

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
Oil Cons.  
N.M. Div-Dist. 2  
1301 W. Grand Avenue  
Albuquerque, NM 88210

FORM APPROVED  
OMB No. 1004-0135  
Expires November 30, 2000

**SUNDRY NOTICES AND REPORTS ON WELLS**  
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals.*

**SUBMIT IN TRIPLICATE - Other instructions on reverse side**

1. Type of Well

☐ Oil Well ☒ Gas Well ☐ Other

2. Name of Operator

**Southwestern Energy Production Company**

3a. Address **2350 N. Sam Houston Pkwy. E.,  
Suite 300, Houston, TX 77032**

3b. Phone No. (include area code) **281-618-4739**

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

**Section 29, T17S, R29E**

**UT.M 660'S - 660'W**

5. Lease Serial No.

**NM-14847**

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

8. Well Name and No.

**Empire Deep "29" Federal #2**

9. API Well No.

**30-015-32252**

10. Field and Pool, or Exploratory Area

**Empire; Morrow, S**

11. County or Parish, State

**Eddy County, NM**

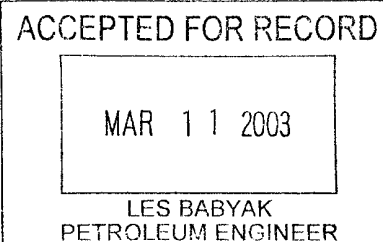
**12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

TYPE OF SUBMISSION	TYPE OF ACTION			
<input type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input checked="" type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other <b>Primary and Secondary SWD Attachments</b>
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

**Primary Salt Water Disposal Site - Loco Hills SWD**  
**Secondary Salt Water Disposal Site - Soat SWD**

**Attachments:**  
**Water Analysis Report**  
**Facility Drawing**



14. I hereby certify that the foregoing is true and correct

Name (Printed/Typed)

**Vonnie J. Germin**

Title **Production / Drilling Analyst**

Signature

Date **March 07, 2003**

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by

Title

Date

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

# Pro-Kem, Inc.

## WATER ANALYSIS REPORT

### SAMPLE

Oil Co. : **Southwestern Energy**  
 Lease : **Empire Deep 2 Fed. Com.**  
 Well No.: **# 2**  
 Location:  
 Attention:

Date Sampled : **04-March-2003**  
 Date Analyzed: **05-March-2003**  
 Lab ID Number: **Mar0503.003- 2**  
 Salesperson :

File Name : **F:\ANALYSES\Mar0503.003**

### ANALYSIS

1. Ph **7.100**
2. Specific Gravity 60/60 F. **1.028**
3. CACO3 Saturation Index **0.311**  
     @ 80F  
     @140F **1.241**

#### Dissolved Gases

4. Hydrogen Sulfide
5. Carbon Dioxide
6. Dissolved Oxygen

**MG/L. EQ. WT. \*MEQ/L**

**0**

**50**

**Not Determined**

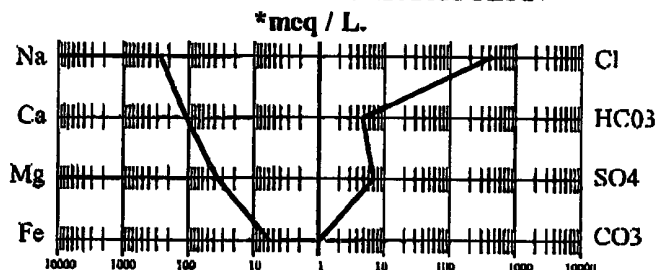
#### Cations

7. Calcium (Ca++) **2,104** / 20.1 = **104.68**
8. Magnesium (Mg++) **425** / 12.2 = **34.84**
9. Sodium (Na+) (Calculated) **6,117** / 23.0 = **265.96**
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-) **273** / 61.1 = **4.47**
14. Sulfate (SO4=) **325** / 48.8 = **6.66**
15. Chloride (Cl-) **13,997** / 35.5 = **394.28**
16. Total Dissolved Solids **23,241**
17. Total Iron (Fe) **101** / 18.2 = **5.52**
18. Total Hardness as CaCO3 **7,006**
19. Resistivity @ 75 F. (Calculated) **0.286 /cm.**

