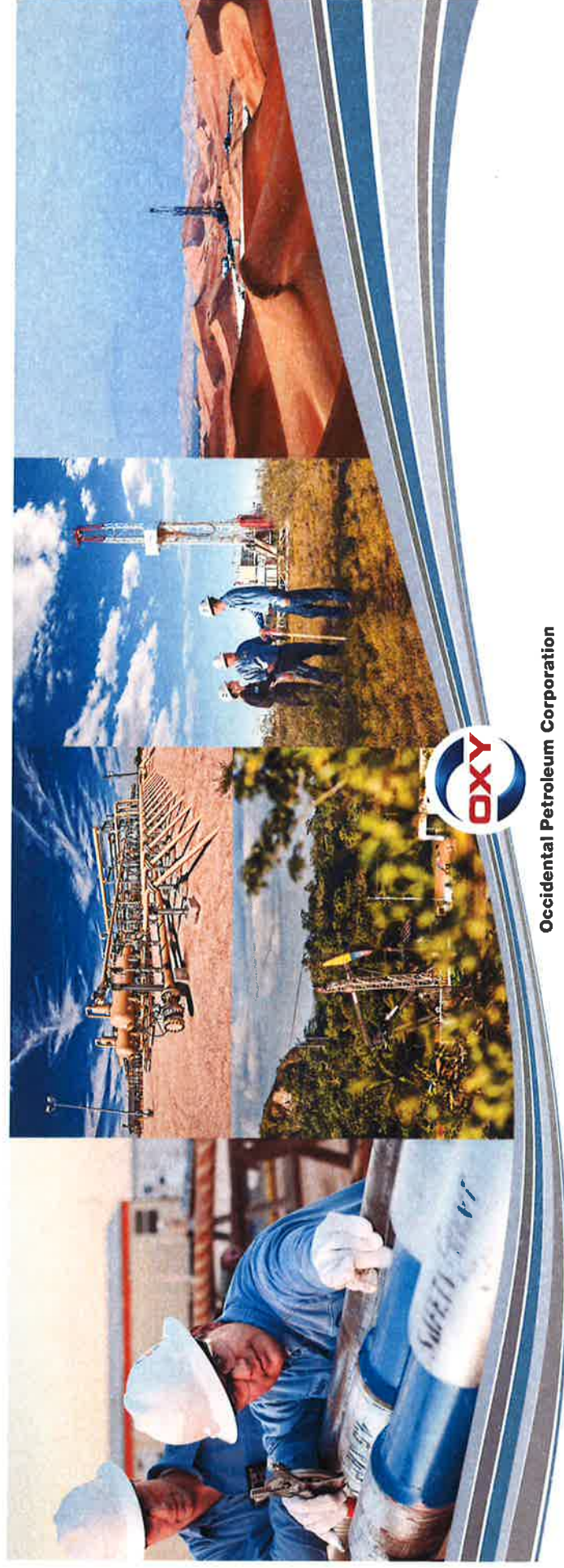


CYPRESS 34 FEDERAL 3H & CYPRESS 34 FEDERAL 8H GAS INJECTION



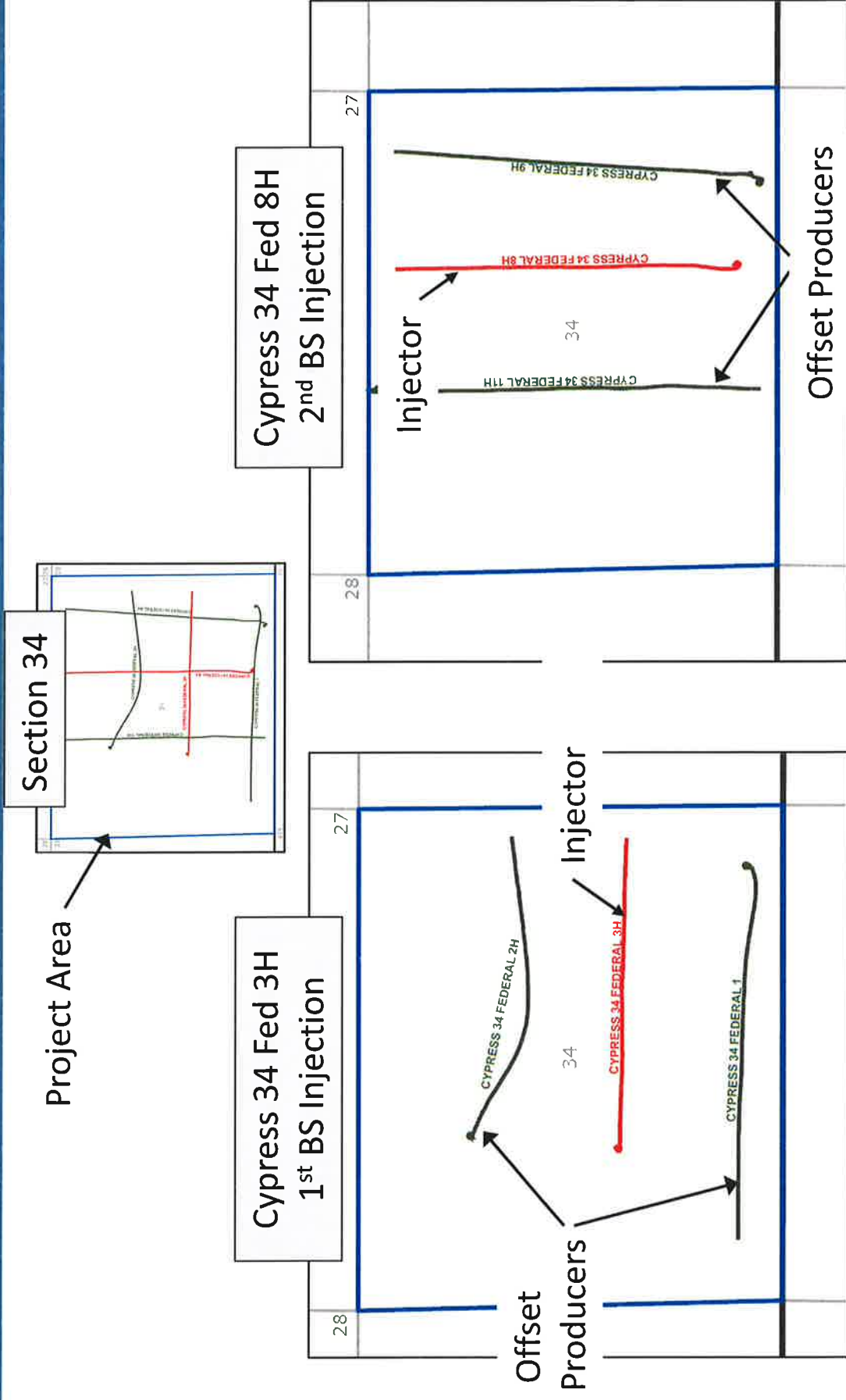
Occidental Petroleum



Occidental Petroleum Corporation

Cypress 34 Federal 3H & Cypress 34 Federal 8H

Project Map



BEFORE THE OIL CONSERVATION DIVISION

Santa Fe, New Mexico

Exhibit No. 1

Submitted by: OXY USA INC

Hearing Date: January 10, 2019

Case Nos. 20195



DISTRICT I
1025 N. French Dr., Hobbs, NM 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised October 12, 2005

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

RECEIVED
OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

JUN 26 2006

MIDLAND

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-35053	Pool Code	Pool Name WILDCAT BONE SPRING
Property Code	Property Name CYPRESS "34" FEDERAL	Well Number 1
OGRID No. 017891	Operator Name POGO PRODUCING COMPANY	Elevation 3097'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	34	23 S	29 E		460	SOUTH	660	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	34	23S	29E		660	SOUTH	660	WEST	EDDY
Dedicated Acres 160	Joint or Infill	Consolidation Code	Order No.						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

RECEIVED JUL 26 2006 OIL CONSERVATION DIVISION				OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Cathy Wright</i> 07/24/06 Signature Date CATHY WRIGHT BEFORE THE OIL CONSERVATION DIVISION Santa Fe, New Mexico Exhibit No. 2 Submitted by: OXY USA INC Hearing Date: January 10, 2019 Case Nos. 20195	
LAT - N32°15'18.9" LONG - W103°57'57.8" (NAD-83)				supervision, and that the same is true and correct to the best of my belief.	
PROJECT AREA				JUNE 20 2006 Date Surveyed Signature Professional Surveyor 7977	
PRODUCING AREA				7977 No. 7977 Certificate No. 7977 BASIN SURVEYS	

1625 N. French Dr., Hobbs, NM 88240

District II

1301 W. Grand Avenue, Artesia, NM 88210

