

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD-ARTESIA

FORM APPROVED
OMB No. 1004-0137
Expires: October 31, 2014

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.**

5. Lease Serial No.

NM 86 025

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE – Other instructions on page 2.

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

1. Type of Well

☐ Oil Well ☐ Gas Well ☒ Other

8. Well Name and No.
Birdie Federal

#3

2. Name of Operator
Apache Corporation (873)

9. API Well No.

30-015-30231

3a. Address
303 Veterans Airpark Lane, Suite 1000
Midland, TX 79705

3b. Phone No. (include area code)
432/818-1062

10. Field and Pool or Exploratory Area

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

NWSW 17, 17S 30E NMP, Eddy County, NM

1650FSL & 1650FWL

11. County or Parish, State

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

TYPE OF SUBMISSION

TYPE OF ACTION

☐ Notice of Intent

☒ Subsequent Report

☐ Final Abandonment Notice

☐ Acidize

☐ Alter Casing

☐ Casing Repair

☐ Change Plans

☐ Convert to Injection

☐ Deepen

☐ Fracture Treat

☐ New Construction

☐ Plug and Abandon

☐ Plug Back

☐ Production (Start/Resume)

☐ Reclamation

☐ Recomplete

☐ Temporarily Abandon

☒ Water Disposal

☐ Water Shut-Off

☐ Well Integrity

☐ Other

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 must 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 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.)

Please see attached for requested water disposal information.

Accepted for record
NMOCD
12/19/14

NM OIL CONSERVATION
ARTESIA DISTRICT

DEC 03 2014

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

RECEIVED

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)

Kathy Erskine

Title Production Accounting Associate

Signature

Kathy Erskine

Date

5/20/14

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved by

Title

Office

APPROVED

NOV 19 2014

Date

JAMES A. AMOS
SUPERVISOR-EPS

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.

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.

(Instructions on page 2)

WATER PRODUCTION & DISPOSAL INFORMATION

In order to process your disposal request, the following information must be completed.

1. Name(s) of formation(s) producing water on the lease.
Glorieta Paddock, Blinberry/Tubb
2. Amount of water produced from all formations in barrels per day.
119 bbls./day
3. Attach a current water analysis of produced water from all zones showing at least the total dissolved solids, ph, and the concentrations of chlorides and sulfates. (One sample will suffice if water is commingled).
see attached
4. How water is stored on lease.
500 bbl. fiberglass tanks
5. How water is moved to the disposal facility.
By pipeline
6. Identify the Disposal Facility by:
 - A. Facility Operators name. Loco Hills Water Disposal Co.
 - B. Name of facility or well name and number. Loco Hills Water Disposal
 - C. Type of facility or well (WDW) (WIW) etc. WDW's
 - D. Location by ¼ ¼ _____ Section _____ Township _____ Range _____
7. Attach a copy of the State issued permit for the Disposal Facility.

Submit to this office, **620 EAST GREENE ST, CARLSBAD NM, 88220**, the above required information on a Sundry Notice 3160-5. Submit 1 original and 3 copies, within abatement period. (This form may be used as an attachment to the Sundry Notice).

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:	33514
Region:	PERMIAN BASIN	Account Manager:	REGGIE GUY (575) 513-9135
Area:	ARTESIA, NM	Sample #:	632637
Lease/Platform:	BIRDIE FED UNIT	Analysis ID #:	124743
Entity (or well #):	17	Analysis Cost:	\$90.00
Formation:	UNKNOWN		
Sample Point:	WELLHEAD		

Summary		Analysis of Sample 632637 @ 75 °F							
Sampling Date:	09/12/12	Anions		mg/l	meq/l	Cations		mg/l	meq/l
Analysis Date:	10/04/12	Chloride:	123807.0		3492.14	Sodium:	67494.1		2935.83
Analyst:	JENNIFER HARDELL	Bicarbonate:	256.2		4.2	Magnesium:	1567.0		128.91
		Carbonate:	0.0		0.	Calcium:	9178.0		457.98
TDS (mg/l or g/m3):	206799.5	Sulfate:	3033.0		63.15	Strontium:	258.0		5.89
Density (g/cm3, tonne/m3):	1.142	Phosphate:				Barium:	0.1		0.
Anion/Cation Ratio:	1	Borate:				Iron:	4.0		0.14
		Silicate:				Potassium:	1202.0		30.74
						Aluminum:			
Carbon Dioxide:	160 PPM	Hydrogen Sulfide:			51 PPM	Chromium:			
Oxygen:		pH at time of sampling:			6.2	Copper:			
Comments:		pH at time of analysis:				Lead:			
RESISTIVITY: 0.044 OHM-M @ 75° F		pH used in Calculation:			6.2	Manganese:	0.060		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	0.31	12.34	0.34	859.38	0.37	717.30	0.43	101.04	0.13	0.00	1.05
100	0	0.39	15.50	0.26	717.01	0.36	705.53	0.41	97.30	-0.07	0.00	1.28
120	0	0.47	18.94	0.20	578.95	0.37	727.63	0.39	95.30	-0.25	0.00	1.5
140	0	0.56	22.39	0.15	448.92	0.41	776.14	0.39	94.72	-0.40	0.00	1.72

