DATE IN	SUSPENSE	ENGINEER	LOGGED IN	TYPE	APP NO.
12/7/06	12/23/06	Jones	12/8/06	SWD	pTDS0634231675

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION

- Engineering Bureau -

1220 South St. Francis Drive, Santa Fe, NM 87505

ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

[1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]

[A] Location - Spacing Unit - Simultaneous Dedication
☐ NSL ☐ NSP ☐ SD

Check One Only for [B] or [C]

[B] Commingling - Storage - Measurement
☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
☐ WFX ☐ PMX ☒ SWD ☐ IPI ☐ EOR ☐ PPR

[D] Other: Specify _____

[2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or ☐ Does Not Apply

[A] ☐ Working, Royalty or Overriding Royalty Interest Owners

[B] ☒ Offset Operators, Leaseholders or Surface Owner

[C] ☒ Application is One Which Requires Published Legal Notice

[D] ☐ Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office

[E] ☒ For all of the above, Proof of Notification or Publication is Attached, and/or,

[F] ☐ Waivers are Attached

[3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Martha Howard	Martha Howard	Regulatory Analyst	12/6/2006
Print or Type Name	Signature	Title	Date

martha_howard@swn.com
e-mail Address

Southwestern Energy Company

2350 N. Sam Houston Parkway East
Suite 300
Houston, Texas 77032
(281) 618-4700 FAX: (281) 618-4818

December 6, 2006

Mr. William Jones
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

2006 DEC 7 AM 10 03

Re: Karlsbad Corral SWD No. 1
Section 11, T25S R29E
2,222' FSL & 2,640' FEL

Dear Mr. Jones:

Southwestern Energy Production Company is requesting that a permit be granted to use/drill the Karlsbad Corral SWD No. 1 as a water injection well. Enclosed please find the following information in support of this application:

1. Form C-108
2. Map identifying all wells within two (2) miles with a on-half (½) radius circle around proposed injection well
3. Table of wells within a one-half (½) mile radius of subject well.
4. Injection well data sheet
5. Wellbore diagrams for all wells within a on-half (½) mile radius
6. Water Analysis Report
7. Affidavit of publication and newspaper clipping
8. Administrative Application Checklist
9. Letter attesting to the notification of the affected parties.

Thank you for your timely approval of this application. If you have any questions, I can be reached at 281-618-4887.

Very truly yours,

Martha Howard

Martha Howard
Regulatory Analyst

Attachments
CC: District 2

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

FORM C-108
Revised June 10, 2003

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____Secondary Recovery _____Pressure Maintenance __XX__Disposal _____Storage
Application qualifies for administrative approval? __XX__Yes _____No

II. OPERATOR: Southwestern Energy Production Company

ADDRESS: 2350 N. Sam Houston Parkway East, Suite 190 Houston, Texas 77032

CONTACT PARTY: Martha Howard PHONE: (281) 618-4887

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 __XX__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 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: Martha Howard TITLE: Regulatory Analyst

SIGNATURE: Martha C Howard DATE: 12/6/2006

E-MAIL ADDRESS: martha_howard@swn.com

* 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: _____

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 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, 1220 South St. Francis Dr., 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.

Attachment A

Side 1

INJECTION WELL DATA SHEET

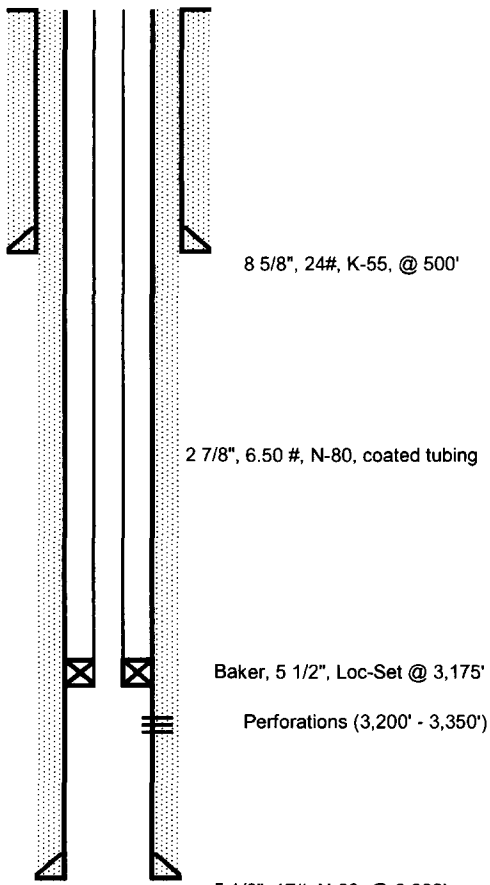
OPERATOR: Southwestern Energy Production Company

WELL NAME & NUMBER: Karlsbad Corral SWD No. 1

WELL LOCATION:	2,222' FSL & 2,640' FEL	11	25S	29E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC

Southwestern Energy Production Company
Proposed Wellbore Diagram
Karlsbad Corral SWD No. 1, Eddy County, New Mexico



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 12-1/4" Casing Size: 8-5/8"

Cemented with: 305 sx. *or* 412 ft

Top of Cement: Surface Method Determined: Circulation

Intermediate Casing

Hole Size: _____ Casing Size: _____

Cemented with: _____ sx. *or* _____ ft

Top of Cement: _____ Method Determined: _____

Production Casing

Hole Size: 7-7/8" Casing Size: 5-1/2"

Cemented with: 641 sx. *or* 1134 ft

Top of Cement: Surface Method Determined: Circulation

Depth: 3600'

Injection Interval

3,200' feet to 3,350'

(Perforated)

INJECTION WELL DATA SHEET

Tubing Size: 2-7/8" Lining Material: Plastic Coated

Type of Packer: Baker 5-1/2" Loc-Set, internally plastic coated

Packer Setting Depth: 3,175' MD

Other Type of Tubing/Casing Seal (if applicable): _____

Additional Data

1. Is this a new well drilled for injection? XX Yes _____ No

   If no, for what purpose was the well originally drilled? _____

2. Name of the Injection Formation: Delaware (Bell Canyon)

3. Name of Field or Pool (if applicable): _____

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

   No other perforated intervals

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed njection zone in this area: _____

   Higher: Delaware (Lamar)

   Lower: Delaware (Cherry Canyon)

6. The proposed well is not located in either a Potash area or WIPP site area.

7. Estimated Formation Tops:

Rustler	553'
Salado	1,683'
Base of Salado	2,903'
Lamar	3,183'
Bell Canyon	3,208'

8. Production casing will be cemented to surface to isolate the salt section of the well from the injection interval. A cement bond log will be run to verify cement placement..

C-108 Application for Authority to Inject
Southwestern Energy Production Company
Karlsbad Corral SWD No. 1
Eddy County, New Mexico

I. The purpose is to drill and complete a salt water disposal well for produced Delaware, Bone Springs, and other source water into the Delaware Sand formation.

Southwestern Energy Production Company plans to drill a new well into the Delaware Sand for the purpose of water disposal.

II. Operator: Southwestern Energy Production Company
2350 N. Sam Houston Parkway East
Suite 190
Houston, Texas 77032
Attn: Martha Howard (281-618-4887)

III. Well Data: See Attachment A

IV. This is not an expansion of an existing project

V. There are no active wells within the ½ mile area of review that penetrate the proposed injection zone. (See Attachment B)

Southwestern Energy Production Company operates three (3) horizontal wells that are producing form the Cherry Canyon 4 Sand of the Delaware Formation Series. The horizontal laterals produce at depth of 5,300' TVD.

VI. Attachment C is a tabulation of well data and wellbore schematics for all wells that fall within the ½ mile area of review.

VII. 1. Proposed average daily injection volume is approximately 2,000 BWPD.
Maximum daily injection volume is approximately 5,000 BWPD

2. This will be a closed system
3. Proposed Average Injection Pressure – unknown
Proposed maximum injection pressure – 1526 psig
4. Sources of injected water would be produced water from the Delaware, Bone Springs, and other sources (Attachment D)
5. There are no productive oil or gas wells in the Bell Canyon formation within 1 mile of the proposed injection well.

VIII. The proposed injection interval is the portion of the Delaware Sand formation consisting of porous sandstone from estimated depths of 3,200' – 3,600' (TD of proposed new well).

IX. The proposed disposal interval may be acidized with 10% HCL acid or proppant fracture.

X. Logs will be filed after the well is drilled.

XI. There are no windmills within a one mile radius of the well location.

XII. Southwestern Energy Production Company has examined geological and engineering data and has found no evidence of faulting in the proposed interval. (Attachment E).

