aband SUBMIT IN TRI 1. Type of Well Oil Well Gas Well 2. Name of Operator Cimarex Energy Co. of Colorad 3a Address 5215 N. O'Connor Blvd., Ste. 1 4. Location of Well (Footage, Sec., T., R., M.	BUREAU OF LAND SUNDRY NOTICES AND F of use this form for propos doned well. Use form 3160- IPLICATE - Other instruction Other do	MANAGEMENT REPORTS ON WELL als to drill or to re-e -3 (APD) for such pro	Hobbs, NM S nter an oposals.	Ation Divisi FORM APPROVED OMB MORPHONED Inch Drive Expires July 31, 1996 SS2493se Serial No NM-016663 6. If Indian, Allottee or Tribe Name 7. If Unit or CA/Agreement, Name and/or No. 8. Well Name and No. HE Roelofs Federal NCT-1 No. 1 9. API Well No. 30-041-20314 10. Field and Pool, or Exploratory Area Todd; Wolfcamp
21-7S-35E 1980 FSL & 1980 FEL	/			11. County or Parish, State Roosevelt County, NM
	ROPRIATE BOX(ES) T	O INDICATE NAT		E, REPORT, OR OTHER DATA
TYPE OF SUBMISSION			YPE OF ACTION	
Notice of Intent	Acidize	Deepen Fracture Treat New Construction Plug and Abandon	Production (Start/F	Well Integrity Other
Final Abandonment Notice	Convert to Injection	Plug Back	Water Disposal	
13. Describe Proposed or Completed Operation If the proposal is to deepen directionally or Attach the bond under which the work will following completion of the involved opera- testing has been completed Final Aband determined that the site is ready for final i Cimarex Energy Co. of Colora Water Production and Disposal	r recomplete horizontally, give substi- be performed or provide the Bond M ations. If the operation results in a n donment Notices shall be filed only a inspection.) ado respectfully requests a	urface locations and measure No. on file with BLM/BIA. R nultiple completion or recor after all requirements, includ	red and true vertical dep lequired subsequent repo npletion in a new interval ding reclamation, have be	oths of all pertinent markers and zones. orts shall be filed within 30 days I, a Form 3160-4 shall be filed once
14. I hereby certify that the foregoing is true a	ind correct	Title		
Name (Printed/Typed)			. .	
Natalie Krueger Signature	Analyst			
1) Jatali K	me or -	May 13, 20	09	
	THIS SPACE FO	R FEDERAL OR STA		
Approved by /S/DAVID Conditions of Approval, if any, are attached certify that the applicant holds legal or equi which would entitle the applicant to conduc	table title to those rights in the sub			M ENGINEER MAY 1 4 2009 E ATTACHED FOR TIONS OF APPROVAL
Title 18 U.S.C. Section 1001, makes it a cri	ime for any person knowingly and			
fraudulent statements or representations as (Instructions on reverse)	s to any matter within its jurisdictic	חר.		PA

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(Instructions	on	reverse)	

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WATER PRODUCTION & DISPOSAL INFORMATION

In order to process your disposal request, the following information must be completed:

1. Name(s) of all formation(s) producing water on this lease.

Todd; Wolfcamp

2. Amount of water produced from all formations in barrels per day.

15.4 bpd

,

- 3. Attach a current water analysis of produced water from all zones showing at least the total dissolved solids, pH, and the concentrations of chlorides and sulfates.
- 4. How water is stored on the lease.

1 210 bbl fiberglass tank

5. How water is moved to the disposal facility.

Trucked

- 6. Identify the disposal facility by:
 - A. Facility Operator's Name: Stearns
 - B. Name of facility or well name and number: <u>Gray No. 1</u>
 - C. Type of facility or well (WDW, WIW), etc.: SWD
 - D. Location by ¹/₄ ¹/₄, Section, Township, and Range: <u>NENW 18-9S-34E</u>
- 7. Attach a copy of the state-issued permit for the Disposal Facility.

