SWD 3/29/00

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 SOUTH PACHECO
SANTA FE, NEW MEXICO 87505

FORM C-108
Revised 4-1-98

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____ Secondary Recovery _____ Pressure Maintenance __X__ Disposal _____ Storage
Application qualifies for administrative approval? __X__ Yes _____ No

II. OPERATOR: El Paso Energy Raton, L.L.C.

ADDRESS: P O Box 190, Raton, NM 87740-0190

CONTACT PARTY: Don Lankford PHONE: 505-445-4621

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? __X__ Yes _____ No
If yes, give the Division order number authorizing the project: N/A

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 geologic data on the injection zone including appropriate lithologic detail, geologic 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 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 sources 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: Sharon Hindman TITLE: Regulatory Agent

SIGNATURE: Sharon Hindman DATE: 3/13/2000

* 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 circumstances of the earlier submittal: 7/22/99

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 applicatio 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 advertisemer 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.

El Paso Energy Raton, L.L.C.
Vermejo Park Ranch "A", Well #42 Water Disposal
1619.4' FNL & 2510.6' FWL
Section 1, T-31N, R-19-E
Colfax County, New Mexico

Attachment A

III. Well Data

Section A:

1. Lease Name: Vermejo Park Ranch "A", Well #42 (Water Disposal)

   Location: 1619.4' FNL & 2510.6' FWL, Sec. 1, T-31-N, R-19-E, Colfax Co. NM

2. Casing & Cementing (Wellbore Diagram attached)

   Proposed:

Casing Size	Setting Depth	Sacks Cement	Hole Size	Top of Cement
13 3/8"	350'	200 sx	17 ½"	Surface
10 ¾"	2600'	500 sx	12 ¼"	Surface
7 5/8"	6440'	1100 sx	9 7/8"	Surface
5 ½"	7200'	750 sx	6 ¾"	Surface

3. Tubing: 2 7/8" 6.5# J-55 @ +/- 6350'

4. Packer: Baker Model R-3 @ +/- 6350'

Section B:

1. Injection Formation: Dakota/Entrada Sand

   Field Name: Vermejo Park Ranch

2. Injection Interval: Dakota/Entrada Sandstone +/- 6400' – 7350' (perforated interval)

3. Original Purpose of Well: Drilled for the purpose of disposing of produced Formation water.

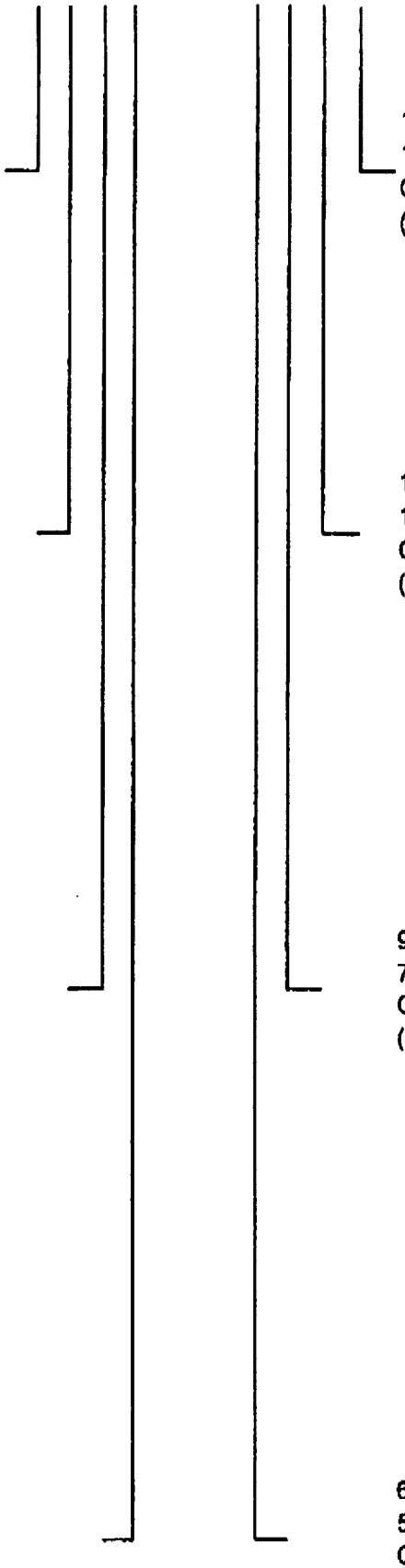
4. No other perforated intervals

5. Next Higher gas/oil zone: Vermejo Formation at approximately 2300'
   Next Lower gas/oil zone: None

IV. This is an expansion of an existing project.

V. Map attached – "Attachment B", two mile & ½ mile radius area of review.

VPR'A'-42 WDW
Casing and Cementing Program



17 1/2" hole
13 3/8" 48# H-40 surface casing @ 350'
Cement with 200 sx. Midcon 2 @ 13.5 ppg. 1.76 yld.
(100% excess)

12 1/4" hole
10 3/4" 40.5# J-55 casing @ 2600' (above Pierre Shale)
Cement with 400 sx. Silica Lite @ 12.0 ppg. 2.07 yld.
(CBL will be run if unable to circ. cement to surface)

9 7/8" hole
7 5/8" 26.4# J-55 casing @ +/-6440' (Into Dakota)
Cement with 1100 sx. MidCon 2 @ 12.0 ppg. 2.49 yld.
(CBL will be run if unable to circ. cement to surface)

6 3/4" hole
5 1/2" 15.5# J-55 casing @ +/- 7200' (below Entrada)
Cement with 650 sx. MidCon 2 @ 12.0 ppg. 2.49 yld.
followed with 100 sx. Class 'G' @ 14.6 ppg., 1.46 yld.
(CBL will be run)

El Paso Energy Raton, L.L.C.
Vermejo Park Ranch "A", Well #42 Water Disposal
1619.4' FNL & 2510.6' FWL
Section 1, T-31N, R-19-E
Colfax County, New Mexico

VI. Area of Review

There are no wells within one half mile of the proposed disposal well that penetrate the target formation.

VII. Operation Data:

1. Proposed average daily injection volume: 14,000 BWPD
   Proposed maximum daily injection volume: 20,000 BWPD

2. This well will be a closed system.

3. Proposed average daily injection pressure: 875 psi
   Proposed maximum daily injection pressure: 2000 psi due to step rate

4. Sources of injection/disposal water will be from the Vermejo and Raton Formation CBM wells that have been drilled or are scheduled to be drilled on the Vermejo Park Ranch.

5. Chlorides in the Entrada Formation are estimated to be between 1133 to 11,795 PPM as described in the "Attachment C" C-1, C-2 and C-3 Water Analysis Pantechs Laboratories taken from area wells – as available
   Chemical analysis of water zones penetrated while drilling were obtained by Roy Johnson, District 4, Oil Conservation Division, Santa Fe, NM.

VII. Geological Data:

Information pertaining to the lithological details and thickness are limited to the Eustace #1, located in Section 36, T-32-N, R-19-E, Unit J, 2500' FSL & 2300' FEL. Logs on the Eustace #1 were previously submitted to the Oil Conservation Division. (Eustace #1 Form C-103 & C-105 attached)

VIII. Stimulation Program

Anticipated frac job will be 200,000# 20/40 sand w/cross linked gell @ 5# per gallon.

X. Logs and Test Data

Well has not been logged to date, the Oil Conservation Division, Att: Roy Johnson, Santa Fe, NM, is on the distribution list for all logs

XI. Fresh Water

Roy Johnson, OCD took fresh water samples, during drilling

El Paso Energy Raton, L.L.C.
Vermejo Park Ranch "A", Well #42 Water Disposal
1619.4' FNL & 2510.6' FWL
Section 1, T-31N, R-19-E
Colfax County, New Mexico

XII. Statement

To the best of our current knowledge of the area there is no evidence of open Faults or other hydrologic connection between and disposal zone and underground Sources of drinking water.

