7·3·95

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Application for Authorization to Inject
New Mexico Oil Conservation Division
Energy and Minerals Department
Form C-108

I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application Qualifies for administrative approval? ☒ Yes ☐ No.

II. Operator: Santa Fe Energy Resources, Inc.

Address: 550 W. Texas, Suite 1330; Midland, Texas 79701

Contact Party: James P. "Phil" Stinson - Agent Phone: (915) 682-6373

III. Well Data: Attached are well data sheets for the proposed casing designs for the subject disposal well as specified on the reverse side of Form C-108.

IV. Is this and expansion of an existing project: ☐ yes ☒ no.
If yes, give the Division Order number authorizing the project None .

V. Attached is a map identifying the proposed well's area of review. The map identifies all wells and leases within two miles of the proposed disposal well and a one-half mile radius circle has been drawn around the proposed disposal well.

VI. There are no wells within the area of review which penetrated the proposed injection zone.

VII. 1. We propose to dispose of an estimated 15,000 BWPD which is formation water from the Cisco-Canyon zones, from offset wells.

2. The system will be closed, the water will come via pipeline from a tank battery located approximately 6500' northwest and a tank battery located 3000' north of the proposed well.

3. The estimated average injection pressure is on a vacuum to 100 psi., and estimated maximum injection pressure is 1000 psi.

4. We have not drilled the well yet, so we do not have formation water from the injection zone to test the compatibility with the proposed injection water.

5. No known samples of formation water from the Devonian or Montoya.

VIII. The proposed injection zones in this well for the disposal of produced formation waters from the Cisco-Canyon formation are the Devonian and Montoya formations. These formations are expected to be encountered between the depth of 10,325' and 11,300' in the proposed wellbore. Lithologically these formations are similar, consisting of dolomite and cherty dolomites that exhibit intercrystalline to vuggy porosity. The proposed injection interval will be in selected porous intervals over a gross Devonian/Montoya section of approximately 600 feet in thickness. Fresh water has been encountered at a depth of 300' to 400' while drilling the wells in section 14 to the west.

IX. After running open hole logs over the Devonian and Montoya formations, porous intervals will be perforated through the 5 1/2" casing and the injection intervals will be acidized with 15% HCl to improve the injectivity of the proposed zones.

X. We plan to run a porosity log and resistivity log over the entire Devonian and Montoya formations.

XI. No known fresh water wells within one mile of the proposed well.

XII. There is no known underground source of drinking water for possible open faults or hydrologic connection to have communication to the disposal water. The proposed disposal zone at almost two miles below the surface is so far removed from the surface that contamination of possible drinking water sources by communication should not be a concern.

XIII. We have mailed a copy of this application to the Bureau of Land Management, Carlsbad Resource Area, as they are the owners of the land on which the well is located. We have also mailed a copy of this application to Marathon Oil Company, Midland, Texas and M W Petroleum, Houston, Texas, as they are the only two leasehold operators within one-half mile of the proposed well location. We have also attached a copy of an Affidavit of Publication to verify that we had a legal advertisement published in the Carlsbad Current-Argus on May 13 and 20, 1995, per the requirements of this application. We will supply you with the verification that certified letters were sent to the BLM, Marathon and M W Petroleum once we have received the signature cards from the various parties.

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: James P. "Phil" Stinson Title: Agent for Santa Fe Energy

Signature: James P. Stinson Date: 6-12-95

XC: NMOCD - Santa Fe
NMOCD - Artesia
BLM - Carlsbad
Marathon Oil Copany, Midland, Texas
M W Petroleum Corp., Houston, Texas

Santa Fe Energy Resources, Inc.
Roaring Springs "13" Fed. #2
Application for Authorization to Inject
Well Data for NMOCD Form C-108

