RB OPERATING COMPANY

2412 N. GRANDVIEW, SUITE 201
ODESSA, TEXAS 79761

February 25, 1991

State of New Mexico
Energy & Minerals Department
Oil Conservation Division
P. O. Box DD
Artesia, NM 88210

Gentlemen:

RB Operating is requesting administrative approval for injection of produced water in a disposal well located in Section 24, Township 23 South, Range 28 East, Eddy County, New Mexico. Attached are the completed required forms for your approval. Also attached is a notice of publication in Eddy County, New Mexico. All offset operators and land owners have been notified by certified mail at the same time the legal notice was published.

If you have any further questions please contact the under5signed at (915) 362-6302.

Yours Very Truly

James L. Shatzsall
Sr. Production Engineer

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

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

FORM C-108
Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

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

II. Operator: RB Operating Company

Address: 2412 N. Grandview, Suite 201, Odessa, TX 79761

Contact party: F. D. Schoch Phone: (915) 362-6302

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: James L. Shatzsall Title Sr. Production Engineer

Signature: James L Shatzsall Date: 1-8-91

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

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division 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, 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.

INJECTION WELL DATA SHEET

SIDE 1

RB OPERATING COMPANY	SOUTH CULEBRA BLUFF			
OPERATOR	LEASE			
6	1980' FNL & 660' FWL	24	23S	28E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic

SEE ATTACHED

Tabular Data

Surface Casing

Size 13-3/8 " Cemented with 600 sx.

TOC Surface feet determined by visual

Hole size 17-1/2"

Intermediate Casing

Size 7-5/8" " Cemented with 3055 sx.

TOC 3600 feet determined by Temp Survey

Hole size 11"

Long string

Size 4-1/2" " Cemented with 450 sx.

TOC 6802 feet determined by Pressure Test Top Liner

Hole size 6-1/4"

Total depth 9506'

Injection interval

4526 feet to 4696 feet

(perforated or open-hole, indicate which)

Tubing size 2-7/8" lined with Plastic coating (material) set in a

Watson Arrowset I (brand and model) packer at ±4400' feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Cherry Canyon

2. Name of Field or Pool (if applicable) _____

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

   If no, for what purpose was the well originally drilled? Producer from Bone Springs

   6392-8840' overall

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used)

   Brushy Canyon 6174-6249'. CIBP at 6323' w/ 35' cement.

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. No known zone above the proposed interval ±6070 Brushy Canyon, ±6350 Bone Springs,

   ± 11700 Atoka

ITEM VII-Proposed Operation Data

1. Average Daily Volume 2000 Bbls.
   Maximum Daily Volume 4000 Bbls.

2. The system will be a closed system

3. Average Injection Pressure 1400 PSI
   Maximum Injection Pressure 1800 PSI

4. Reinjected produced water only

5. The Cherry Canyon is not produced within 2 miles of the proposed disposal well therefore a chemical analysis is not available. However the characteristics should be similar to the Brushy Canyon due to the proximity of the two zones.

ITEM VIII-Geologic Data

Freshwater sands are found down to a depth of 458 feet, in the SCB # 6. These water sands are contained within the Ogalalla Formation and Recent alluvium and are underlain by shale and anhydrite , from 500 feet to 1000 feet. Interbedded salt and anhydrite are found from 1000 feet to 2640 feet, which is the top of the Delaware Mountain Group. Freshwater sands do not occur below 458 feet in the immediate vicinity.

The proposed disposal zone (4526-4696) is in the Cherry Canyon Formation, which is part of the Delaware Mountain Group. In the SCB #6 well, the Cherry Canyon top is at 3592 feet and the base is at 4760 feet. Alternating sands and shales comprise 95% of the Cherry Canyon Formation. The sand is fine grained, white to light gray sub-rounded to sub-angular, and somewhat friable, porosity ranges from 16 to 23 %. Shale intervals, occur above and below the proposed injection zone, and are dark gray to black, micaceous, and silty. The shale acts as an effective barrier to vertical flow of injected water and would maintain the integrity of the proposed interval.

ITEM IX-Stimulation

Acidize as may be required to clean up formation.

ITEM X-Logs

The logs have been previously submitted by Delta Drilling Company in 1980 when the well was drilled and completed.