Submit 1 original and 5 copies within the required time frame with 3160-5. This form may be used as an attachment to the sundry notice.

Scale Predictions from Baker Petrolite

3

Analysis of Sample 467465 @ 75 °F for CIMAREX ENERGY, 4/25/09





GOVERNOR

,

STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

> OIL CONSERVATION DIVISION HOBBS DISTRICT OFFICE

6/14/99 SWD-751

POST DFFICE BOX 1980 HOBBS, NEW MEXICO 88241-1980 (505) 393-6161

OIL CONSERVATION DIVISION P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

RE:	Propos	sed:	
	MC		
	DHC		
	NSL		
	NSP		
	SWD	X	
	WFX		

Gentlemen:

PMX

I have examined the application for the:

1-C-18-95-34e Stearns Lease & Well No. Unit Operator

and my recommendations are as follows:

QK-

Yours very truly,

Villiams

Chris Williams Supervisor, District 1

/ed

APPLICATION FOR SALT WATER DISPOSAL GRAY #1

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Copy

APPLICATION FOR AUTHORIZATION TO INJECT

I.		XX_DisposalStorage No
II.	OPERATOR: John R. Stearns, d/b/a., Stearns ADDRESS: HC 65 Box 988 Crossroads, NM 88114	
	CONTACT PARTY: John R. Stearns	PHONE: 675-2356

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

- Is this an expansion of an existing project? Yes XX No IV. If yes, give the Division order number authorizing the project:
- 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. V.
- Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed VI. 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.
- Attach data on the proposed operation, including: VII.
 - 1. Proposed average and maximum daily rate and volume of fluids to be injected;

 - Whether the system is open or closed;
 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.
- Describe the proposed stimulation program, if any. IX.
- Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need *X. not be resubmitted).
- Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within *XI. one mile of any injection or disposal well showing location of wells and dates samples were taken.
- Applicants for disposal wells must make an affirmative statement that they have examined available geologic XII. 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.
- Applicants must complete the "Proof of Notice" section on the reverse side of this form. XIII.
- Certification: I hereby certify that the information submitted with this application is true and correct to the best XIV. of my knowledge and belief.

NAME John R. Stearns	TITLE: Owner
SIGNATURE Han S. Stratter	DATE: 6-2-99

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:

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 the 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, 2040 South Pacheco, Santa Fe, New Mexico 87505, 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.

Side 2

INJECTION WELL DATA SHEET

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John R. Stearns dba Stea		y #1	
Operator #1 660' FNL 3300 FE	Lease L 18	9S	34E
Well No. Footage Location	Section	Township	Range
Lea, <u>New Mexòco</u>			
County			
Schematic	Tabular	Data	
	Surface Casing		
	Surface Casing 12 3/	4 " Cemented Wi	th ³⁷⁵ _sx.
	TOCSurface fe	et determined by Cil	rculation
E 12 ³ /4 0 357'	Hole size 15"		
	Intermediate Casing	30(n
8 5/8 [°] @ 3978 [°]	size8_5/8"		
8 5/8" @ 3978	тос <u>2700</u> f	et determined by <u>C1</u>	rculațion
	Hole size 11"		
2 1/8" tubing	Long String		
	Size5_1	Cemented with 5	<u>00</u> sr
	TOC_7900fe	t determined by <u>Cir</u>	culation
	Hole size 7 7 / 8 "		
	Total depth9692 '		
MODEL R @ 9400			
Perfs@ 9662-9618'	Injection Interval		
TD@9692'	<u>9662</u> feet t (Perforated or open hole, i	.o <u>9678</u> indicate which.)	िल्द
	·		
Tubing size <u>2 7 1/8 "</u> lined with <u>IPC &</u>	D.1770	Model R	
(Materi	al)	(Brand or	Model)
packer at 9600 first, or describe any other	casing-lubing seal.		
Other Data 1. Name of the injection formation <u>Bough</u> C	Penn Form	ation	
2. Name of field or pool, (if applicable). Vada	Репп		
3. Is this a new well drilled for injection?			
If no, for what purpose was the well originally drille	an Penn Oil P	roduction	
4. Has the well been perforated in any other zone (s)? or bridge plug (s) used. None	List all such perforated inter		letail (sacks of cement
5. Give the depth to and the name of any overlying and			
<u>Abo-approx. 7900</u>			48001
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Tabulation of data on all wells of Public Record in the Area of Review