District III

1000 Rio Brazos Rd., Aztec, NM 87410

District IV

1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico

Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.

Santa Fe, NM 87505

Form C-102

Revised October 12, 2005

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-015-35413	² Pool Code 11520	³ Pool Name Cedar Canyon Bone Spring
⁴ Property Code 35899	⁵ Property Name Cypress 34 Federal	⁶ Well Number 2
⁷ OGRID No. 017891	⁸ Operator Name Pogo Producing Company	⁹ Elevation 3059

¹⁰ Surface Location

UL or lot no. F	Section 34	Township 23S	Range 29E	Lot Idn	Feet from the 1400	North/South line North	Feet from the 1800	East/West line West	County Eddy
--------------------	---------------	-----------------	--------------	---------	-----------------------	---------------------------	-----------------------	------------------------	----------------

11 Bottom Hole Location If Different From Surface

UL or lot no. H	Section 34	Township 23S	Range 29E	Lot Idn	Feet from the 1897.46	North/South line North	Feet from the 292.74	East/West line East	County Eddy
--------------------	---------------	-----------------	--------------	---------	--------------------------	---------------------------	-------------------------	------------------------	----------------

¹² Dedicated Acres 120	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
--------------------------------------	-------------------------------	----------------------------------	-------------------------

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

16 17	17 OPERATOR CERTIFICATION <i>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division</i> <i>Cathy Wright</i> Signature 06/27/07 Date Cathy Wright Printed Name
 18	18 SURVEYOR CERTIFICATION <i>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief</i> Date of Survey Signature and Seal of Professional Surveyor Certificate Number

