A.:11- These are for the Lockhart #8 SWD for Chevron. Thanks Carolyn Harpie 432-687-7961

your questions

After reviewing your application, I have the following comments and requests:

1) Is S&D Ranch the surface owner? Our system says that the surface is Fee and the subsurface is Fed near this wellbore

OUR ANSWERS

Yes, S&D Ranch owns the surface. Our Land representative said the way she understands your question is, Fee being privately owned, (S&D Ranch) and the subsurface being the minerals, are Federal. Please let us know if you have additional questions.

2) Please send copies of all electric logs run on this well including CBL or temp surveys to the Hobbs district office for scanning into the online system.

I've sent a copy of the temperature survey and Radioactive Log to the Hobbs district office. However, we do not have a Cement Bond log. If this is required, please let me know and we'll get this ordered.

3) Please obtain a recent Fresh Water sample and analysis from any windmill or domestic waterwell in this area and send here for inclusion in this application. If none is available within 1 mile, say so.

This is attached.

4) Please send a statement as per item XII on C-108 signed by a geologist.

Geologist statement attached.

5) Q for the Geo: Why is the San Andres not productive here in this area? Do you have evidence of this? Is the proposed injection interval "lower" San Andres and therefore more likely to be wet?

The San Andres is only productive on the upper 400-500' of the San Andres on the highest regions of the "Eunice High," Lockhart #8 is too far off structure to yield economic San Andres production. The San Andres does not become productive until you go about 2 miles to the west (200' higher on structure). Attached is a map showing an offset well that tested the San Andres with poor results. AH Blinebry NCT 1 #10 had an IP of 3 bo and 118 bw and a cum of only 1535 bo, 480 mcf, and 22.7 mbw. Also, the perfs are in the middle-lower part of the San Andres which has never produced oil or gas (see attached log).

Additional Geologist attachments

6) For the Completions Engineer:
a) As you know, if you want additional injection pressure in this well more than the standard: 0.2 psi/foot, then run a Step Rate Test and apply for more pressure.

We will limit max injection pressure to 0.2 psi/ft @ 868 psi.

b) The permit will require another CIBP to be set within 200 feet of the lowermost injection perforation. However, if the well has already been perfed in the San Andres and tubing run, let us know?

See attached revised wellbore diagram.

RULE 40 appears fine - thanks for this!!!
I really liked your wellbore diagrams and the data you put on them - thank you. Let me know what software you used?

Chevron
SWD Application: CH Lockhart NCT-1 #8, API: 30-025-12131
Date: 7/14/2008

Geological Data

The lower San Andres has been chosen for water disposal at CH Lockhart NCT-1 #8. The San Andres is a thick vuggy dolostone that provides good pore space (up to 20% porosity) for disposal of water. Porosity barriers within the formation and distance from offset San Andres producers should prevent any problems with migrating water.

CH Lockhart NCT-1 #8
Top San Andres = 4007'
Top Glorieta = 5200'

San Andres perforations for injection:

4738- 4743'
4766- 4771'
4718- 4786'
4802- 4807'
4820- 4825'
4836- 4841'
4865- 4870'
4895- 4900'
4920- 4925'
4935- 4940'