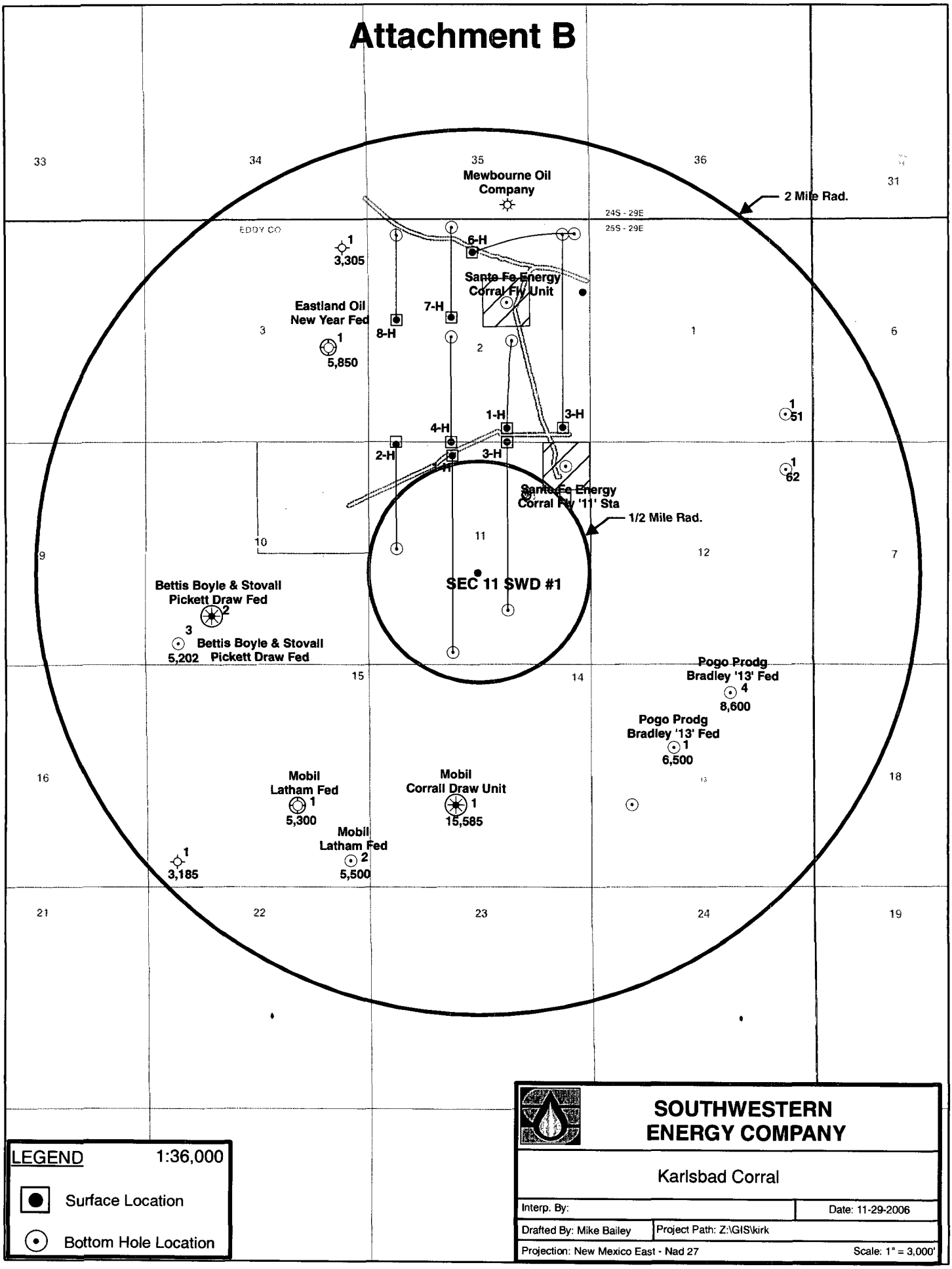
XIII. Proof of notice

A. Certified letters sent to the surface owner and offset operators attached (Attachment F)

B. Copy of legal advertisement attached (Attachment G)

XIV. Certification is signed

Attachment B



LEGEND 1:36,000

- Surface Location
- Bottom Hole Location

SOUTHWESTERN ENERGY COMPANY

Karlsbad Corral

Interp. By:	Date: 11-29-2006
Drafted By: Mike Bailey	Project Path: Z:\GIS\kirk
Projection: New Mexico East - Nad 27	Scale: 1" = 3,000'

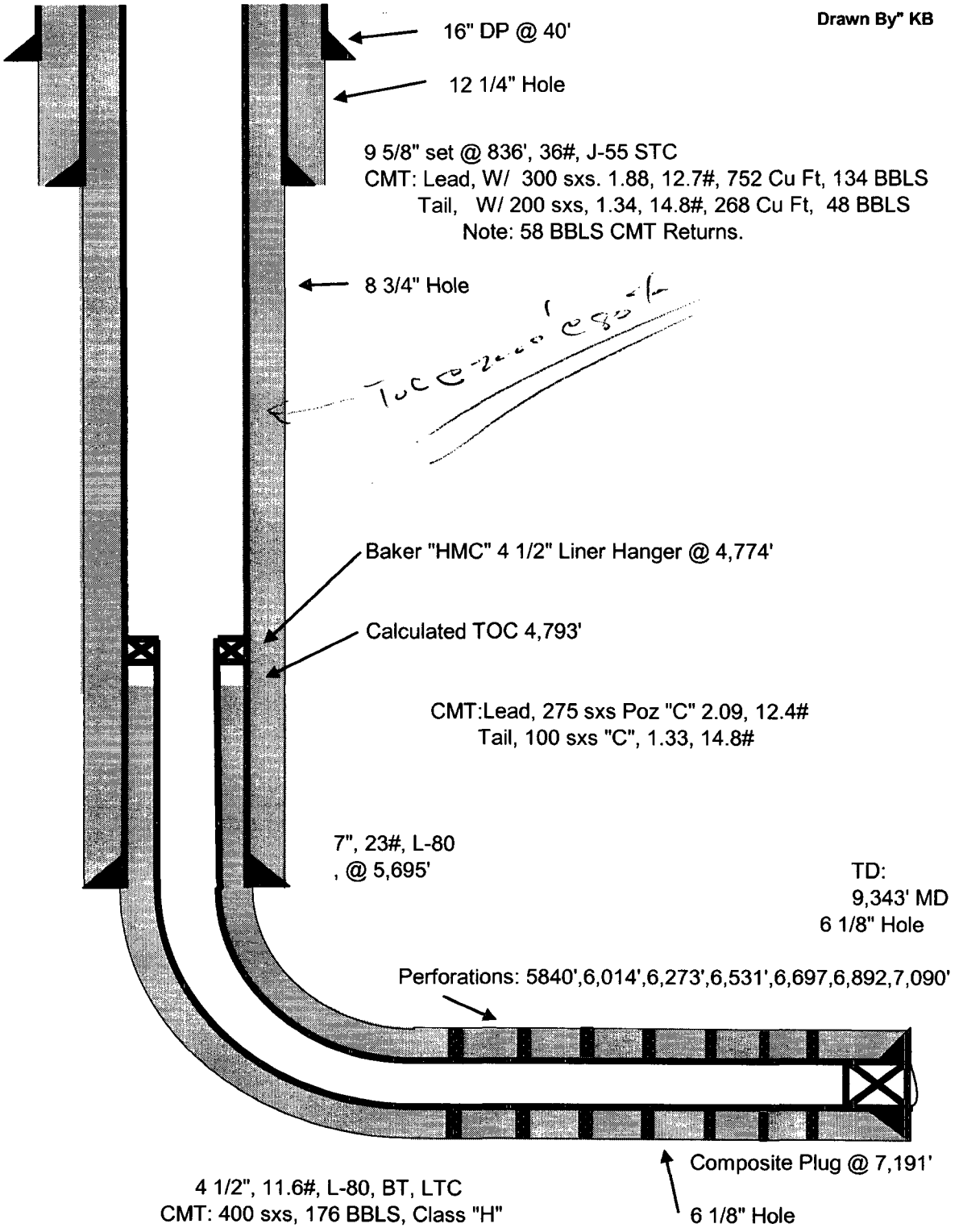
Attachment C

The following is a tabulation on all wells of public record within the area of review. **None of these wells penetrate the proposed injection formation within the area of review.**

Well Name	Operator	API #	Type Well / Location	Date Drilled	Completion Date	Schematic Attached
Karlsbad Corral 11 State 1-H	Southwestern Energy Production Company	30-015-33983	**Horizontal Well** **Surface Location:** 330' FNL & 1980' FWL **Bottom Hole Location:**	5/6/2005 (TD Reached)	5/15/2005	Yes
Karlsbad Corral 11 State 2-H	Southwestern Energy Production Company	30-015-34942	**Horizontal Well** **Surface Location:** 65' FNL & 660' FWL **Bottom Hole Location:** 2563' FNL & 660' FWL	9/8/2006 (TD Reached)	10/3/2006	Yes
Karlsbad Corral 11 State 3-H	Southwestern Energy Production Company	30-015-34449	**Horizontal Well** **Surface Location:** 10' FNL & 1980' FEL **Bottom Hole Location:** 3,598' FNL & 1,968' FEL	3/9/2006 (TD Reached)	4/11/2006	Yes

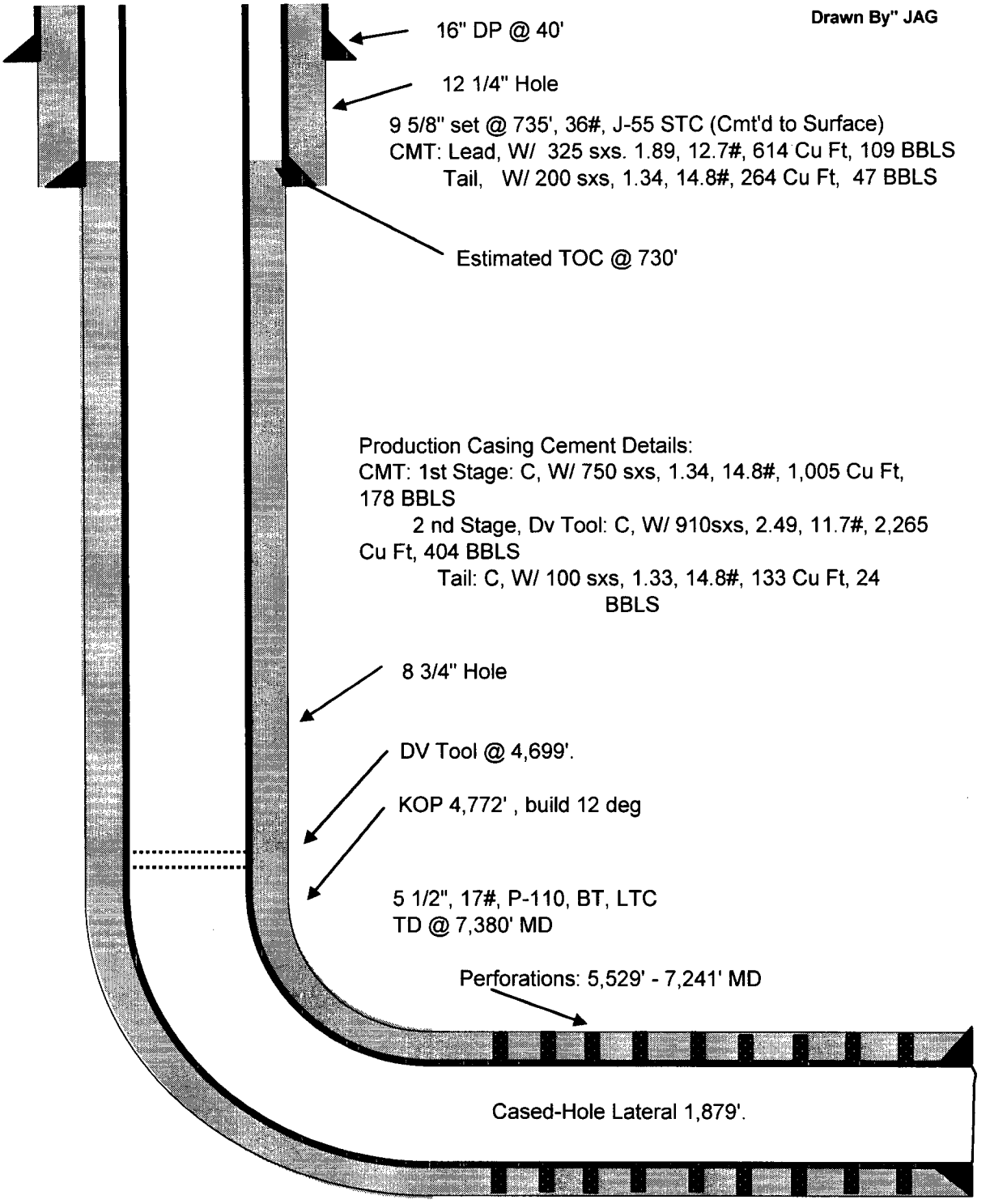
Attachment C

Southwestern Energy Production Company
Karlsbad Corral 11 # 1-H, Eddy County, N. M.
Wellbore Diagram
API #: 30-015-33983