ITEM XI-Fresh water analysis

See attached

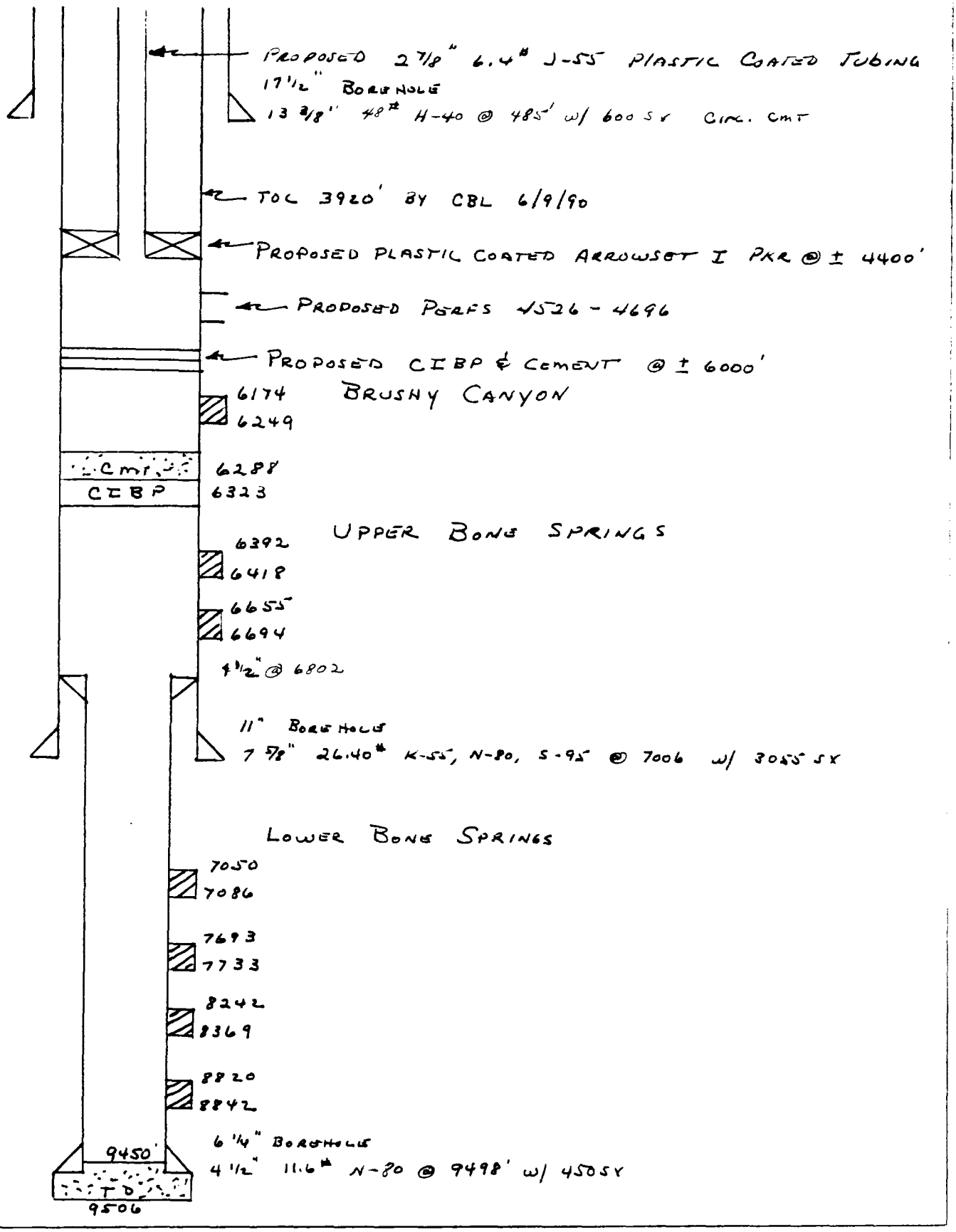
ITEM XII-

A review of the existing geologic and engineering data do not reveal any evidence of faulting or any other geologic abnormally which would indicate a potential communication problem between the proposed disposal zone an fresh water sources. As previously indicated, the shale intervals provide an effective barrier to vertical flow.

RAMCO-RB Operating

PROJECT SCB #6
SW-NW- Sec 24-23S-28E

PAGE ____ OF ____
BY JLS DATE 1/8/91



№ 12872

Affidavit of Publication

State of New Mexico,
County of Eddy, ss.

E. C. Cantwell, being first duly sworn, on oath says:

That he is publisher of the Carlsbad Current-Argus, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the state wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

January 15 , 1991

January 22 , 1991

January 29 , 1991

, 19

that the cost of publication is $28.50, and that payment thereof has been made and will be assessed as court costs.

