

BEFORE THE NEW MEXICO OIL CONSERVATION DIVISION

APPLICATION OF APACHE CORPROATION
FOR APPROVAL OF A SECONDARY RECOVERY
PROJECT, LEA COUNTY, NEW MEXICO.

RECEIVED OGD

2009 JUL 23 AM 11:42
Case No. 14360

APPLICATION

Apache Corporation applies for an order approving a pilot secondary recovery, and in support thereof, applicant states:

1. Applicant is a working interest owner in and operator of the Blankenship Lease, covering the W $\frac{1}{2}$ SW $\frac{1}{4}$ of Section 12, Township 20 South, Range ³⁸308 East, N.M.P.M., containing 80.00 acres of fee lands.

2. Applicant proposes to institute a pilot secondary recovery project in the Blankenship Lease,.

3. Applicant proposes to inject water into the Blinebry, Tubb, and Drinkard formations in the Blankenship Well No. 2, located 2075 feet from the south line and 555 feet from the west line of Section 12, Township 20 South, Range 38 East, NMPM, at depths of 5900-7100 feet subsurface.

4. The Form C-108 for the project is attached hereto as Exhibit A.

5. Approval of this application will prevent waste and protect correlative rights.

WHEREFORE, applicant requests that, after notice and hearing, the Division enter its order approving the injection application.

2 7/8 plastic coated
Packer @ 6480 40' above

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "James Bruce". The signature is written in black ink and is positioned above a horizontal line.

James Bruce
Post Office Box 1056
Santa Fe, New Mexico 87504
(505) 982-2043

Attorney for Apache Corporation

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: ☒ Secondary Recovery ☐ Pressure Maintenance ☐ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ Yes ☒ No
- II. OPERATOR: Apache Corporation (873)
ADDRESS: 6120 S Yale Ave, Suite 1500 Tulsa, OK 74136-4224
CONTACT PARTY: Sophie Mackay PHONE: (918) 491-4864
- 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 ☒ 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: Sophie Mackay TITLE: Engineering Technician
SIGNATURE: *Sophie Mackay* DATE: 07/01/2009
E-MAIL ADDRESS: sophie.mackay@apachecorp.com
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, please show the date and circumstances of the earlier submittal: _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division

EXHIBIT A

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.

Side 1

INJECTION WELL DATA SHEET

OPERATOR: Apache Corporation (873)

WELL NAME & NUMBER: Blankenship #2

WELL LOCATION: 2075 FSL & 555' FWL

38E

20S

12

L

RANGE

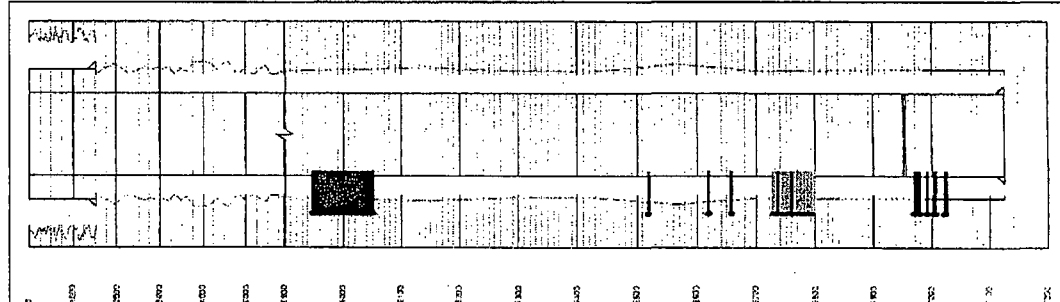
TOWNSHIP

SECTION

UNIT LETTER

FOOTAGE LOCATION

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 12-1/4" Casing Size: 8-5/8" @ 1527'
Cemented with: 698 sx. or ft³
Top of Cement: surface Method Determined: circulate

Intermediate Casing

Hole Size: Casing Size:
Cemented with: sx. or ft³
Top of Cement: Method Determined:

Production Casing

Hole Size: 7-7/8" Casing Size: 5-1/2" @ 7125'
Cemented with: 625 sx. or ft³
Top of Cement: 3160' Method Determined: Temp Survey

Total Depth: 7125'

Injection Interval

5900' feet to 7100' (perforated)

(Perforated or Open Hole; indicate which)

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

Additional Data

1. Is this a new well drilled for injection? Yes No X
- If no, for what purpose was the well originally drilled? Producer

2: Name of the Injection Formation: Blinebry / Tubb / Drinkard

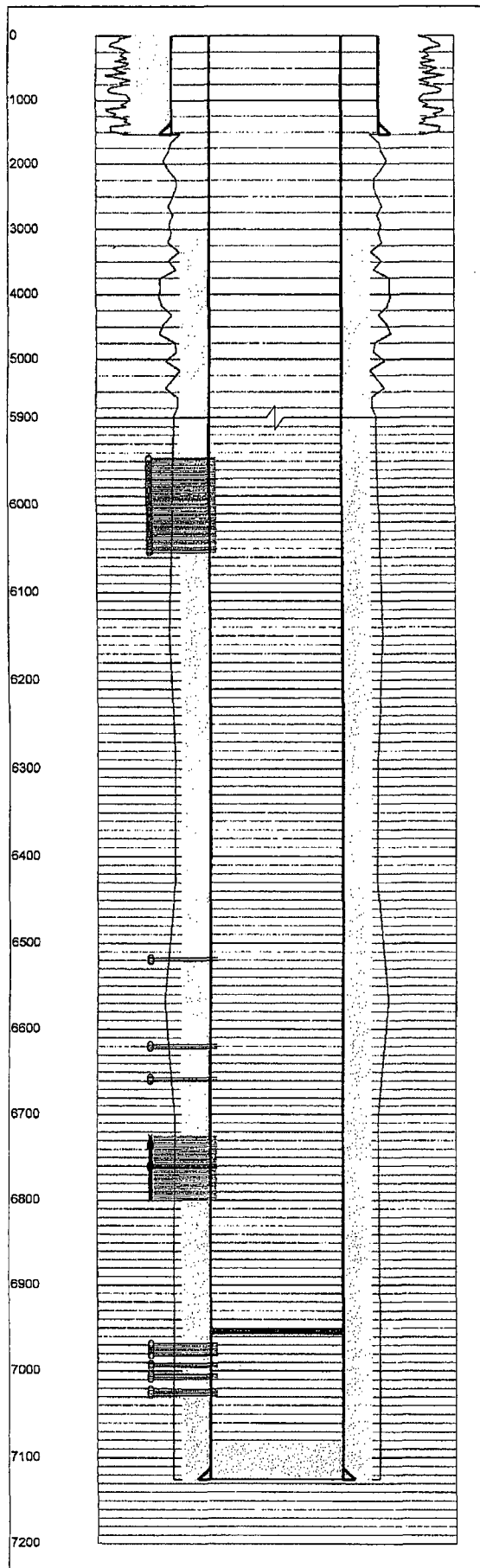
3. Name of Field or Pool (if applicable): House; Blinebry, South / House; Tubb / House; Drinkard

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. No

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

The next higher zone is the San Andres @ +/- 4264'

The next lower zone is the Abo @ +/- 7120'



CURRENT COMPLETION

Last Updated:

5/6/2009 5:06:28 PM

Field Name			Lease Name		Well No.	
House			Blankenship		2	
County		State	API	GL (ft)	KB (ft)	
Lea		New Mexico	30-025-07767	3557	3589	
Sec.		Twp/Blk	Rng/Svy	Footage		
L-12		20S	38E	2075' FSL & 555' FWL from Section		
Spud Date		Comp. Date		Prepared By	Last Updated	
9/1/1957		10/18/1957		JLF	5/6/2009	
Current Status						
Currently producing from Blinebry and Tubb perforations.						