Attachment C

Southwestern Energy Production Company
Karlsbad Corral 11 # 2-H, Eddy County, N. M.
Wellbore Diagram
API #: 30-015-34942

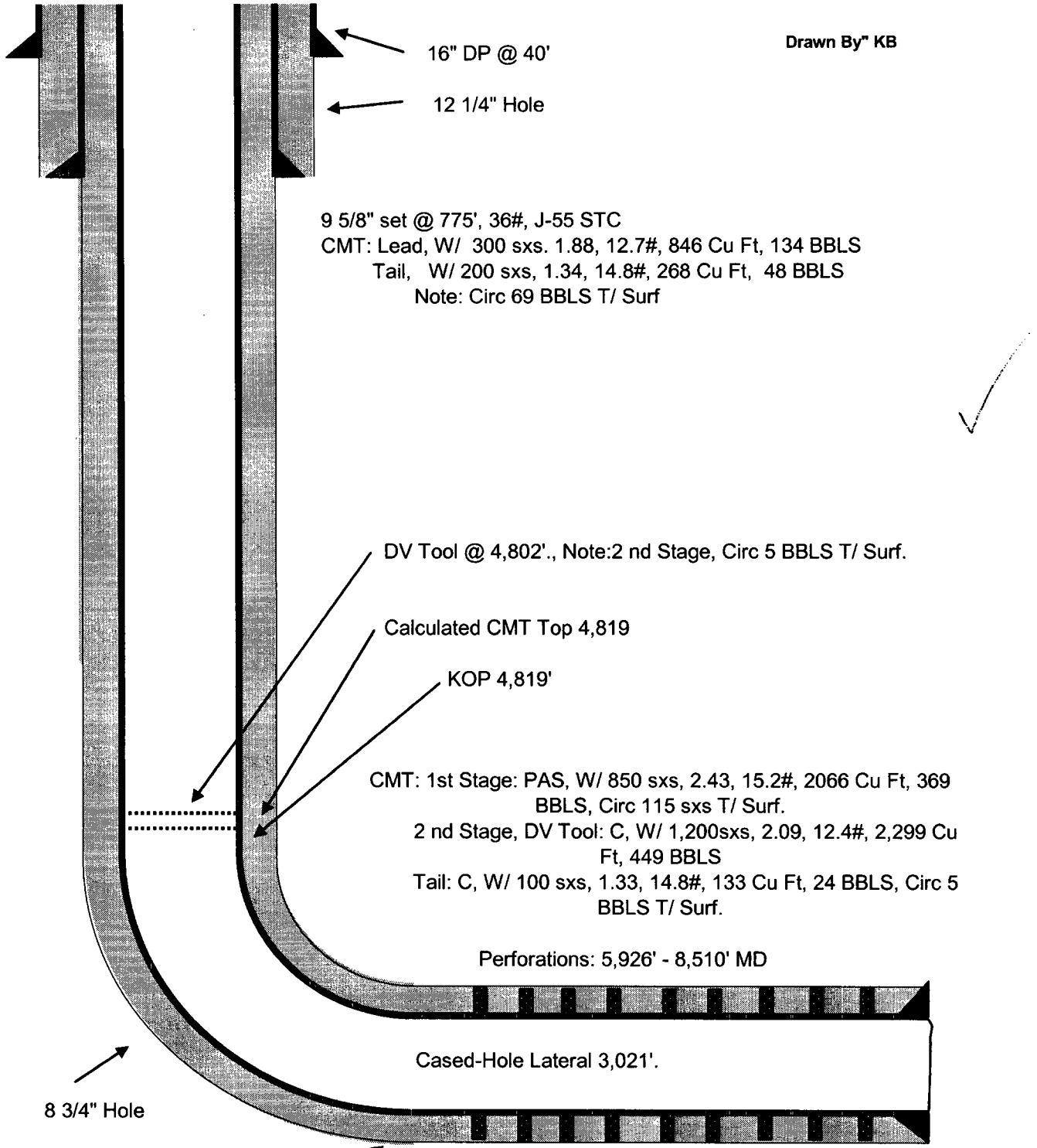


End Hold/ Begin to 90 deg Inclination 5,518' MD, 5,259' TVD

TD: 7,400' MD / 5,301' TVD

Attachment C

Southwestern Energy Production Company
Karlsbad Corral 11 # 3-H, Eddy County, N. M.
Wellbore Diagram
API #: 30-015-34449



Pro-Kem, Inc.

WATER ANALYSIS REPORT

SAMPLE

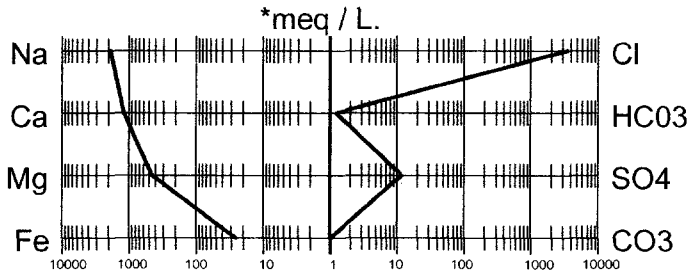
Oil Co. : **Southwestern Energy**
Lease : **Karlsbad Corral "2"**
Well No.: **# 1-H**
Location: Cherry Canyon 4
Attention:

Date Sampled : **22-July-2004**
Date Analyzed: **02-August-2004**
Lab ID Number: **AUG0204.001- 4**
Salesperson :
Requested By : **Pro-Kem, Inc.***
File Name : **AUG0204.001**

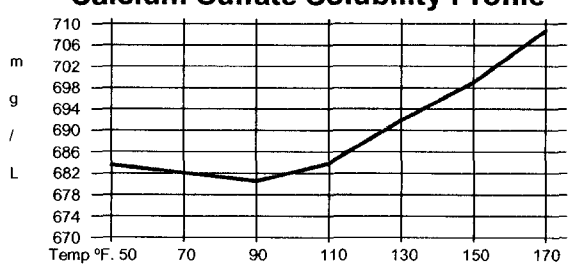
ANALYSIS

1.	Ph			**6.500**		
2.	Specific Gravity 60/60 F.			**1.128**		
3.	CACO3 Saturation Index	@ 80F		**0.868**	**Moderate**	
		@140F		**2.288**	**Severe**	
	Dissolved Gasses			**MG/L.**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide			**0**		
5.	Carbon Dioxide			**Not Determined**		
6.	Dissolved Oxygen			**Not Determined**		
	Cations					
7.	Calcium	(Ca++)		**22,846**	/ 20.1 =	**1,136.62**
8.	Magnesium	(Mg++)		**5,349**	/ 12.2 =	**438.44**
9.	Sodium	(Na+)	(Calculated)	**41,763**	/ 23.0 =	**1,815.78**
10.	Barium	(Ba++)		**Not Determined**		
	Anions					
11.	Hydroxyl	(OH+)		**0**	/ 17.0 =	**0.00**
12.	Carbonate	(CO3=)		**0**	/ 30.0 =	**0.00**
13.	Bicarbonate	(HCO3-)		**73**	/ 61.1 =	**1.19**
14.	Sulfate	(SO4=)		**550**	/ 48.8 =	**11.27**
15.	Chloride	(Cl-)		**119,973**	/ 35.5 =	**3,379.52**
16.	Total Dissolved Solids			**190,554**		
17.	Total Iron	(Fe)		**450.00**	/ 18.2 =	**24.73**
18.	Manganese	(Mn++)		**Not Determined**		
19.	Total Hardness as CaCO3			**79,071**		
20.	Resistivity @ 75 F. (Calculated)			**0.003** Ohm · meters		

LOGARITHMIC WATER PATTERN



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	*meq/L	X	EQ. WT.	=	mg/L.
Ca(HCO3)2	**1.19**		81.04		**97**
CaSO4	**11.27**		68.07		**767**
CaCl2	**1,124.15**		55.50		**62,390**
Mg(HCO3)2	**0.00**		73.17		**0**
MgSO4	**0.00**		60.19		**0**
MgCl2	**438.44**		47.62		**20,879**
NaHCO3	**0.00**		84.00		**0**
NaSO4	**0.00**		71.03		**0**
NaCl	**1,816.93**		58.46		**106,218**

* milliequivalents per Liter

J. L. Enriquez

Jose L. Enriquez, Analyst

Pro-Kem, Inc.

WATER ANALYSIS REPORT

SAMPLE

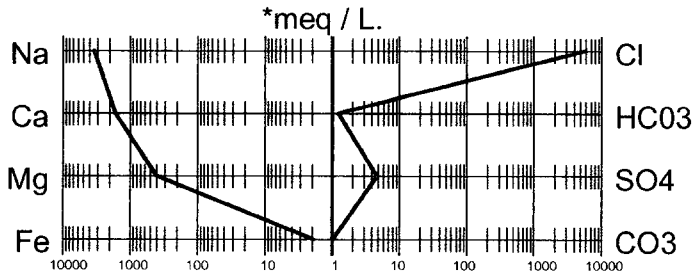
Oil Co. : **Southwestern Energy Co.**
Lease : **Karlsbad Corral 11-ST.**
Well No.: **1-H**
Location: Cherry Canyon 4
Attention:

Date Sampled : **30-November-2006**
Date Analyzed: **01-December-2006**
Lab ID Number: **Dec0106.001- 2**
Salesperson :
Requested By : **Pro-Kem, Inc.***
File Name : **Dec0106.001**