E C Cantwell

Subscribed and sworn to before me this

29th day of January , 1991

Notary Public

My commission expires 06-01-92

January 15, 22, 29, 1991

NOTICE OF APPLICATION FOR FLUID INJECTION WELL PERMIT

RB Operating Company, 2412 North Grandview, Suite 201, Odessa, Texas 79761 has applied to the Oil Conservation Division for a permit to inject produced water into the South Culebra Bluff #6 located 1980' FNL & 660' FWL, Section 24, Township 23 South, Range 28 East, Eddy County, New Mexico.

The applicant proposed to inject fluid into the Cherry Canyon Formation into Strata in the subsurface interval from 4526' to 4696'. A maximum injection rate of 4000 BPD is proposed with a maximum injection pressure of 1800 PSI. Request for information concerning any aspect of the application should be directed to Mr. F.D. Salgado at the above address, or at (915)-362-6302. 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 of publication.

P O BOX 1468
MONAHANS, TEXAS 79756
PH 943-3234 OR 563-1040

Martin Water Laboratories, Inc.

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

LABORATORY NO. 291155

TO: Mr. Fritz Schoch
2412 North Grandview, Odessa, TX 79761

SAMPLE RECEIVED 2-15-91
RESULTS REPORTED 2-20-91

COMPANY RB Operating, Inc. LEASE South Culebra Bluff

FIELD OR POOL

SECTION ___ BLOCK ___ SURVEY ___ COUNTY Eddy STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Raw water - taken from Draper's house water well.

NO. 2 Raw water - taken from Reid's house water well.

NO. 3 Raw water - taken North of South Culebra Bluff #23-11.

NO. 4 Sample #4.

REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0071	1.0069	1.0071	1.0083
pH When Sampled				
pH When Received	7.06	7.11	7.17	7.07
Bicarbonate as HCO_3	281	288	354	351
Supersaturation as $CaCO_3$				
Undersaturation as $CaCO_3$				
Total Hardness as $CaCO_3$	2,575	2,625	2,675	3,800
Calcium as Ca	712	728	692	940
Magnesium as Mg	193	196	230	352
Sodium and/or Potassium	915	886	995	1,543
Sulfate as SO_4	2,001	2,055	2,109	2,245
Chloride as Cl	1,598	1,545	1,669	3,214
Iron as Fe	1.5	0.40	20.1	0.64
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	5,700	5,698	6,048	8,645
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen,				
Hydrogen Sulfide	0.0	0.0	0.0	0.0
Resistivity, ohms/m at 77° F.	1.17	1.18	1.12	0.720
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

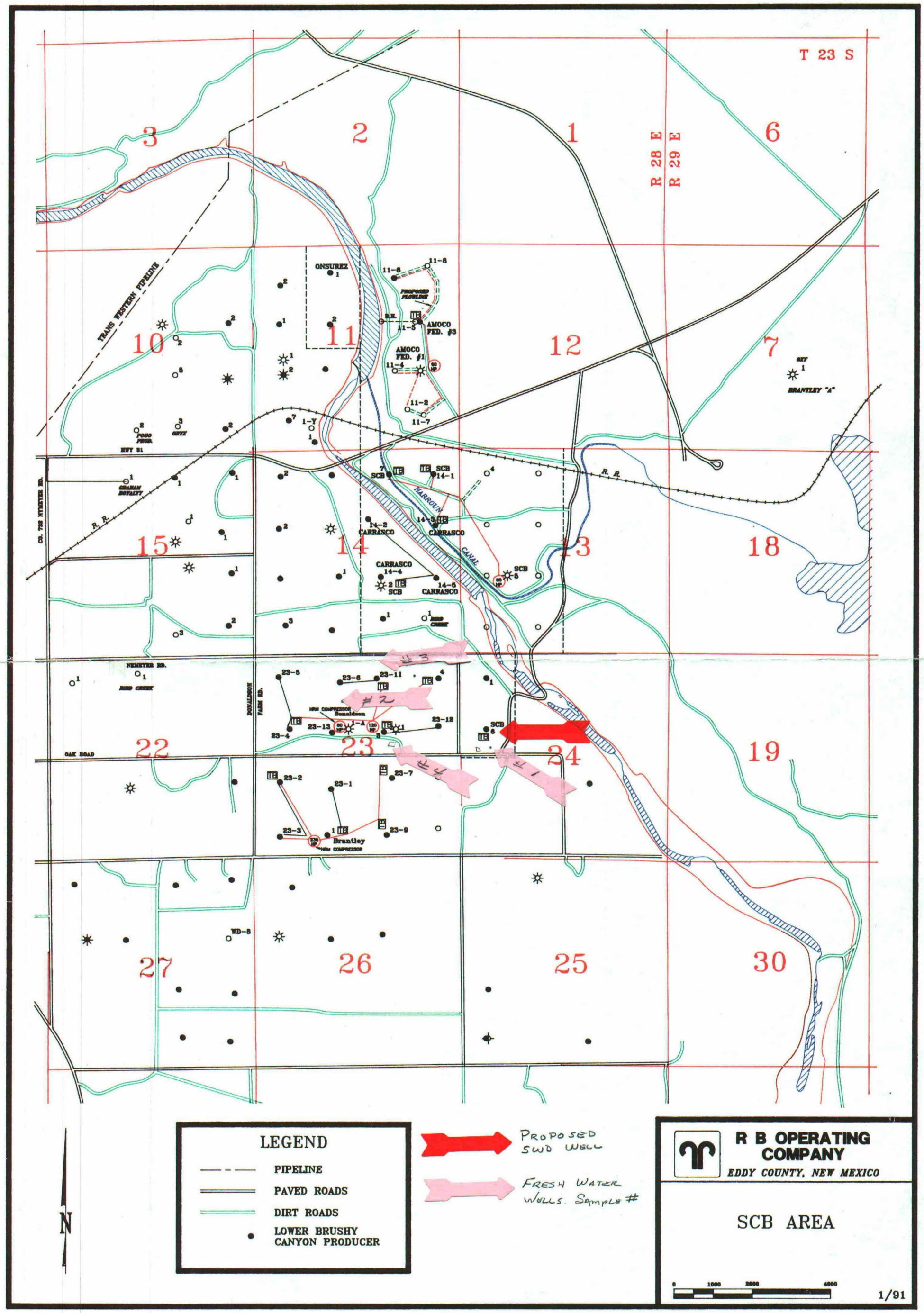
Additional Determinations And Remarks The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Form No. 3