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

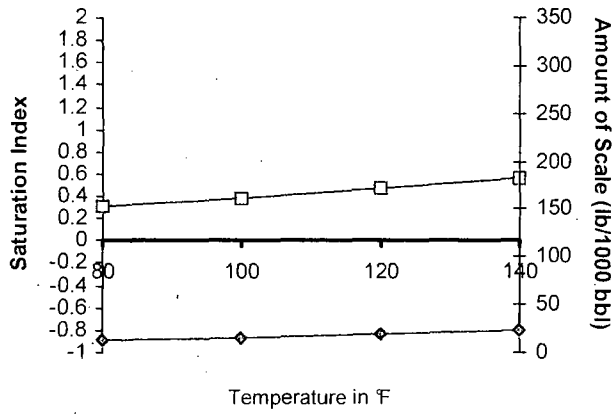
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

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

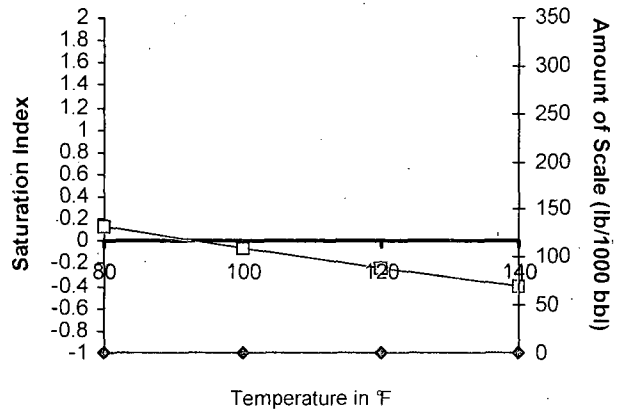
Scale Predictions from Baker Petrolite

Analysis of Sample 632637 @ 75 °F for APACHE CORPORATION, 10/04/12

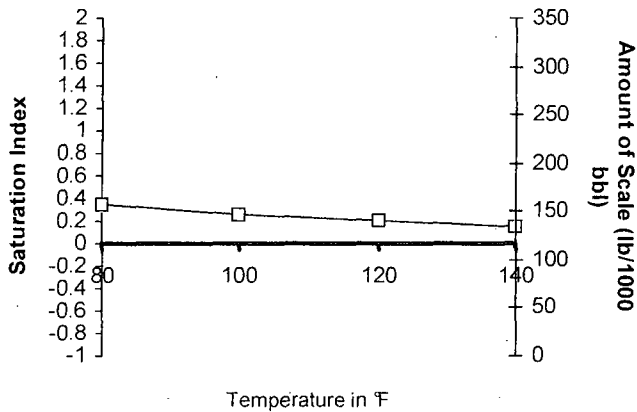
Calcite - CaCO_3



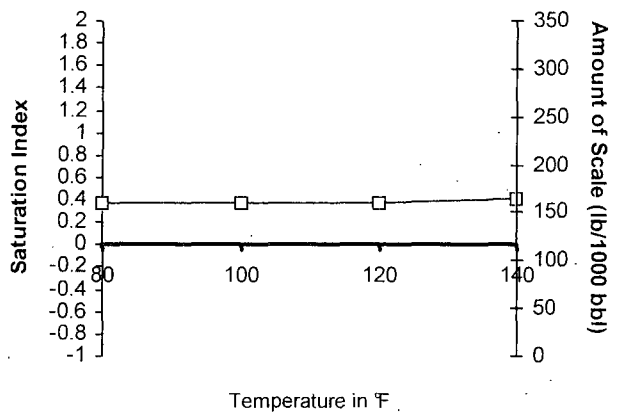
Barite - BaSO_4



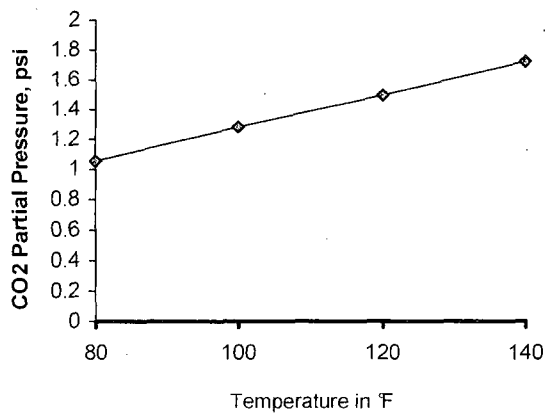
Gypsum - $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$