Hole Summary

Date	OD (in)	Top (KB ft)	Bottom (KB ft)	Comments
9/1/1957	12.0000	0	1,527	
9/1/1957	7.8750	1,527	7,125	

Tubular Summary

Date	Description	OD (in)	WT (lb/ft)	Grade	Top (KB ft)	Bottom (KB ft)
9/1/1957	Surface Casing	8.6250	32.00		0	1,527
9/1/1957	Production Casing	5.5000			0	7,125

Casing Cement Summary

Date	No. Sx	OD (in)	ID (in)	Top (KB ft)	Bottom (KB ft)
9/1/1957	698	12.0000	8.6250	0	1,527
9/1/1957	625	7.8750	5.5000	3,160	7,125

Tools/Problems Summary

Date	Tool Type	OD (in)	ID (in)	Top (KB ft)	Bottom (KB ft)
4/18/2007	CIBP	5.5000	0.0000	6,950	

Cement Plug Summary

Date	No. Sx	OD (in)	Top (KB ft)	Bottom (KB ft)
9/1/1957	0	5.5000	7,084	7,125

Perf Summary

Date	Perf Status	Formation	Top (KB ft)	Bottom (KB ft)	SPF	Shots	Phasing
10/18/1957	Open	Drinkard	6,968	6,982			0
10/18/1957	Open	Drinkard	6,991	6,995			0
10/18/1957	Open	Drinkard	7,003	7,009			0
6/23/1962	Open	Drinkard	7,021	7,025			0
6/23/1962	Open	Drinkard	7,026	7,028			0
9/5/1979	Squeezed	Tubb	6,725	6,800			0
3/10/2005	Open	Blinebry	5,946	6,055	4	440	0
4/18/2007	Open	Tubb	6,517	6,521	2	10	120
4/18/2007	Open	Tubb	6,618	6,622	2	10	120
4/18/2007	Open	Tubb	6,656	6,660	2	10	120
4/18/2007	Open	Tubb	6,733	6,737	2	10	120
4/18/2007	Open	Tubb	6,758	6,762	2	10	120

Completion History Summary

Date	Comments
9/1/1957	Spud well
10/18/1957	Complete well in Drinkard (D1) perforations.
6/23/1962	Complete well in Drinkard (D2) perforations. Produced these perforations under a packer, isolating the D1 perforations.
9/5/1979	Set CIBP at 6870' and perforate Tubb (T1) from 6725-6800' with 10 holes.
1/6/1981	Drill out CIBP at 6870' and clean out to 7040'
3/15/2005	Set RBP at 6835' and cap w/ 2 sx sand. Perforate Blinebry (B1) perforations and produce from B1 perforations.
4/16/2007	Pull RBP at 6835' and run CNL and CIL from 5500-6950'. Set CIBP at 6950' and cap w/ 2 sx cement. Perforate Tubb (T2) perfs from 6517-6762' with 45 holes.

Last Updated:

5/6/2009 5:06:28 PM CURRENT COMPLETION

Field Name	Lease Name	Well No.	County	State	API	GL (ft)	KB (ft)
House	Blankenship	2	Lea	New Mexico	30-025-07767	3557	3569
Sec.	Twp/Blk	Rng/Svy	Footage	Spud Date	Comp. Date	Prepared By	Last Updated
L-12	20S	38E	2075' FSL & 555' FWL from Section	9/1/1957	10/18/1957	JLF	5/6/2009
Current Status							
Currently producing from Blinebry and Tubb perforations.							

Detailed Summaries**Hole Summary**

Date	OD (in)	Top (KB ft)	Bottom (KB ft)	Comments
9/1/1957	12.0000	0	1,527	
9/1/1957	7.8760	1,527	7,125	

Tubular Summary

Date	Description	OD (in)	WT (lb/ft)	Grade	Coupling	Top (KB ft)	Bottom (KB ft)	Comments
9/1/1957	Surface Casing	8.6250	32.00			0	1,527	
9/1/1957	Production Casing	5.5000				0	7,125	15.5/17#

Casing Cement Summary

Date	No. Sx	OD (in)	ID (in)	Top (KB ft)	Bottom (KB ft)	Cement Description	Comments
9/1/1957	698	12.0000	8.6250	0	1,527	Circ to surface	
9/1/1957	625	7.8750	5.5000	3,160	7,125	TOC by TS	

Tools/Problems Summary

Date	Tool Type	OD (in)	ID (in)	Top (KB ft)	Bottom (KB ft)	Description	Comments
4/18/2007	CIBP	5.5000	0.0000	6,950			

Cement Plug Summary

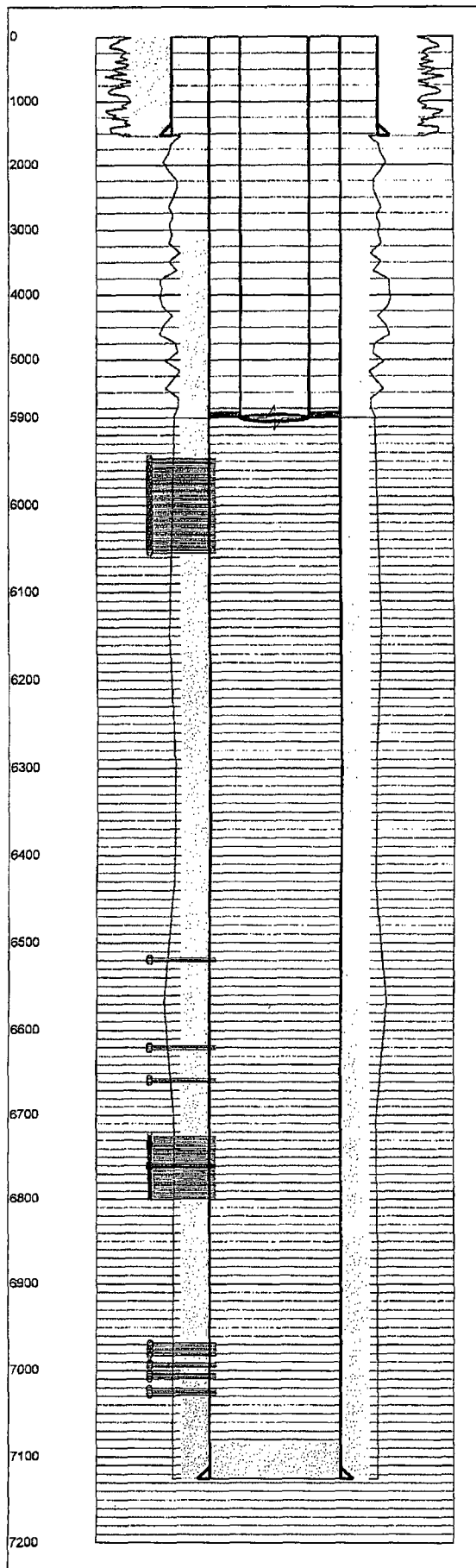
Date	No. Sx	OD (in)	Top (KB ft)	Bottom (KB ft)	Comments
9/1/1957	0	5.5000	7,084	7,125	Cmt in shoe jt

Perf Summary

Date	Perf Status	Formation	Top (KB ft)	Bottom (KB ft)	SPF	Shots	Phasing	Perf Comments	Interval Comments
10/18/1957	Open	Drinkard	6,968	6,982			0 D1		
10/18/1957	Open	Drinkard	6,991	6,995			0 D1		
10/18/1957	Open	Drinkard	7,003	7,009			0 D1		
6/23/1962	Open	Drinkard	7,021	7,025			0 D2		
6/23/1962	Open	Drinkard	7,026	7,028			0 D2		
9/5/1979	Squeezed	Tubb	6,725	6,800			0 T1		10 holes
3/10/2005	Open	Blinebry	5,946	6,055	4	440	0 B1		198 holes
4/18/2007	Open	Tubb	6,517	6,521	2	10	120 T2		
4/18/2007	Open	Tubb	6,618	6,622	2	10	120 T2		
4/18/2007	Open	Tubb	6,656	6,660	2	10	120 T2		
4/18/2007	Open	Tubb	6,733	6,737	2	10	120 T2		
4/18/2007	Open	Tubb	6,758	6,762	2	10	120 T2		

Completion History Summary

Date	Comments
9/1/1957	Spud well
10/18/1957	Complete well in Drinkard (D1) perforations.
6/23/1962	Complete well in Drinkard (D2) perforations. Produced these perforations under a packer, isolating the D1 perforations.
9/5/1979	Set CIBP at 6870' and perforate Tubb (T1) from 6725-6800' with 10 holes.
1/6/1981	Drill out CIBP at 6870' and clean out to 7040'
3/15/2005	Set RBP at 6635' and cap w/ 2 sx sand. Perforate Blinebry (B1) perforations and produce from B1 perforations.
4/16/2007	Pull RBP at 6635' and run CNL and CIL from 5500-6950'. Set CIBP at 6950' and cap w/ 2 sx cement. Perforate Tubb (T2) perfs from 6517-6762' with 45 holes.