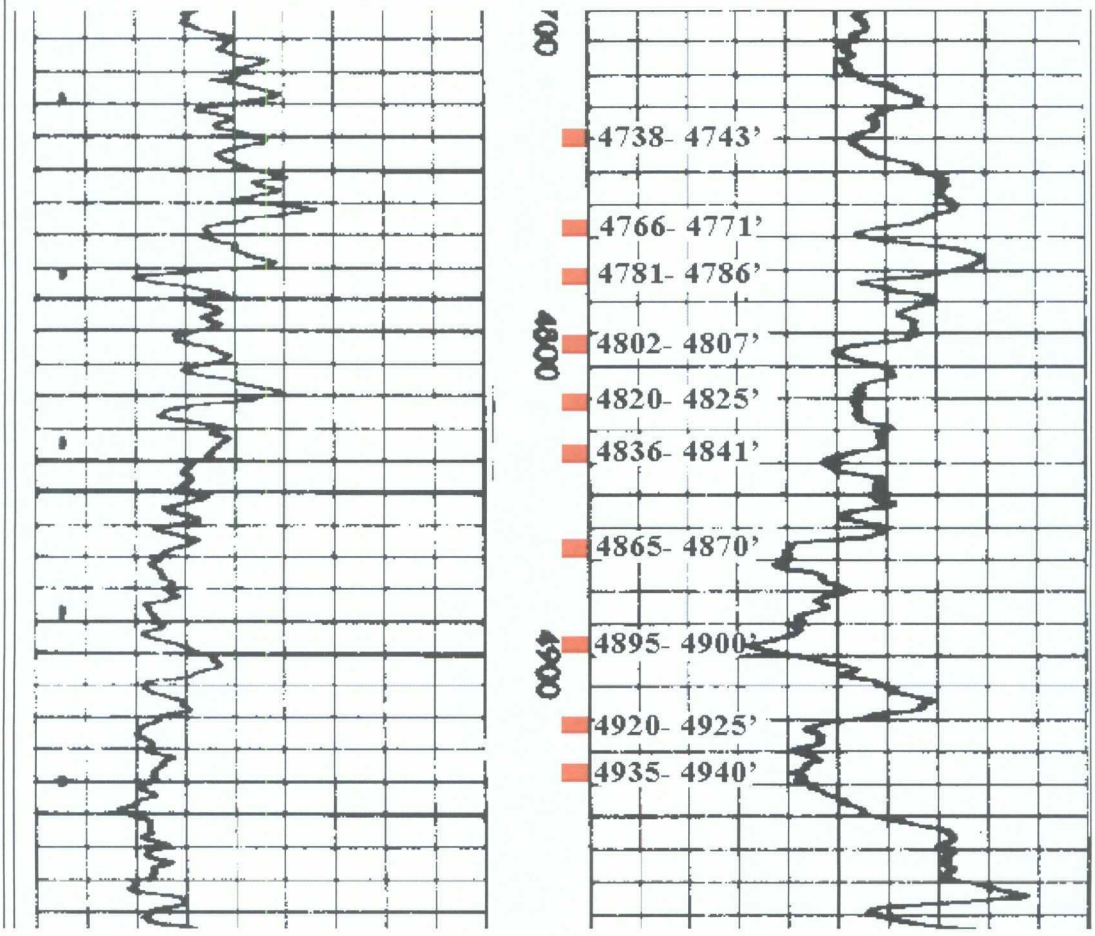
Disposal of water at the subject well should not interfere with offset producers. The closest offset producer is 2 miles away (Paddock Unit #82: API: 30-025-10240), and was completed in the upper San Andres. A nearby test in the upper San Andres (1900' SE, AH Blinebry NCT-1 #10: 30-025-12142) indicates no potential in the San Andres in the area. This well had an IP of 3 bo and 118 bo, and had cumulative production of 1535 bo, 480 mcf, and 22,760 bw when the zone was abandoned.

The deepest known fresh water in the area is the Ogallala formation at a depth of 100-400', over 4000' above the highest perforations.