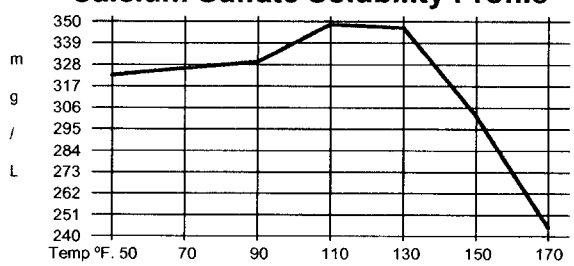
ANALYSIS

1.	Ph			**6.170**		
2.	Specific Gravity 60/60 F.			**1.208**		
3.	CACO3 Saturation Index	@ 80F		**3.205**	**Severe**	
		@140F		**3.205**	**Severe**	
	Dissolved Gasses			**MG/L.**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide			**0**		
5.	Carbon Dioxide			**Not Determined**		
6.	Dissolved Oxygen			**Not Determined**		
	Cations					
7.	Calcium	(Ca++)		**32,064**	/ 20.1 =	**1,595.22**
8.	Magnesium	(Mg++)		**4,741**	/ 12.2 =	**388.61**
9.	Sodium	(Na+)	(Calculated)	**74,969**	/ 23.0 =	**3,259.52**
10.	Barium	(Ba++)		**20**	/ 68.7 =	**0.29**
	Anions					
11.	Hydroxyl	(OH+)		**0**	/ 17.0 =	**0.00**
12.	Carbonate	(CO3=)		**0**	/ 30.0 =	**0.00**
13.	Bicarbonate	(HCO3-)		**73**	/ 61.1 =	**1.19**
14.	Sulfate	(SO4=)		**220**	/ 48.8 =	**4.51**
15.	Chloride	(Cl-)		**185,958**	/ 35.5 =	**5,238.25**
16.	Total Dissolved Solids			**298,045**		
17.	Total Iron	(Fe)		**33.00**	/ 18.2 =	**1.81**
18.	Manganese	(Mn++)		**Not Determined**		
19.	Total Hardness as CaCO3			**99,589**		
20.	Resistivity @ 75 F. (Calculated)			**0.001** Ohm · meters		

LOGARITHMIC WATER PATTERN



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	*meq/L	X	EQ. WT.	=	mg/L.
Ca(HCO3)2	**1.19**		81.04		**97**
CaSO4	**4.22**		68.07		**287**
CaCl2	**1,589.81**		55.50		**88,235**
Mg(HCO3)2	**0.00**		73.17		**0**
MgSO4	**0.00**		60.19		**0**
MgCl2	**388.61**		47.62		**18,505**
NaHCO3	**0.00**		84.00		**0**
NaSO4	**0.00**		71.03		**0**
NaCl	**3,259.83**		58.46		**190,570**

* milliequivalents per Liter

Rebecca Rodriquez, Analyst

Pro-Kem, Inc.

WATER ANALYSIS REPORT

SAMPLE

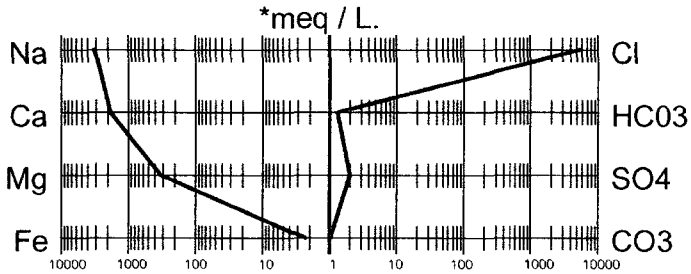
Oil Co. : **Southwestern Energy Co.**
Lease : **Karlsbad Corral 11**
Well No.: **3-H**
Location: Cheany Canyon 4
Attention:

Date Sampled : **30-November-2006**
Date Analyzed: **01-December-2006**
Lab ID Number: **Dec0106.001- 1**
Salesperson :
Requested By : **Pro-Kem, Inc.***
File Name : **Dec0106.001**

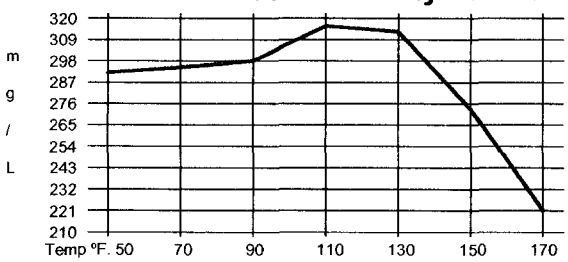
ANALYSIS

1.	Ph			**6.190**		
2.	Specific Gravity 60/60 F.			**1.213**		
3.	CACO3 Saturation Index	@ 80F		**3.297**	**Severe**	
		@140F		**3.298**	**Severe**	
	Dissolved Gasses			**MG/L.**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide			**0**		
5.	Carbon Dioxide			**Not Determined**		
6.	Dissolved Oxygen			**Not Determined**		
	Cations					
7.	Calcium	(Ca++)		**35,471**	/ 20.1 =	**1,764.73**
8.	Magnesium	(Mg++)		**3,890**	/ 12.2 =	**318.85**
9.	Sodium	(Na+)	(Calculated)	**70,019**	/ 23.0 =	**3,044.30**
10.	Barium	(Ba++)		**Below 10**		
	Anions					
11.	Hydroxyl	(OH+)		**0**	/ 17.0 =	**0.00**
12.	Carbonate	(CO3=)		**0**	/ 30.0 =	**0.00**
13.	Bicarbonate	(HCO3-)		**78**	/ 61.1 =	**1.28**
14.	Sulfate	(SO4=)		**95**	/ 48.8 =	**1.95**
15.	Chloride	(Cl-)		**181,959**	/ 35.5 =	**5,125.61**
16.	Total Dissolved Solids			**291,512**		
17.	Total Iron	(Fe)		**39.50**	/ 18.2 =	**2.17**
18.	Manganese	(Mn++)		**Not Determined**		
19.	Total Hardness as CaCO3			**104,593**		
20.	Resistivity @ 75 F. (Calculated)			**0.001** Ohm · meters		

LOGARITHMIC WATER PATTERN



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	*meq/L	X	EQ. WT.	=	mg/L.
Ca(HCO3)2	**1.28**		81.04		**103**
CaSO4	**1.95**		68.07		**133**
CaCl2	**1,761.50**		55.50		**97,763**
Mg(HCO3)2	**0.00**		73.17		**0**
MgSO4	**0.00**		60.19		**0**
MgCl2	**318.85**		47.62		**15,184**
NaHCO3	**0.00**		84.00		**0**
NaSO4	**0.00**		71.03		**0**
NaCl	**3,045.25**		58.46		**178,025**

* milliequivalents per Liter

Rebecca A. Rodriquez

Rebecca Rodriquez, Analyst

Pro-Kem, Inc.

WATER ANALYSIS REPORT

SAMPLE

Oil Co. : **Southwestern Energy Co.**
Lease : **Karlsbad Corral 11-ST.**
Well No.: **2-H**
Location: Cherry Canyon 4
Attention:

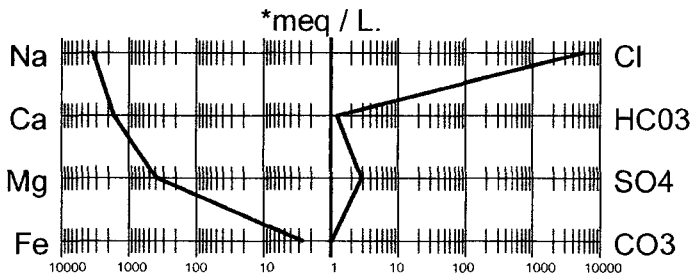
Date Sampled : **30-November-2006**
Date Analyzed: **01-December-2006**
Lab ID Number: **Dec0106.001- 3**
Salesperson :
Requested By : **Pro-Kem, Inc.***
File Name : **Dec0106.001**

ANALYSIS

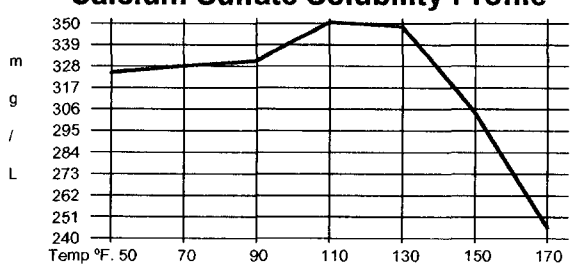
1.	Ph		**6.320**		
2.	Specific Gravity 60/60 F.		**1.206**		
3.	CACO3 Saturation Index	@ 80F	**3.353**	**Severe**	
		@140F	**3.353**	**Severe**	

	Dissolved Gasses			**MG/L.**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide			**0**		
5.	Carbon Dioxide			**Not Determined**		
6.	Dissolved Oxygen			**Not Determined**		
	Cations					
7.	Calcium	(Ca++)		**31,864**	/ 20.1 =	**1,585.27**
8.	Magnesium	(Mg++)		**4,559**	/ 12.2 =	**373.69**
9.	Sodium	(Na+)	(Calculated)	**74,853**	/ 23.0 =	**3,254.48**
10.	Barium	(Ba++)		**Below 10**		
	Anions					
11.	Hydroxyl	(OH+)		**0**	/ 17.0 =	**0.00**
12.	Carbonate	(CO3=)		**0**	/ 30.0 =	**0.00**
13.	Bicarbonate	(HCO3-)		**73**	/ 61.1 =	**1.19**
14.	Sulfate	(SO4=)		**135**	/ 48.8 =	**2.77**
15.	Chloride	(Cl-)		**184,958**	/ 35.5 =	**5,210.08**
16.	Total Dissolved Solids			**296,442**		
17.	Total Iron	(Fe)		**46.00**	/ 18.2 =	**2.53**
18.	Manganese	(Mn++)		**Not Determined**		
19.	Total Hardness as CaCO3			**98,338**		
20.	Resistivity @ 75 F. (Calculated)			**0.001** Ohm · meters		

LOGARITHMIC WATER PATTERN



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	*meq/L	X	EQ. WT.	=	mg/L.
Ca(HCO3)2	**1.19**		81.04		**97**
CaSO4	**2.77**		68.07		**188**
CaCl2	**1,581.31**		55.50		**87,763**
Mg(HCO3)2	**0.00**		73.17		**0**
MgSO4	**0.00**		60.19		**0**
MgCl2	**373.69**		47.62		**17,795**
NaHCO3	**0.00**		84.00		**0**
NaSO4	**0.00**		71.03		**0**
NaCl	**3,255.08**		58.46		**190,292**

* milliequivalents per Liter

Rebecca A. Rodriquez

Rebecca Rodriquez, Analyst

Pro-Kem, Inc.