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Willow Creek Resources, Inc. DeSchmidt Federal #1	1980' FNL 660' FEL Sec 13 T9S - R33E Drilled 1/4/1979 Total Depth 9700' Perfs. @ 9644-9664 P & A 3/7/1996 12 3/4' csg in 17" hole set @ 452' w/450 sx TOC suf. 8 5/8" csg in 11" hole set @ 3930' w/750 sx TOC 1880' 5 1/2 csg in 7 7/8" hole set @ 9700' w/325 sx TOC 7900'
Maurice L. Brown Company Sheridan #1	660' FSL 660' FEL Sec. 12 - T9S - R33E Drilled 8/14/1972 Total Depth 9655' Perfs. @ 9620'-9640' P & A 2/16/1978 11 3/4" csg in 15" hole set @ 375' w/350 sx TOC sur. 8 5/8" csg in 11" hole set @ 4000' w/375sx TOC 3000' 5 1/2" csg in 7 7/8" hole set @ 9655' w/400 sx TOC 7500'
Read & Stevens, Inc. Duncan Comm. #1	1980' FSL 660' FWL Sec. 18 - T9S - R34E Drilled 12/28/1971 Total Depth 9691' Perfs. @ 9632'-9652' P & A 10/26/1983 12 3/4" csg in 15" hole set @ 351 w/375 sx TOC sur. 8 5/8" csg in 11" hole set @ 3983' w/300 sx TOC 2700 5 1/2" csg in 7 7/8" hole set @ 9691' w/500 sx TOC 7900'
Maurice L. Brown Company US Young Comm. #1	1980' FSL 1980' FEL Sec 7 - T9S - R34E Drilled 7/6/1971 Total Depth 9706' Perfs. @ 9648'-9668' P & A 10/23/79 12 3/4" csg in 17" hole set @ 370' w/ 350 sx TOC sur. 8 5/8" csg in 11" hole set @ 3964' w/375 sx no TOC 5 1/2" csg in 7 7/8" hole set @ 9706' w/400 sx TOC 4000'
Maurice L. Brown Company Keohane #1	 3300' FEL 660' FSL Sec. 7 - T9S - R34E Drilled 8/26/1971 Total Depth Perfs. @ 9634'-9661' P & A 13 3/8" csg in 17.5" hole set @ 350' w/375 sx TOC sur 8 5/8" csg in 11" hole set @ 4000' w/375 sx TOC 2500 5 1/2" csg in 7 7/8" hole set @ w/ 400 sx TOC 4000'

Amoco Production Company Pruitt "B" #1

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1980' FSL 1980' FEL Sec. 18 - T9S - R34E Drilled 10/701972 Total Depth 9718' Perfs. @ 9669'-9692' P & A

12 3/4" csg in 17" hole set @ 355' w/ 350 sx TOC sur. 8 5/8" csg in 11" hole set @ 3956' w/400sx TOC 3956' 5 1/2" csg in 7 7/8" hole set @ 9718' w/300sx TOC 7400'

660' FNL 1980' FEL Sec. 18 - T9S - R34E Drilled 9/16/1971 Total Depth 9710' Perfs. @ P & A 2/3/1983

12 3/4" csg in 17" hole set @ 320' w/ 350 sx TOC sur. 8 5/8" csg in 11" hole set @ 3955' w/ 250 sx no TOC 5 1/2" csg in 7 7/8" hole set @ 9710' w/ 600sx no Toc

Amoco Production Company Pruitt "B" #2 Willow Creek Resources, Inc. DeSchmidt Federal #1 1980' FNL, 660' FEL Sec 13-T9S-R33E