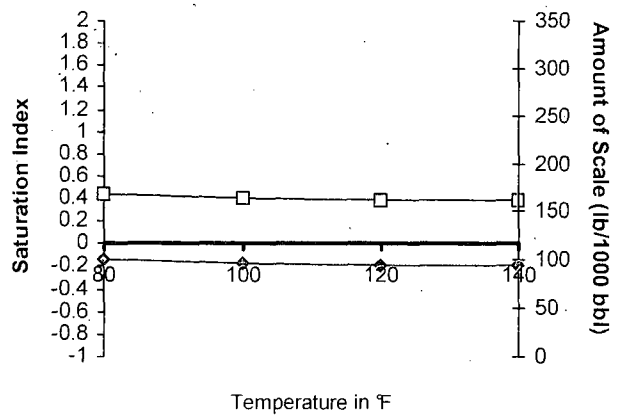
Anhydrite - CaSO_4



Carbon Dioxide Partial Pressure



Celestite - SrSO_4



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 7720
Order No. R-6811-B

APPLICATION OF LOCO HILLS WATER
DISPOSAL COMPANY FOR AN AMENDMENT
TO DIVISION ORDER No. R-6811-A,
EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on November 29, 1982, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission".

NOW, on this 30th day of December, 1982, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Loco Hills Water Disposal Company, seeks an order amending Division Order No. R-6811-A to remove the present maximum disposal limit of 2,500 barrels per acre per month imposed upon the salt water disposal facility authorized, therein, in Section 16, Township 17 South, Range 30 East, NMPM, Eddy County, New Mexico.
- (3) That said Order No. R-6811-A was issued by the Commission following the hearing of Case No. 7329 De Novo on July 14, 1982.
- (4) That in said Order No. R-6811-A, the Commission made, among others, the following findings:
 - "(6) That Order (3) of Division Order No. R-3221, as amended, prohibits in that area encompassed by Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, the disposal, subject to minor exceptions, of water produced

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in conjunction with the production of oil or gas, or both, on the surface of the ground, or in any pit, pond, lake, depression, draw, streambed, or arroyo, or in any watercourse, or in any other place or in any manner which would constitute a hazard to any fresh water supplies and said disposal has not previously been prohibited.

(7) That the aforesaid Order No. R-3221 was issued in order to afford reasonable protection against contamination of fresh water supplies designated by the State Engineer through disposal of water produced in conjunction with the production of oil or gas, or both, in unlined surface pits.

(8) That the State Engineer has designated, pursuant to Section 65-3-11 (15), N.M.S.A., 1953 Compilation, all underground water in the State of New Mexico containing 10,000 parts per million or less of dissolved solids as fresh water supplies to be afforded reasonable protection against contamination; except that said designation does not include any water for which there is no present or reasonably foreseeable beneficial use that would be impaired by contamination.

(9) That the applicant seeks an exception to the provisions of the aforesaid Order (3) of Division Order No. R-3221, as amended, to permit the commercial disposal of produced salt water into the aforesaid pits at the site described above.

(10) That the applicant proposes to install and operate an effective system, composed of holding and separating tanks, and a skimming pit, for the removal of oily and solid wastes from the waters to be disposed of into said system.

(11) That there is no fresh water in the immediate vicinity of said disposal system, but there are wells producing fresh water some nine miles south of the proposed disposal pits.

(12) That the native soils underlying said pits will permit the vertical percolation of some of the waters disposed of in said system.

(13) That the vertical percolation of waters from said system should not endanger any fresh waters.

(14) That to ensure that waters percolating from said pits move only vertically, monitor wells should be

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drilled in a pattern as shown on Exhibit "A" designed to detect horizontal movement of water from said disposal area.

(15) That in the event salt water is detected in any monitor well, Case No. 7329 should be reopened within 90 days to permit applicant to appear and show cause why the authority to use said pits for water disposal should not be rescinded.