WATER ANALYSIS REPORT

SAMPLE

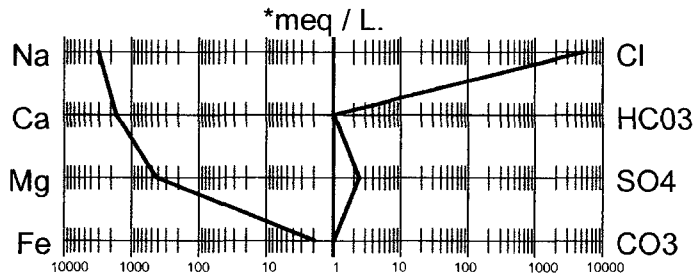
Oil Co. : **Southwestern Energy Co.**
Lease : **Karlsbad Corral 2-ST.**
Well No.: **3-H**
Location: Cherry Canyon 4
Attention:

Date Sampled : **30-November-2006**
Date Analyzed: **01-December-2006**
Lab ID Number: **Dec0106.001- 4**
Salesperson :
Requested By : **Pro-Kem, Inc.***
File Name : **Dec0106.001**

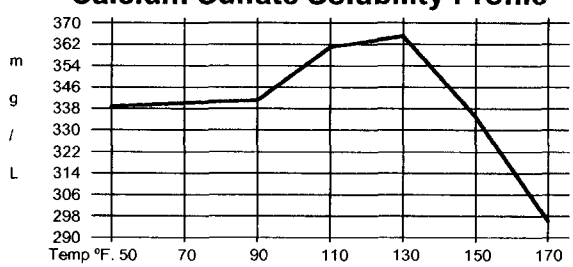
ANALYSIS

1.	Ph			**6.200**		
2.	Specific Gravity 60/60 F.			**1.206**		
3.	CACO3 Saturation Index	@ 80F		**2.628**	**Severe**	
		@140F		**3.068**	**Severe**	
	Dissolved Gasses			**MG/L.**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide			**0**		
5.	Carbon Dioxide			**Not Determined**		
6.	Dissolved Oxygen			**Not Determined**		
	Cations					
7.	Calcium	(Ca++)		**32,264**	/ 20.1 =	**1,605.17**
8.	Magnesium	(Mg++)		**4,984**	/ 12.2 =	**408.52**
9.	Sodium	(Na+)	(Calculated)	**67,737**	/ 23.0 =	**2,945.09**
10.	Barium	(Ba++)		**Below 10**		
	Anions					
11.	Hydroxyl	(OH+)		**0**	/ 17.0 =	**0.00**
12.	Carbonate	(CO3=)		**0**	/ 30.0 =	**0.00**
13.	Bicarbonate	(HCO3-)		**49**	/ 61.1 =	**0.80**
14.	Sulfate	(SO4=)		**115**	/ 48.8 =	**2.36**
15.	Chloride	(Cl-)		**175,960**	/ 35.5 =	**4,956.62**
16.	Total Dissolved Solids			**281,109**		
17.	Total Iron	(Fe)		**33.00**	/ 18.2 =	**1.81**
18.	Manganese	(Mn++)		**Not Determined**		
19.	Total Hardness as CaCO3			**101,090**		
20.	Resistivity @ 75 F. (Calculated)			**0.001** Ohm · meters		

LOGARITHMIC WATER PATTERN



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	*meq/L	X	EQ. WT.	=	mg/L.
Ca(HCO3)2	**0.80**		81.04		**65**
CaSO4	**2.36**		68.07		**160**
CaCl2	**1,602.02**		55.50		**88,912**
Mg(HCO3)2	**0.00**		73.17		**0**
MgSO4	**0.00**		60.19		**0**
MgCl2	**408.52**		47.62		**19,454**
NaHCO3	**0.00**		84.00		**0**
NaSO4	**0.00**		71.03		**0**
NaCl	**2,946.08**		58.46		**172,228**

* milliequivalents per Liter

Rebecca A. Rod

Rebecca Rodriquez, Analyst

Pro-Kem, Inc.

WATER ANALYSIS REPORT

SAMPLE

Oil Co. : **Southwestern Energy Co.**
Lease : **Karlsbad Corral Section 2**
Well No.: **Heater**
Location: TANK BATTERY SAMPLE
Attention: (ALL CHERRY CANYON 4)

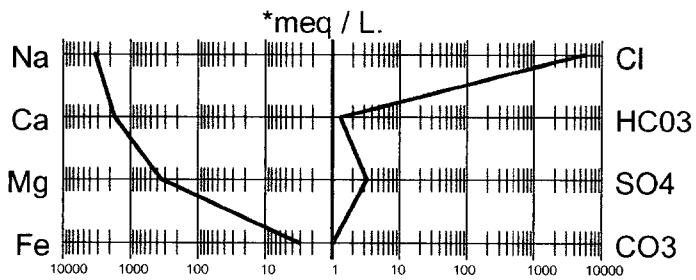
Date Sampled : **30-November-2006**
Date Analyzed: **01-December-2006**
Lab ID Number: **Dec0106.001- 5**
Salesperson :
Requested By : **Pro-Kem, Inc.***
File Name : **Dec0106.001**

ANALYSIS

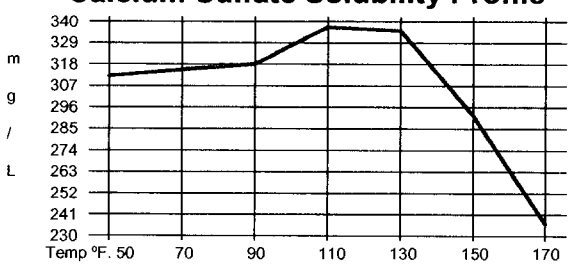
1.	Ph			**6.160**	
2.	Specific Gravity 60/60 F.			**1.203**	
3.	CACO3 Saturation Index	@ 80F		**3.237**	**Severe**
		@140F		**3.238**	**Severe**

	Dissolved Gasses			**MG/L.**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide			**0**		
5.	Carbon Dioxide			**Not Determined**		
6.	Dissolved Oxygen			**Not Determined**		
	Cations					
7.	Calcium	(Ca++)		**33,166**	/ 20.1 =	**1,650.05**
8.	Magnesium	(Mg++)		**4,133**	/ 12.2 =	**338.77**
9.	Sodium	(Na+)	(Calculated)	**73,529**	/ 23.0 =	**3,196.91**
10.	Barium	(Ba++)		**Below 10**		
	Anions					
11.	Hydroxyl	(OH+)		**0**	/ 17.0 =	**0.00**
12.	Carbonate	(CO3=)		**0**	/ 30.0 =	**0.00**
13.	Bicarbonate	(HCO3-)		**78**	/ 61.1 =	**1.28**
14.	Sulfate	(SO4=)		**155**	/ 48.8 =	**3.18**
15.	Chloride	(Cl-)		**183,959**	/ 35.5 =	**5,181.94**
16.	Total Dissolved Solids			**295,020**		
17.	Total Iron	(Fe)		**54.50**	/ 18.2 =	**2.99**
18.	Manganese	(Mn++)		**Not Determined**		
19.	Total Hardness as CaCO3			**99,839**		
20.	Resistivity @ 75 F. (Calculated)			**0.001** Ohm · meters		

LOGARITHMIC WATER PATTERN



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	*meq/L	X	EQ. WT.	=	mg/L.
Ca(HCO3)2	**1.28**		81.04		**103**
CaSO4	**3.18**		68.07		**216**
CaCl2	**1,645.60**		55.50		**91,331**
Mg(HCO3)2	**0.00**		73.17		**0**
MgSO4	**0.00**		60.19		**0**
MgCl2	**338.77**		47.62		**16,132**
NaHCO3	**0.00**		84.00		**0**
NaSO4	**0.00**		71.03		**0**
NaCl	**3,197.58**		58.46		**186,930**

* milliequivalents per Liter

Rebecca A. Rodriquez

Rebecca Rodriquez, Analyst

Pro-Kem, Inc.

WATER ANALYSIS REPORT

SAMPLE

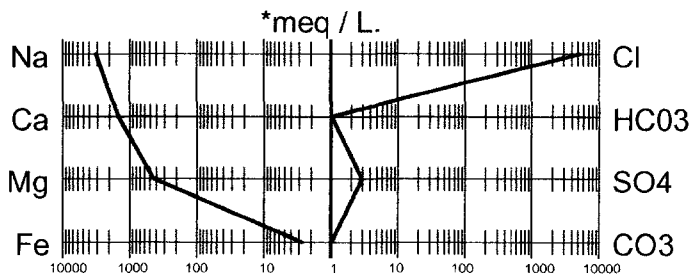
Oil Co. : **Southwestern Energy Co.**
Lease : **Karlsbad Corral Section 11**
Well No.: **Heater**
Location: TANK BATTERY SAMPLE
Attention: (Ain Cherry Canyon 4)

Date Sampled : **30-November-2006**
Date Analyzed: **01-December-2006**
Lab ID Number: **Dec0106.002- 1**
Salesperson :
Requested By : **Pro-Kem, Inc.***
File Name : **Dec0106.002**

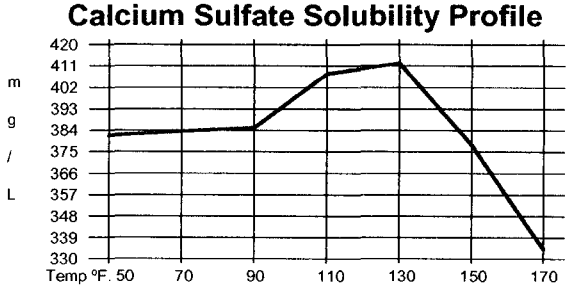
ANALYSIS

1.	Ph			**6.130**		
2.	Specific Gravity 60/60 F.			**1.203**		
3.	CACO3 Saturation Index	@ 80F		**2.245**	**Severe**	
		@140F		**2.945**	**Severe**	
	Dissolved Gasses			**MG/L.**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide			**0**		
5.	Carbon Dioxide			**Not Determined**		
6.	Dissolved Oxygen			**Not Determined**		
	Cations					
7.	Calcium	(Ca++)		**28,557**	/ 20.1 =	**1,420.75**
8.	Magnesium	(Mg++)		**5,227**	/ 12.2 =	**428.44**
9.	Sodium	(Na+)	(Calculated)	**70,245**	/ 23.0 =	**3,054.13**
10.	Barium	(Ba++)		**Below 10**		
	Anions					
11.	Hydroxyl	(OH+)		**0**	/ 17.0 =	**0.00**
12.	Carbonate	(CO3=)		**0**	/ 30.0 =	**0.00**
13.	Bicarbonate	(HCO3-)		**49**	/ 61.1 =	**0.80**
14.	Sulfate	(SO4=)		**138**	/ 48.8 =	**2.83**
15.	Chloride	(Cl-)		**173,961**	/ 35.5 =	**4,900.31**
16.	Total Dissolved Solids			**278,177**		
17.	Total Iron	(Fe)		**47.00**	/ 18.2 =	**2.58**
18.	Manganese	(Mn++)		**Not Determined**		
19.	Total Hardness as CaCO3			**92,833**		
20.	Resistivity @ 75 F. (Calculated)			**0.001** Ohm · meters		

LOGARITHMIC WATER PATTERN



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	*meq/L	X	EQ. WT.	=	mg/L.
Ca(HCO3)2	**0.80**		81.04		**65**
CaSO4	**2.83**		68.07		**192**
CaCl2	**1,417.12**		55.50		**78,650**
Mg(HCO3)2	**0.00**		73.17		**0**
MgSO4	**0.00**		60.19		**0**
MgCl2	**428.44**		47.62		**20,402**
NaHCO3	**0.00**		84.00		**0**
NaSO4	**0.00**		71.03		**0**
NaCl	**3,054.75**		58.46		**178,581**

* milliequivalents per Liter

Rebecca A. Rodriquez, Analyst

Pro-Kem, Inc.