PROPOSED COMPLETION

Last Updated:

5/6/2009 5:06:28 PM

Field Name			Lease Name		Well No.	
House			Blankenship		2	
County		State	API	GL (ft)	KB (ft)	
Lea		New Mexico	30-025-07767	3557	3569	
Sec.		Twp/Blk	Rng/Svy	Footage		
L-12		20S	38E	2075' FSL & 555' FWL from Section		
Spud Date		Comp. Date		Prepared By	Last Updated	
9/1/1957		10/18/1957		JLF	5/6/2009	
Current Status						
Currently producing from Blinebry and Tubb perforations.						

Hole Summary

Date	OD (in)	Top (KB ft)	Bottom (KB ft)	Comments
9/1/1957	12.0000	0	1,527	
9/1/1957	7.8750	1,527	7,125	

Tubular Summary

Date	Description	OD (in)	WT (lb/ft)	Grade	Top (KB ft)	Bottom (KB ft)
	Tubing	2.8750	6.50	J55	0	5,900
9/1/1957	Surface Casing	8.6250	32.00		0	1,527
9/1/1957	Production Casing	5.5000			0	7,125

Casing Cement Summary

Date	No. Sx	OD (in)	ID (in)	Top (KB ft)	Bottom (KB ft)
9/1/1957	698	12.0000	8.6250	0	1,527
9/1/1957	625	7.8750	5.5000	3,160	7,125

Tools/Problems Summary

Date	Tool Type	OD (in)	ID (in)	Top (KB ft)	Bottom (KB ft)
	Pkr	5.5000	2.8750	5,900	
4/18/2007	CIBP	5.5000	0.0000	6,950	

Cement Plug Summary

Date	No. Sx	OD (in)	Top (KB ft)	Bottom (KB ft)
9/1/1957	0	5.5000	7,084	7,125

Perf Summary

Date	Perf Status	Formation	Top (KB ft)	Bottom (KB ft)	SPF	Shots	Phasing
10/18/1957	Open	Drinkard	6,968	6,982			0
10/18/1957	Open	Drinkard	6,991	6,995			0
10/18/1957	Open	Drinkard	7,003	7,009			0
6/23/1962	Open	Drinkard	7,021	7,025			0
6/23/1962	Open	Drinkard	7,026	7,028			0
9/5/1979	Squeezed	Tubb	6,725	6,800			0
3/10/2005	Open	Blinebry	5,946	6,055	4	440	0
4/18/2007	Open	Tubb	6,517	6,521	2	10	120
4/18/2007	Open	Tubb	6,618	6,622	2	10	120
4/18/2007	Open	Tubb	6,656	6,660	2	10	120
4/18/2007	Open	Tubb	6,733	6,737	2	10	120
4/18/2007	Open	Tubb	6,758	6,762	2	10	120

Completion History Summary

Date	Comments
9/1/1957	Spud well
10/18/1957	Complete well in Drinkard (D1) perforations.
6/23/1962	Complete well in Drinkard (D2) perforations. Produced these perforations under a packer, isolating the D1 perforations.
9/5/1979	Set CIBP at 6870' and perforate Tubb (T1) from 6725-6800' with 10 holes.
1/6/1981	Drill out CIBP at 6870' and clean out to 7040'
3/15/2005	Set RBP at 6835' and cap w/ 2 sx sand. Perforate Blinebry (B1) perforations and produce from B1 perforations.
4/16/2007	Pull RBP at 6635' and run CNL and CIL from 5500-6950'. Set CIBP at 6950' and cap w/ 2 sx cement. Perforate Tubb (T2) perfs from 6517-6762' with 45 holes.

Last Updated:

5/6/2009 5:06:28 PMPROPOSED COMPLETION

Field Name		Lease Name		Well No.	County	State	API	GL (ft)	KB (ft)
House		Blankenship		2	Lea	New Mexico	30-025-07767	3557	3569
Sec.	Twp/Blk	Rng/Svy	Footage	Spud Date	Comp. Date	Prepared By		Last Updated	
L-12	20S	38E	2075' FSL & 555' FWL from Section	9/1/1957	10/18/1957	JLF		5/6/2009	
Current Status									
Currently producing from Blinebry and Tubb perforations.									

Detailed Summaries

Hole Summary

Date	OD (in)	Top (KB ft)	Bottom (KB ft)	Comments
9/1/1957	12.0000	0	1,527	
9/1/1957	7.8750	1,527	7,125	

Tubular Summary

Date	Description	OD (in)	WT (lb/ft)	Grade	Coupling	Top (KB ft)	Bottom (KB ft)	Comments
	Tubing	2.8750	6.50	J55	EUE	0	5,900	
9/1/1957	Surface Casing	8.6250	32.00			0	1,527	
9/1/1957	Production Casing	5.5000				0	7,125	15.5/17#

Casing Cement Summary

Date	No. Sx	OD (in)	ID (in)	Top (KB ft)	Bottom (KB ft)	Cement Description	Comments
9/1/1957	698	12.0000	8.6250	0	1,527	Circ to surface	
9/1/1957	625	7.8750	5.5000	3,160	7,125	TOC by TS	

Tools/Problems Summary

Date	Tool Type	OD (in)	ID (in)	Top (KB ft)	Bottom (KB ft)	Description	Comments
	Pkr	5.5000	2.8750	5,900			
4/18/2007	CIBP	5.5000	0.0000	6,950			

Cement Plug Summary

Date	No. Sx	OD (in)	Top (KB ft)	Bottom (KB ft)	Comments
9/1/1957	0	5.5000	7,084	7,125	Cmt in shoe jt

