug at 4756'. The Point Lookout (Mesa Verde) was perforated from 4255 to 4390 with 1 shot/ft. The perforated interval was swabbed to recover 200 bbls. water and obtain a sample which is presented in the body of this application.

This application ask for the complete Mesa Verde interval (2635 - 4436) to be used for injection. The reason for the entire zone is that no cement exists across the zone. On initial completion, the Dakota - Gallup was cemented with a cement top at 4360' as determined from a cement bond log. The second stage was cemented above a stage tool set at 3280 with cement circulated to the surface. With most of the Mesa Verde un-cemented, there is no way to contain the injected water once it exits the casing. No Mesa Verde production exists in this area so the applicant does not believe this will create a problem.

Upon approval of this application, an injection test will be conducted. If adequate rates are not found, it may be necessary to perforate additional sections of the Mesa Verde. There may be partial formation bridging in the open hole annulus that will create rate restrictions. After the injection test, it may also be necessary to stimulate the zone. These decisions will have to be made after these test are complete. The applicant will attempt to confine injection to the un-cemented portion of the zone.

Any changes to the plans contained in this application will be approved by the New Mexico Oil Conservation Division prior to commencement.

Application for Authorization to Inject

Dugan Production Corp.

Sanchez O'Brien No. 1

Part IIIA - Tabular Well Information

Name: Sanchez O'Brien No. 1

Location: 1650' fsl & 990' fwl
S.6-Twn.24N-Rng.9W
San Juan Co., NM

Surface Casing: 8-5/8" 24 lb. @ 294'. Cemented with 200 sks. and circulated to surface. Hole size - 12-1/4"

Long String: 5-1/2 15.5 lb. @ 6527'. Cemented in two stages with a stage tool at 3280'. Stage 1: 260 sks. Halliburton Light followed by 250 sks. 50/50 Poz with 2% gel. Cement top was found to be at 4360 with a cement bond log. Stage 2: 400 sks. 65/35 Poz w/ 12% gel, followed by 250 sks. 50/50 Poz. with 2% gel. Cemented circulated to surface on stage 2. Hole size - 7-7/8.

Completion History: Dakota perforated 6338 - 6392'. It tested non-productive. It was squeezed with 100 sks. neat cement and a cast iron bridge plug set at 5600'.

Gallup was perforated at 5246 - 5480. It was fractured with in two stages with a total 100,000 gal. water and 106,000 lb. sand.

The well was plugged by setting the following cement plugs:
4826 - 5483 w/ 81 sks.
3159 - 3343 w/ 21 sks.
1357 - 1834 w/ 54 sks.
781 - 1099 w/ 36 sks.
0 - 369 w/ 47 sks.

Conversion History: Re-entered hole and drilled out all plug to Gallup plug which was found at 4756'. Pressure tested Gallup plug and casing above 3280' to 1,000 psi, with no leaks. Perforated Point Lookout zone 4255 - 4390 with 1 shot/ft. Swabbed zone to obtain water sample.

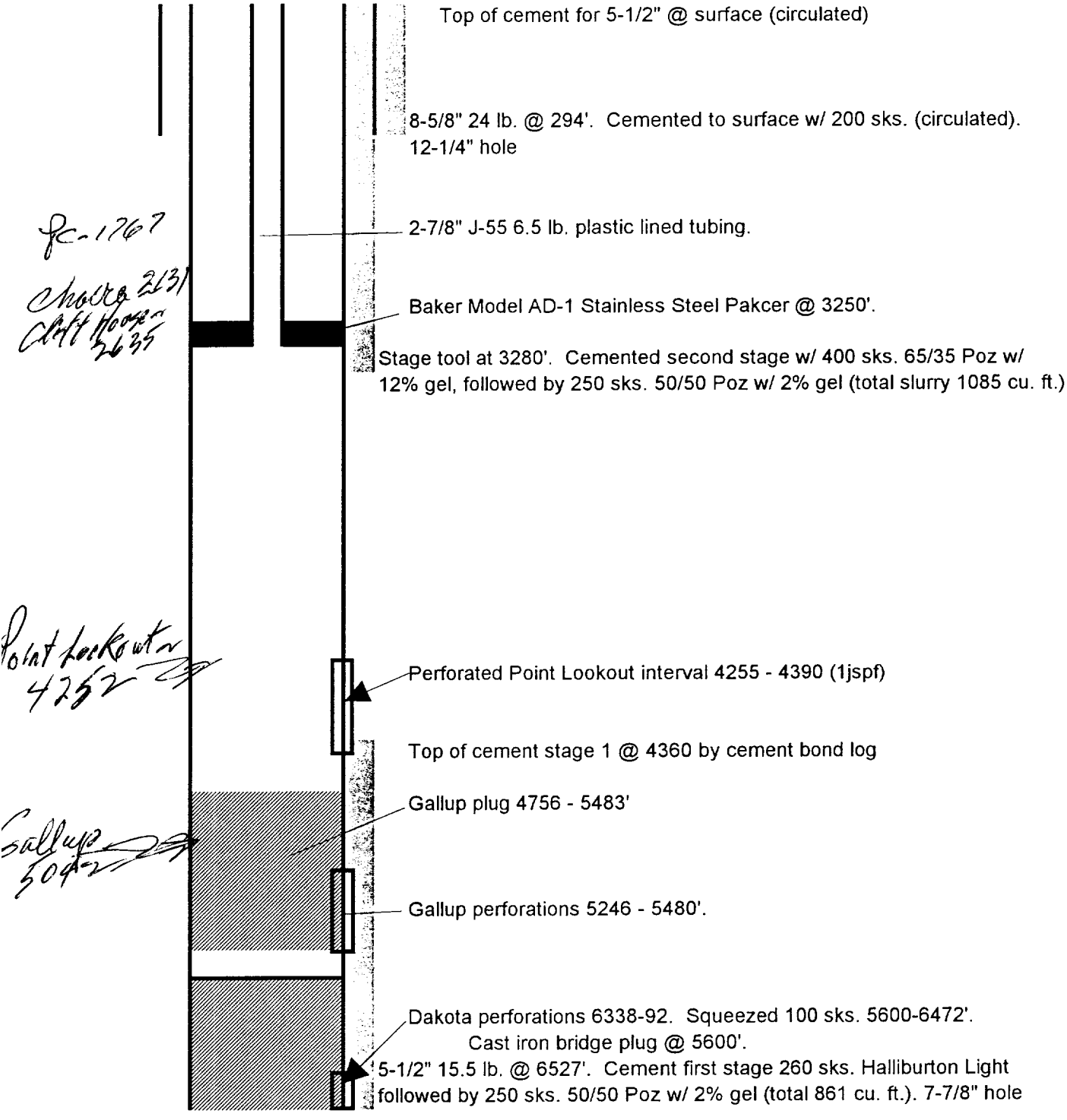
Planned Injection Tubulars: 2-7/8" 6.5 lb. plastic lined tubing. Baker Model AD-1 tension packer, stainless steel, to be set at 3250' or 50' above the upper most Mesa Verde perforation..