WATER ANALYSIS REPORT

SAMPLE

Oil Co. : **Southwestern Energy Co.**
Lease : **Karlsbad Corral 2**
Well No.: **4-H**
Location: Cherry Canyon 4
Attention:

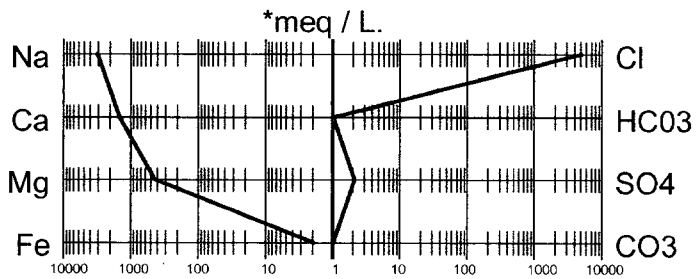
Date Sampled : **30-November-2006**
Date Analyzed: **01-December-2006**
Lab ID Number: **Dec0106.002- 2**
Salesperson :
Requested By : **Pro-Kem, Inc.***
File Name : **Dec0106.002**

ANALYSIS

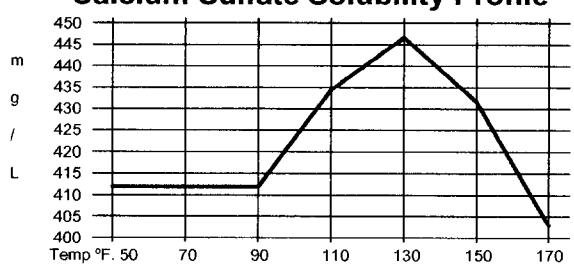
1.	Ph		**6.300**		
2.	Specific Gravity 60/60 F.		**1.205**		
3.	CACO3 Saturation Index	@ 80F	**2.187**	**Severe**	
		@140F	**3.107**	**Severe**	

	Dissolved Gasses			MG/L.	EQ. WT.	*MEQ/L
4.	Hydrogen Sulfide			**0**		
5.	Carbon Dioxide			**Not Determined**		
6.	Dissolved Oxygen			**Not Determined**		
	Cations					
7.	Calcium	(Ca++)		**28,056**	/ 20.1 =	**1,395.82**
8.	Magnesium	(Mg++)		**5,166**	/ 12.2 =	**423.44**
9.	Sodium	(Na+)	(Calculated)	**68,324**	/ 23.0 =	**2,970.61**
10.	Barium	(Ba++)		**16**	/ 68.7 =	**0.23**
	Anions					
11.	Hydroxyl	(OH+)		**0**	/ 17.0 =	**0.00**
12.	Carbonate	(CO3=)		**0**	/ 30.0 =	**0.00**
13.	Bicarbonate	(HCO3-)		**49**	/ 61.1 =	**0.80**
14.	Sulfate	(SO4=)		**100**	/ 48.8 =	**2.05**
15.	Chloride	(Cl-)		**169,962**	/ 35.5 =	**4,787.66**
16.	Total Dissolved Solids			**271,673**		
17.	Total Iron	(Fe)		**33.00**	/ 18.2 =	**1.81**
18.	Manganese	(Mn++)		**Not Determined**		
19.	Total Hardness as CaCO3			**91,331**		
20.	Resistivity @ 75 F. (Calculated)			**0.001** Ohm · meters		

LOGARITHMIC WATER PATTERN



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	*meq/L	X	EQ. WT.	=	mg/L.
Ca(HCO3)2	**0.80**		81.04		**65**
CaSO4	**1.82**		68.07		**124**
CaCl2	**1,393.20**		55.50		**77,323**
Mg(HCO3)2	**0.00**		73.17		**0**
MgSO4	**0.00**		60.19		**0**
MgCl2	**423.44**		47.62		**20,164**
NaHCO3	**0.00**		84.00		**0**
NaSO4	**0.00**		71.03		**0**
NaCl	**2,971.02**		58.46		**173,686**

* milliequivalents per Liter

Rebecca A. Rodriquez, Analyst

Pro-Kem, Inc.

WATER ANALYSIS REPORT

SAMPLE

Oil Co. : **Southwestern Energy Co.**
Lease : **Karlsbad Corral 2**
Well No.: **6-H**
Location: Cherry Canyon 4
Attention:

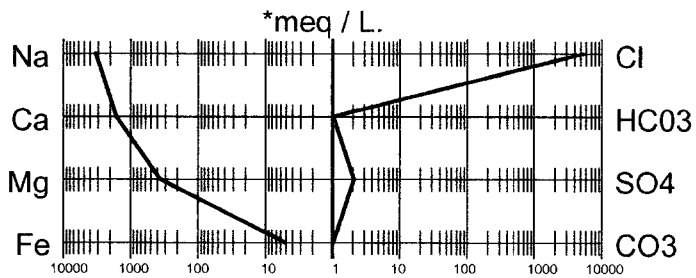
Date Sampled : **30-November-2006**
Date Analyzed: **01-December-2006**
Lab ID Number: **Dec0106.002- 3**
Salesperson :
Requested By : **Pro-Kem, Inc.***
File Name : **Dec0106.002**

ANALYSIS

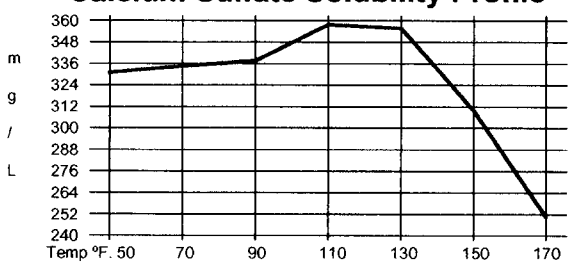
1.	Ph		**6.110**		
2.	Specific Gravity 60/60 F.		**1.212**		
3.	CACO3 Saturation Index	@ 80F	**2.905**	**Severe**	
		@140F	**3.005**	**Severe**	

	Dissolved Gasses			**MG/L.**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide			**0**		
5.	Carbon Dioxide			**Not Determined**		
6.	Dissolved Oxygen			**Not Determined**		
	Cations					
7.	Calcium	(Ca++)		**31,262**	/ 20.1 =	**1,555.32**
8.	Magnesium	(Mg++)		**4,255**	/ 12.2 =	**348.77**
9.	Sodium	(Na+)	(Calculated)	**72,852**	/ 23.0 =	**3,167.48**
10.	Barium	(Ba++)		**Below 10**		
	Anions					
11.	Hydroxyl	(OH+)		**0**	/ 17.0 =	**0.00**
12.	Carbonate	(CO3=)		**0**	/ 30.0 =	**0.00**
13.	Bicarbonate	(HCO3-)		**54**	/ 61.1 =	**0.88**
14.	Sulfate	(SO4=)		**98**	/ 48.8 =	**2.01**
15.	Chloride	(Cl-)		**179,959**	/ 35.5 =	**5,069.27**
16.	Total Dissolved Solids			**288,480**		
17.	Total Iron	(Fe)		**89.50**	/ 18.2 =	**4.92**
18.	Manganese	(Mn++)		**Not Determined**		
19.	Total Hardness as CaCO3			**95,585**		
20.	Resistivity @ 75 F. (Calculated)			**0.001** Ohm · meters		

LOGARITHMIC WATER PATTERN



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	*meq/L	X	EQ. WT.	=	mg/L.
Ca(HCO3)2	**0.88**		81.04		**72**
CaSO4	**2.01**		68.07		**137**
CaCl2	**1,552.43**		55.50		**86,160**
Mg(HCO3)2	**0.00**		73.17		**0**
MgSO4	**0.00**		60.19		**0**
MgCl2	**348.77**		47.62		**16,608**
NaHCO3	**0.00**		84.00		**0**
NaSO4	**0.00**		71.03		**0**
NaCl	**3,168.07**		58.46		**185,205**

* milliequivalents per Liter

Rebecca A. Rodriguez
Rebecca Rodriquez, Analyst

Pro-Kem, Inc.

WATER ANALYSIS REPORT

SAMPLE

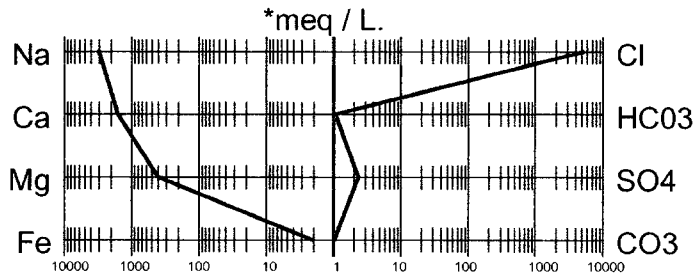
Oil Co. : **Southwestern Energy Co.**
Lease : **Karlsbad Corral 2**
Well No.: **7-H**
Location: Cherry Canyon 4
Attention:

Date Sampled : **30-November-2006**
Date Analyzed: **01-December-2006**
Lab ID Number: **Dec0106.002- 4**
Salesperson :
Requested By : **Pro-Kem, Inc.***
File Name : **Dec0106.002**

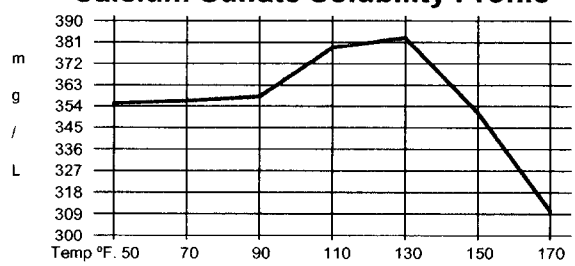
ANALYSIS

1.	Ph			**6.050**		
2.	Specific Gravity 60/60 F.			**1.208**		
3.	CACO3 Saturation Index	@ 80F		**2.304**	**Severe**	
		@140F		**3.004**	**Severe**	
	Dissolved Gasses			**MG/L.**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide			**0**		
5.	Carbon Dioxide			**Not Determined**		
6.	Dissolved Oxygen			**Not Determined**		
	Cations					
7.	Calcium	(Ca++)		**30,761**	/ 20.1 =	**1,530.40**
8.	Magnesium	(Mg++)		**4,741**	/ 12.2 =	**388.61**
9.	Sodium	(Na+)	(Calculated)	**67,331**	/ 23.0 =	**2,927.44**
10.	Barium	(Ba++)		**Below 10**		
	Anions					
11.	Hydroxyl	(OH+)		**0**	/ 17.0 =	**0.00**
12.	Carbonate	(CO3=)		**0**	/ 30.0 =	**0.00**
13.	Bicarbonate	(HCO3-)		**63**	/ 61.1 =	**1.03**
14.	Sulfate	(SO4=)		**110**	/ 48.8 =	**2.25**
15.	Chloride	(Cl-)		**171,961**	/ 35.5 =	**4,843.97**
16.	Total Dissolved Solids			**274,967**		
17.	Total Iron	(Fe)		**35.50**	/ 18.2 =	**1.95**
18.	Manganese	(Mn++)		**Not Determined**		
19.	Total Hardness as CaCO3			**96,336**		
20.	Resistivity @ 75 F. (Calculated)			**0.001** Ohm · meters		

LOGARITHMIC WATER PATTERN



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	*meq/L	X	EQ. WT.	=	mg/L.
Ca(HCO3)2	**1.03**		81.04		**84**
CaSO4	**2.25**		68.07		**153**
CaCl2	**1,527.11**		55.50		**84,755**
Mg(HCO3)2	**0.00**		73.17		**0**
MgSO4	**0.00**		60.19		**0**
MgCl2	**388.61**		47.62		**18,505**
NaHCO3	**0.00**		84.00		**0**
NaSO4	**0.00**		71.03		**0**
NaCl	**2,928.25**		58.46		**171,186**

* milliequivalents per Liter

Rebecca A. Rodriquez, Analyst

Pro-Kem, Inc.