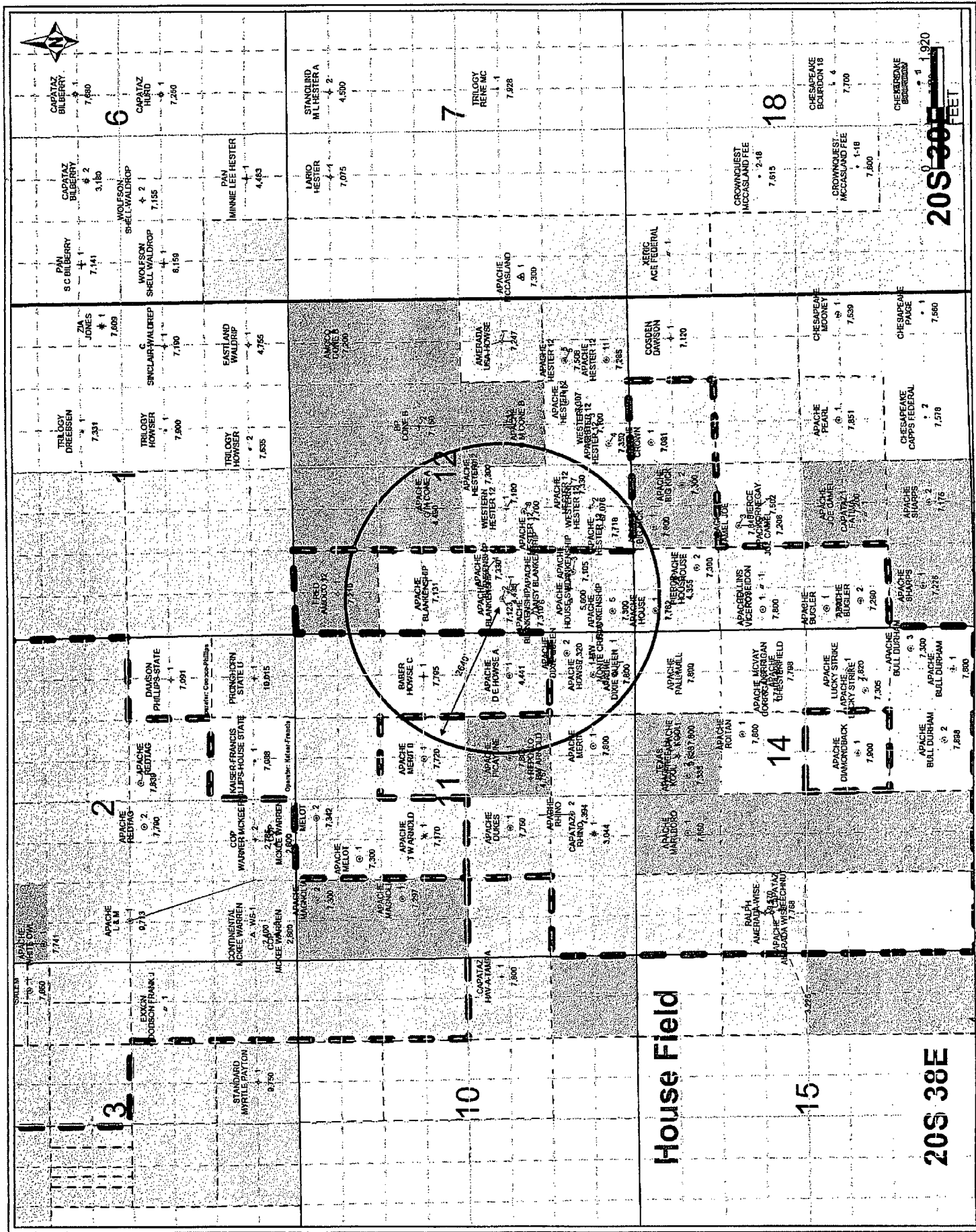
Perf Summary

Date	Perf Status	Formation	Top (KB ft)	Bottom (KB ft)	SPF	Shots	Phasing	Perf Comments	Interval Comments
10/18/1957	Open	Drinkard	6,968	6,982			0D1		
10/18/1957	Open	Drinkard	6,991	6,995			0D1		
10/18/1957	Open	Drinkard	7,003	7,009			0D1		
6/23/1962	Open	Drinkard	7,021	7,025			0D2		
6/23/1962	Open	Drinkard	7,026	7,028			0D2		
9/5/1979	Squeezed	Tubb	6,725	6,800			0T1		10 holes
3/10/2005	Open	Blinebry	5,946	6,055	4	440	0B1		198 holes
4/18/2007	Open	Tubb	6,517	6,521	2	10	120T2		
4/18/2007	Open	Tubb	6,618	6,622	2	10	120T2		
4/18/2007	Open	Tubb	6,656	6,660	2	10	120T2		
4/18/2007	Open	Tubb	6,733	6,737	2	10	120T2		
4/18/2007	Open	Tubb	6,758	6,762	2	10	120T2		

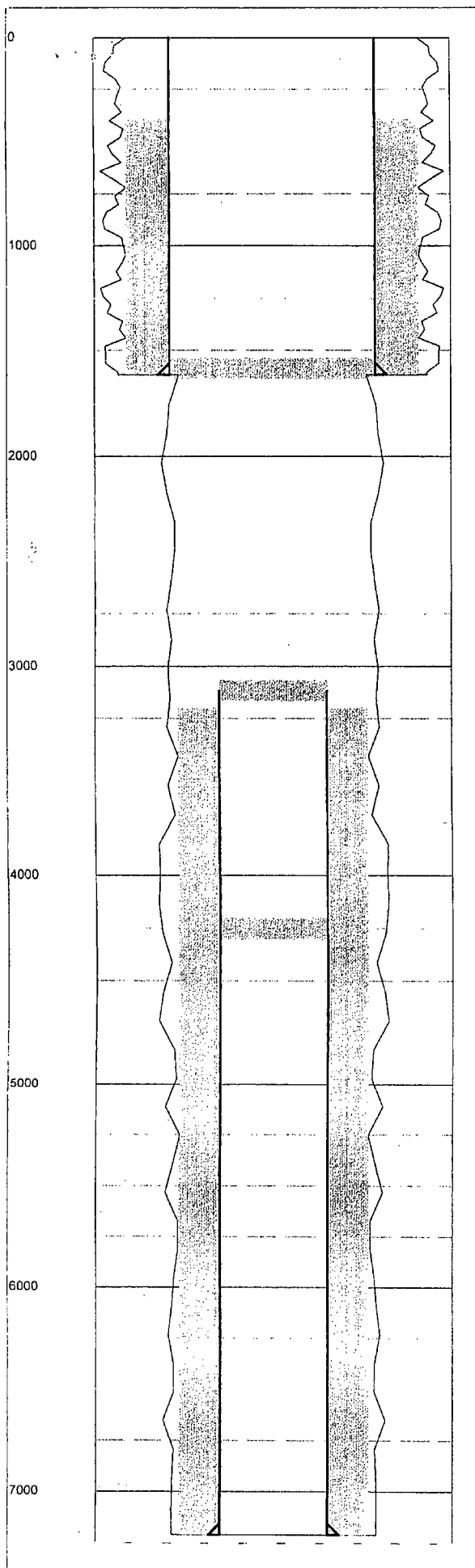
Completion History Summary

Date	Comments
9/1/1957	Spud well
10/18/1957	Complete well in Drinkard (D1) perforations.
6/23/1962	Complete well in Drinkard (D2) perforations. Produced these perforations under a packer, isolating the D1 perforations.
9/5/1979	Set CIBP at 6870' and perforate Tubb (T1) from 6725-6800' with 10 holes.
1/6/1981	Drill out CIBP at 6870' and clean out to 7040'
3/15/2005	Set RBP at 6635' and cap w/ 2 sx sand. Perforate Blinebry (B1) perforations and produce from B1 perforations.
4/16/2007	Pull RBP at 6635' and run CNL and CIL from 5500-6950'. Set CIBP at 6950' and cap w/ 2 sx cement. Perforate Tubb (T2) perfs from 6517-6762' with 45 holes.