By Ronnie Tucker
Ronnie D. Tucker, B.S.

Item VI-Offset Wells

WELL	TYPE	DATE DRILLED	LOCATION	DEPTH	SURFACE CASING	CEMENT	PRODUCTION CASING	CEMENT	PERFORATIONS	OPERATOR
Candelario # 1	Oil	11/90	NW-NW Sec 24-23S-28E	6310	8 5/8-543	350 sx	5 1/2-6310	1700 sx	6150-6162	RB Oper C
South Culebra Bluff # 1	Gas	11/77	SW-NE Sec 23-23S-28E	11897	13 3/8-418	500 sx	9 5/8-~~2705~~ 6355 7-11750	2705 sx 1405 sx	11750-11897 Open hole	RB Oper C
South Culebra Bluff #3	Oil	1/79	SW-NE Sec 23-23S-28E	8000	13 3/8-485	625 sx	7 5/8-6345	2890 sx	6190-6202 6214-6226	RB Oper C
South Culebra Bluff # 4	Oil	8/79	NE-NE Sec 23-23S-28E	9800	13 3/8-440	550 sx	7 5/8-6345 4 1/2-5786 -9800	6200 sx 475 sx	6183-6244	RB Oper C
South Culebra Bluff # 23-7	Oil	5/90	NW-SE Sec 23-23S-28E	6300	8 5/8-542	350 sx	5 1/2-6300	1600 sx	6138-6208	RB Oper C
South Culebra Bluff # 23-12	Oil	6/90	SE-NE Sec 23-23S-28E	6350	8 5/8-579	350 sx	5 1/2-6310	1795 sx	6180-6234	RB Oper C


T 23 S
R 28 E
R 29 E
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25
26
27
30
TRANS WESTERN PIPELINE
ONSUREZ
PROPOSED FLOWLINE
AMOCO FED. #3
AMOCO FED. #1
11-2
11-4
11-5
11-6
11-7
SCB 14-1
SCB 5
SCB 6
CARRASCO 14-2
CARRASCO 14-3
CARRASCO 14-4
CARRASCO 14-5
HARROUN CANAL
R. R.
HWY 31
CO. 732 KYLSTER RD.
GRAHAM ROYALTY
POGO FED.
GETTY
BIRD CREEK
NEMEYER RD.
DONALDSON FARM RD.
OAK ROAD
Donaldson
Brantley
BRANTLEY "A"
WD-8
#3
#2
#4
#1
23-1
23-2
23-3
23-4
23-5
23-6
23-7
23-9
23-11
23-12
23-13
LEGEND
PIPELINE
PAVED ROADS
DIRT ROADS
LOWER BRUSHY CANYON PRODUCER
PROPOSED SWD WELL
FRESH WATER WELLS. SAMPLE #
N
R B OPERATING COMPANY
EDDY COUNTY, NEW MEXICO
SCB AREA
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2000
4000
1/91