730
JUN 29 20077036
OCD-ARTESIA

R-111-POTASH

FORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

HIGH CAVEKARST

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NM-86024
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name _____
2. Name of Operator POGO PRODUCING COMPANY (RICHARD WRIGHT 432-685-8140)		7. If Unit or CA Agreement, Name and No. _____
3a. Address P.O. BOX 10340 MIDLAND, TEXAS 79702-7340	3b. Phone No. (include area code) 432-685-8100	8. Lease Name and Well No. CYPRESS "34" FEDERAL #3H 35899
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface 2100' FSL & 1650' FWL SECTION 34 T23S-R29E At proposed prod. zone HORIZONTAL EOH 1980' FSL & 330' FEL SEC.34		9. API Well No. 30-015-35692
14. Distance in miles and direction from nearest town or post office* Approximately 9 miles East Southeast of Loving New Mexico		10. Field and Pool, or Exploratory CEDAR CANYON-BONE SPRING
15. Distance from proposed location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 1650'	16. No. of acres in lease 1600	11. Sec., T. R. M. or Blk. and Survey or Area SECTION 34 T23S-R29E
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1900'	19. Proposed Depth TVD-8025 MD-11,118'	12. County or Parish EDDY CO.
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3035' GL	22. Approximate date work will start* WHEN APPROVED	13. State New Mexico
17. Spacing Unit dedicated to this well 120 acres		
20. BLM/BIA Bond No. on file NATION WIDE WYB-000238		
23. Estimated duration 42-48 Days to drill		

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, shall be attached to this form:

- | | |
|---|---|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the authorized officer |

25. Signature 	Name (Printed Typed) Joe T. Janica	Date 04/21/07
Title Agent		
Approved by (Signature) /s/ Linda S. C. Rundell	Name (Printed Typed) /s/ Linda S. C. Rundell	Date JUN 14 2007
Title STATE DIRECTOR		
Office NM STATE OFFICE		

Application approval 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.

Conditions of approval, if any, are attached. CARLSBAD CONTROLLED WATER BASIN

APPROVAL FOR TWO YEARS

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 any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

INSTRUCTIONS ON PAGE 2
APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED
SEE ATTACHED FOR
CONDITIONS OF APPROVAL

If earthen pits are used in association with the drilling of this well, an OCD pit permit must be obtained prior to pit construction.

DISTRICT I
1826 N. French Dr., Hobbs, NM 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised October 12, 2005

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
	11520	CEDAR CANYON-BONE SPRING
Property Code	Property Name	Well Number
	CYPRESS "34" FEDERAL	3H
OGRID No. 17891	Operator Name	Elevation
	POGO PRODUCING COMPANY	3035'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	34	23 S	29 E		2100	SOUTH	1650	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	34	23 S	29 E		1980	SOUTH	330	EAST	EDDY
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.						
120									

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

PROJECT AREA PRODUCING AREA SURFACE LOCATION LAT - N32°15'35.3" LONG - W103°58'32.6" (NAD-83) BOTTOMHOLE LOCATION LAT - N32°15'34.0" LONG - W103°57'54.0" (NAD-83) POINT OF ENTRY OF PRODUCING FORMATION 2083' FSL & 2127' FWL	OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>Joe T. Janica</i> Signature Date 04/21/07 Joe T. Janica Printed Name Agent SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. APRIL 11, 2007 Date Surveyed Signature & Seal of Professional Surveyor 7977 W.D. No. 1985 Certificate No. 7977 Jones BASIN SURVEYS
---	--

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

RECEIVED

JUN 27 2013

Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease- 4 Copies
Fee Lease- 3 Copies

☒ AMENDED REPORT
As-Drilled

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-39430	Pool Code 11520	Pool Name Cedar Canyon Bone Springs
Property Code	Property Name CYPRESS "34" FEDERAL	Well Number 8H
OGRID No. 16696	Operator Name OXY USA INC.	Elevation 3041.3'

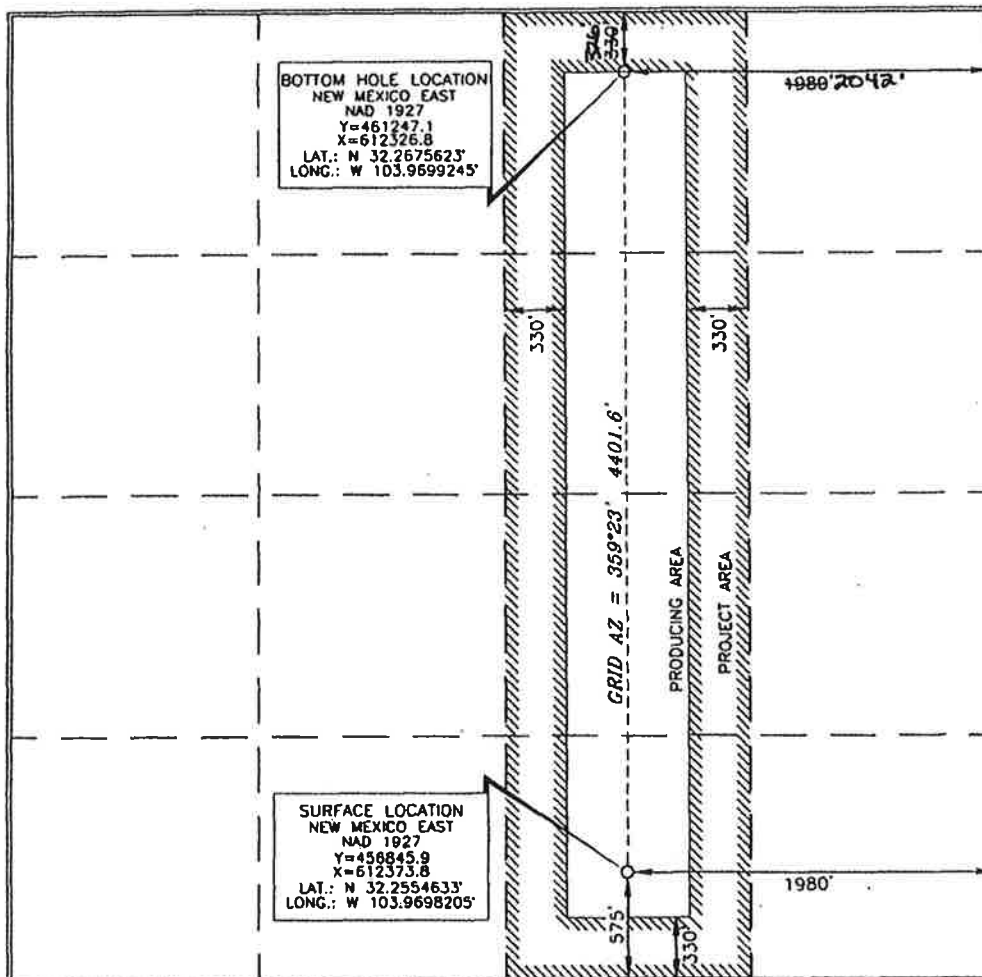
Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	34	23 SOUTH	29 EAST, N.M.P.M.		575'	SOUTH	1980'	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	34	23 SOUTH	29 EAST, N.M.P.M.		330' 326'	NORTH	1980' 2042'	EAST	EDDY
Dedicated Acres 160	Joint or Infill N	Consolidation Code	Order No. PB - 440 FNL 2039 FEL (LB) Top Port - 995 FNL 1986 FEL (B)						