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Maurice L. Brown Company Sheridan #1 660' FSL, 660' FEL Sec. 12-T9S-R33E



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SUPPLEMENTAL DATA

Form C - 108

- VII. 1. Proposed average daily injection rate is 2000 B/D with an anticipated rate of 2500 B/D.
 - 2. The injection system will be open.
 - 3. The injection pressure at the well head is anticipated to be no more than 100 psi.
 - 4. Source of the injection fluid will be from the Bough "C", San Andres, Devonian, and Wolfcamp zones.
 - 5. There are no active Penn wells within the prescribed Area of Review or within a two (2) square mile area of the proposed injection well.
- VIII. 1. The Bough "C" or Penn Zone is a fine crystalline vuggy limestone of the Pennsylvanian Age, identified by late Criso Fossils. The gross zone is normally 20'-30' thick and in the proposed injection well is found at a depth of 9662'-9678'.
 - 2. Fresh water zones are almost non-existent in this area. A few wells of low capacity have been found at a depth of 90-250 feet.
- IX. 1. No stimulation of the well is planned except for acid to be dumped down tubing.
- Well logs are on file with the OCD. Last production on the well was February of 1999. Due to low production, the well is non-economic to produce.

Pro-Kem, Inc.

WATER ANALYSIS REPORT

SAMPLE

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Cil Co. : N/A Lease : Delbert Brown Well No.: **# 1** Lab No. : 041799.001 Sample Loc. : Fresh Water Date Analyzed: 17-April-1999 Date Sampled : 15-April-1999

ANALYSIS

1. pH 7.890 2. Specific Gravity 60/60 F. 1.006 3. CaCO ₃ Saturation Index @ 80 F. +0. @ 140 F. +1.3	633			
Dissolved Gasses	MG/L	EQ. WT.	*MEQ/L	
4. Hydrogen SulfideNot5. Carbon DioxideNot Det6. Dissolved OxygenNot Det				
<u>Cations</u> 7. Calcium (Ca++) 8. Magnesium (Mg++) 9. Sodium (Na+) (Calculated) 10. Barium (Ba++) Not Dete	104 63 270 ermined	/ 20.1 = / 12.2 = / 23.0 =	5.17 5.16 11.74	
Anions 11. Hydroxyl (OH ⁻) 12. Carbonate (CO ₃ ⁼) 13. Bicarbonate (HCO ₃ ⁻) 14. Sulfate (SO ₄ ⁼) 15. Chloride (Cl ⁼)	0 229 475 300	/ 17.0 = / 30.0 = / 61.1 = / 48.8 = / 35.5 =	0.00 0.00 3.75 9.73 8.45	
 Total Dissolved Solids Total Iron (Fe) Total Hardness As CaCO₃ Resistivity @ 75 F. (Calculated) 4 	520	/ 18.2 =	0.36	
LOGARITHMIC WATER PATTERN *meq/L.	PROBA COMPOUND	BLE MINERAL EQ. WT. X	COMPOSIT: *meq/L =	ION mg/L.
Na M itt Mitt Mitt Mitt I Hill - Hill - Hill - Hill - Hill - Hill C l	Ca (HCO3)	2 81.04	3.75	304
Ca Hint HILL HILL HILL HILL HILL HILL HILL HIL	CaSO4	68.07	1.43	97
Mg	CaCl ₂	55.50	0.00	С
Fe	Mg(HCO3)	2 73.17	0.00	0
Calcium Sulfate Solubility Profile	MgS04	60.19	5.16	311
	MgCL ₂	47.62	0.00	0
	NaHCO3	84.00	0.00	0
	$NaSO_4$	71.03	3.14	223
1136 1118 Temp *f, 50 78 28 118 138 136 128	NaCl	58.46	8.45	494
his water is mildly corrosive due to the p	™nill H observed	i Equivalen	ts per Li	ter

his water is mildly corrosive due to the pH observed on analysis. The corrosivity is increased by the content of mineral salts in solution.

