

# Shackelford Oil Company

P. O. Box 10665  
Midland, Texas 79702

Phone (915) 682-9784  
Fax (915) 684-5026

July 16, 2003

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

Attn: David Catanach

Dear David:

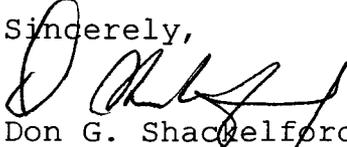
In accordance with your request, we are forwarding a cross-section in T-20S, R-29E from our producing wells (Seven Rivers) in Section 2, to our proposed salt water disposal well Section 9.

As can be seen from the cross-section, we are currently producing both oil and water in the Seven Rivers in Section 2.

In Section 9 our proposed disposal interval is in the Yates and is at least 380 ft. above the Capitan and there are a number of tight limestone stringers between the top of the Capitan and our proposed disposal interval.

I am also enclosing a water analysis from our Eddy IK #1 for your information.

Should you need additional information please contact me at your convenience.

Sincerely,  
  
Don G. Shackelford

DGS/11h

cc: Bryan G. Arrant



**CAPROCK LABORATORIES, INC.**

3312 Bankhead Hwy.  
Midland, Texas 79701  
(915) 689-7252  
FAX # (915) 689-0130

**WATER ANALYSIS REPORT**

**SAMPLE**

Oil Co. : Shackelford Oil Co.  
Lease : Eddie I R  
Well No. : #1  
Job No. : 0304112

Sample Loc. : Wellhead  
Date Analyzed : 30-April-2003  
Date Sampled :  
Analysis No. : 1

**ANALYSIS**

- 1. pH 6.950
- 2. Specific Gravity 60/60 F. 1.013
- 3. CaCO<sub>3</sub> Saturation Index @ 80 F. +0.576  
@ 140 F. +1.516

Dissolved Gases

	MG/L	EQ. WT.	*MEQ/L
4. Hydrogen Sulfide	324		
5. Carbon Dioxide	Not Determined		
6. Dissolved Oxygen	Not Determined		

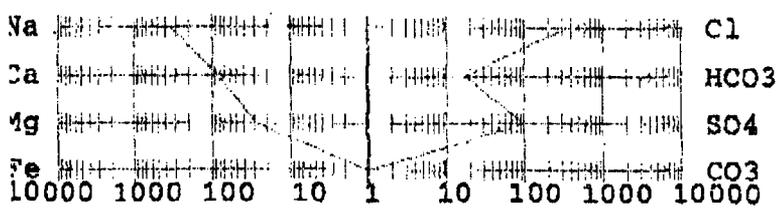
Cations

7. Calcium (Ca <sup>++</sup> )	1,603	/ 20.1 =	79.75
8. Magnesium (Mg <sup>++</sup> )	316	/ 12.2 =	25.90
9. Sodium (Na <sup>+</sup> ) (Calculated)	7,756	/ 23.0 =	337.22
10. Barium (Ba <sup>++</sup> )	Not Determined		

Anions

11. Hydroxyl (OH <sup>-</sup> )	0	/ 17.0 =	0.00
12. Carbonate (CO <sub>3</sub> <sup>=</sup> )	0	/ 30.0 =	0.00
13. Bicarbonate (HCO <sub>3</sub> <sup>=</sup> )	1,049	/ 61.1 =	17.17
14. Sulfate (SO <sub>4</sub> <sup>=</sup> )	4,619	/ 48.8 =	94.65
15. Chloride (Cl <sup>-</sup> )	11,699	/ 35.5 =	329.55
16. Total Dissolved Solids	27,042		
17. Total Iron (Fe)	1	/ 18.2 =	0.05
18. Total Hardness As CaCO <sub>3</sub>	5,305		
19. Resistivity @ 75 F. (Calculated)	0.280 /cm.		