API	Operator Name	Leases Number	Well Name	Geological Data						Production Data						
				Cat Size	Gross Depth	Gravel	Gravel	Gravel	Gravel	Core Size	Core Depth	Core Gravel	Core Gravel	Core Gravel	Core Gravel	Core Gravel
30-025-29101	YATES G FRED	AMOCO 12	1	7210	8.625	1612	500	398					7210	1500	3200	7037-7039, 8246-8557, 4310-4320, 4310-4320
30-025-35743	APACHE CORP	BIG KICK	1	7800	8.625	1640	775	Surface					7800	1500	Surface	5652-7036; 6036-6802
30-025-07766	APACHE CORP	BLANKENSHIP	1	7125	12.75	319	320	Surface					7125	693	3107-6990-7034; 7016-7034;	7012-7016; 4291-4325
30-025-07767	APACHE CORP	BLANKENSHIP	2	7125	8.75	1539	1100	Surface					7125	625	3160-6968-7009-5946-8055	
30-025-07768	APACHE CORP	BLANKENSHIP	3	7105	13.75	320	325	Surface					7105	1100	7127-7023-7025; 6574-6747;	5942-608
30-025-38397	APACHE CORP	BLANKENSHIP	4	7330	8.625	1575	800	Surface					7330	1350	Surface	6034-6797, 6960-7048
30-025-38399	APACHE CORP	BLANKENSHIP	5	7300	8.625	1570	800	Surface					7300	1600	Surface	6034-6734; 6024-6734, 6956-7025
30-025-38400	APACHE CORP	BLANKENSHIP	6	7300	8.625	1600	950	Surface					7300	1600	Surface	6046-6404
30-025-07770	APACHE CORP	COKE A	1	7078	13.375	318	400	Surface					7078	1500	Surface	6046-6404
30-025-38421	APACHE CORP	DIXIE QUEEN	1	7800	13.375	80	50	10					7800	1730	Surface	6668-6736
30-025-36681	APACHE CORP	DIXIE QUEEN	2	7320	8.625	1598	750	Surface					7320	1200	363	6044-6748
30-025-72548	WESTERN EQUIPMENT CO	HESTER 12	1	7100	8.625	1685	550	350					7100	550	3810	7022-7050, 6910-6954; 4274-4416
30-025-07773	WESTERN EQUIPMENT CO	HESTER 12	2	7100	8.625	1633	550	298					7100	400	4781	6986-7056
30-025-39785	APACHE CORP	HESTER 12	6	7718	8.625	1598	800	Surface					7718	1925	Surface	6016-6377; 6018-6786; 6018-7008
30-025-38369	APACHE CORP	HESTER 12	7	7330	8.625	1585	800	Surface					7330	1350	Surface	6036-6815; 6036-7030
30-025-38076	APACHE CORP	HESTER 12	8	7700	8.625	1578	800	Surface					7700	1900	Surface	6033-6710
30-025-38761	APACHE CORP	HESTER 12	9	7347	8.625	1605	750	1					7347	1180	448	6064-6332, 6978-7084
30-025-07774	APACHE CORP	HOUSE	1	7750	8.625	1700	900	1					7750	800	4079	6927-7019; 6008-6011
30-025-07763	APACHE CORP	HOUSE A	1	4440	13.375	317	400	Surface					4440	250	2969	4406-4400; 4362-4366
30-025-07764	APACHE CORP	HOUSE B	1	8112	13.375	305	300	Surface					8112	300	5911	6930-7000; 7020-7080; 4264-4303
30-025-22165	APACHE CORP	HOUSE C	1	7810	9.625	1547	600	Surface					7810	700	4598	7214-7762, 6964-7033; 7300-7849
30-025-34734	APACHE CORP	PICAYUNE	1	7805	8.625	1630	595	186					7805	1425	Surface	6867-7090; 5962-7355



CURRENT COMPLETION

Last Updated:

5/27/2009 2:25:17 PM

Field Name		Lease Name		Well No.	
House		Amoco 12		1	
County	State	API	GL (ft)	KB (ft)	
Lea	New Mexico	30-025-29101	0	0	
Sec.	Twp/Blk	Rng/Svy	Footage		
D-12	20S	38E	660' FNL & 660' FWL from Section		
Spud Date	Comp. Date	Prepared By	Last Updated		
		JLF	5/27/2009		
Current Status					
Well is P&A'd					

Hole Summary

Date	OD (in)	Top (KB ft)	Bottom (KB ft)	Comments
	12.2500	0	1,612	
	7.8750	1,612	7,210	

Tubular Summary

Date	Description	OD (in)	Wt (lb/ft)	Grade	Top (KB ft)	Bottom (KB ft)
	Surface Casing	8.6250			0	1,612
	Production Casing	4.5000			3,115	7,210

Casing Cement Summary

Date	No. Sx	OD (in)	ID (in)	Top (KB ft)	Bottom (KB ft)
	500	12.2500	8.6250	398	1,612
	1500	7.8750	4.5000	3,200	7,210

Tools/Problems Summary

Cement Plug Summary

Date	No. Sx	OD (in)	Top (KB ft)	Bottom (KB ft)
	35	8.6250	1,534	1,634
	25	4.5000	3,065	3,165
	25	4.5000	4,200	4,300

Perf Summary

Completion History Summary

Date	Comments
8/30/1985	Well P&A'd

Last Updated:

5/27/2009 2:25:17 PMC U R R E N T C O M P L E T I O N

Field Name		Lease Name		Well No.	County	State	API	GL (ft)	KB (ft)
House		Amoco 12		1	Lea	New Mexico	30-025-29101	0	0
Sec.	Twp/Blk	Rng/Svy	Footage		Spud Date	Comp. Date	Prepared By	Last Updated	
D-12	20S	38E	660' FNL & 660' FWL from Section				JLF	5/27/2009	
Current Status									
Well is P&A'd									

Detailed Summaries

Hole Summary

Date	OD (in)	Top (KB ft)	Bottom (KB ft)	Comments
	12.2500	0	1,612	
	7.8750	1,612	7,210	

Tubular Summary

Date	Description	OD (in)	Wt (lb/ft)	Grade	Coupling	Top (KB ft)	Bottom (KB ft)	Comments
	Surface Casing	8.6250				0	1,612	
	Production Casing	4.5000				3,115	7,210	

Casing Cement Summary

Date	No. Sx	OD (in)	ID (in)	Top (KB ft)	Bottom (KB ft)	Cement Description	Comments
	500	12.2500	8.6250	398	1,612		TOC calculated
	1500	7.8750	4.5000	3,200	7,210		TOC calculated

Tools/Problems Summary

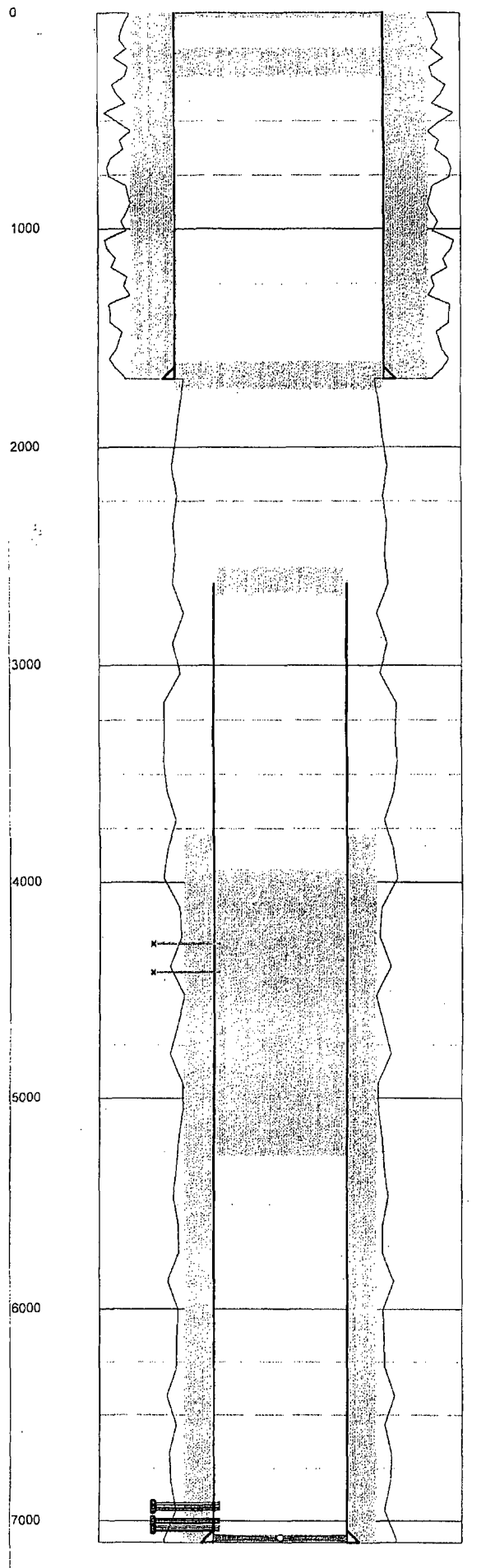
Cement Plug Summary

Date	No. Sx	OD (in)	Top (KB ft)	Bottom (KB ft)	Comments
	35	8.6250	1,534	1,634	
	25	4.5000	3,065	3,165	
	25	4.5000	4,200	4,300	

Perf Summary

Completion History Summary

Date	Comments
8/30/1985	Well P&A'd



CURRENT COMPLETION

Last Updated:

2/26/2009 2:26:46 PM

Field Name			Lease Name		Well No.
House			Hester 12		1
County	State	API	GL (ft)	KB (ft)	
Lea	New Mexico	30-025-07773	3559	3566	
Sec.	Twp/Blk	Rng/Svy	Footage		
12	20S	38E	660' FSL & 1980' FWL from Section		
Spud Date		Comp. Date	Prepared By	Last Updated	
8/27/1956		10/4/1956	JLF	2/26/2009	
Current Status					
Plugged and abandoned.					