WATER ANALYSIS REPORT

SAMPLE

Oil Co. : **Southwestern Energy Co.**
Lease : **Karlsbad Corral 2**
Well No.: **8-H**
Location: Cherry Canyon 4
Attention:

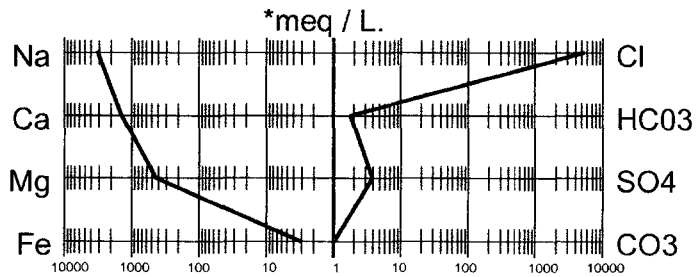
Date Sampled : **30-November-2006**
Date Analyzed: **01-December-2006**
Lab ID Number: **Dec0106.002- 5**
Salesperson :
Requested By : **Pro-Kem, Inc.***
File Name : **Dec0106.002**

ANALYSIS

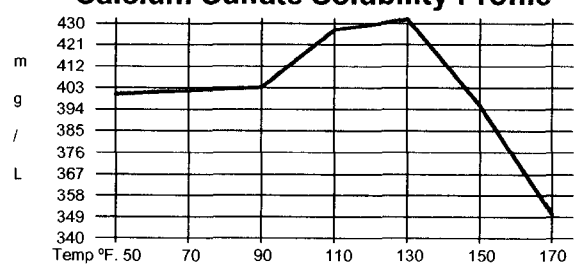
1.	Ph		**6.020**		
2.	Specific Gravity 60/60 F.		**1.194**		
3.	CACO3 Saturation Index	@ 80F	**2.229**	**Severe**	
		@140F	**3.149**	**Severe**	

	Dissolved Gasses			**MG/L.**	**EQ. WT.**	***MEQ/L**
4.	Hydrogen Sulfide			**0**		
5.	Carbon Dioxide			**Not Determined**		
6.	Dissolved Oxygen			**Not Determined**		
	Cations					
7.	Calcium	(Ca++)		**27,254**	/ 20.1 =	**1,355.92**
8.	Magnesium	(Mg++)		**5,166**	/ 12.2 =	**423.44**
9.	Sodium	(Na+)	(Calculated)	**70,600**	/ 23.0 =	**3,069.57**
10.	Barium	(Ba++)		**Below 10**		
	Anions					
11.	Hydroxyl	(OH+)		**0**	/ 17.0 =	**0.00**
12.	Carbonate	(CO3=)		**0**	/ 30.0 =	**0.00**
13.	Bicarbonate	(HCO3-)		**107**	/ 61.1 =	**1.75**
14.	Sulfate	(SO4=)		**180**	/ 48.8 =	**3.69**
15.	Chloride	(Cl-)		**171,961**	/ 35.5 =	**4,843.97**
16.	Total Dissolved Solids			**275,268**		
17.	Total Iron	(Fe)		**54.00**	/ 18.2 =	**2.97**
18.	Manganese	(Mn++)		**Not Determined**		
19.	Total Hardness as CaCO3			**89,330**		
20.	Resistivity @ 75 F. (Calculated)			**0.001** Ohm · meters		

LOGARITHMIC WATER PATTERN



Calcium Sulfate Solubility Profile



PROBABLE MINERAL COMPOSITION

COMPOUND	*meq/L	X	EQ. WT.	=	mg/L.
Ca(HCO3)2	**1.75**		81.04		**142**
CaSO4	**3.69**		68.07		**251**
CaCl2	**1,350.48**		55.50		**74,952**
Mg(HCO3)2	**0.00**		73.17		**0**
MgSO4	**0.00**		60.19		**0**
MgCl2	**423.44**		47.62		**20,164**
NaHCO3	**0.00**		84.00		**0**
NaSO4	**0.00**		71.03		**0**
NaCl	**3,070.05**		58.46		**179,475**

* milliequivalents per Liter

Rebecca A. Rodriquez

Rebecca Rodriquez, Analyst

Attachment E

Karlsbad Corral SWD No. 1
Section 11, T25S R29E
2,222' FSL & 2,640' FEL
Eddy County, New Mexico

Available engineering and geological data have been examined and no evidence of open faults of hydrologic connection between the disposal zone and underground sources of drinking water have been found.

Al Gomez
Geologist
Southwestern Energy Production Company

12-06-06
Date

Mark Janik
Engineer
Southwestern Energy Production Company

12/6/06
Date

Attachment F

Karlsbad Corral SWD No. 1
Section 11, T25S R29E
2222' FSL & 2,640' FEL
Eddy County, New Mexico

Offset Operators

EOG Resources
P.O. Box 2267
Midland, Texas 79702

OXY USA WTP Limited Partnership
P.O. Box 50250
Midland, Texas 79710

Yates Petroleum Corporation
105 South 4th Street
Artesia, New Mexico 88210

Surface/Mineral Owner and Lessees

New Mexico State Land Office
Oil, Gas and Minerals Division
P.O. Box 1148
Santa Fe, NM 87504-1148

Bureau of Land Management
Carlsbad Field Office
620 E. Greene Street
Carlsbad, NM 88220

Russler Breaks Ranch
Attn: Mr. Tran King
64 North 5050 East
Ririe, Idaho 83443

JR Engineering and Construction Co.
P.O. Box 487
Carlsbad, New Mexico 88220

Affidavit of Publication

State of New Mexico,
County of Eddy, ss.

April Hernandez, being first duly sworn, on oath says:

That she is HR/Administrative Assistant 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:

November 30 2006

2006

2006

2006

That the cost of publication is $57.85 and that payment Thereof has been made and will be assessed as court costs.

April Hernandez

Subscribed and sworn to before me this

30 day of November 2006

Stephanie Dobson

My commission Expires on 1/25/2010

Notary Public

OFFICIAL SEAL
STEPHANIE DOBSON
Notary Public
State of New Mexico
My Comm. Expires 1/25/2010

November 30, 2006

Southwestern Energy Production Company, 2350 N. Sam Houstan Parkway East, Suite 300, Houston, Texas, 77032, has filed form C-108 [Application for Authorization to Inject], with the New Mexico Oil Conservation Division, seeking administrative approval for an injection well. The proposed well, the Karlsbad Corral SWD No.1, located 2222' FSL & 2640' FEL, Section 11, Township 25 South, Range 29 East of Eddy County, New Mexico, will be used for a saltwater disposal. Disposal waters from the Delaware formation, Cherry Canyon sand, will be re-injected into the Delaware formation, Bell Canyon sand, at a depth of 3,200' - 3,350', with a maximum injection pressure of 1,500 psi maximum, at a rate of 5,000 BWPD.

All interested parties opposing the afore mentioned must file objections of requests for a hearing with the Oil Conservation Division, 1220 South Saint Francis Drive, Santa Fe, New Mexico, 87505-5472, within 15 days. Additional information can be obtained by contacting Martha C. Howard at (281) - 618 - 4887.

Published by the Carlsbad Current Argus, Carlsbad N.M., November 30, 2006.

Legal Notice Number

Southwestern Energy Company

2350 N. Sam Houston Parkway East
Suite 300
Houston, Texas 77032
(281) 618-4700 FAX: (281) 618-4818

December 6, 2006

EOG Resources
P. O. Box 2267
Midland, Texas 79702

via Certified Mail
Receipt # 7006 2150 0002 1398 0466

Re: Karlsbad Corral SWD No. 1
Section 11, T25S R29E
2,222' FSL & 2,640' FEL

Dear Sir:

Southwestern Energy Prooduction Company is making and application to the New Mexico oil conservation Division to drill the Karlsbad Corral SWD No. 1 well for disposal of produced Delaware Formation water from our Karlsbad Corral lease. In accordance with regulation 701.B (2), as an offset operator, a copy of the disposal application is being furnished to you.

If you have no objections to this operation, kindly execute the attached waiver of protest and return to Southwestern Energy in the enclosed stamped and addressed envelope.

Thank you for your cooperation of this application. If you have any questions, I can be reached at 281-618-4887.

Very truly yours,

Martha Howard

Martha Howard
Regulatory Analyst

Attachments

7006 2150 0002 1398 0466

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Street, Apt. No.; or PO Box No. P.O. Box 2267
City, State, ZIP+4 Midland, TX 79702

Southwestern Energy Company

2350 N. Sam Houston Parkway East
Suite 300
Houston, Texas 77032
(281) 618-4700 FAX: (281) 618-4818

December 6, 2006

Mr. Robert H. Bullock
Yates Petroleum Corporation
105 South 4th Street
Artesia, New Mexico 88210-2177

via Certified Mail
Receipt # 7006 2150 0002 1398 0459

Re: Karlsbad Corral SWD No. 1
Section 11, T25S R29E
2,222' FSL & 2,640' FEL

Dear Mr. Bullock:

Southwestern Energy Prooduction Company is making and application to the New Mexico oil conservation Division to drill the Karlsbad Corral SWD No. 1 well for disposal of produced Delaware Formation water from our Karlsbad Corral lease. In accordance with regulation 701.B (2), as an offset operator, a copy of the disposal application is being furnished to you.

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Thank you for your cooperation of this application. If you have any questions, I can be reached at 281-618-4887.