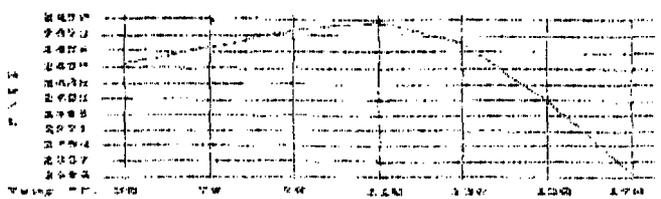
**LOGARITHMIC WATER PATTERN**  
\*meq/L.



**PROBABLE MINERAL COMPOSITION**  
COMPOUND EQ. WT. X \*meq/L = mg/L.

Cl	Ca(HCO <sub>3</sub> ) <sub>2</sub>	81.04	17.17	1,391
HCO <sub>3</sub>	CaSO <sub>4</sub>	68.07	62.58	4,260
SO <sub>4</sub>	CaCl <sub>2</sub>	55.50	0.00	0
CO <sub>3</sub>	Mg(HCO <sub>3</sub> ) <sub>2</sub>	73.17	0.00	0
	MgSO <sub>4</sub>	60.19	25.90	1,559
	MgCl <sub>2</sub>	47.62	0.00	0
	NaHCO <sub>3</sub>	84.00	0.00	0
	NaSO <sub>4</sub>	71.03	6.17	438
	NaCl	58.46	329.55	19,265

Calcium Sulfate Solubility Profile



\*Milli Equivalents per Liter  
Measured R<sub>w</sub> = 0.6 ohm-meters

*James F. Smith*  
Analyst

## Catanach, David

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**From:** Arrant, Bryan  
**Sent:** Wednesday, July 23, 2003 1:25 PM  
**To:** Catanach, David  
**Subject:** RE: Shackelford

David,

After review of Mr. Shackelford's letter and x-section he sent to our office, the proposed disposal of fluids in the Yates formation are well above the top of the Capitan Reef which occurs in the well he referenced to of @ 1550'-1583'. I agree with his pick of all the tops indicated on the x-section.

On the subject of the DHC application for Mewbourne's Layla 35 Fee Com. #,1 have you returned their application or what is the status on this one??

Thanks, Bryan

-----Original Message-----

**From:** Catanach, David  
**Sent:** Tuesday, July 22, 2003 8:20 AM  
**To:** Arrant, Bryan  
**Subject:** Shackelford

Hey Bryan, have you received and had a chance to look at Shackelford's cross section for his proposed disposal well? Does it look ok to you?

David

## Catanach, David

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**From:** Arrant, Bryan  
**Sent:** Monday, July 07, 2003 12:48 PM  
**To:** Catanach, David  
**Subject:** RE: Shackelford App for SWD

There is a well just to the northwest in the same section called the Williamson #1 has the Capitan Reef coming in @ 1360'. The G.L. is 3278'. This is a top I picked a some time ago when we had the log.

(Please see the reef top on this well on our imaged files.)

I spoke to a geologist over at the BLM and he picks the top of reef on the Williamson #1 @ 1583'.

I tried to visually correlate the ROG well with the Williamson #1 one and it is utterly impossible as they have different scales and having and to look at them on a computer screen just magnifies the hassle even more.

I believe the depths that Don Shackelford wants to inject in is above the reef, however if I was reviewing the application, I would have him make a neat and tidy regional cross section of the Yates, Seven Rivers and Reef in this area-- to prove to us that the injection fluids goes well above the reef or not find it's way into it.

-----Original Message-----

**From:** Catanach, David  
**Sent:** Monday, July 07, 2003 11:01 AM  
**To:** Arrant, Bryan  
**Cc:** Gum, Tim  
**Subject:** Shackelford App for SWD

Bryan, I received an application for a disposal well from Shackelford for its ROG Federal No. 1 API No. 30-015-30351 located 660' FSL & 810' FEL of Section 9, T-20S, R-29E. They want to dispose of water into the Yates/Seven Rivers from 1162'-1174'. Any time I get an application for disposal or injection into the Yates/Seven Rivers, I cringe. Could you take a look at the log for this well and assure me that they will not be injecting into the Capitan Reef, and that it is safe to approve this application. I you need any additional information, let me know.

Thanks,

David