XIII. Proof of Notice attached as "Attachment D"

El Paso Energy Raton, L.L.C. offsets Section 1 on all sides.

XIV. Certification: **Form C-108 "Application for Authorization to Inject"**

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

Form C-101
Revised March 17, 1999

Submit to appropriate District Office
State Lease - 6 Copies
Fee Lease - 5 Copies

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

[1] Operator Name and Address	[2] OGRID Number
Sonat Raton, L.L.C P.O. Box 190; Raton New Mexico 87740	180514
	[3] API Number: 30 – 007- 20143

[4] Property Code	[5] Property Name	[6] Well No.
24648	Vermejo Park Ranch	VPR A-42 WDW

[7] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	01	31N	19E		1619.4 ft.	FNL	2510.6 ft.	FWL	Colfax

[8] Proposed Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

[9] Proposed Pool 1	[10] Proposed Pool 2
Entrada	Dakota

[11] Work Type Code	[12] Well Type Code	[13] Cable/Rotary	[14] Lease Type Code	[15] Ground Level Elevation
N	S	air / rotary	P	8289'(GL)
[16] Multiple	**[17] Proposed Depth**	**[18] Formation**	**[19] Contractor**	**[20] Spud Date**
no	7200'	Entrada	Aztec	January 20, 2000

[21] Proposed Casing and Cement Program

Hole Size	Casing Size	Casing weight/foot	Setting Depth	Sacks of Cement	Estimated TOC
17 ½"	13 3/8"	48#	350'	200 sx.	Surface
12 ¼""	10 ¾"	40.5#	2600	500 sx.	Surface
9 7/8"	7 5/8"	26.4#	6440'	1100 sx.	Surface
6 ¾"	5 ½"	15.5#	7200'	750 sx.	Surface

22 Describe the proposed program. If this application is to DEEPEN or PLUG BACK, give the data on the present productive zone and proposed new productive one. Describe the blowout prevention program, if any. Use additional sheets if necessary.

1. Drill 17 ½" surface hole to 350'. Set 13 3/8" casing and cement to surf. with 200 sx. Midcon 2, at 13.5 ppg., 1.76 yld., 100% excess.
2. Drill 12 ¼" hole to just above Pierre Shale at approx. 2600'. Set 10 ¾" csg. Cement with 400 sx. Silica Lite at 12 ppg., 2.07 yld., followed by 100 sx. Class 'G' at 13.5 ppg., 1.76 yld. Cement bond log will be run if unable to circulate cement to surface.
3. Drill 9 7/8" hole to Dakota fmt. at approx. 6440'. Set 7 7/8" csg. Cement with 1100 sx. Midcon 2 (12.0 ppg., 2.49 yld., 100% excess). Cement bond log will be run if unable to circulate cement to surface.
4. Drill 6 ¾" hole through Entrada fmt. at approx. 7120'. Open hole logs to include induction resistivity, caliper, density, and gamma ray. Set 5 ½" csg. Cement with 650 sx. Midcon 2 (12.0 ppg, 2.17 yld.) followed by 100sx. Class 'G' (14.6 ppg, 1.46 yld.)
5. Perforate Entrada fmt. attempt to catch native formation water sample. Conductinjectivity test. Sand frac if necessary to establish satisfactory injection rate.

[23] I hereby certify that the information given above is true and complete to the best of my knowledge and belief.