Very truly yours,

Martha Howard

Martha Howard
Regulatory Analyst

Attachments

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Street, Apt. No.; or PO Box No. 105 South 4th St.
City, State, ZIP+4 Artesia, NM 88210-2177

Southwestern Energy Company

2350 N. Sam Houston Parkway East
Suite 300
Houston, Texas 77032
(281) 618-4700 FAX: (281) 618-4818

December 6, 2006

Mr. David Evans
OXY USA WTP Limited Partnership
P.O. Box 50250
Midland, Texas 79710

via Certified Mail
Receipt # 7006 2150 0002 1398 0473

Re: Karlsbad Corral SWD No. 1
Section 11, T25S R29E
2,222' FSL & 2,640' FEL

Dear Mr. Evans:

Southwestern Energy Prooduction Company is making and application to the New Mexico oil conservation Division to drill the Karlsbad Corral SWD No. 1 well for disposal of produced Delaware Formation water from our Karlsbad Corral lease. In accordance with regulation 701.B (2), as an offset operator, a copy of the disposal application is being furnished to you.

If you have no objections to this operation, kindly execute the attached waiver of protest and return to Southwestern Energy in the enclosed stamped and addressed envelope.

Thank you for your cooperation of this application. If you have any questions, I can be reached at 281-618-4887.

Very truly yours,

Martha Howard

Martha Howard
Regulatory Analyst

Attachments

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Sent To David Evans - OXY USA
Street, Apt. No.; or PO Box No. P.O. Box 50250
City, State, ZIP+4 Midland, TX 79710

Southwestern Energy Company

2350 N. Sam Houston Parkway East
Suite 300
Houston, Texas 77032
(281) 618-4700 FAX: (281) 618-4818

December 6, 2006

New Mexico State Land Office
Oil, Gas, and Mineral Division
P.O. Box 1148
Santa Fe, New Mexico 87504-1148

via Certified Mail
Receipt # 7006 2150 0002 1398 0442

Re: Karlsbad Corral SWD No. 1
Section 11, T25S R29E
2,222' FSL & 2,640' FEL

Dear Sir:

Southwestern Energy Production Company is making and application to the New Mexico oil conservation Division to drill the Karlsbad Corral SWD No. 1 well for disposal of produced Delaware Formation water from our Karlsbad Corral lease. In accordance with regulation 701.B (2), as an offset operator, a copy of the disposal application is being furnished to you.

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Thank you for your cooperation of this application. If you have any questions, I can be reached at 281-618-4887.

Very truly yours,

Martha Howard

Martha Howard
Regulatory Analyst

Attachments

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City, State, ZIP+4 Santa Fe, NM 87504-1148

Southwestern Energy Company

2350 N. Sam Houston Parkway East
Suite 300
Houston, Texas 77032
(281) 618-4700 FAX: (281) 618-4818

December 6, 2006

Bureau of Land Management
Carlsbad Field Office
620 E. Greene Street
Carlsbad, New Mexico 88220

via Certified Mail
Receipt # 7006 2150 0002 1398 0435

Re: Karlsbad Corral SWD No. 1
Section 11, T25S R29E
2,222' FSL & 2,640' FEL

Dear Sir:

Southwestern Energy Production Company is making and application to the New Mexico oil conservation Division to drill the Karlsbad Corral SWD No. 1 well for disposal of produced Delaware Formation water from our Karlsbad Corral lease. In accordance with regulation 701.B (2), as an offset operator, a copy of the disposal application is being furnished to you.

If you have no objections to this operation, kindly execute the attached waiver of protest and return to Southwestern Energy in the enclosed stamped and addressed envelope.

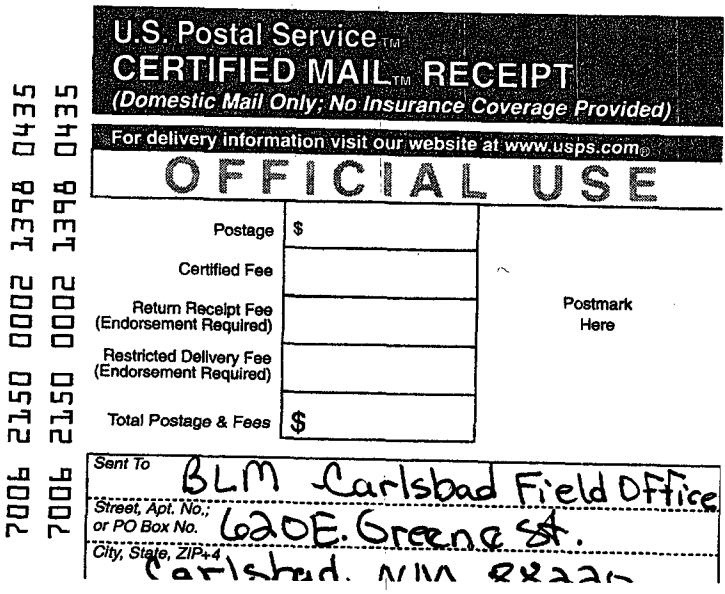
Thank you for your cooperation of this application. If you have any questions, I can be reached at 281-618-4887.

Very truly yours,

Martha Howard

Martha Howard
Regulatory Analyst

Attachments



Southwestern Energy Company

2350 N. Sam Houston Parkway East
Suite 300
Houston, Texas 77032
(281) 618-4700 FAX: (281) 618-4818

December 6, 2006

Mr. Tran King
Russler Breaks Ranch
64 North 5050 East.
Ririe, Idaho 83443

via Certified Mail
Receipt # 7006 2150 0002 1398 0411

Re: Karlsbad Corral SWD No. 1
Section 11, T25S R29E
2,222' FSL & 2,640' FEL

Dear Mr. King:

Southwestern Energy Prooduction Company is making and application to the New Mexico oil conservation Division to drill the Karlsbad Corral SWD No. 1 well for disposal of produced Delaware Formation water from our Karlsbad Corral lease. In accordance with regulation 701.B (2), as an offset operator, a copy of the disposal application is being furnished to you.

If you have no objections to this operation, kindly execute the attached waiver of protest and return to Southwestern Energy in the enclosed stamped and addressed envelope.

Thank you for your cooperation of this application. If you have any questions, I can be reached at 281-618-4887.

Very truly yours,

Martha Howard
Regulatory Analyst

Attachments

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Sent To: Tran King - Russler Breaks
Street, Apt. No.; or PO Box No.: 64 North 5050 East
City, State, ZIP+4: Ririe, Idaho 83443

PS Form 3800, August 2006 — See Reverse for Instructions

Southwestern Energy Company

2350 N. Sam Houston Parkway East
Suite 300
Houston, Texas 77032
(281) 618-4700 FAX: (281) 618-4818

December 6, 2006

Jim Richardson
JR Engineering and Construction Co.
P.O. Box 487.
Carlsbad, New Mexico 88220

via Certified Mail
Receipt # 7006 2150 0002 1398 0428

Re: Karlsbad Corral SWD No. 1
Section 11, T25S R29E
2,222' FSL & 2,640' FEL

Dear Mr. Richardson:

Southwestern Energy Prooduction Company is making and application to the New Mexico oil conservation Division to drill the Karlsbad Corral SWD No. 1 well for disposal of produced Delaware Formation water from our Karlsbad Corral lease. In accordance with regulation 701.B (2), as an offset operator, a copy of the disposal application is being furnished to you.

If you have no objections to this operation, kindly execute the attached waiver of protest and return to Southwestern Energy in the enclosed stamped and addressed envelope.

Thank you for your cooperation of this application. If you have any questions, I can be reached at 281-618-4887.

Very truly yours,

Martha Howard

Martha Howard
Regulatory Analyst

Attachments

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Sent To JR Engineering & Construction
Street, Apt. No.; or PO Box No. P.O. Box 487
City, State, ZIP+4 Carlsbad, NM 88220

Injection Permit Checklist

SWD Order Number 1062 Dates: Division Approved ____ District Approved ____

Information Request Letter or Email sent ____

Well Name/Num: Karlsbad Corral SWD# 1 Date Spudded: New

Vertical

API Num: (30-) ____ County: ____

Footages 2640 FSL / 1980 FEL Sec 11 Tsp 25S Rge 29E

Operator Name: South western Energy Production Company Contact Martha Howard

Operator Address: 2350 N. Sam Houston Parkway East, Suite 190, Houston, TX 77032

	Hole/Pipe Sizes	Depths	Cement	Top/Method
Surface	12 1/4 8 5/8	500'	305	CIRC
Intermediate				
Production	7 7/8 5 1/2	3600'	641	CIRC
Last DV Tool				
Open Hole/Liner				
Plug Back Depth				

Diagrams Included (Y/N): Before Conversion ✓ After Conversion ✓ ≈ 7/8" TBG

Checks (Y/N): Well File Reviewed — ELogs in Imaging New well

Intervals:	Depths	Formation	Producing (Yes/No)
~~Salt/Potash~~	OK		
~~Capitan Reef~~	2903'		
~~Cliff House, Etc:~~	1700'	Salt	
Formation Above	3183'	Lamar	
Top Inj Interval	3200	Bell Canyon (Del)	No
Bottom Inj Interval	3350		No
Formation Below	4200'	Cherry Canyon	1/2300

640 PSI Max. WHIP
No Open Hole (Y/N)
No Deviated Hole (Y/N)

Fresh Water Site Exists (Y/N) None Analysis Included (Y/N): ____

Salt Water Analysis: Injection Zone (Y/N/NA) No Disposal Waters (Y/N/NA) ✓ Types: Del, BS, OTHER

Affirmative Statement Included (Y/N): ✓ Newspaper Notice Adequate (Y/N) ✓ Well Table Adequate (Y/N) ✓

Surface Owner SLO BLM Noticed (Y/N) ___ Mineral Owner(s) ____

AOR Owners: OXY, [illegible], JR Energy Co, Yates, EOG, Russell Bird Ranch Noticed (Y/N) ___

~~CID/Potash/Etc~~ Owners: ____ Noticed (Y/N) ___

AOR Num Active Wells 3 Repairs? — Producing in Injection Interval in AOR Yes

AOR Num of P&A Wells 0 Repairs? — Diagrams Included? ✓

Data to Generate New AOR Table ____ New Table Generated? (Y/N)

	STR	E-W Footages	N-S Footages
Wellsite			
Northeast			
North			
Northwest			
West			
Southwest			
South			
Southeast			
East			

Conditions of Approval:

1. ____
2. ____
3. ____
4. ____

RBDMS Updated (Y/N) 12/11/06

UIC Form Completed (Y/N) Y

This Form completed 12/11/06

Inactive Well List

Total Well Count:41 Inactive Well Count:0 Since:9/17/2005

Printed On: Monday, December 11 2006

District	API	Well	ULSTR	OCD Unit	OGRID	Operator	Lease Type	Well Type	Last Production	Formation/Notes	Status	Days in TA

WHERE Ogrid:148111, County:All, District:All, Township:All, Range:All, Section:All, Production(months):15