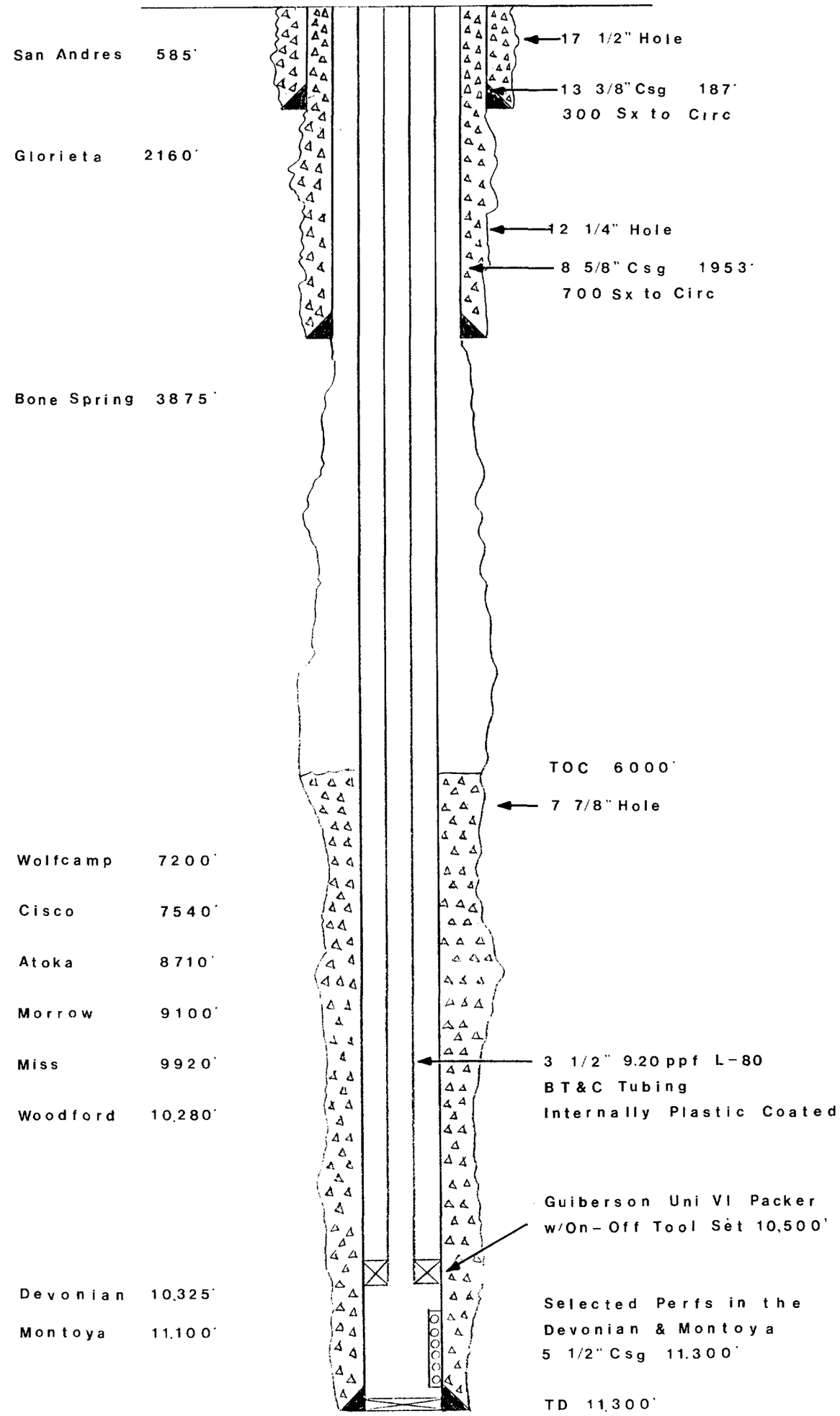
III.A. (1)	Name & Location:	Roaring Springs "13" Fed. #2 1650' FSL & 1650' FWL Section 13, T-12-S, R-23-E Eddy County, New Mexico
III. A. (2)	Casing & Cement:	
	Surface Casing:	Drilled a 17-1/2" hole to 187'. Ran 13-3/8" 48.0 ppf H-40 ST&C casing. Cemented with 300 sx Class "C" mixed at 14.8 ppg and 1.32 ft^3/sk yield and circulated to the surface. Casing is in place.
	Intermediate Casing:	Drilled a 12-1/4" hole to 1953'. Ran 8-5/8" 32.0 ppf J-55 ST&C casing. Cemented with 700 sx Class "C" mixed at 14.8 ppg and 1.32 ft^3/sk yield and circulated to the surface. Casing is in place.
	Production Casing:	Drill a 7-7/8" hole to approximately 11,400'. Run 5-1/2" 17 ppf K-55 and L-80 casing. Cement with 800 sx Class "H" + 0.8% Halad-322 + 5% Salt mixed at 15.7 ppg and 1.18 ft^3/sk yield to circulate cement to approximately 6,000'.
III. A. (3)	Injection Tubing:	3-1/2" 9.20 ppf L-80 BT&C tubing, internally plastic coated with ICO SC650, hung off in the wellhead and attached to packer at approximately 10,500'.
III. A. (4)	Injection Packer:	5-1/2" X 2-7/8" Guiberson Uni VI Packer with an On-Off Tool, all internally plastic coated and set at approximately 10,500'.
III. B. (1)	Injection Formation:	Devonian & Montoya.
III. B. (2)	Injection Interval:	Selected porous intervals within the Devonian and Montoya formations from 10,325'-11,300' and the intervals will be perforated through the 5-1/2" casing.
III. B. (3)		This proposed well is being drilled strictly for disposal purposes.
III. B. (4)		We do not plan to test any other intervals in this wellbore.
III. B. (5)		The Morrow Sands have produced in the area in an interval from 9100'-9500'. The Cisco Canyon formation is the primary productive horizon in the area and it produces from an interval from 7540'-7900' and this well will be utilized to dispose of produced from this interval (see attached water analyses).