Hole Summary

Date	OD (in)	Top (KB ft)	Bottom (KB ft)	Comments
	12.2500	0	1,685	
	7.8750	1,685	7,100	

Tubular Summary

Date	Description	OD (in)	Wt (lb/ft)	Grade	Top (KB ft)	Bottom (KB ft)
	Surface Casing	8.6250	32.00	J55	0	1,685
	Production Casing	5.5000			2,630	7,099

Casing Cement Summary

Date	No. Sx	OD (in)	ID (in)	Top (KB ft)	Bottom (KB ft)
	550	12.2500	8.6250	0	1,685
	550	7.8750	5.5000	3,780	7,099

Tools/Problems Summary

Date	Tool Type	OD (in)	ID (in)	Top (KB ft)	Bottom (KB ft)
	FC	5.5000	0.0000	7,065	

Cement Plug Summary

Date	No. Sx	OD (in)	Top (KB ft)	Bottom (KB ft)
	10	8.6250	0	25
	40	8.6250	160	300
	50	8.6250	1,605	1,735
	50	5.5000	2,555	2,681
	125	5.5000	3,940	5,272
	0	5.5000	7,065	7,099

Perf Summary

Date	Perf Status	Formation	Top (KB ft)	Bottom (KB ft)	SPF	Shots	Phasing
	Squeezed	San Andres	4,274	4,284			0
	Squeezed	San Andres	4,406	4,416			0
	Isolated	Drinkard	6,910	6,954			0
	Isolated	Drinkard	6,987	7,014			0
	Isolated	Drinkard	7,022	7,050			0

Completion History Summary

Last Updated:

2/26/2009 2:26:46 PM C U R R E N T C O M P L E T I O N

Field Name	Lease Name	Well No.	County	State	API	GL (ft)	KB (ft)
House	Hester 12	1	Lea	New Mexico	30-025-07773	3559	3566
Sec.	Twp/Blk	Rng/Svy	Footage	Spud Date	Comp. Date	Prepared By	Last Updated
12	20S	38E	660' FSL & 1980' FWL from Section	8/27/1956	10/4/1956	JLF	2/26/2009
Current Status							
Plugged and abandoned.							

Detailed Summaries

Hole Summary

Date	OD (in)	Top (KB ft)	Bottom (KB ft)	Comments
	12.2500	0	1,685	
	7.8750	1,685	7,100	

Tubular Summary

Date	Description	OD (in)	Wt (lb/ft)	Grade	Coupling	Top (KB ft)	Bottom (KB ft)	Comments
	Surface Casing	8.6250	32.00	J55		0	1,685	
	Production Casing	5.5000				2,630	7,099	15.5 and 17#, 2630' pulled when plugged

Casing Cement Summary

Date	No. Sx	OD (in)	ID (in)	Top (KB ft)	Bottom (KB ft)	Cement Description	Comments
	550	12.2500	8.6250	0	1,685		Circulate cement
	550	7.8750	5.5000	3,780	7,099		

Tools/Problems Summary

Date	Tool Type	OD (in)	ID (in)	Top (KB ft)	Bottom (KB ft)	Description	Comments
	FC	5.5000	0.0000	7,065			

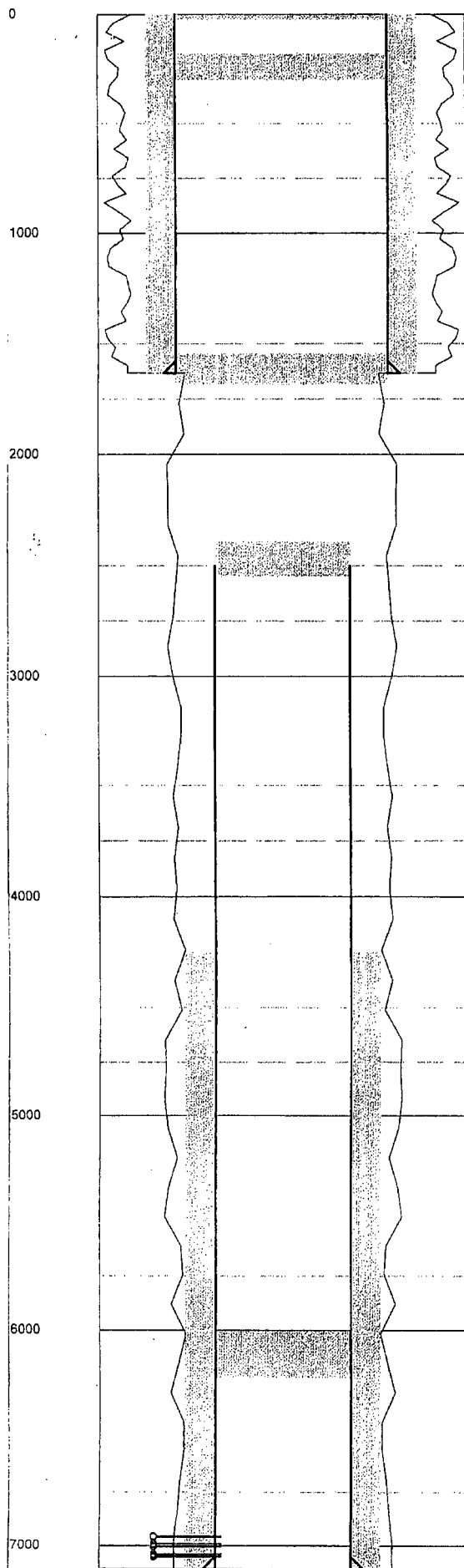
Cement Plug Summary

Date	No. Sx	OD (in)	Top (KB ft)	Bottom (KB ft)	Comments
	10	8.6250	0	25	
	40	8.6250	160	300	
	50	8.6250	1,605	1,735	
	50	5.5000	2,555	2,681	
	125	5.5000	3,940	5,272	
	0	5.5000	7,065	7,099	Cmt in shoe jt

Perf Summary

Date	Perf Status	Formation	Top (KB ft)	Bottom (KB ft)	SPF	Shots	Phasing	Perf Comments	Interval Comments
	Squeezed	San Andres	4,274	4,284			0		10 shots
	Squeezed	San Andres	4,406	4,416			0		4 shots
	Isolated	Drinkard	6,910	6,954			0		
	Isolated	Drinkard	6,987	7,014			0		
	Isolated	Drinkard	7,022	7,050			0		

Completion History Summary



CURRENT COMPLETION

Last Updated:

2/26/2009 2:30:17 PM

Field Name			Lease Name		Well No.	
House			Hester 12		2	
County	State	API		GL (ft)	KB (ft)	
Lea	New Mexico	30-025-07773		0	3566	
Sec.	Twp/Blk	Rng/Svy		Footage		
12	20S	38E		660' FSL & 1980' FWL from Section		
Spud Date		Comp. Date		Prepared By		Last Updated
8/30/1956		10/2/1956		JLF		2/26/2009
Current Status						
Plugged and abandoned.						