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature

Date

David Stewart Sr. Pres. AEO.
Printed Name

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date Survey

Signature and Seal of Professional Surveyor

Tommy D. Hall 2/27/2011
Certificate Number 15079

WO# 110106WL-b (Rev. A) (KA)

District I
1633 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
611 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1270 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☒ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-42093	Pool Code 11520	Pool Name Cedar Canyon Bone Springs
Property Code 304798	Property Name CYPRESS "34" FEDERAL	Well Number 9H
OGRID No. 16696	Operator Name OXY USA INC.	Elevation 3100.1'

Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	34	23 SOUTH	29 EAST, N.M.P.M.		279'	SOUTH	1070'	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	34	23 SOUTH	29 EAST, N.M.P.M.		690' 300'	NORTH	490' 737'	EAST	EDDY
Dedicated Acres 160		Joint or Infill N	Consolidation Code	Order No. PSTO - 363 FNL 739 FEL - NENE (A) PP - 954 FSL 948 FEL - SESE (D)					

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

	OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. Signature: <i>David Stewart</i> Date: 6/11/14 Printed Name: David Stewart Sr. Reg. Adm. E-mail Address: david.stewart@oxy.com
	SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of accurate surveys made by me or under my supervision and that the same is true and correct to the best of my belief. Date of Survey: MAY 25, 2013 Signature and Seal of Professional Surveyor: <i>Terry J. Ash</i> 9/24/13 Certificate Number: 15079
	WO# 110517WL-a (Rev. B) (NA)

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Huerfano Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

NM OIL CONSERVATION
ARTESIA DISTRICT
State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

APR 13 2015

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

RECEIVED

☒ AMENDED REPORT
As Drilled

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-42920	Pool Code 11520	Pool Name Cedar Canyon Bone Spring
Property Code 304798	Property Name CYPRESS "34" FEDERAL	
OGRID No. 16696	Operator Name OXY USA INC.	Well Number 11H
		Elevation 3027.1'

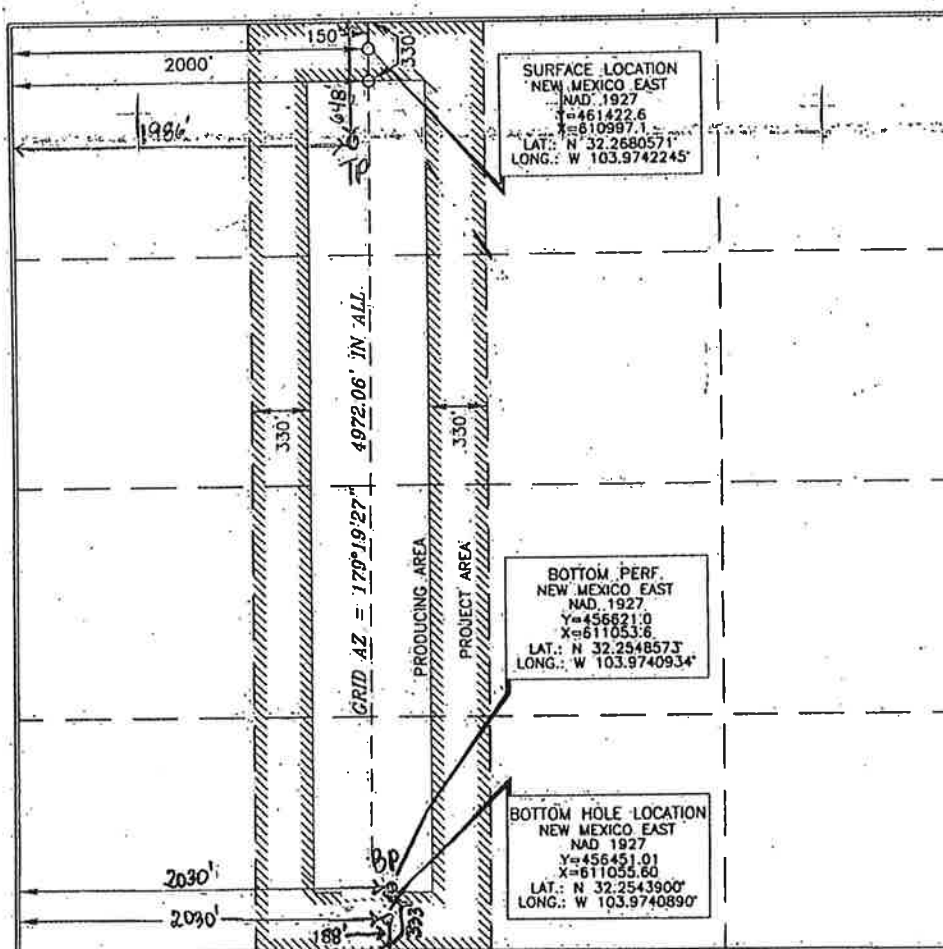
Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	34	23 SOUTH	29 EAST, N.M.P.M.		150'	NORTH	2000'	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	34	23 SOUTH	29 EAST, N.M.P.M.		180'	SOUTH	188'	WEST	EDDY
Dedicated Acres 160	Joint or Infill N	Consolidation Code	Order No.	TD - 188' FSL 2030' FWL BP - 333' FSL 2130' FWL TP - 648' FSL 1986' FWL					