Application for Authorization to Inject
Part III A.

Dugan Production Corp.

Sanchez O'Brien No. 1

1650' fsl & 990' fwl
Sec. 6-Twn. 24N-Rng. 9W
San Juan Co., NM



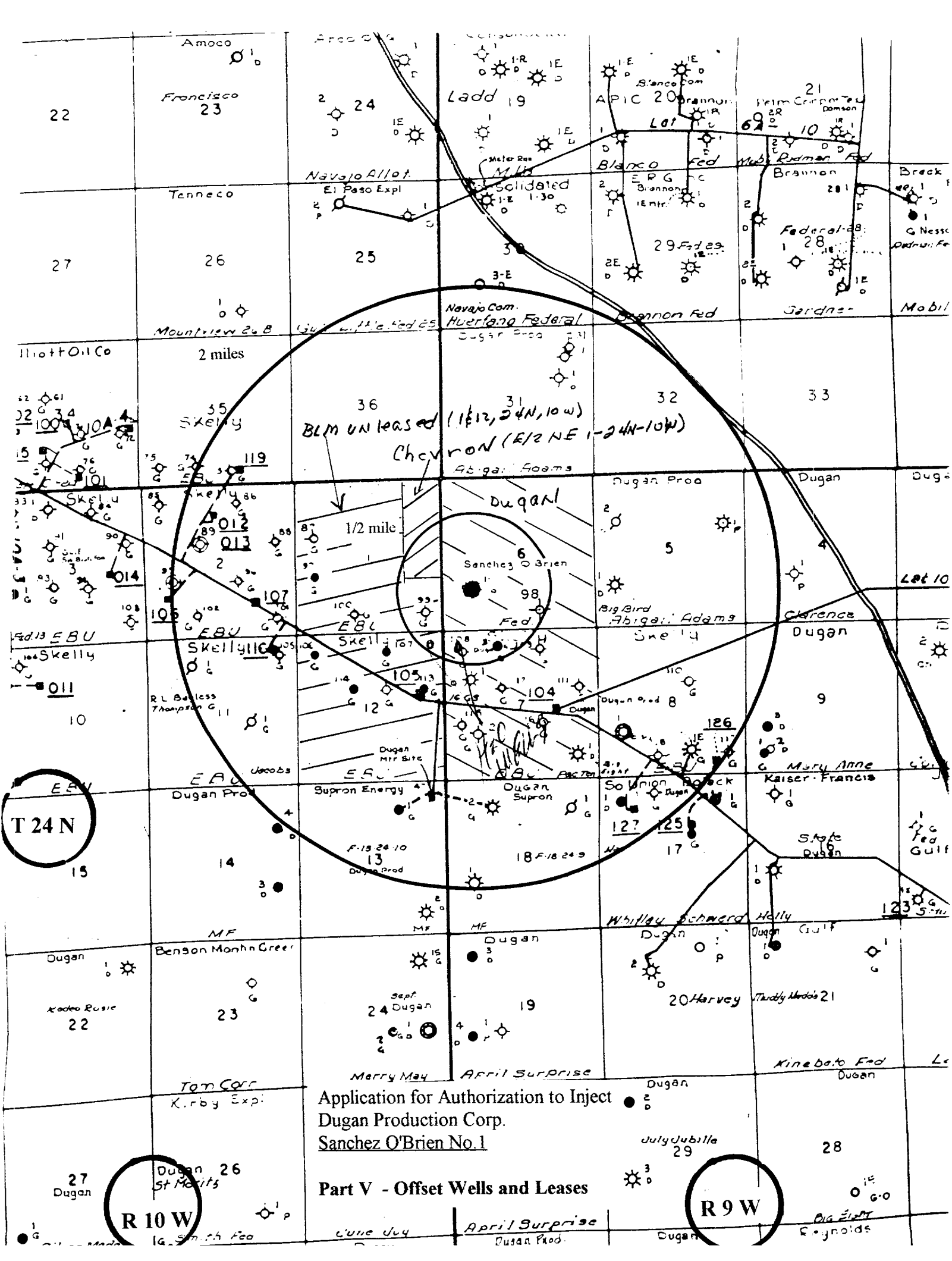
Application for Authorization to Inject
Part III B

Dugan Production Corp.

Sanchez O'Brien No. 1

1650' fsl & 990' fwl
Sec. 6-Twn. 24N-Rng. 9W
San Juan Co., NM

1. Injection Formation: Mesa Verde
2. Injection Interval : 2635 - 4436 (Mesa Verde with no cement and perforated interval)
3. This well was originally drilled as a Dakota. The Dakota was abandoned and the Gallup was perforated. The Gallup was abandoned and the well was plugged completely.
4. The Dakota was perforated from 6338-92. It was plugged with 100 sks. cement from 5600 - 6472'. A cast iron bridge plug was set at 5600'.
   The Gallup was perforated 5246 - 5406, 5435-5480. It was plugged by setting plugs at the following depths inside casing:
   4826 - 5483 with 81 sks.
   3159 - 3343 with 21 sks.
   1357 - 1834 with 54 sks.
   781 - 1099 with 36 sks.
   0 - 369 with 47 sks.
5. Next lower oil zone below Mesa Verde is Gallup @ 5042'.
   Next upper gas zone above Mesa Verde is Pictured Cliffs @ 1767.