Hole Summary

Date	OD (in)	Top (KB ft)	Bottom (KB ft)	Comments
	12.2500	0	1,633	
	7.8750	1,633	7,106	

Tubular Summary

Date	Description	OD (in)	Wt (lb/ft)	Grade	Top (KB ft)	Bottom (KB ft)
	Surface Casing	8.6250	32.00	J55	0	1,633
	Production Casing	5.5000			2,500	7,106

Casing Cement Summary

Date	No. Sx	OD (in)	ID (in)	Top (KB ft)	Bottom (KB ft)
	650	11.0000	8.6250	0	1,633
	550	7.8750	5.5000	4,250	7,106

Tools/Problems Summary

Cement Plug Summary

Date	No. Sx	OD (in)	Top (KB ft)	Bottom (KB ft)
	10	8.6250	0	25
	35	8.6250	178	300
	40	8.6250	1,544	1,684
	50	8.6250	1,683	1,684
	50	8.6250	1,683	1,683
	40	5.5000	2,390	2,550
	25	5.5000	6,002	6,223

Perf Summary

Date	Perf Status	Formation	Top (KB ft)	Bottom (KB ft)	SPF	Shots	Phasing
	Open	Drinkard	6,952	6,983			0
	Open	Drinkard	6,988	7,008	4	84	0
	Open	Drinkard	7,036	7,056	4	84	0

Completion History Summary

Field Name	Lease Name	Well No.	County	State	API	GL (ft)	KB (ft)
House	Hester 12	2	Lea	New Mexico	30-025-07773	0	3566
Sec.	Twp/Blk	Rng/Svy	Footage	Spud Date	Comp. Date	Prepared By	Last Updated
12	20S	38E	660' FSL & 1980' FWL from Section	8/30/1956	10/2/1956	JLF	2/26/2009

Current Status

Plugged and abandoned.

Detailed Summaries**Hole Summary**

Date	OD (in)	Top (KB ft)	Bottom (KB ft)	Comments
	12.2500	0	1,633	
	7.8750	1,633	7,106	

Tubular Summary

Date	Description	OD (in)	Wt (lb/ft)	Grade	Coupling	Top (KB ft)	Bottom (KB ft)	Comments
	Surface Casing	8.6250	32.00	J55		0	1,633	
	Production Casing	5.5000				2,500	7,106	15.5 & 17#. Pulled 2500' of pipe when well was plugged.

Casing Cement Summary

Date	No. Sx	OD (in)	ID (in)	Top (KB ft)	Bottom (KB ft)	Cement Description	Comments
	550	11.0000	8.6250	0	1,633		Circulate cement
	550	7.8750	5.5000	4,250	7,106		

Tools/Problems Summary**Cement Plug Summary**

Date	No. Sx	OD (in)	Top (KB ft)	Bottom (KB ft)	Comments
	10	8.6250	0	25	
	35	8.6250	178	300	
	40	8.6250	1,544	1,684	
	50	8.6250	1,683	1,684	
	50	8.6250	1,683	1,683	No fill tagged
	40	5.5000	2,390	2,550	
	25	5.5000	6,002	6,223	

Perf Summary

Date	Perf Status	Formation	Top (KB ft)	Bottom (KB ft)	SPF	Shots	Phasing	Perf Comments	Interval Comments
	Open	Drinkard	6,952	6,963			0		4 holes
	Open	Drinkard	6,988	7,008	4	84	0		
	Open	Drinkard	7,036	7,056	4	84	0		

Completion History Summary

ITEM VII OF NEW MEXICO OCD FORM C-108
DATA ON PROPOSED OPERATIONS
BLANKENSHIP #2

- 1) Proposed average initial injection rate is 500 bwpd.
Maximum injection rate should not exceed 5,000 bwpd.
- 2) The injection system will be operated as a closed system.
- 3) Proposed average initial injection pressure is 900 psi.
Proposed maximum pressure will not exceed the pressure limitations ordered by the Division. Apache Corp will perform step rate tests and anticipates securing a maximum injection pressure of 1180 psi.
- 4) Source water will come from the Blinebry, Tubb, and Drinkard formations.
- 5) Not Applicable.

ITEM VIII OF NEW MEXICO OCD FORM C-108
GEOLOGIC DATA ON THE INJECTION ZONE & UNDERGROUND DRINKING WATER :
HOUSE FIELD

The formations being targeted for water injection are the Blinberry, Tubb and Drinkard at depths ranging from approximately 5900' to 7100'. These formations are Leonardian in age and are a sequence of marine carbonates which have undergone diagenesis, predominantly in the form of dolomitization. A five percent porosity cutoff is used to determine "pay" since porosities less than this are considered non-productive at the existing and proposed reservoir pressures and fluid regimes. Net pay isopach maps show the areal extent of the targeted reservoirs. The vertical extent of the reservoir is limited both top and bottom by impermeable shales and carbonates. All injected fluids should remain in the reservoir with the exception of cycling to the surface through well bores.

Based on communications with the New Mexico States Engineer's Roswell office and a review of online files there are 8 fresh water wells (see attached) in the area of review. The deepest of these wells is 90' which is the assumed base of fresh water. All wellbores involved with the proposed injection program are constructed to not allow injection water into this fresh water source.

New Mexico Office of the State Engineer
POD Reports and Downloads

Township: Range: Section:
 NAD27: ☒ Zone: Search Radius:
 County: Basin: Number: Suffix:
 Owner Name: (First) (Last) Non-Domestic ☐ Domestic ☐ All ☐
 [POD Surface Data Report] [Avg Depth Data Report] [Water Channel Report]
 [Download] [View Data] [Help]

POD SURFACE DATA REPORT 10/20/2008

POD SURFACE DATA REPORT 10/20/2008										(quarters are 1-NW 2-NE 3-SW 4-SE)									
(Acres ft per annum)				(quarters are biggest to smallest, X X are in feet)															
File Nbr	Use	Direction	Owner	POD Number	Source	W	E	S	E	W	Zone	X	Y						
02735	STX	3	EARL KORNIGAY	L 02735	Shallow	20S	36E	12	4	4	12								
06593	EXP	0	KINGS RESOURCES	L 06593	SHRO	20S	36E	12	4	4	12								
07933	DOE	0	ALVIN HOUSE	L 07933	CEPU	20S	36E	12	4	4	12								
10025	DOE	3	WILMER NUTTALL	L 10025	EXP	20S	38E	12	4	4	12								
10030	STX	0	WILMER NUTTALL	L 10030	EXP	20S	38E	12	4	4	12								
11004	DOE	3	IBRAHIM PROVIZO	L 11004	Shallow	20S	36E	12	4	4	12								

Record Count: 8

UTM are in meters)

UTM Zone	Easting	Northing	Start Date	Finish Date	Depth Well	Depth Water	Depth (in feet)
13	578836	3606463	12/26/1954	12/27/1954	90	65	
13	578836	3606463	12/26/1954	12/27/1954	90	65	
13	578836	3606463					
13	578821	3607469					
13	577916	3607357					
13	578535	3606750	12/20/1988	12/30/1988	90	50	
13	578528	3607066					
13	577427	3606442	11/10/1999	11/10/1999	60	45	

ITEMS IX THROUGH XII OF NEW MEXICO OCD FORM C-108
BLANKENSHIP #2

IX This well will be acid stimulated as needed to eliminate near wellbore skin damage.

X Original logs and test data were filed with the NMOCD upon original completion of the well.

XI See attached water analysis for two fresh water wells.

XII After reviewing the geology in a one and one-half mile radius around the proposed waterflood area there appears no evidence of fractures or any hydrologic connection between the zone of injection and any overlying or underlying strata.