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or otherwise interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature: *[Signature]* Date: **4/8/15**
Printed Name: **Jana Mendiola**
E-mail Address: **janalyn-mendiola@oxy.com**

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from the original surveys made by me or under my supervision and that the same is true and correct to the best of my belief.

Date of Survey: **SEPTEMBER 19, 2013**
Signature and Seal: *[Signature]*
Professional Surveyor: **15078**
Certificate Number: **15078**

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: Secondary Recovery ☒ Pressure Maintenance Disposal Storage
Application qualifies for administrative approval? Yes ☒ No
- II. OPERATOR: Oxy USA Inc
ADDRESS: P.O. Box 4294 Houston, TX 77210
CONTACT PARTY: Kelley Montgomery PHONE: 713-366-5116
- 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: Kelley Montgomery TITLE: Regulatory Mgr.
SIGNATURE: [Signature] DATE: 11/30/18
E-MAIL ADDRESS: kelley-montgomery@oxy.com
- * If the information required under Sections VI, VII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

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

BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. 3
Submitted by: OXY USA INC
Hearing Date: January 10, 2019
Case Nos. 20195

C-108 Application
OXY USA Inc.
Cypress 34 Federal 3H and 8H
Eddy County, NM

- I. This is a pressure maintenance project.
- II. OXY USA Inc.
P.O. Box 4294
Houston, TX 77210
Contact Party: Kelley Montgomery, Oxy (713) 366-5716
- III. Injection well data sheets and wellbore schematic diagrams have been attached for the injection wells covered by this application.
- IV. This is not an expansion of an existing project.
- V. The map with a two-mile radius surrounding the injection wells and a one-half mile radius for area of review is attached.
- VI. The tabular format of the area of review is attached.
- VII. The proposed operations data sheet is attached.
- VIII. Please see attached signed statement on geologic data for the Bone Spring formation.
- IX. The proposed Cypress 34 Federal 3H well is an existing horizontal producing well that was hydraulically fractured with 5000 gal of 7.5% HCL, 500,000# 20/40 Ottawa and an additional 50,000# 20/40 RCS was used.
The proposed Cypress 34 Federal 8H well is an existing horizontal producing well that was hydraulically fractured with 153,622 gal of treated water, 24,000 gal of 15% HCL, 107,579 gal WaterFrac GR15, 1,093,251 gal Delta Frac 140-R15 and 1,907,514# sand.
- X. Logs were filed for the existing well at the time of drilling.

Well Name	Date Submitted
Cypress 34 Federal 3H	10/01/2007
Cypress 34 Federal 8H	06/24/2013
- XI. Per our field personnel, no fresh water wells were found within one-mile of these wells.
- XII. N/A. These are not disposal wells.
- XIII. Attached please find the Proof of Notice.

INJECTION WELL DATA SHEET

OPERATOR: Oxy USA Inc.

WELL NAME & NUMBER: Cypress 34 Federal 3H

WELL LOCATION: 2100' FSL & 1650' FWL
FOOTAGE LOCATION

UNIT LETTER K SECTION 34 TOWNSHIP 23S RANGE 29E

WELLBORE SCHEMATICCypress 34 Federal 3H Proposed Wellbore Diagram

Elevation: GL 3,035' KB 3,057'
 API: 30-015-35692
 Surface Location: 2,100' FSL & 1,650' FWL
 Sec 34 T23S R29E
 Eddy County, NM

13 3/8" set @ 550'
 600 sq Circ.

9 5/8" set @ 3,000'
 1,100 sq Circ.

5 1/2" set @ 11,062'
 2,325 sq Circ.