Signature: DR Lankford

Printed name: Donald R. Lankford

Title: Senior Petroleum Engineer

Date: 6/23/99 | Phone: (713)546-4621 (505)447-1379

OIL CONSERVATION DIVISION

Approved by: [signature]

Title: DISTRICT SUPERVISOR

Approval Date: 1/21/00 | Expiration Date: 1/21/01

Conditions of Approval: [illegible] SACK [illegible] NEW MEX[illegible] OF M[illegible] [illegible]ORRO AT AT [illegible]

Attached ☐

Attachment C-1

PANTLEHS LABORATORIES

☐ P. O. BOX 2439 TEL. 806 669-6821 PAMPA, TEXAS 79066-2439

☐ P. O. BOX 3246 TEL. 806 797-4325 LUBBOCK, TEXAS 79452-3246

WATER ANALYSIS

SAMPLING DATA

Lab #.....0689
Customer.....VERMEJO MINERALS CORP.
Sample ID.....# Well # 8
Produced Water
Date sampled.....3-1-90
Sampling point.....--
Sample temp (deg. F)..... 75
Sampled by.....Veracjo
Analysis date.....3-7-90

REMARKS:

Cimarron, New Mexico Area

Color:
Gray; cloudy; suspended Solids

DISTRIBUTION

J-Vermejo Minerals Corporation
Rte 1 Box 68
Cimarron, New Mexico 87714

Mr Larry Williamson

ANALYTICAL DATA

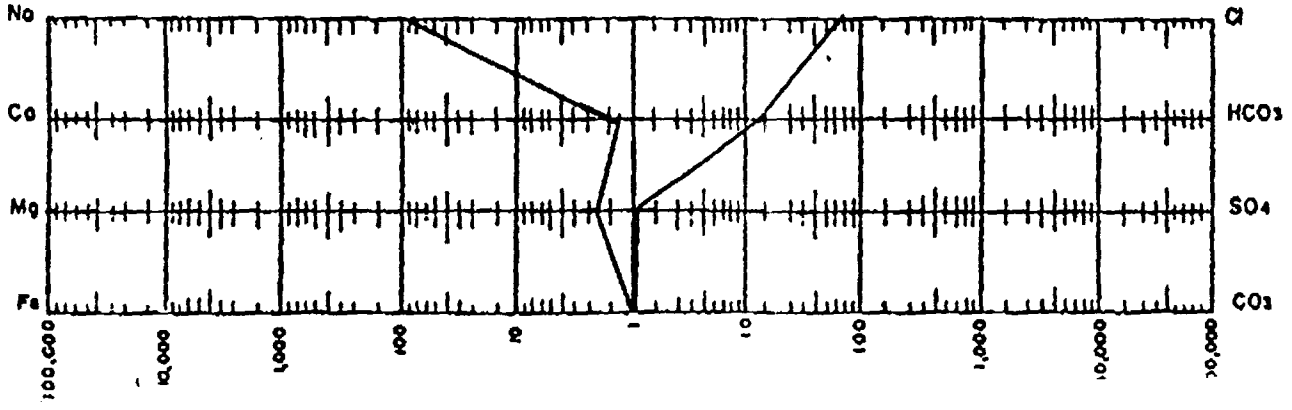
pH	8.09
Specific gravity @ 75 deg. F	1.0031
Resistivity (ohm-m)	1.19
Filterable solids (mg/l)	166.8
Carbon dioxide (CO2) mg/l	NA
Sulfide (as H2S) mg/l	NA
Total hardness (as CaCO3) mg/l	NA

DISSOLVED SOLIDS

Cations	meq/l	mg/l	ppm
Sodium (Na)	85.4	1963	1957
Calcium (Ca)	1.5	30	30
Magnesium (Mg)	2.5	30	30
Iron (Fe), total	.7	20	20
Potassium (K)	NA	NA	NA
Barium (Ba)	NA	NA	NA
Anions			
Chloride (Cl)	71.2	2524	2516
Sulfate (SO4)	0	0	0
Carbonate (CO3)	0	0	0
Bicarbonate (HCO3)	18.9	1153	1149
Hydroxide (OH)	0	0	0
Total dissolved solids (calculated)	180.2	5720	5702