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XII AFFIRMATIVE STATEMENT

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As required by Item XII of form C-108, John R. Stearns dba. STEARNS, has examined available geologic and engineering data and found no evidence of open faults or other hydrologic connection between the disposal zone and any other underground source of drinking water.



April 26, 1999

TO WHOM IT MAY CONCERN:

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JOHN R. STEARNS, d/b/a STEARNS, has made application with the Oil

Conservation Division of the Energy and Minerals Department of the State of New

Mexico for the purpose of operating a disposal well located as follows, to wit:

660 feet from the North line, 3300 feet from the East line of Section 18, township 9 South, Range 34 East, N.M.P.M., Lea County, New Mexico. Said well more commonly known as the Gray #1.

The proposed well will dispose liquids into the Penn Zone pursuant to the application enclosed herewith.

Z 262 929 080

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	US Postal Service							
	Receipt for Certified Mail							
	No Insurance Coverage	Provided.						
	Do not use for Internation	nal Mail <i>(See reverse)</i>						
	Sent to Delbert	BROWN						
	Street & Number	PADEM 467						
	Post Office Stress ZIP Cod	NM-288 130						
	Postage JUN	2 1999 33						
	Certified Fee	1.40						
	Special Delivery Fee	1. S.						
2	Restricted Delivery Fee							
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800	TOTAL Postage & Fees	\$ 2.98						
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LEGAL NOTICE

John R. Stearns, dba, Stearns, HC 65 Box 988, Crossroads, NM 88114, 505-675-2356, is making an application to the State of New Mexico, Oil Conservation Division for a permit to dispose of produced water into the Gray #1. The well located 660' FNL and 3300' FEL, Sec. 18-T9S-R34E, Lea County, New Mexico. Injection will be into the Bough "C" (Penn) Formation at a depth of 9662'-9678', anticipated rates of 2000-2500 B/D at 0 pressure.

Interested parties may file objections or request a hearing within 15 days to the Oil Conservation Division, 2040 S. Pacheco, Santa Fe, New Mexico 87505. Published in the Lovington Daily Leader June 3, 1999.

Pitzer, Donna

From:Phillips, DorothySent:Monday, June 14, 1999 2:26 PMTo:Pitzer, DonnaSubject:RE: API NO. for Stearns - OGRID 21566

I tried again, the message reads: double check footage cells, they exceed 2640 fee.

 From:
 Pitzer, Donna

 Sent:
 Monday, June 14, 1999 2:11 PM

 To:
 Phillips, Dorothy

 Subject:
 RE: API NO. for Stearns - OGRID 21566

 6/14/99
 Try again. The total depth of the well was wrong on Ongard. I corrected that

 so the bond should go in now.
 Thanks
 dp

From: Phillips, Dorothy Sent: Monday, June 14, 1999 1:58 PM To: Pitzer, Donna Subject: RE: API NO. for Stearns - OGRID 21566

Donna, I tried to put on ONGARD but it would not accept as it said that footage exceeds amount? The amount on the bond is \$7,500. Do they need more? Let me know. Thanks.

 From:
 Pitzer, Donna

 Sent:
 Monday, June 14, 1999 7:06 AM

 To:
 Phillips, Dorothy

 Subject:
 RE: API NO. for Stearns - OGRID 21566

 --Hi- API # is 30-025-23898
 c104 is here for approval. We will work it today.

Thanks dp

From: Phillips, Dorothy Sent: Thursday, June 10, 1999 1:21 PM To: Pitzer, Donna Subject: API NO. for Stearns - OGRID 21566

Have a one-well bond for approval: John E. Stearns dba Stearns 660' FNL and 3300' FEL of Section 18, Township 9 South, Range 34 East , Lea County.

Need an API, thanks.