*Note: Diagram not to scale

#8TD - 10,985' MD
 TD - 11,065' MD

WELL CONSTRUCTION DATASurface Casing

Hole Size: 17 1/2" Casing Size: 13 3/8"

Cemented with: 600 sx. or ft³

Top of Cement: Surface Method Determined: Circulated

Intermediate Casing

Hole Size: 12 1/4" Casing Size: 9 5/8"

Cemented with: 1100 sx. or ft³

Top of Cement: Surface Method Determined: Circulated

Production Casing

Hole Size: 8 1/2 - 7 7/8" Casing Size: 5 1/2"

Cemented with: 2325 sx. or ft³

Top of Cement: Surface Method Determined: Circulated

Total Depth: 11065' MD 7949' TVD

Injection Interval

_8102' MD/7896' TVD feet to 10,950' MD/7949' TVD

(Perforated)

INJECTION WELL DATA SHEET

Tubing Size: 2 7/8" PH6 7.90# L-80 tubing Lining Material: None (Will use lined tubing if injecting water)

Type of Packer: 5-1/2" Weatherford 10k ASIX Nickel coated packer

Packer Setting Depth: 7400' (Set packer in vertical section of well) _____

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

Additional Data

1. Is this a new well drilled for injection? _____ Yes X No _____

If no, for what purpose was the well originally drilled? Producer-Oil _____

2. Name of the Injection Formation: Bone Spring _____

3. Name of Field or Pool (if applicable): Cedar Canyon Bone Spring _____

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: _____

Brushy Canyon Formation (Delaware) (overlying) (5165') _____

Wolfcamp Formation (underlying) (10,085') _____

INJECTION WELL DATA SHEET

OPERATOR: OXY USA Inc.WELL NAME & NUMBER: Cypress 34 Federal 8HWELL LOCATION: 575 FSL & 1980 FEL
FOOTAGE LOCATIONUNIT LETTER O SECTION 34 TOWNSHIP 23S RANGE 29EWELLBORE SCHEMATICCypress 34 Federal 8H Proposed Wellbore Diagram

Elevation: GL 3,041.3' KB 3,055.3'
 API: 30-015-39430
 Surface Location: 575' FSL & 1,980' FGL
 Sec 34 T23S R29E
 Eddy County, NM

13 3/8" set @ 408'
 350 SX Circ.

9 5/8" set @ 3,100'
 1145 SX Circ.

5 1/2" set @ 13,073'
 2280 SX Circ.

*Note: Diagram not to scale

P87D - 12,969' MD
 TD - 13,073' MD

WELL CONSTRUCTION DATASurface CasingHole Size: 16" Casing Size: 13 3/8"Cemented with: 350 sx. or ft³Top of Cement: Surface Method Determined: CirculatedIntermediate CasingHole Size: 12 1/4" Casing Size: 9 5/8"Cemented with: 1145 sx. or ft³Top of Cement: Surface Method Determined: CirculatedProduction CasingHole Size: 8 1/2" Casing Size: 5 1/2"Cemented with: 2280 sx. or ft³Top of Cement: Surface Method Determined: CirculatedTotal Depth: 13073' MD 8910' TVDInjection Interval8725' MD/8658' TVD feet To 12,910' MD/8910' TVD

(Perforated)

INJECTION WELL DATA SHEET

Tubing Size: 2 7/8" PH6 7.90# L-80 tubing Lining Material: None (Will use lined tubing if injecting water)