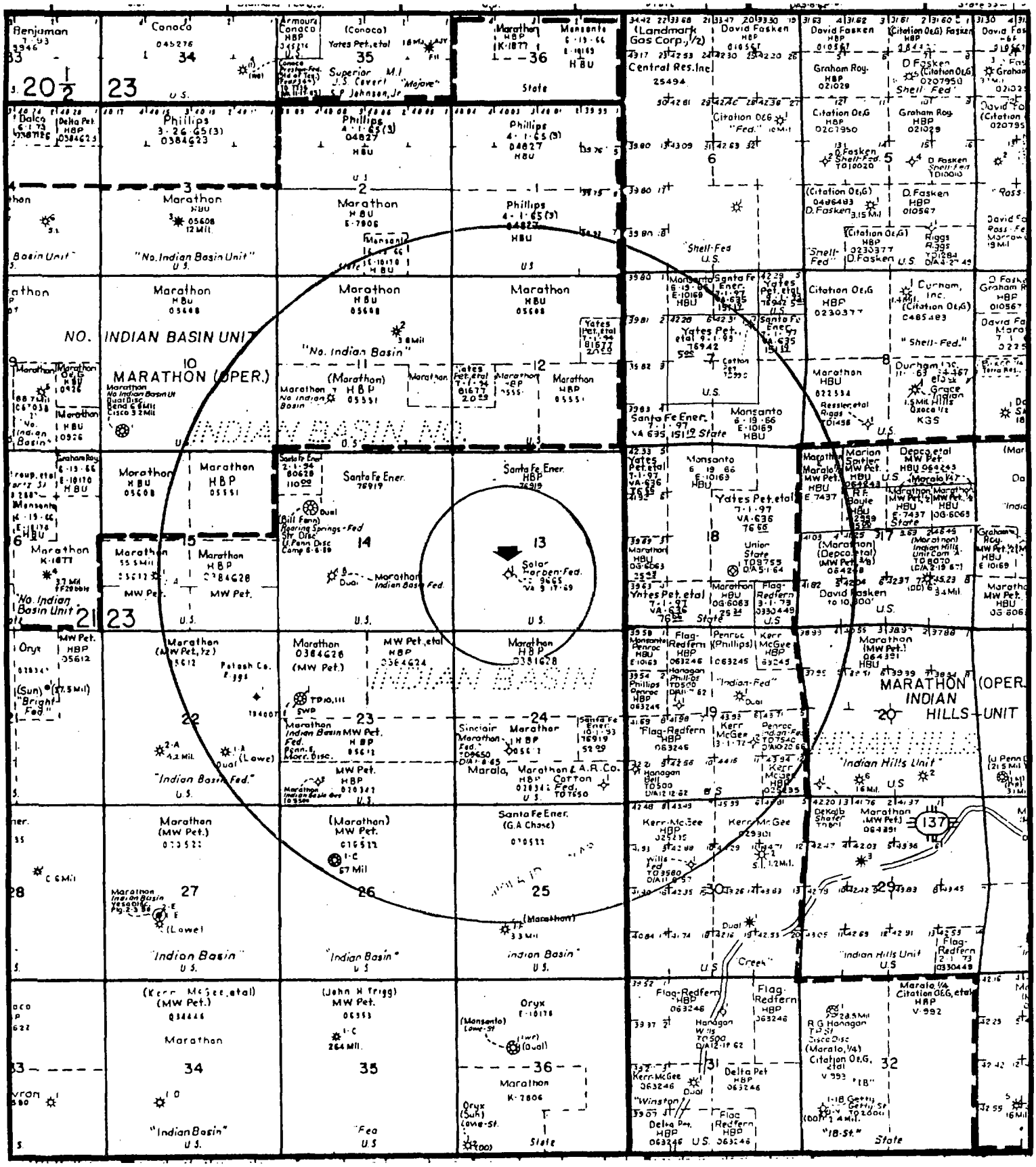
Santa Fe Energy Resources

Roaring Springs "13" Fed. No. 2 SWD

1650'FSL & 1650'FWL
Sec.13-21S-23E, Eddy Co. NM

Proposed Wellbore Schematic





SANTA FE ENERGY RESOURCES, INC.
ROARING SPRINGS "13" FEDERAL NO 2
AREA OF REVIEW
SEC 13, T-21-S, R-23-E
EDDY COUNTY, NEW MEXICO

Affidavit of Publication

№ 16627

State of New Mexico,
County of Eddy, ss.

Amy McKay,
being first duly sworn, on oath says:

That she is Business Manager 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:

May 13, 1995
May 20, 1995
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That the cost of publication is $ 39.02, and that payment thereof has been made and will be assessed as court costs.

Amy McKay

Subscribed and sworn to before me this
22nd day of May, 1995

Donna Crump

My commission expires 8/01/98
Notary Public

May 13, 20, 1995

Santa Fe Energy Resources, Inc. has made application to re-enter and deepen the Roaring Springs "13" Fed. No. 2 to a depth of 11,300' for the sole purpose of disposing of formation water into the Devonian/ Montoya formations at selected intervals from 10,325'-11,300'. The proposed well location is at 1650' FSL & 1650' FWL of Section 13, T-21S, R-23E, Eddy County, New Mexico. We plan to dispose of approximately 15,000 barrels of water per day at an estimated pressure of 1,000 psi.

Interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days of the publication of this notice.

Applicant:
Santa Fe Energy
Resources, Inc.
550 W. Texas, Suite 1330
Midland, Texas 79701
Phone: 915-687-3551
Attention: Darrell Roberts

UNICHEM INTERNATIONAL
P.O. BOX 61427 4312 County Road 1298 S.
~~Midland~~, Texas 79711

Roaring Springs

Santa Fe Energy

Report Date: May 3, 1994
Lab In Date: May 2, 1994
Sample Date: April 28, 1994

Listed below please find our water analysis report from Roaring Springs , Fed. #1 :

Specific Gravity:	1.022
Total Dissolved Solids:	30443
PH:	6.85
Ionic Strength:	.578

			mg/liter
CATIONS:			
	Calcium:	(Ca++)	1120
	Magnesium:	(Mg++)	292
	Sodium:	(Na+)	9939
	Iron (Total)	(Fe++)	1.10
	Barium	(Ba++)	3.20
	Manganese:	(Mn++)	2.05
	Resistivity:		
ANIONS:			
	Bicarbonate:	(HCO3-)	756
	Carbonate:	(CO3--)	0
	Hydroxide:	(OH-)	0
	Sulfate:	(SO4--)	2336
	Chloride:	(Cl-)	16000
GASES:			
	Carbon Dioxide:	(CO2)	290.0
	Oxygen:	(O2)	*******
	Hydrogen Sulfide:	(H2S)	340.0

SCALE INDEX (Positive Value Indicates Scale Tendency) * indicates tests were not run.

Temperature		CaCO3 SI	CaSO4 SI
86F	30.0C	.26	-16.92
104F	40.0C	.49	-17.21
122F	50.0C	.73	-17.04
140F	60.0C	1.06	-16.46
168F	70.0C	1.37	-15.52
176F	80.0C	1.71	-13.49

[illegible], please contact us.

Sincerely,

Jeanne M. McMurrey

Laboratory Technician

cc:

bc: Jerry Fuller
Kenny Tuttle