North Permian Basin Region
P.O. Box 740
Sundown, TX 79372-0740
(806) 229-8121
Lab Team Leader - Shella Hernandez
(432) 495-7240

Water Analysis Report by Baker Petrolite

Company:	APACHE CORPORATION	Sales RDT:	44217
Region:	PERMIAN BASIN	Account Manager:	FRANK GARDNER (575) 390-5194
Area:	MONUMENT, NM	Sample #:	372540
Lease/Platform:	GILBERT UNIT	Analysis ID #:	86969
Entity (or well #):	HORSE PEN	Analysis Cost:	\$80.00
Formation:	UNKNOWN		
Sample Point:	WELLHEAD		

Summary		Analysis of Sample 372540 @ 75 °F					
Sampling Date:	10/21/08	Anions	mg/l	meq/l	Cations	mg/l	meq/l
Analysis Date:	10/30/08	Chloride:	336.0	9.48	Sodium:	216.0	9.4
Analyst:	KIMBERLY POOLE	Bicarbonate:	220.0	3.61	Magnesium:	41.0	3.37
TDS (mg/l or g/m3):	1378.5	Carbonate:	0.0	0.	Calcium:	164.0	8.18
Density (g/cm3, tonne/m3):	1.001	Sulfate:	391.0	8.14	Strontium:	2.0	0.05
Anion/Cation Ratio:	0.9999996	Phosphate:			Barium:	0.1	0.
		Borate:			Iron:	0.9	0.03
		Silicate:			Potassium:	7.5	0.19
					Aluminum:		
Carbon Dioxide:	0 PPM	Hydrogen Sulfide:		0 PPM	Chromium:		
Oxygen:		pH at time of sampling:		7.21	Copper:		
Comments:		pH at time of analysis:			Lead:		
RESISTIVITY 9 OHM-M @ 75°F		pH used in Calculation:		7.21	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 *2H ₂ O		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	0.10	2.10	-0.91	0.00	-0.98	0.00	-1.13	0.00	0.69	0.00	0.19
100	0	0.23	5.60	-0.91	0.00	-0.92	0.00	-1.12	0.00	0.54	0.00	0.24
120	0	0.37	9.45	-0.90	0.00	-0.83	0.00	-1.09	0.00	0.43	0.00	0.31
140	0	0.51	14.00	-0.88	0.00	-0.71	0.00	-1.05	0.00	0.34	0.00	0.38

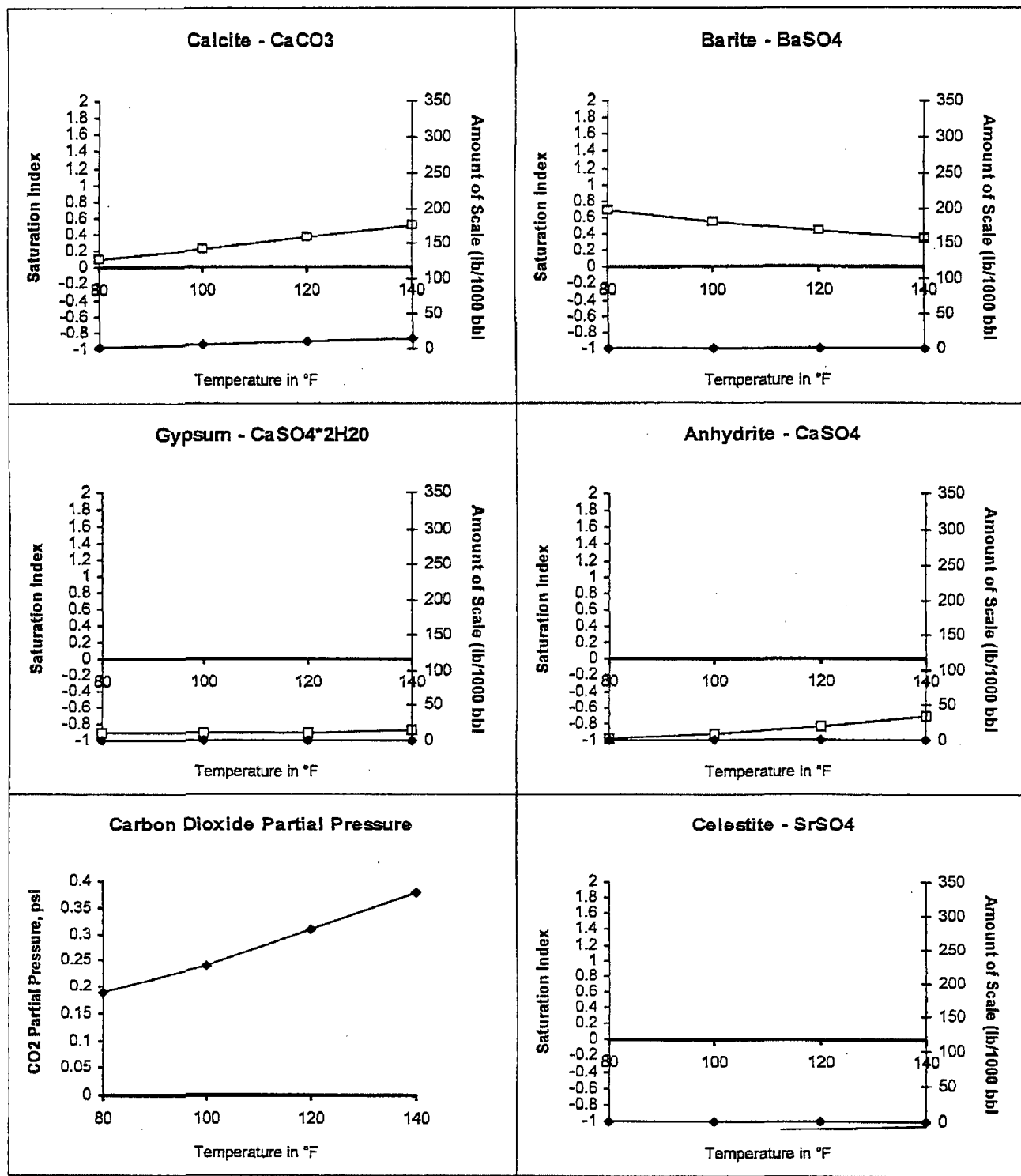
Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

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 372540 @ 75 °F for APACHE CORPORATION, 10/30/08



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:	APACHE CORPORATION	Sales RDT:	44217
Region:	PERMIAN BASIN	Account Manager:	FRANK GARDNER (575) 390-5194
Area:	MONUMENT, NM	Sample #:	372539
Lease/Platform:	OSCAR UNIT	Analysis ID #:	86970
Entity (or well #):	HOUSE	Analysis Cost:	\$80.00
Formation:	UNKNOWN		
Sample Point:	WELLHEAD		

Summary		Analysis of Sample 372539 @ 75 °F					
Sampling Date:	10/21/08	Anions	mg/l	meq/l	Cations	mg/l	meq/l
Analysis Date:	10/30/08	Chloride:	415.0	11.71	Sodium:	331.2	14.41
Analyst:	KIMBERLY POOLE	Bicarbonate:	305.0	5.	Magnesium:	41.0	3.37
TDS (mg/l or g/m3):	1378.5	Carbonate:	0.0	0.	Calcium:	174.0	8.68
Density (g/cm3, tonne/m3):	1.002	Sulfate:	491.0	10.22	Strontium:	2.0	0.05
Anion/Cation Ratio:	0.9999997	Phosphate:			Barium:	0.1	0.
		Borate:			Iron:	0.2	0.01
		Silicate:			Potassium:	16.0	0.41
Carbon Dioxide:	0 PPM	Hydrogen Sulfide:		0 PPM	Aluminum:		
Oxygen:		pH at time of sampling:		7.03	Chromium:		
Comments:		pH at time of analysis:			Copper:		
RESISTIVITY 7.5 OHM-M @ 75°F		pH used in Calculation:		7.03	Lead:		
					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 *2H ₂ O		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	0.10	2.10	-0.91	0.00	-0.98	0.00	-1.13	0.00	0.69	0.00	0.19
100	0	0.23	5.60	-0.91	0.00	-0.92	0.00	-1.12	0.00	0.54	0.00	0.24
120	0	0.37	9.45	-0.90	0.00	-0.83	0.00	-1.09	0.00	0.43	0.00	0.31
140	0	0.51	14.00	-0.88	0.00	-0.71	0.00	-1.05	0.00	0.34	0.00	0.38

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 372539 @ 75 °F for APACHE CORPORATION, 10/30/08