2 miles
1/2 mile
BLM unleased (1&12, 24N, 10W)
Chevron (E/2 NE 1-24N-10W)
Dugan
Sanchez O'Brien
T 24 N
R 10 W
R 9 W
Application for Authorization to Inject
Dugan Production Corp.
Sanchez O'Brien No.1
Part V - Offset Wells and Leases

Application for Authorization to Inject
Part VI

Dugan Production Corp.
Sanchez O'Brien No. 1
1650' fsl & 990' fwl
Sec. 6-Twn. 24N-Rng. 9W
San Juan Co., NM

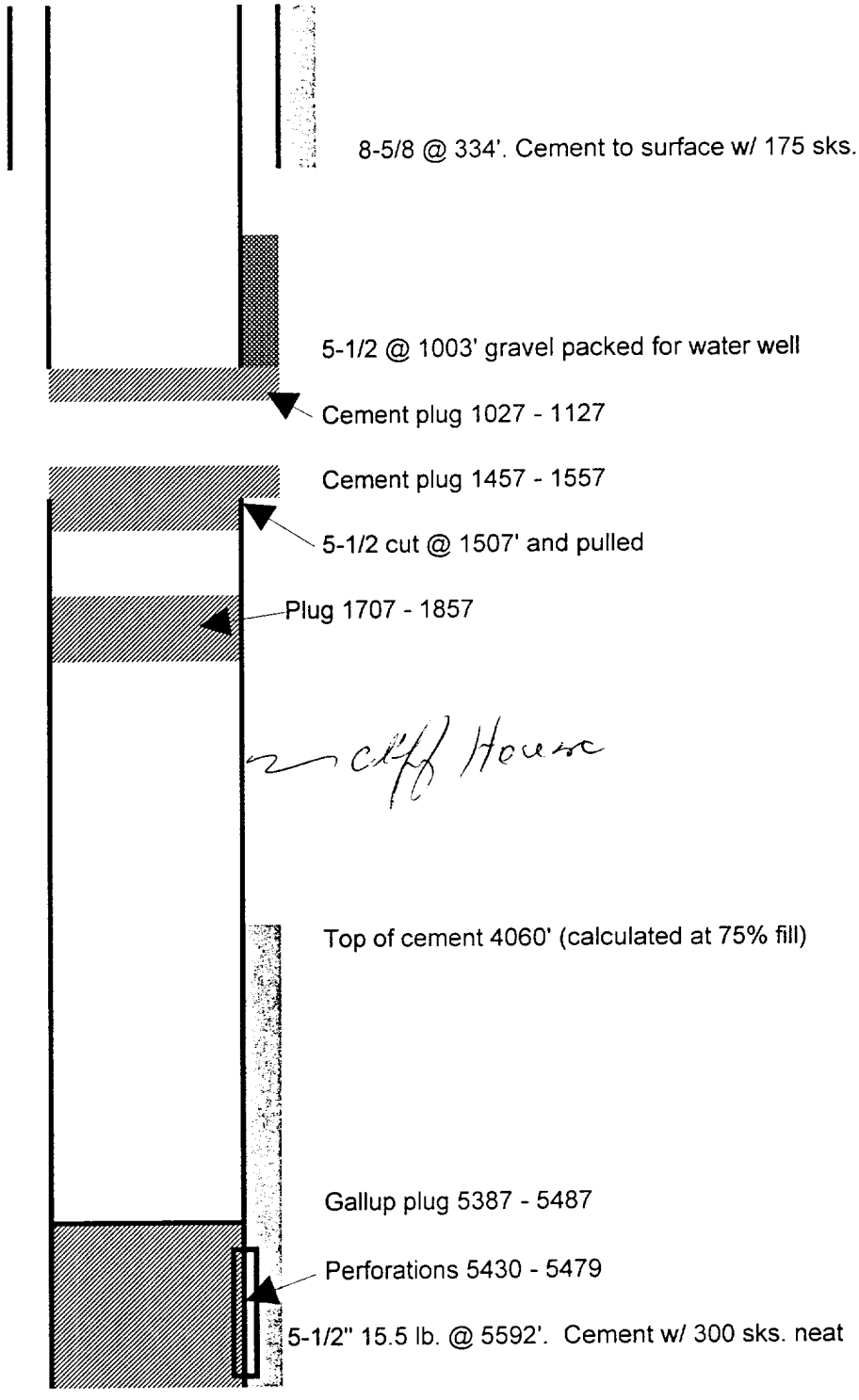
Wells Offset to Proposed Water Injection Well

Well	Location	Status	Spud Date	Total Depth	Surface Casing	Long String	Perforations	Stimulation	Plug Details	Remarks
EAST BISTI UNIT 108 AKA 16 G's Water Well	660' fnl & 660' fwl S.7-T.24N-R.9W	Water Source Well (Ojo) - Producting Zones Plugged	10/12/58	5592	8-5/8 @ 334' w/ 175 sks. (circulated)	5-1/2 @ 5592 w/300 sks. neat cement TOC @ 4060 (calc. w/ 75% fill) 7-7/8" hole	(Gallup) 5430-48, 5463-79	Frac 30,000 gal. oil w/ 30,000 lb. sand	5387-5487, Cut casing 1507, 1707-1857, 1457 1557, 1027-1127, 10' surface plug	Well re-entered, 5-1/2 set at 1003' and gravel packed to serve as Ojo Alamo water source well.
EAST BISTI UNIT 98	660' fsl & 1980' fel S.6-T.24N-R.9W	Plugged and Abandoned	5/1/59	5620	8-5/8 @ 223' W/160 sks. (circulated)	4-1/2 @ 5604 w/100 sks. 4% gel and 100 sks. neat. TOC 4707' (calculated @ 75% fill) 7-7/8" hole	(Gallup) 5462-88, 5501-18	Frac 47,250 gal oil w/ 48,000 lb. sand	5531-5431, cut 4-1/2 @ 1100', 1747-1896, 1025 1225, 10' surface plug	
SIXTEEN GS No. 3	660' fwl & 1950' fwl S.7-T.24N-R.9W	Gallup Producer Dakota Abandoned	7/7/81	6492	8-5/8 @ 207' W/135 sks. (circulated)	4-1/2 @ 6492'. DV tool @ 4503. Stg. 1= 250 sks. 4% gel & 150 B neat. Stg. 2= 400 sks. 65/35/12 & 100 sks. 4% gel. TOC estimated @ 750'. Hole 7-7/8"	(Dakota) 6428-34. (Gallup) 5323-5521	(Dakota) - acidized (Gallup) frac in two separate job with toal 163,000 gal. water and 194,000 lb. sand	Producing from Gallup, Dakota was not productive and abandoned with a mechanical plug @ 6280 and cement on top	
EAST BISTI UNIT 99	660' fsl & 660' fel S.1-T.24N-R.10W	Plugged and Abandoned	2/20/59	5580	8-5/8 @ 345' W/290 sks. (circulated)	5-1/2 @ 5575 w/300 sks neat. TOC 4045' (calculated @75% fill) 7-7/8" hole	(Gallup) 5441-59, 5473-86	frac 30,000 gal. oil w/ 120,000 lb. sand	5398-5498, cut 5-1/2 @ 1854, 1718-1904, 1028 1128, 10' surface plug	