Analysis By: Steve Hopkins

Water Patterns (meq/l)
Logarithmic



Attachment C-2

PANTECHS LABORATORIES

☐ P. O. BOX 2439 TEL. 806 669-6821 PAMPA, TEXAS 79066-2439

☐ P. O. BOX 3246 TEL. 806 797-4325 LUBBOCK, TEXAS 79452-3246

WATER ANALYSIS

SAMPLING DATA

Lab #.....0687
Customer.....VERMEJO MINERALS CORP.
Sample ID.....# Well # 1
Produced Water
Date sampled.....3-1-90
Sampling point.....--
Sample temp (deg. F)..... 75
Sampled by.....Vermejo
Analysis date.....3-7-90

REMARKS:

Cimarron, New Mexico Area

Color:
Yellow; cloudy; suspended solids

DISTRIBUTION

3-Vermejo Minerals Corporation
Rte 1 Box 68
Cimarron, New Mexico 87714

Mr Larry Williamson

ANALYTICAL DATA

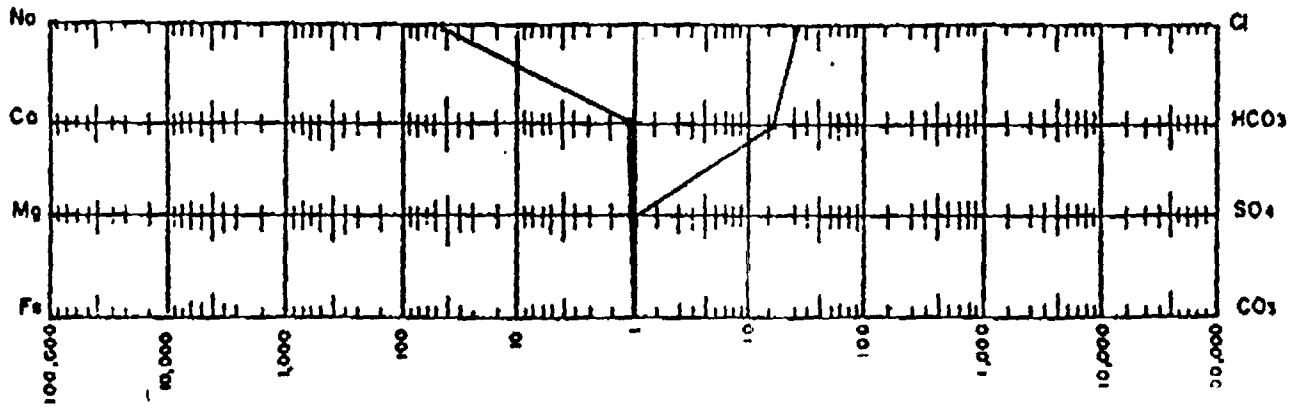
pH	8.14
Specific gravity @ 75 deg. F	1.0005
Resistivity (ohm-m)	1.98
Filterable solids (mg/l)	10.8
Carbon dioxide (CO2) mg/l	NA
Sulfide (as H2S) mg/l	NA
Total hardness (as CaCO3) mg/l	NA

DISSOLVED SOLIDS

Cations	meq/l	mg/l	ppm
Sodium (Na)	53.7	1235	1234
Calcium (Ca)	.9	18	18
Magnesium (Mg)	.7	9	9
Iron (Fe), total	0	0.	0
Potassium (K)	NA	NA	NA
Barium (Ba)	NA	NA	NA
Anions			
Chloride (Cl)	32	1134	1133
Sulfate (SO4)	0	0	0
Carbonate (CO3)	0	0	0
Bicarbonate (HCO3)	23.3	1421	1420
Hydroxide (OH)	0	0	0
Total dissolved solids (calculated)	110.6	3817	3814