Type of Packer: 5-1/2" Weatherford 10K AS1X Nickel coated packer

Packer Setting Depth: 8200' (Set packer in vertical section of well) _____

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

Additional Data

1. Is this a new well drilled for injection? _____ Yes X No _____

If no, for what purpose was the well originally drilled? Producer-Oil

2. Name of the Injection Formation: Bone Spring

3. Name of Field or Pool (if applicable): Cedar Canyon Bone Spring

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: _____

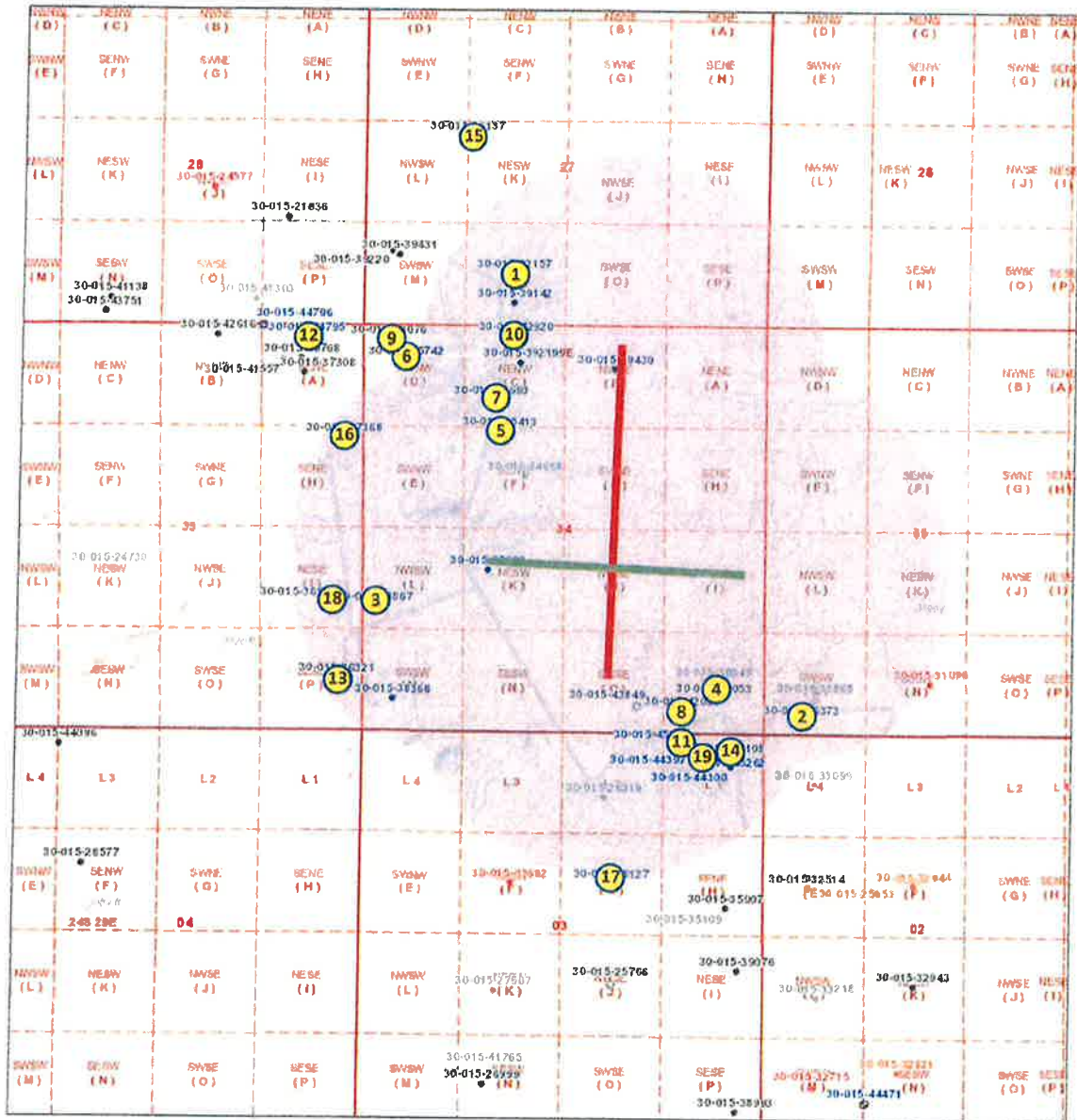
Brushy Canyon Formation (Delaware) (overlying) (5165')

Wolfcamp Formation (underlying) (10061')



12/2

CYPRESS 34 FED #3H & #8H AOR MAP



11/13/2018 11:50:52 AM

1:18,056

Well Locations - Small Scale

- Active
- New
- Plugged
- Cancelled
- Temporarily Abandoned
- Well Locations - Large Scale
- Miscellaneous
- CO2 Active
- CO2 Cancelled
- CO2 New
- CO2 Plugged
- CO2 Temporarily Abandoned
- Gas Active

- Gas, Cancelled, New, Canceled
- Gas, New
- Gas, Plugged
- Gas, Temporarily Abandoned
- Injection, Active
- Injection, Cancelled
- Injection, New
- Injection, Plugged
- Injection, Temporarily Abandoned
- Oil, Active
- Oil, Cancelled
- Oil, New
- Oil, Plugged

- Oil, Temporarily Abandoned
- Salt Water Injection, Active
- Salt Water Injection, Cancelled
- Salt Water Injection, New
- Salt Water Injection, Plugged
- Salt Water Injection Temporarily Abandoned
- Water, Active
- Water, Cancelled
- Water, New
- Water, Plugged
- Water, Temporarily Abandoned
- OGD Districts
- OGD District Office

1/2 Mile Area of Review

Well ID on AOR Table

Cypress 34 Federal #8H

Cypress 34 Federal #3H

Bureau of Land Management, Texas Parks & Wildlife, ERI, HEPE, Gamin, INCREMENT P, USGS, METI/ASA, EPA, IISDA, OGD, BLN

New Mexico Oil Conservation Division
Hill OGD Oil and Gas Map <http://nm-ogd.maps.arcgis.com/apps/webappviewer/> New Mexico Oil Conservation Division

Top of BS is 6807'

8/24

Item VII
Proposed Operations

The Cypress 34 Federal 3H will inject in the 1st Bonespring and the Cypress 34 Federal 8H will inject in the 2nd Bonespring.

Gas Injection

1.

Well Name	Average Daily Rate of Gas to be Injected	Maximum Daily Rate of Gas to be Injected
Cypress 34 Federal 3H	6000 MCFD	20,000 MCFD
Cypress 34 Federal 8H	9000 MCFD	20,000 MCFD

2. This will be a closed system

3.

Well Name	Average Injection Pressure	Maximum Injection Pressure
Cypress 34 Federal 3H	3500 psi	3850 psi
Cypress 34 Federal 8H	4000 psi	4350 psi

4. The source of the injected gas will be produced gas from the Cedar Canyon Central Delivery Point integration system which is comprised of nearby Delaware, 1st and 2nd Bone Spring wells. Please see the attached gas analysis.

5. N/A

Water Injection

1.

Well Name	Average Daily Rate of Water to be Injected	Maximum Daily Rate of Water to be Injected
Cypress 34 Federal 3H	5000 BWIPD	10,000 BWIPD
Cypress 34 Federal 8H	5000 BWIPD	10,000 BWIPD

2. This will be a closed system

3.

Well Name	Average Injection Pressure	Maximum Injection Pressure
Cypress 34 Federal 3H	1450 psi	1580 psi
Cypress 34 Federal 8H	1650 psi	1730 psi

4. Water used for injection will be treated produced water from wells drilled in the Bone Springs and Delaware Formations. Water is treated chemically to reduce scale. Please see the attached water compatibility study.