Application for Authorization to Inject
Part VI

Dugan Production Corp.
East Bisti Unit No. 108 (AKA - 16 G's Water Well)
660' fnl & 660' fwl
S.7-T.24N-R.9W

Plugging Schematic



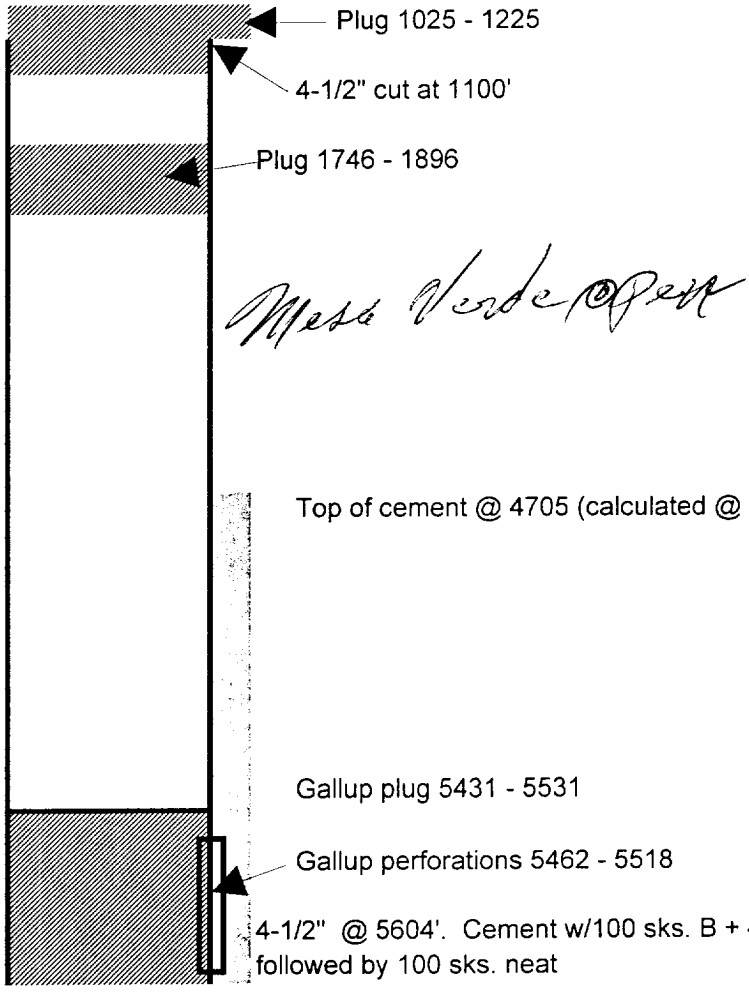
Application for Authorization to Inject
Part VI

Dugan Production Corp.
East Bisti Unit No. 98
660' fsl & 1980' fel
S.6-T.24N-R.9W

Plugging Schematic

10' surface plug

8-5/8 @ 223'. Cement to surface w/160 sks.



Application for Authorization to Inject
Part VI

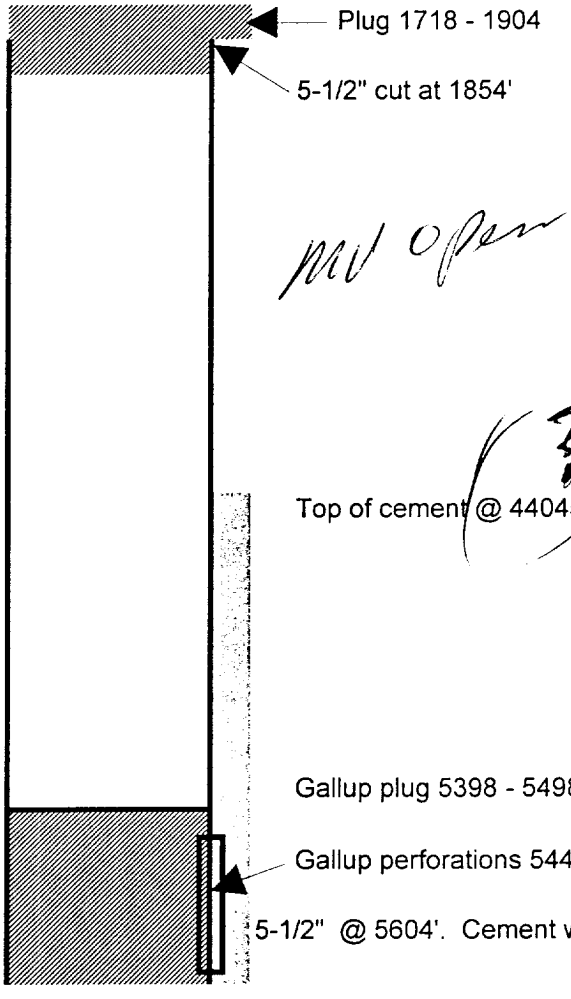
Dugan Production Corp.
East Bisti Unit No. 99
660' fsl & 660' fel
S.1-T.24N-R.10W

Plugging Schematic

10' surface plug

8-5/8" @ 345'. Cemented to surface w/ 290 sks.

Plug 1028 - 1128



Plug 1718 - 1904

5-1/2" cut at 1854'

MV Open

Top of cement @ 44045 (calculated @ 75% fill)

Gallup plug 5398 - 5498

Gallup perforations 5441 - 5486

5-1/2" @ 5604'. Cement w/300 sks.

Application for Authorization to Inject

Dugan Production Corp.

Sanchez O'Brien No. 1

Part VII - Proposed Operation Plan

1. Average Injection: 500 bwpd.

   Maximum Injection: 1000 bwpd.

2. System is open.

3. Average injection pressure: 500 psi.

   Maximum Injection pressure: 750 psi.

4. Injection water source will be mostly Gallup produced water from Townships 23N and 24N, Range 9W and 10W. A typical analysis for these waters is attached. An additional water source will be Fruitland Coal wells located mostly in Township 24N and Range 8W. A typical analysis of these waters is attached. No incompatibility with water present in the Mesa Verde is known.

5. The Mesa Verde (proposed injection interval) is not productive of oil or gas in this area. An analysis taken after perforating the Mesa Verde and swabbing 200 bbls. water is attached.

BJ SERVICES

API WATER ANALYSIS

Company: DUGAN PROD.
Field:
Well: LEES FERRY #90
Depth:
Formation: FRUITLAND COAL
State: NM
County: SAN JUAN

W.C.N.A. Sample No.:
Legal Description: S19/T24/R8W
Lease or Unit:
Water.B/D:
Sampling Point:
Sampled By:
Date Sampled:
Type of Water(Produced,Supply, ect.): PROD.