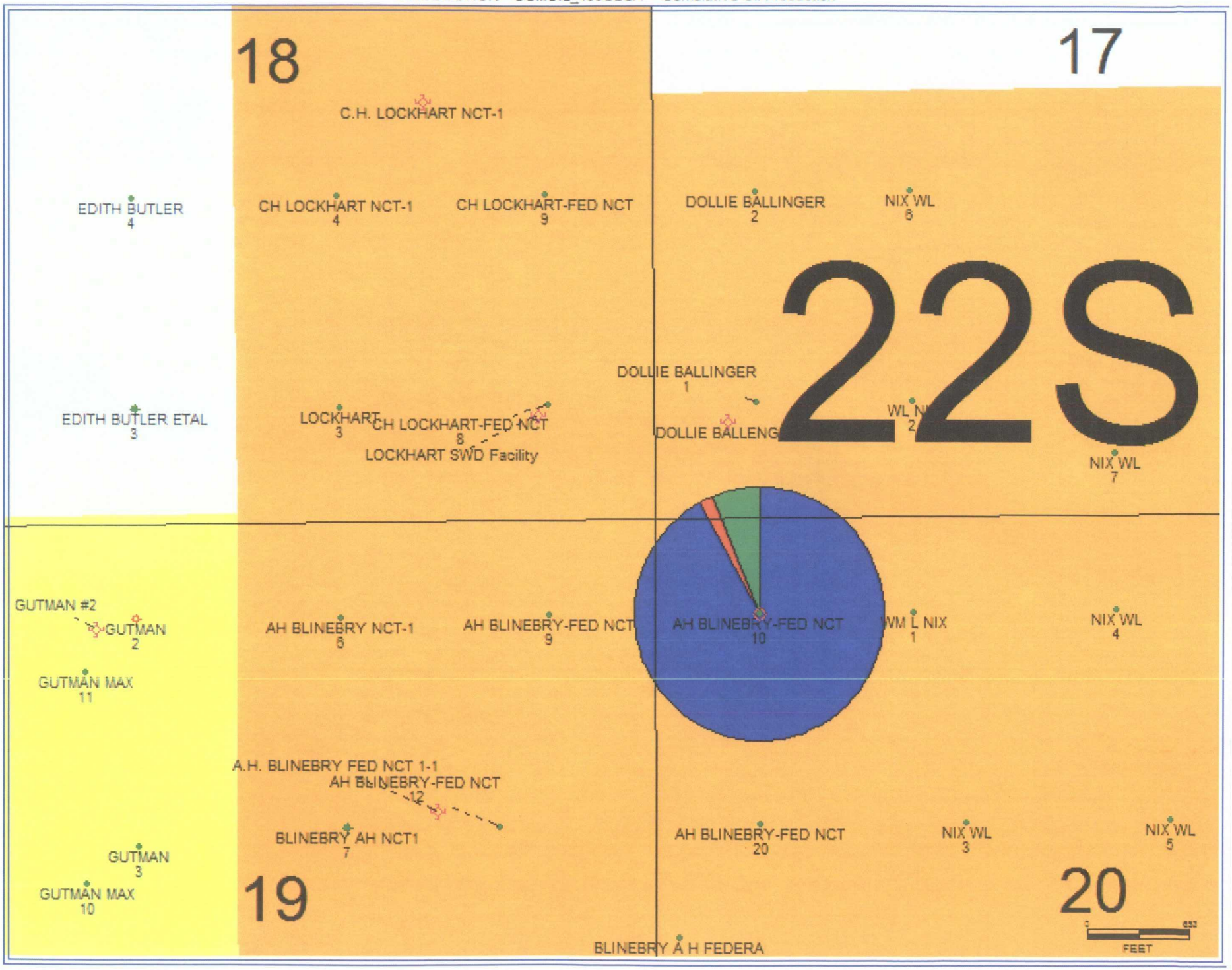
The information above is accurate to my knowledge.

Adam English
Staff Geologist
Chevron, USA
Telephone: (432) 687-7416
e-mail: akxl@chevron.com