(16) That the maximum volume of produced water to be disposed of through said system should not exceed 2500 barrels per acre per month.

(17) That a freeboard of a minimum of three feet should be maintained at all times."

(5) That said Order No. R-6811-A did contain provisions limiting the maximum disposal volume to 2500 barrels per acre per month, requiring maintenance of a minimum three foot freeboard in all pits and the drilling and equipping of monitor wells.

(6) That the applicant now seeks the amendment of said Order No. R-6811-A to remove only the 2500 barrels per acre per month disposal volume limitation.

(7) That the application was opposed by a surface and ground water interest owner in the area which might be affected by the disposal operation.

(8) That the applicant presented evidence designed to demonstrate that the change in disposal volume would not significantly alter the hydrologic regime established by institution of the disposal operation nor threaten contamination of any fresh water supplies.

(9) That the protestant presented new evidence which tended to show that there were both southeast and southwest trending slopes on the interface between the Santa Rosa formation and the Rustler formation under the disposal pits.

(10) That the protestant further presented testimony tending to show that an impermeable clay barrier exists at the base of the Santa Rosa formation which would effectively stop the vertical infiltration of the disposed waters into the Rustler formation.

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(11) That if the disposed water which percolates through the Santa Rosa formation from said pits cannot move into the Rustler formation, it may move laterally through the Santa Rosa formation where it may endanger fresh water supplies.

(12) That in order to verify that any water percolating from said pits ultimately enters the Rustler formation and does not move laterally within the Santa Rosa formation, the well monitoring system provided for in said Order No. R-6811-A should be expanded.

(13) That the additional monitor wells should be drilled to the Rustler formation and should be located at points approximately 250 feet north of the present monitor well No. 9 located to the east of the disposal facility, approximately 150 feet from monitor well No. 2 along a line connecting monitor well 2 and monitor well 3, and at a third location approximately midway between the present monitor holes No. 4 and 5 all as depicted on Exhibit "A" to said Order No. R-6811-A.

(14) That provided that these additional monitor wells are drilled and utilized in the same manner as the original monitor wells, no increased threat to fresh water supplies should result from lifting the 2500 barrels-per-acre disposal limitation contained in Order No. R-6811-A.

(15) That the application should be approved and the additional monitor wells should be required.

(16) That the granting of this application restricted in the manner set forth above will not cause waste, or impair correlative rights, or endanger designated fresh water supplies.

IT IS THEREFORE ORDERED:

(1) That the application of Loco Hills Water Disposal Company for an amendment of Division Order No. R-6811-A to remove the 2500 barrel per acre per month disposal limitation included in Order No. (1), thereof, is hereby approved.

PROVIDED HOWEVER, that this order shall not become effective until the applicant has drilled and completed three additional monitor wells located approximately (1) 250 feet to the North of present monitor hole No. 9, (2) 150 feet from present monitor well No. 2 along a line connecting monitor well No. 2 and 3 and (3) midway between the present monitor holes Nos. 4 and 5.

PROVIDED FURTHER, that each of said monitor wells shall be drilled to the top of the Rustler formation and that such wells

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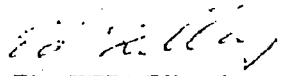

shall be cased and operated in the same manner as those monitor wells required by Order No. R-6811-A.

(2) That jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

OIL CONSERVATION COMMISSION

ALEX J. ARMIJO, Member


ED KELLEY, Member
JOE D. RAMEY, Member & Secretary

BUREAU OF LAND MANAGEMENT

Carlsbad Field Office
620 East Greene Street
Carlsbad, New Mexico 88220
575-234-5972

Disposal of Produced Water From Federal Wells
Conditions of Approval

Approval of the produced water disposal methodology is subject to the following conditions of approval:

1. This agency shall be notified of any change in your method or location of disposal.
2. Compliance with all provisions of Onshore Order No. 7.
3. This agency shall be notified of any spill or discharge as required by NTL-3A.
4. This agency reserves the right to modify or rescind approval whenever it determines continued use of the approved method may adversely affect the surface or subsurface environments.
5. Any on-lease open top storage tanks shall be covered with a protective cover to prevent entry by birds and other wildlife.
6. This approval should not constitute the granting of any right-of-way or construction rights not granted by the lease instrument.
7. If water is transported via a pipeline that extends beyond the lease boundary, then you need to submit within 30 days an application for right-of-way approval to the Realty Section in this office if you have not already done so.
8. Disposal at any other site will require prior approval.
9. Subject to like approval by NMOCD.

7/10/14