PROPERTIES

pH: 6.93
Specific Gravity: 1.015
Resistivity (ohm-meter): .20
Tempature: 74F

Iron, Fe(total): 100
Sulfide as H2S: 0
Total Hardness:
(see below)

DISSOLVED SOLIDS

CATIONS	mg/l		me/l		
Sodium, Na:	10465	:	455	Sample(ml): 5.0 ml of EDTA:	6.10
Calcium, Ca:	489	:	24	Sample(ml): 5.0 ml of EDTA:	1.50
Magnesium, Mg:	73	:	6		
Barium, Ba:	N/A	:	N/A		
Potassium, K:	190	:	5		

ANIONS	mg/l		me/l		
N: .500 Chloride, Cl:	17016	:	480	Sample(ml): 5.0 ml of AgNO3:	4.80
Sulfate, SO4:	0	:	0		
Carbonate, CO3:		:		Sample(ml): 1.0 ml of H2SO4:	
Bicarbonate, HCO3:	586	:	10	Sample(ml): 50.0 ml of H2SO4:	4.80

Total Dissolved
Solids (calculated): 28819
Total Hardness: 1520 Sample(ml): 5.0 ml of EDTA: 7.60

REMARKS AND RECOMMENDATIONS:

FRUITLAND COAL WATER TO BE DISPOSED IN SANCHEZ O'BRIEN NO. 1

FRUITLAND COAL WATER TO BE DISPOSED IN SANCHEZ O'BRIEN NO. 1

FM02W008

BJ SERVICES COMPANY

WATER ANALYSIS #FM02W008

FARMINGTON LAB

GENERAL INFORMATION

OPERATOR: DUGAN PRODUCTION	DEPTH:
WELL: MESA #90	DATE SAMPLED: 07/01/95
FIELD:	DATE RECEIVED: 07/05/95
SUBMITTED BY: J. ALEXANDER	COUNTY: SAN JUAN STATE: NM
WORKED BY : DS	FORMATION: FRUITLAND COAL
PHONE NUMBER: 325-1821	produced water

SAMPLE DESCRIPTION

PRODUCED

PHYSICAL AND CHEMICAL DETERMINATIONS

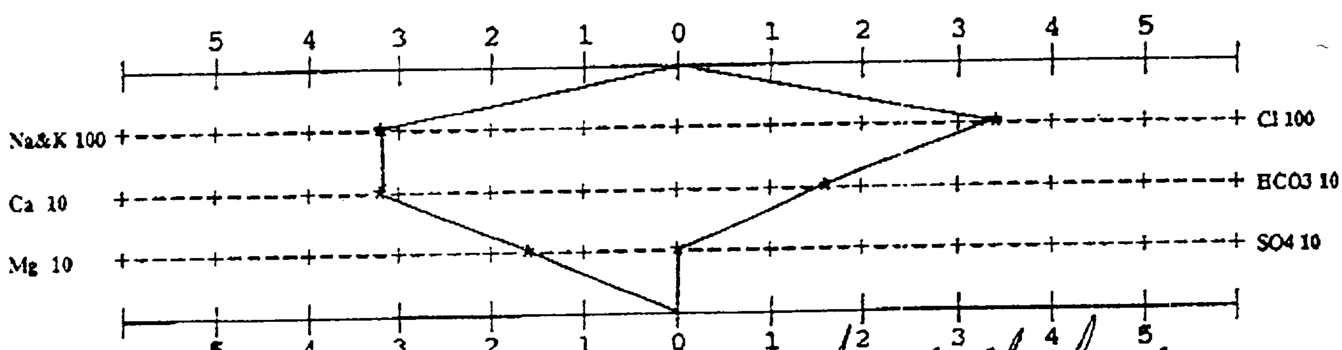
SPECIFIC GRAVITY: 1.030 @ 74°F PH: 7.31

RESISTIVITY (MEASURED): 0.180 ohms @ 74°F

IRON (FE++) :	20 ppm	SULFATE:	0 ppm
CALCIUM:	661 ppm	TOTAL HARDNESS	2,429 ppm
MAGNESIUM:	189 ppm	BICARBONATE:	1,007 ppm
CHLORIDE:	12,219 ppm	SODIUM CHLORIDE(Calc)	20,101 ppm
SODIUM+POTASS:	7,187 ppm	TOT. DISSOLVED SOLIDS:	22,841 ppm
POTASSIUM: 75		H2S: NO TRACE	

REMARKS

STIFF TYPE PLOT (IN MEQ/L)



ANALYST David Shepherd

DS

FW01W160

BJ SERVICES COMPANY

WATER ANALYSIS #FW01W160

FARMINGTON LAB

GENERAL INFORMATION

OPERATOR:	DUGAN PRODUCTIONS	DEPTH:	
WELL:	JUNE JOY #2	DATE SAMPLED:	04/15/97
FIELD:	SEC25;T24N;10W	DATE RECEIVED:	04/16/97
SUBMITTED BY:		COUNTY:	STATE:
WORKED BY	:DAVID SHEPHERD	FORMATION:	GALLUP
PHONE NUMBER:			