Analysis By: Steve Hopkins

Water Patterns (meq/l)
Logarithmic



PANTI CHS LABORA ORIES

☐ P. O. BOX 2439 TEL. 806 669-6821 PAMPA, TEXAS 79066-2439
☐ P. O. BOX 3246 TEL. 806 797-4325 LUBBOCK, TEXAS 79452-3246

Attachment C-3

WATER ANALYSIS

SAMPLING DATA

Lab #.....0586
Customer.....VERMEJO MINERALS CORP.
Sample ID.....# Well # P
Produced Water
Date sampled.....1-30-90
Sampling point.....--
Sample temp (deg. F)..... 75
Sampled by.....Vermejo
Analysis date.....2-5-90

REMARKS:

Cimarron, New Mexico Area

Color:
Orange W/Suspended Solids

DISTRIBUTION

3-Vermejo Minerals Corporation
Rte 1 Box 68
Cimarron, New Mexico 87714

Mr Larry Williamson

ANALYTICAL DATA

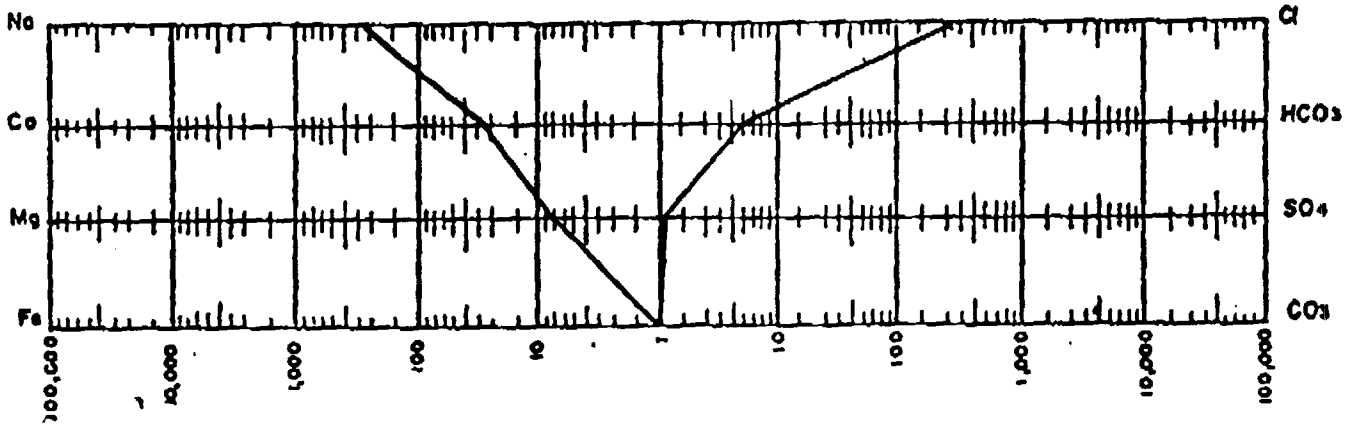
pH	6.37
Specific gravity @ 75 deg. F	1.0141
Resistivity (ohm-m)	.31
Filterable solids (mg/l)	566
Carbon dioxide (CO2) mg/l	NA
Sulfide (as H2S) mg/l	NA
Total hardness (as CaCO3) mg/l	NA

DISSOLVED SOLIDS

Cations	meq/l	mg/l	ppm
Sodium (Na)	302.2	6948	6851
Calcium (Ca)	32.6	653	644
Magnesium (Mg)	7.6	92	91
Iron (Fe), total	1.1	31	31
Potassium (K)	NA	NA	NA
Barium (Ba)	NA	NA	NA
Anions			
Chloride (Cl)	337.4	11961	11795
Sulfate (SO4)	.1	5	5
Carbonate (CO3)	0	0	0
Bicarbonate (HCO3)	6	366	361
Hydroxide (OH)	0	0	0
Total dissolved solids (calculated)	687	20056	19770

Analysis By Steve Hopkins

Water Patterns (meq/l)
Logarithmic



ATTACHMENT "D"

XIII. Proof of Notice

Surface Owner:

Vermejo Park, L.L.C.
P. O. Drawer E
Raton, NM 87740

Working/Offset & Royalty Owners:

El Paso Energy Raton, L.L.C.
P. O. Box 1513
Houston, Texas 77251-1513
Attn: Stephen P. Guerin, P.E.