1
CH LOCKHART-FED NCT 8
30025121310000

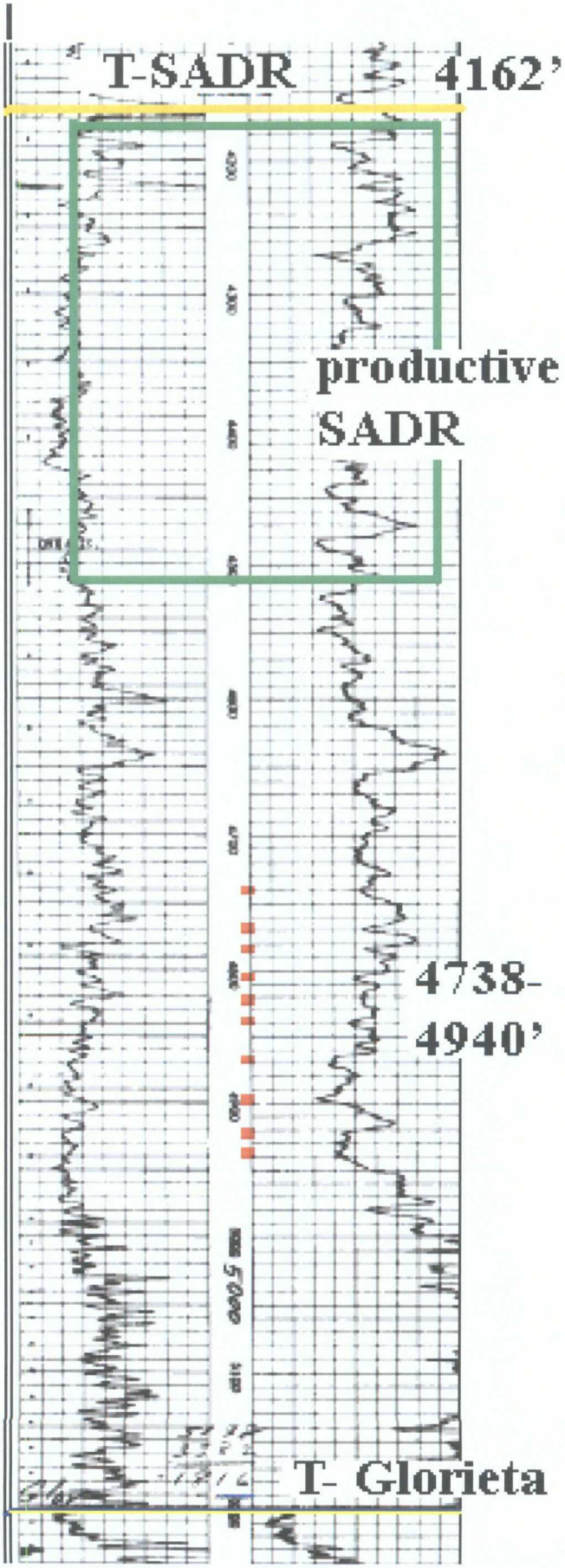


PRODUCTION - CUMOIL_453GBSA - Cumulative Oil Production



2

CH LOCKHART-FED NCT 8
30025121310000



WELL DATA SHEET

Location:	660' FSL & 660' FEL		**Well Name:**	C. H. Lockhart Federal (NCT-1) #8		**Lease Type:**	Federal
County:	Lea	**State:** New Mexico	**Sec:**	18-P	**Township:** 22S	**Range:**	38E
Current Status:	TA'd - Injector		**Refno:**	FB3080	**API:** 30-025-12131	**Cost Center:**	UCU41Z046
Current Formation(s):	Drinkard/Abo WI well						

CURRENT

Surface Csg.

Size:	**13 3/8"**
Wt.:	**48#**
Set @:	**398'**
Sxs cmt:	**550**
Circ:	**Yes**
TOC:	**Surface**
Hole Size:	**17-1/2"**

Intermediate Csg.