SAMPLE DESCRIPTION

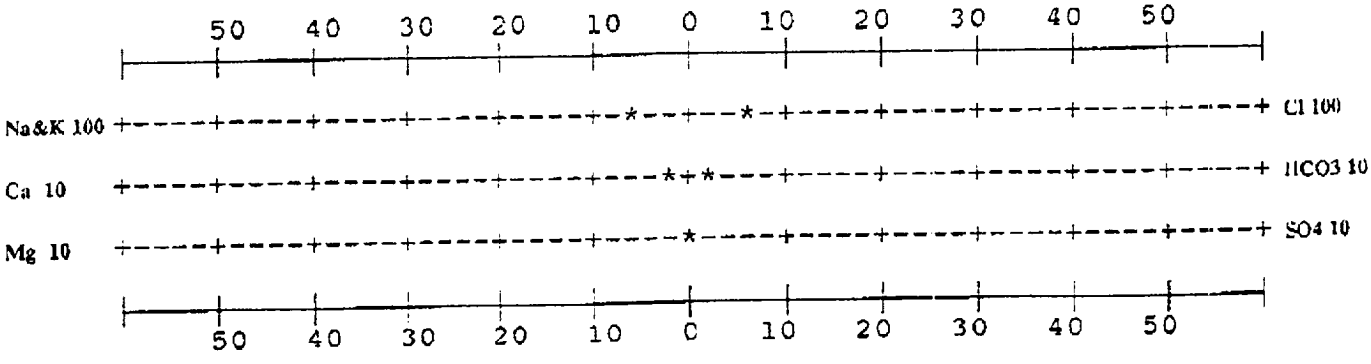
PHYSICAL AND CHEMICAL DETERMINATIONS

SPECIFIC GRAVITY:	1.023 @ 75°F	PH:	7.25
RESISTIVITY (MEASURED):	0.200 ohms @ 75°F		
IRON (FE++) :	25 ppm	SULFATE:	29 ppm
CALCIUM:	274 ppm	TOTAL HARDNESS	929 ppm
MAGNESIUM:	59 ppm	BICARBONATE:	990 ppm
CHLORIDE:	19,061 ppm	SODIUM CHLORIDE(Calc)	31,355 ppm
SODIUM+POTASS:	16,635 ppm	TOT. DISSOLVED SOLIDS:	37,644 ppm
IODINE:		POTASSIUM CHLORIDE:	

REMARKS

GALLUP WATER TO BE DISPOSED IN SANCHEZ O'BRIEN NO.1

STIFF TYPE PLOT (IN MEQ/L)



ANALYST DAVID SHEPHERD

SMITH ENERGY SERVICES
A DIVISION OF ALLIED PRODUCTS CORPORATION

2198 East Bloomfield Highway
Farmington, New Mexico 87401
Phone (505) 327-7281

SMITH ENERGY SERVICES a division of Allied Products
WATER ANALYSIS

Apr. 9, 1991

04-08-91
DUGAN PRODUCTION CORP
JOHN ALEXANDER
Date Sampled: 04-07-91
Well: GOLD MEDAL #5

Formation:
Legals:
County:
Report No.: 91007

Specific Gravity:	1.030	pH:	7.50
Chloride:	27,900.0 mg/l	Calcium:	734 mg/l
Bicarbonate:	61.0 mg/l	Magnesium:	67 mg/l
Sulfate:	20 mg/l	Total Iron:	2.0 mg/l
Sulfide:	0 mg/l	Sodium:	16,960 mg/l
Total Hardness:	2,110 mg/l	Total Diss Solids:	46,044 mg/l
Potassium:	300 mg/l		
Resistivity:	.23 Ohm Meters at 60 Degrees F		

Sample Source:

Remarks:

Your water report was prepared by: M. MILLER

GALLUP WATER TO BE DISPOSED IN SANCHEZ O'BRIEN NO.1

FW01W027

BJ SERVICES COMPANY

WATER ANALYSIS #FW01W027

FARMINGTON LAB

GENERAL INFORMATION

OPERATOR:	DUGAN PRODUCTION	DEPTH:	
WELL:	SANCHEZ O'BRIEN #1	DATE SAMPLED:	12/03/97
FIELD:	SEC.6/T24N/R9W	DATE RECEIVED:	12/03/97
SUBMITTED BY:	JOHN ALEXANDER	COUNTY:	SAN JUAN STATE: NM
WORKED BY :	D. SHEPHERD	FORMATION:	MESAVERDE
PHONE NUMBER:			

SAMPLE DESCRIPTION

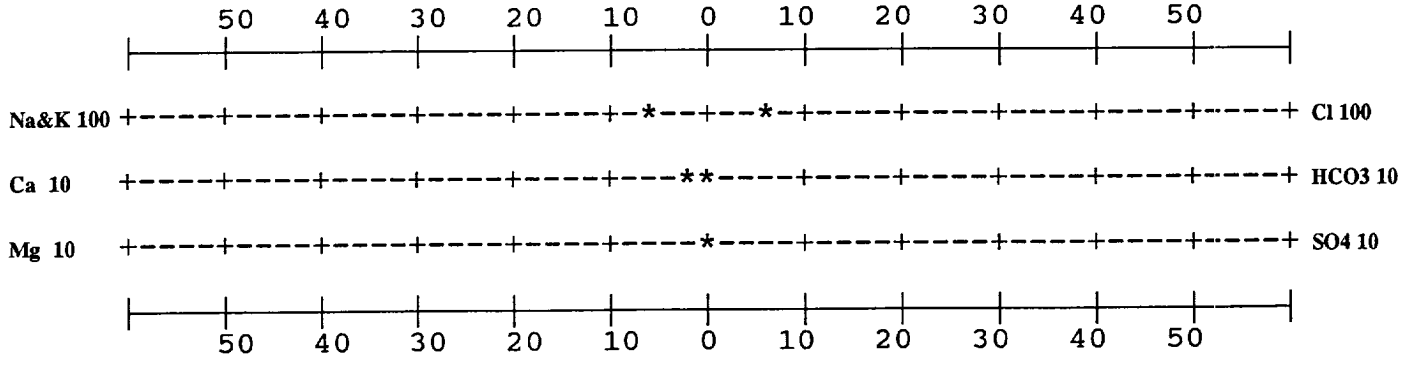
SWAB SAMPLE AFTER 200 BBL.

PHYSICAL AND CHEMICAL DETERMINATIONS

SPECIFIC GRAVITY:	1.025 @ 76°F	PH:	7.23
RESISTIVITY (MEASURED):	0.160 ohms @ 76°F		
IRON (FE++) :	3 ppm	SULFATE:	0 ppm
CALCIUM:	336 ppm	TOTAL HARDNESS	1,074 ppm
MAGNESIUM:	57 ppm	BICARBONATE:	548 ppm
CHLORIDE:	22,137 ppm	SODIUM CHLORIDE(Calc)	36,415 ppm
SODIUM+POTASS:	14,065 ppm	TOT. DISSOLVED SOLIDS:	37,823 ppm
H2S: NO TRACE		POTASSIUM (PPM):	84

REMARKS

STIFF TYPE PLOT (IN MEQ/L)



ANALYST _____

D. SHEPHERD

Application for Authorization to Inject

Dugan Production Corp.

Sanchez O'Brien No. 1

Part VIII - Geological Data

The proposed injection interval is the Mesa Verde from 2635 - 4436. The Ojo Alamo is know to be a source of stock water in the area. The Ojo Alamo is at 938 - 1035 in this well. There are no drinking water sources below the Mesa Verde interval. The tops of all formations present in this well follow:

Ojo Alamo	938
Kirtland	1035
Fruitland	1490
Pictured Cliffs	1767
Chacra	2131
Cliff House	2635
Menefee	2831
Point Lookout	4252
Mancos	4436
Gallup	5042
Greenhorn	6182
Graneros	6246
Dakota	6285

Part IX - Stimulation

After injection rate tests, it may be necessary to stimulate the Mesa Verde by acidizing or fracturing. It may also be necessary to add perforations to the Mesa Verde interval in addition to that already perforated (4255-4390).