PennzEnergy, Exp. & Prod., L.L.C.
c/o Devon Energy Corp.
20 N. Broadway Suite 1500
Oklahoma City, Oklahoma 73102
Attn: Ken Gray

Copies of the Oil Conservation Division, Form C-108 have been sent to the above stated parties by certified mail on this the 13th day of March, 2000.

Sharon Hindman Regulatory Agent
El Paso Energy Raton, L.L.C.
P. O. Box 190
Raton, NM 87740

Affidavit of Publication

STATE OF NEW MEXICO)
) ss.
COUNTY OF COLFAX)

The undersigned, being first duly sworn according to law, on his/her oath deposes and says that he/she is the business manager of the newspaper named "The Raton Range" and that he/she has personal knowledge of the facts stated herein; that the said "The Raton Range" is a twice-weekly newspaper of general paid circulation printed and published in the County of Colfax and State of New Mexico and entered under the Second class postal privilege in said County, and having been uninterruptedly and continuously printed and published in said County during the period of more than six months to the date of publishing of the first issue of the publication next prior or notice concerning which this affidavit is made and a copy of which is hereto attached; that said newspaper is duly qualified for that purpose under the laws of the state of New Mexico; that the publication, a printed copy of which is hereunto attached and made a part of this affidavit, was published in said newspaper once each week for 1 successive weeks, said paid publication having been made on the following dates, to-wit:

First publication:	The 3 day of March,	2000
Second publication:	The ___ day of ___________,	200___
Third publication:	The ___ day of ___________,	200___
Fourth publication:	The ___ day of ___________,	200___
Fifth publication:	The ___ day of ___________,	200___
Sixth publication:	The ___ day of ___________,	200___

Margaret Massine [signature]
Business Manager

Subscribed and sworn to before me this 13th day of March, 2000.