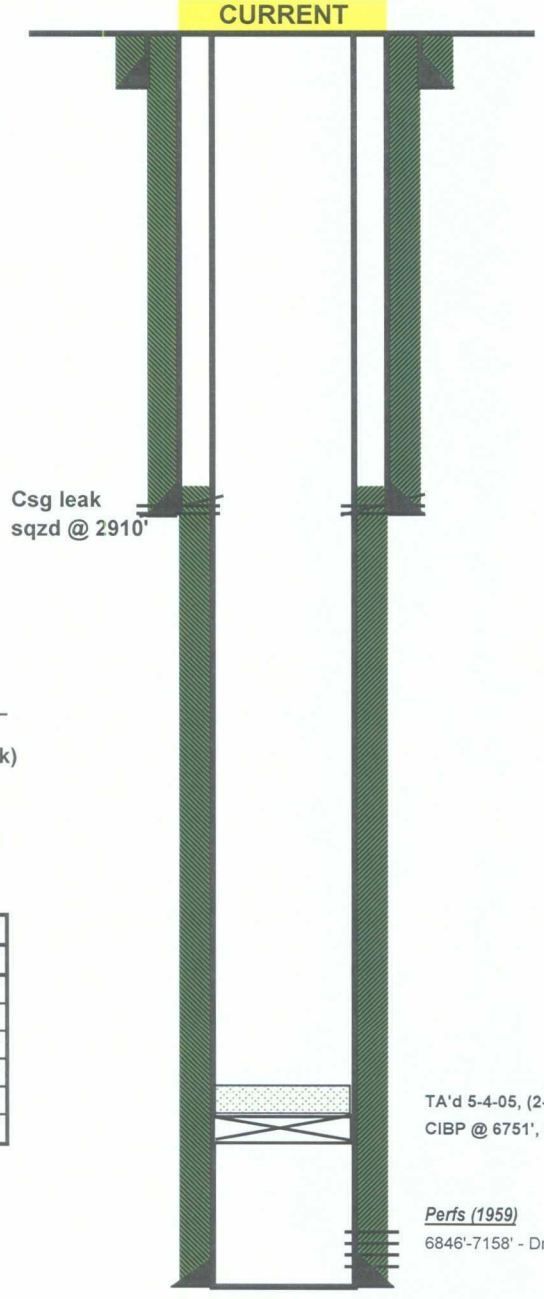
Size:	**8 5/8"**
Wt.:	**24#**
Set @:	**2901'**
Sxs Cmt:	**1200**
Circ:	**Yes**
TOC:	**Surface**

Production Csg.

Size:	**5 1/2"**
Wt.:	**4.7#**
Set @:	**7200'**
Sxs Cmt:	**650**
Circ:	**No**
TOC:	***3130' by TS**

(*TOC may have changed since they sqzd the csg leak)

KB:	3382'
DF:	3381'
GL:	3370'
Spud Date:	5/15/1959
Compl. Date:	6/7/1959



Top Salt	1468'
Base Salt	2335'
Top Yates	2616'
Top San Andres	4008'
Top Glorieta	5202'
Top Blinebry	5640'
Top Tubb	6193'
Top Drinkard	6470'

PBTD:	**7190'**
TD:	**7200'**

Updated by: C J Haynie
Date: 4/29/2008

WELL DATA SHEET

Location:	660' FSL & 660' FEL		**Well Name:**	C. H. Lockhart Federal (NCT-1) #8		**Lease Type:**	Federal
County:	Lea	**State:** New Mexico	**Sec:**	18-P	**Township:** 22S	**Range:**	38E
Proposed Status:	SWD		**Chevno**	FB3080	**API:** 30-025-12131	**Cost Center:**	UCU41Z046
Disposal Formation:	San Andres						

PROPOSED

KB:	3382'
DF:	3381'
GL:	3370'
Spud Date:	5/15/1959
Compl. Date:	6/7/1959

Surface Csg.

Size:	**13 3/8"**
Wt.:	**48#**
Set @:	**398'**
Sxs cmt:	**550**
Circ:	**Yes**
TOC:	**Surface**
Hole Size:	**17-1/2"**

Intermediate Csg.

Size:	**8 5/8"**
Wt.:	**24#**
Set @:	**2901'**
Sxs Cmt:	**1200**
Circ:	**Yes**
TOC:	**Surface**
Hole Size:	**12-1/4"**

Production Csg.