Part X - Logging and Test Data

All logs for the proposed injection well and offsets are on file with The Oil Conservation Division in Aztec, NM.

Part XI - Fresh water Samples

Two fresh water wells are present within one mile of the proposed injection well. Dugan Production Corp. 16 G's water well (also known as the East Bisti Unit No. 108), and a well at the Breathern In Christ Mission located in NE/4 S.12-T.24N-R.10W. Samples from both of these wells are attached.

SMITH ENERGY SERVICES
A DIVISION OF ALLIED PRODUCTS CORPORATION

2198 East Bloomfield Highway
Farmington, New Mexico 87401
Phone (505) 327-7281

1000' DEEP

SMITH ENERGY SERVICES a division of Allied Products
WATER ANALYSIS

Jun. 11, 1990

06-11-90
DUGAN PRODUCTION
JOHN ALEXANDER
Date Sampled: 06-05-90
Well: GOOD TIMES FIELD H20 WELL
SIXTEEN G's WATER well
OJO ALAMO

Formation:
Legals:
County:
Report No.: 90054

Specific Gravity:	1.000	pH:	8.50
Chloride:	1,200.0 mg/l	Calcium:	281 mg/l
Bicarbonate:	85.4 mg/l	Magnesium:	388 mg/l
Sulfate:	110 mg/l	Total Iron:	.0 mg/l
Sulfide:	0 mg/l	Sodium:	-251 mg/l
Total Hardness:	2,300 mg/l	Total Diss Solids:	1,913 mg/l
Potassium:	100 mg/l		
Resistivity:	11.80 Ohm Meters at 60 Degrees F		

Sample Source:

Remarks:

Your water report was prepared by: WALLACE W. WALTERS

OJO ALAMO WATER WELL

FW01W029

BJ SERVICES COMPANY

WATER ANALYSIS #FW01W029

FARMINGTON LAB

GENERAL INFORMATION

OPERATOR: DUGAN PRODUCTION
WELL: BLANCO TRADING WATER WELL
FIELD:
SUBMITTED BY: JOHN ALEXANDER
WORKED BY : D. SHEPHERD
PHONE NUMBER:

DEPTH:
DATE SAMPLED: 12/03/97
DATE RECEIVED: 12/04/97
COUNTY: SAN JUAN STATE: NM
FORMATION: N/A

SAMPLE DESCRIPTION

SAMPLE FOR ANALYSIS

PHYSICAL AND CHEMICAL DETERMINATIONS

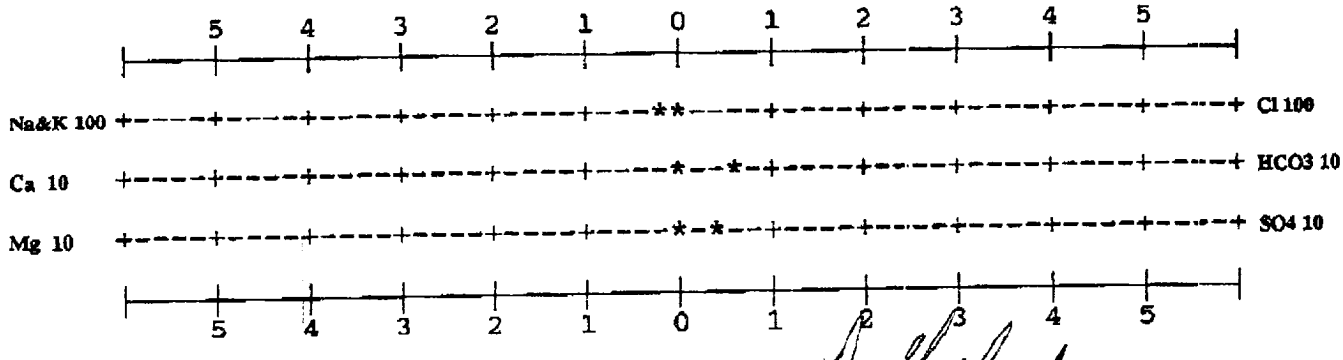
SPECIFIC GRAVITY: 1.000 @ 80°F PH: 9.41
RESISTIVITY (MEASURED): 10.000 ohms @ 77°F

IRON (FE++) :	0 ppm	SULFATE:	150 ppm
CALCIUM:	4 ppm	TOTAL HARDNESS	20 ppm
MAGNESIUM:	2 ppm	BICARBONATE:	427 ppm
CHLORIDE:	53 ppm	SODIUM CHLORIDE(Calc)	87 ppm
SODIUM+POTASS:	258 ppm	TOT. DISSOLVED SOLIDS:	908 ppm
H2S: NO TRACE		POTASSIUM CHLORIDE: 0	

REMARKS

OJO ALAMO WATER WELL ~ 1000± 'DEEP

STIFF TYPE PLOT (IN MEQ/L)



ANALYST D. Shepherd
D. SHEPHERD

Application for Authorization to Inject

Dugan Production Corp.

Sanchez O'Brien No. 1

Part XII - Statement of Geologic and Engineering Data

I have examined available geologic and engineering data associated with this application and find on evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

John Alexander 12/4/97

John Alexander, Vice President, Dugan Production Corp. Date

Application for Authorization to Inject

Dugan Production Corp.

Sanchez O'Brien No. 1

Part XIII Proof of Notice

Attached are proof's of notice to offset operators, land owner, and legal notice published in Farmington Daily Times.

AFFIDAVIT OF PUBLICATION

No. 38818

STATE OF NEW MEXICO
County of San Juan:

DENISE H. HENSON being duly sworn says: That she is the Classified Manager of THE 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 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 publication on the following day(s):

Friday, December 5, 1997;

and the cost of publication is: $16.75 .

Denise H. Henson

On 12-17-97 DENISE H. HENSON appeared before me, whom I know personally to be the person who signed the above document.