North Permian Basin Region P.O. Box 740 Sundown, TX 79372-0740 (806) 229-8121 Lab Team Leader - Sheila Hernandez (432) 495-7240

Water Analysis Report by Baker Petrolite

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CIMAREX ENERGY	Sales RDT:	33517
PERMIAN BASIN	Account Manager:	FRANK GARDNER (575) 390-5194
MILENSAND, NM	Sample #:	467465
ROELOFS UNIT	Analysis ID #:	91104
1	Analysis Cost	\$90.00
UNKNOWN		
WELLHEAD		
	PERMIAN BASIN MILENSAND, NM ROELOFS UNIT 1 UNKNOWN	PERMIAN BASIN Account Manager: MILENSAND, NM Sample #: ROELOFS UNIT Analysis ID #: 1 Analysis Cost UNKNOWN Analysis Cost

Su	mmary	Analysis of Sample 467465 @ 75 °F							
Sampling Date:	4/20/09	Anions	mg/l	meq/l	Cations	mg/l	meq/l		
Analysis Date: Analyst: TDS (mg/l or g/m3 Density (g/cm3, to Anion/Cation Ratio	onne/m3): 1.097	Chloride: Bicarbonate: Carbonate: Sulfate: Phosphate: Borate:	84004.0 61.0 0.0 1102.0	2369.45 1. 0. 22.94	Sodium: Magnesium: Calcium: Strontium: Barium: Iron:	43140.8 1564.0 7545.0 224.0 0.4 16.0	1876.52 128.66 376.5 5.11 0.01 0.58		
Carbon Dioxide: Oxygen: Comments: RESISTIVITY - 0.0	130 PPM N/A 6 OHM-M @ 75°F	Silicate: Hydrogen Sulfide: pH at time of sampling: pH at time of analysis: pH used in Calculation	:	<10 PPM 5.9 5.9	Potassium: Aluminum: Chromium: Copper: Lead: Manganese: Nickel:	235.0 0.300	6.01 0.01		
Conditions	Values Ca	alculated at the Given (Conditions	s - Amounts	of Scale in Ib/10	00 bbl			
Gauge	Calcite	Gypsum	Anhydi	rite	Celestite	Barite	C02		

lomp	Gauge Press.			CaSO 4		SrSO ₄		Barlie BaSO 4		Press		
°F	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	psi
80	0	-0.79	0.00	-0.14	0.00	-0.15	0.00	0.07	19.00	0.43	0.00	0.53
100	0	-0.69	0.00	-0.20	0.00	-0.14	0.00	0.05	14.71	0.24	0.00	0.66
120	0	-0.60	0.00	-0.24	0.00	-0.10	0.00	0.05	13.48	0.08	0.00	0.79
140	0	-0.49	0.00	-0.28	0.00	-0.04	0.00	0.05	14.71	-0.07	0.00	0.92

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

Note 2. Precipitation of each scale is considered separately Total scale will be less than the sum of the amounts of the five scales.

Note 3 The reported CO2 pressure is actually the calculated CO2 fugacity. It is usually nearly the same as the CO2 partial pressure.

BUREAU OF LAND MANAGEMENT Roswell Field Office 2909 West Second Street Roswell, New Mexico 88201 575-627-0272

Disposal of Produced Water From Federal Wells Conditions of Approval

Approval of the produced water disposal methodology is subject to the following conditions of approval:

- 1. This agency shall be notified of any change in your method or location of disposal.
- 2. Compliance with all provisions of Onshore Order No. 7.
- 3. This agency shall be notified of any spill or discharge as required by NTL-3A.
- 4. This agency reserves the right to modify or rescind approval whenever it determines continued use of the approved method may adversely affect the surface or subsurface environments.
- 5. Any on-lease open top storage tanks shall be covered with a wire screen to prevent entry by birds and other wildlife.
- 6. This approval should not constitute the granting of any right-of-way or construction rights not granted by the lease instrument.
- 7. If water is transported via a pipeline that extends beyond the lease boundary, then you need to submit within 30 days an application for right-of-way approval to the Realty Section in this office for wells in Chaves or Roosevelt County if you have not already done so.