Ruby J. Contreras [signature]
Notary Public

OFFICIAL SEAL
RUBY J. CONTRERAS
NOTARY PUBLIC
STATE OF NEW MEXICO
MY COMMISSION EXPIRES: 1-24-04

PUBLISHER'S BILL

59 lines, 8pt. type, 1 Times, 30.96
2.17

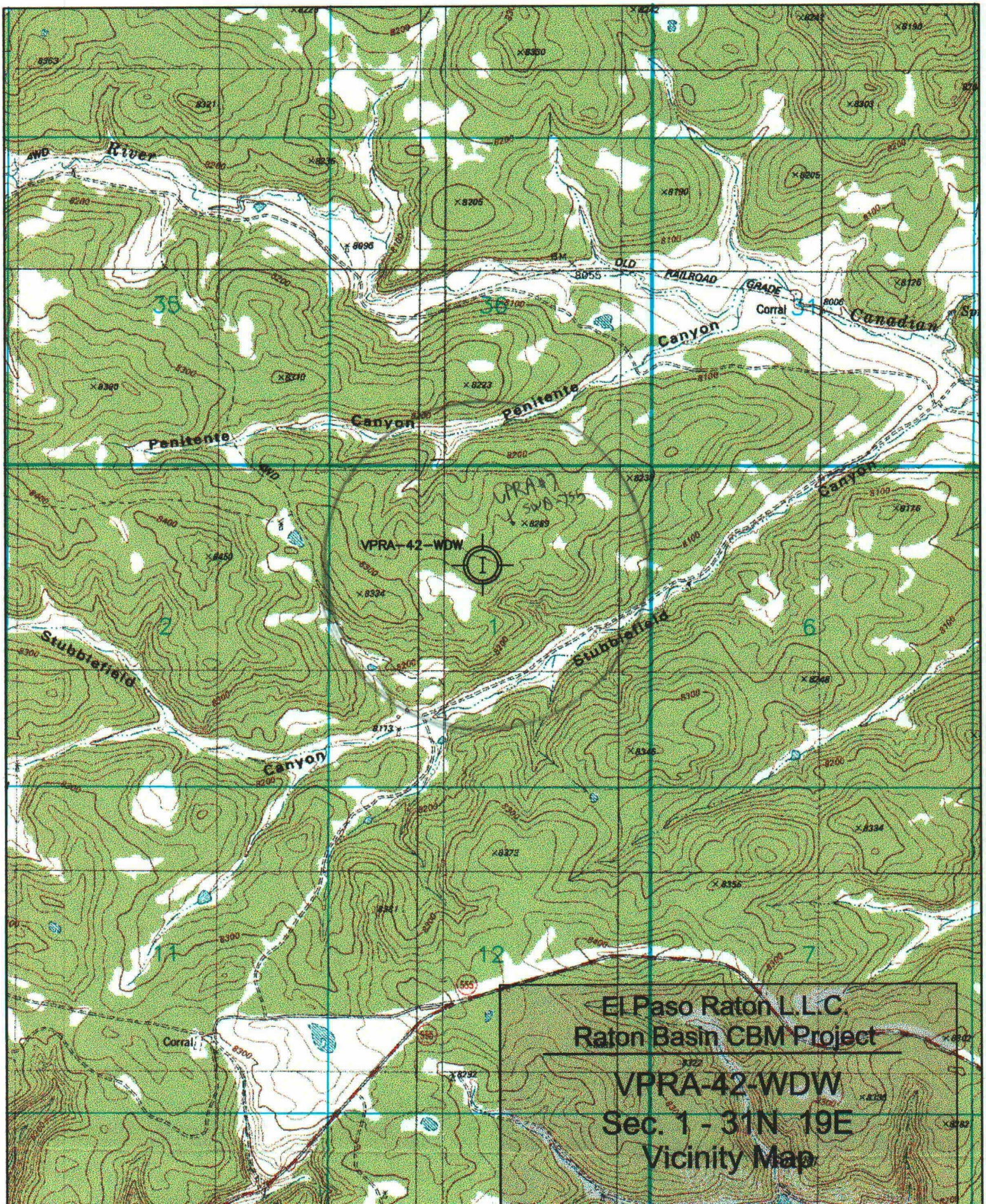
Notice of Application for Fluid Injection Well Permit

El Paso Energy Raton, L.L.C., P.O. Box 190, Raton, New Mexico 87740 is seeking administrative approval from the New Mexico Oil Conservation Division to complete their Vermejo Park Ranch "A" Well #42, located in Section 1, T-31-N, R-19-E, Vermejo Park Ranch "D" Well #25 located in Section 5, T-30-N, R-18E, Vermejo Park Ranch "B" Well #27, Section 36, T-30-N, R-18-E, Colfax County, New Mexico as water disposal wells. The proposed interval is the [illegible] Entrada Sand from an estimated depth of 6400-7350'. El Paso Energy Raton, L.L.C. intends to inject a maximum of 25,000 bbls of produced formation water per day per well at a maximum injection pressure of 1240 psi.

Interested parties must file objections or request for hearing with the Oil Conservation Division, 2040 S. Pacheco, Santa Fe, N.M. 87505 within 15 days of this notice.

Thank you,
Ann E. Ritchie,
Regulatory Agent
El Paso Energy Raton, L.L.C.
C/O P.O. Box 953
Midland, TX 79702
1-800-432-2967, (915) 682-1458 fax
e-mail: [illegible]
aritchie9676@aol.com
Legal No. 29400.

ILLEGIBLE


VPRA-42-WDW
Penitente Canyon
Stubblefield Canyon
Corral
OLD RAILROAD GRADE
Canadian
El Paso Raton L.L.C.
Raton Basin CBM Project
VPRA-42-WDW
Sec. 1 - 31N 19E
Vicinity Map