Size:	**5 1/2"**
Wt.:	**4.7#**
Set @:	**7200'**
Sxs Cmt:	**650**
Circ:	**No**
TOC:	***3130' by TS**

(*TOC may have changed since they sqzd the csg leak)

Hole Size: **7-7/8"**

Csg leak sqzd @ 2910'

2-7/8" J-55 IPC Tbg

Injection PKR @ 4250'

Perfs:	*Status:*
4340'-50'	***San Andres - Open***
4480'-90'	***San Andres - Open***
4660'-70'	***San Andres - Open***
4780'-90'	***San Andres - Open***
4865'-75'	***San Andres - Open***
4925'-35'	***San Andres - Open***

CIBP @ 5100' w/35' cmt on top (5065')

CIBP @ 6751' w/35' cmt on top (6716')

Perfs (1959)

6846'-7158' - Drinkard - below CIBP

Top Salt	1468'
Base Salt	2335'
Top Yates	2616'
Top San Andres	4008'
Top Glorieta	5202'
Top Blinebry	5640'
Top Tubb	6193'
Top Drinkard	6470'

PBTD:	**6716'**
TD:	**7200'**

Updated by: C J Haynie

Date: 7/15/2008

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

Company:	CHEVRON MID CONTINENT LP	Sales RDT:	44218
Region:	PERMIAN BASIN	Account Manager:	DEXTER NICHOLS (505) 390-4356
Area:	EUNICE, NM	Sample #:	380592
Lease/Platform:	HARRISON LEASE	Analysis ID #:	83867
Entity (or well #):	B 12 SWD	Analysis Cost:	$80.00
Formation:	UNKNOWN		
Sample Point:	FRESH WATER		

Summary	
Sampling Date:	07/22/08
Analysis Date:	07/25/08
Analyst:	STACEY SMITH
TDS (mg/l or g/m3):	786.6
Density (g/cm3, tonne/m3):	1.001
Anion/Cation Ratio:	1.0000003
Carbon Dioxide:	
Oxygen:	
Comments:	

Analysis of Sample 380592 @ 75 °F

Anions	mg/l	meq/l	Cations	mg/l	meq/l
Chloride:	**117.0**	**3.3**	**Sodium:**	**156.9**	**6.82**
Bicarbonate:	**230.0**	**3.77**	**Magnesium:**	**25.0**	**2.06**
Carbonate:	**6.0**	**0.2**	**Calcium:**	**47.0**	**2.35**
Sulfate:	**198.0**	**4.12**	**Strontium:**	**1.0**	**0.02**
Phosphate:			**Barium:**	**0.1**	**0.**
Borate:			**Iron:**	**0.1**	**0.**
Silicate:			Potassium:	5.5	0.14
			Aluminum:		
Hydrogen Sulfide:			Chromium:		
pH at time of sampling:			Copper:		
pH at time of analysis:		8.44	Lead:		
pH used in Calculation:		**8.44**	Manganese:	0.025	0.
			Nickel:		

Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Gauge Press.	Calcite $CaCO_3$		Gypsum $CaSO_4 \cdot 2H_2O$		Anhydrite $CaSO_4$		Celestite $SrSO_4$		Barite $BaSO_4$		CO_2 Press
°F	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	psi
80	0	0.87	8.06	-1.57	0.00	-1.64	0.00	-1.54	0.00	0.57	0.00	0.01
100	0	0.92	9.46	-1.57	0.00	-1.57	0.00	-1.52	0.00	0.43	0.00	0.02
120	0	0.99	11.56	-1.56	0.00	-1.48	0.00	-1.49	0.00	0.32	0.00	0.03
140	0	1.07	13.66	-1.53	0.00	-1.37	0.00	-1.44	0.00	0.24	0.00	0.04

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

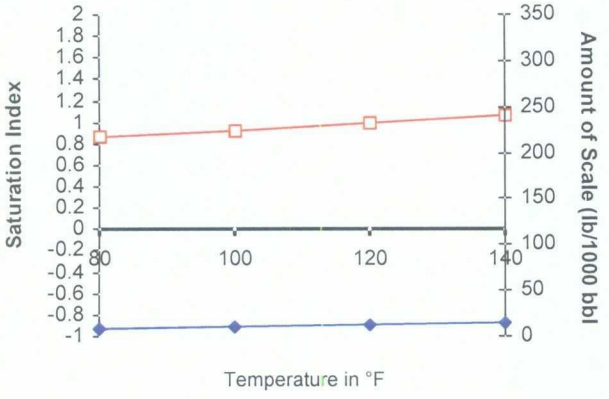
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