Reese Allen

My Commission Expires November 1, 2000

COPY OF PUBLICATION

Legals

Dugan Production Corp., P.O. Box 420, Farmington, NM 87499 is making application for administrative approval to dispose of produced water by underground injection. Contact person is John Alexander, phone 505-325-1821. The proposed disposal site is the Sanchez O'Brien No. 1, located 1650' fsl & 990' fwl, Sec. 6-Twn. 24N-Rng.9W, San Juan Co. NM. Water will be injected into the Mesa Verde formation between 3280' and 4390'. Maximum injection pressure is 747 psi. Maximum injection rate is 1,000 barrels of water daily. Any interested parties must file objections or requests for hearing with the Oil Conservation Division P.O. Box 2088, Santa Fe, NM 87504-2088 within 15 days.

Legal No. 38818 published in The Daily Times, Farmington, New Mexico, on Friday, December 5, 1997.

dugan production corp.

December 5, 1997

Bureau of Land Management
1235 La Plata Highway
Farmington, NM 87401

--CERTIFIED MAIL, RETURN RECEIPT REQUESTED--

Re: Notice of Intent to Complete Salt Water Disposal Well

Gentlemen:

Dugan Production Corp. has made an application for administrative approval to convert its Sanchez O'Brien No. 1, 1650' fsl & 990' fwl, S.6-Twn.24N-Rng.9W, San Juan Co., NM, to salt water disposal service. Injection will be into the Mesa Verde formation between 2635' and 4436'. Records indicate that all portions of S.1-Twn.24N-Rng.10W, except the E/2 or NE/4, all of S.12-Twn.24N-Rng.10W are unleased. A copy of the application is attached.

You must file objections or request for hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, NM 87504-2088 within 15 days.

Please contact the undersigned employee if you have any questions concerning this application.

Sincerely,

John Alexander
Vice President

Attachment

709 E. MURRAY DR. • P. O. BOX 420 • FARMINGTON, N.M. 87499-0420 • PHONE: (505) 325-1821 • FAX# (505) 327-4613

dugan production corp.

December 5, 1997

Chevron USA Inc.
Box 1635
Houston, TX 77251

--CERTIFIED MAIL, RETURN RECEIPT REQUESTED--

Re: Notice of Intent to Complete Salt Water Disposal Well

Gentlemen:

Dugan Production Corp. has made an application for administrative approval to convert its Sanchez O'Brien No. 1, 1650' fsl & 990' fwl, S.6-Twn.24N-Rng.9W, San Juan Co., NM, to salt water disposal service. Injection will be into the Mesa Verde formation between 2635' and 4436'. Records indicate that you are the lessee of the E/2 of NE/4 S.1-Twn.24N-Rng.10W. A copy of the application is attached.

You must file objections or request for hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, NM 87504-2088 within 15 days.

Please contact the undersigned employee if you have any questions concerning this application.

Sincerely,

John Alexander
Vice President

Attachment

709 E. MURRAY DR. • P. O. BOX 420 • FARMINGTON, N.M. 87499-0420 • PHONE: (505) 325-1821 • FAX# (505) 327-4613

dugan production corp.

December 9, 1997

Bureau of Land Management
1235 La Plata Highway
Farmington, NM 87401

--CERTIFIED MAIL, RETURN RECEIPT REQUESTED--

Re: Notice of Intent to Complete Salt Water Disposal Well

Gentlemen:

Dugan Production Corp. has made an application for administrative approval to convert its Sanchez O'Brien No. 1, 1650' fsl & 990' fwl, S.6-Twn.24N-Rng.9W, San Juan Co., NM, to salt water disposal service. Injection will be into the Mesa Verde formation between 2635' and 4436'. Records indicate that you are the surface owner. A copy of the application is attached.

You must file objections or request for hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, NM 87504-2088 within 15 days.

Please contact the undersigned employee if you have any questions concerning this application.

Sincerely,

John Alexander
Vice President

Attachment

709 E. MURRAY DR. • P. O. BOX 420 • FARMINGTON, N.M. 87499-0420 • PHONE: (505) 325-1821 • FAX# (505) 327-4613

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "*Return Receipt Requested*" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

3. Article Addressed to:
Chevron USA Inc.
Box 1635
Houston, TX 77251-1635

4a. Article Number
P 358 627 118

4b. Service Type
☐ Registered ☑ Certified
☐ Express Mail ☐ Insured
☑ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
DEC - 9 1997

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X

PS Form **3811**, December 1994 Domestic Return Receipt

PS Form 38
Postmark or Date
12-05 97

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "*Return Receipt Requested*" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

3. Article Addressed to:
Bureau of Land Management
1235 La Plata Highway
Farmington, NM 87401

4a. Article Number
P 358-627-117

4b. Service Type
☐ Registered ☑ Certified
☐ Express Mail ☐ Insured
☑ Return Receipt for Merchandise ☐ COD

7. Date of Delivery

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X

PS Form **3811**, December 1994 Domestic Return Receipt

PS Form 38
Postmark or Date
12-5 97

Sandra O'Brien SWD

SENDER:
- Complete items 1 and/or 2 for additional services.
- Complete items 3, 4a, and 4b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "*Return Receipt Requested*" on the mailpiece below the article number.
- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

Is your RETURN ADDRESS completed on the reverse side?

Thank you for using Return Receipt Service.

3. Article Addressed to:
Bureau of Land Management
1235 La Plata Highway
Farmington, NM 87401

4a. Article Number
P 358 627 119

4b. Service Type
☐ Registered ☑ Certified
☐ Express Mail ☐ Insured
☑ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
12-11-97

5. Received By: *(Print Name)*

8. Addressee's Address *(Only if requested and fee is paid)*

6. Signature: *(Addressee or Agent)*
X

PS Form **3811**, December 1994 Domestic Return Receipt

PS Form
Postmark or Date
12-10-97

dugan production corp.

January 17, 1998

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

Re: AMEND APPLICATION FOR AUTHORIZATION TO INJECT

Gentlemen:

Dugan Production request the following amendments to its Application for Authorization to Inject for the Sanchez O'Brien No. 1:

- Change the injection interval to cover the entire Mesa Verde formation from 2131' - 4436'. The original application ask for the interval 2635' - 4436'.

- Change the perforated interval to 3300' - 4390'. The original application showed the interval to be 4255' - 4390'. This will allow the proposed packer setting depth of 3250' to be within 50' of the top perforation.

The original application was dated 12/4/97 for the Sanchez O'Brien No. 1, 1650' fsl & 990' fwl, S.6-T.24N-R.9W, San Juan Co., NM. These amendments are made pursuant to discussion with the Aztec OCD office. They do not materially change the intent or scope of the original application.

Sincerely,

John Alexander

John Alexander
Vice President

709 E. MURRAY DR. • P. O. BOX 420 • FARMINGTON, N.M. 87499-0420 • PHONE: (505) 325-1821 • FAX# (505) 327-4613