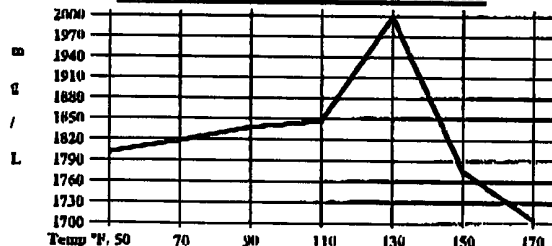
#### LOGARITHMIC WATER PATTERN



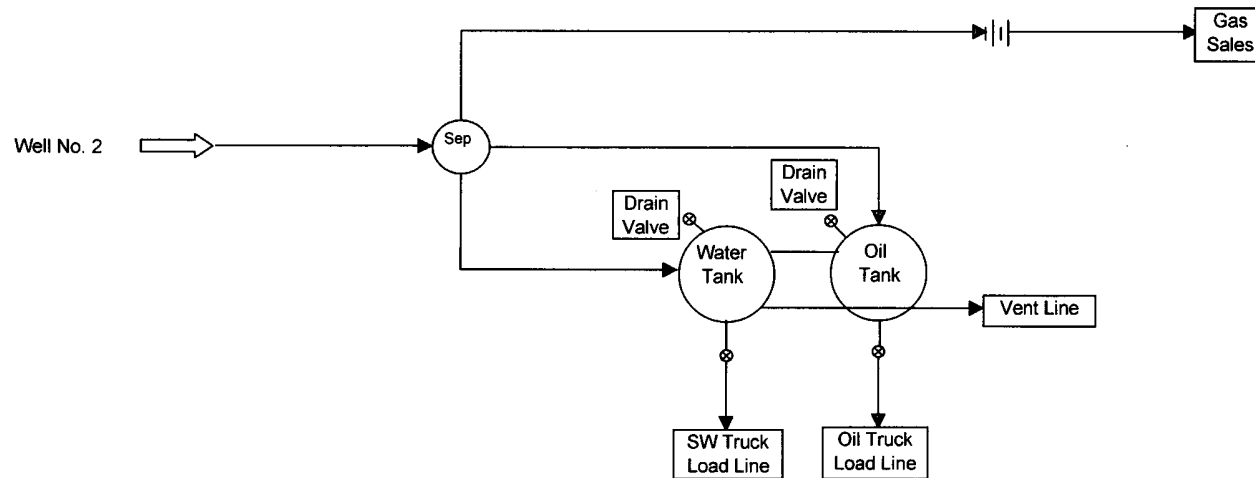
#### PROBABLE MINERAL COMPOSITION

COMPOUND	EQ. WT.	X	*meq/L	= mg/L.
Ca(HCO3)2	81.04		4.47	362
CaSO4	68.07		6.66	453
CaCl2	55.50		93.55	5,192
Mg(HCO3)2	73.17		0.00	0
MgSO4	60.19		0.00	0
MgCl2	47.62		34.84	1,659
NaHCO3	84.00		0.00	0
NaSO4	71.03		0.00	0
NaCl	58.46		265.90	15,544

#### Calcium Sulfate Solubility Profile



**EMPIRE DEEP "29" FEDERAL COM #2  
FACILITY DRAWING**



⊗ Sealed Valve

SOUTHWESTERN ENERGY PROD. CO.  
2350 N. SAM HOUSTON PKWY E., SUITE 300  
HOUSTON, TX 77032

EMPIRE DEEP "29" FEDERAL COM #2

BLM LEASE NO.: NMNM 14847

S/2 SEC 29 - T17S- R29E