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

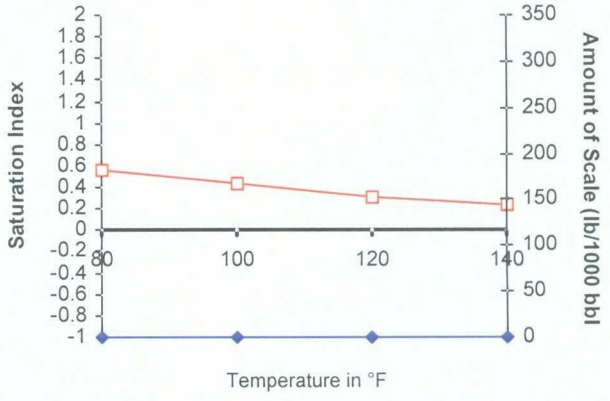
Scale Predictions from Baker Petrolite

Analysis of Sample 380592 @ 75 °F for CHEVRON MID CONTINENT LP, 07/25/08

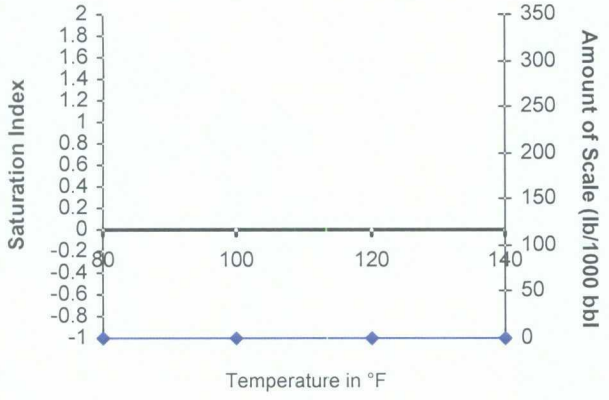
Calcite - CaCO3



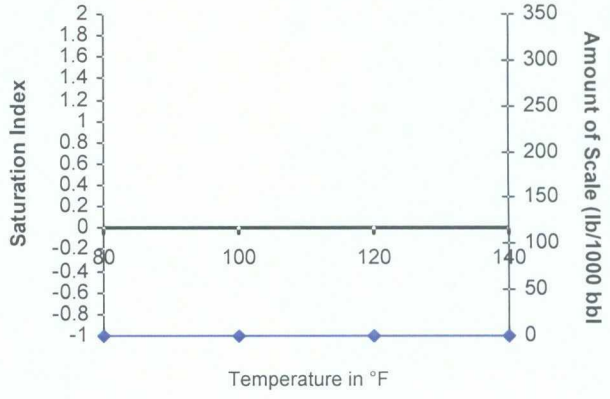
Barite - BaSO4



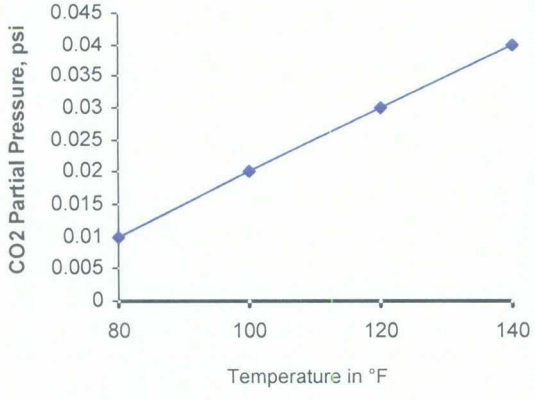
Gypsum - CaSO4*2H20



Anhydrite - CaSO4



Carbon Dioxide Partial Pressure



Celestite - SrSO4