5. N/A

Item VII
Proposed Operations

CO2 Injection

1.

Well Name	Average Daily Rate of Water to be Injected	Maximum Daily Rate of Water to be Injected
Cypress 34 Federal 3H	6000 MCFD	20,000 MCFD
Cypress 34 Federal 8H	9000 MCFD	20,000 BWIPD

2. This will be a closed system

3.

Well Name	Average Injection Pressure	Maximum Injection Pressure
Cypress 34 Federal 3H	1700 psi	2000 psi
Cypress 34 Federal 8H	2000 psi	2300 psi

4. Oxy currently does not have a source for CO2 for this project area. However, Oxy would like to have the ability to inject CO2 when a source becomes available.

5. N/A

Calculation for Surface Injection Pressure Limits

For Water Injection:

Calculation for surface pressure limit:

- Cypress 34 Federal 3H: $0.2 \text{ psi/ft} * 7896 \text{ ft (TVD of first perf)} = 1580 \text{ psi}$
- Cypress 34 Federal 8H: $0.2 \text{ psi/ft} * 8658 \text{ ft (TVD of first perf)} = 1730 \text{ psi}$

Produced Gas and CO2 Injection:

Based on the surface pressure limit for water and assuming a fresh water gradient of 0.433 psi/ft. The bottom hole pressure (BHP) limit is:

- Cypress 34 Federal 3H: $1580 + 0.433 * 7896 = 4998 \text{ psi (or } 0.633 \text{ psi/ft)}$
- Cypress 34 Federal 8H: $1730 + 0.433 * 8658 = 5480 \text{ psi (or } 0.633 \text{ psi/ft)}$

A Petroleum Expert Prosper Model was used to calculate the surface pressure with 2.875" tubing, reservoir depth, injection gas composition and the BHP limit shown above.

*Prosper Model is an industrial standard nodal analysis software for pressure calculation and includes phase behavior change and friction loss.

Atchafalaya Measurement, Inc.416 East Main Street
Artesia, NM 88210 575-746-3481*Injection Gas
Sample***Sample Information**

Sample Information	
Sample Name	OXY__Cedar Canyon 16 State 12H LP__GC1-110117-06
Station Number	14910TD
Lease Name	Cedar Canyon 16 State 12H LP
Analysis for	OXY USA
Producer	OXY USA
Field Name	NM South
County	Eddy
State	NM
Frequency	Spot
Sample Deg F	52
Atmos Deg F	46
Flow Rate	2155.9
LinePSIG	123
Date Sampled	10/31/17
Sampled By	Jacob Marquez
Analysis By	Chris Myers
Report Date	2017-11-01 10:13:39

Component Results

Component Name	Ret. Time	Peak Area	Norm%	PPMV	GPM (Dry) (Gal. / 1000 cu.ft.)
Nitrogen	21.960	8052.1	1.62059	16205.900	0.178
H ₂ S	46.000	0.0	0.00000	0.000	0.000
Methane	22.780	299373.1	77.19299	771929.900	13.058
Carbon Dioxide	26.480	1127.8	0.18594	1859.400	0.032
Ethane	36.800	81412.7	12.57474	125747.400	3.356
Propane	79.140	48829.2	5.73143	57314.300	1.576
Butane	28.720	41559.0	0.58209	5820.900	0.190
i-Butane	30.320	97200.6	1.33268	13326.800	0.419
Pentane	35.360	20267.2	0.24488	2448.800	0.089
i-Pentane	37.420	20835.3	0.24103	2410.300	0.087
Hexanes Plus	120.000	27727.0	0.29363	2936.300	0.127
Total:			100.00000	1000000.000	19.112

Results Summary

Result	Dry	Sat. (Base)
Total Raw Mole% (Dry)	101.22347	
Pressure Base (psia)	14.650	
Temperature Base	60.0	
Gross Heating Value (BTU / Ideal cu.ft.)	1239.4	1217.7
Gross Heating Value (BTU / Real cu.ft.)	1243.8	1222.5
Relative Density (G), Ideal	0.7239	0.7221
Relative Density (G), Real	0.7261	0.7246
Compressibility (Z) Factor	0.9965	0.9961

Water Compatibility Analysis

Scale precipitation due to incompatibility of mixing different waters is simulated using ScaleSoftPitzer™ (SSP) developed by Rice University Brine Chemistry Consortium. Compatibility simulations between (a) 1st Bone Spring (BS) formation water and treated produced water (TPW) from Cedar Canyon Water Treatment Facility (CC WTF), (b) 2nd BS formation water and TPW, and (c) 3rd BS formation water and TPW were performed. Table 1 shows the water analysis from the 4 waters.

Table 1. Water analysis from 1st, 2nd and 3rd BS water and TPW from CC WTF

Cations / Anions (mg/L)	1 st BS	2 nd BS	3 rd BS	CC15 SWD Treatment Facility
Na ⁺	62,308	53,400	38,000	46,315
Mg ²⁺	360	1,320	767	1,399
Ca ²⁺	1,098	9,220	4,970	9,569
Sr ²⁺	267	688	1,030	893
Ba ²⁺	0.84	1.15	3.45	2.6
Fe ²⁺	15.9	40.6	19.1	25.3
Cl ⁻	90,167	98,451	74,630	97,632
SO ₄ ²⁻	531	417	236	389
HCO ₃ ⁻	561.2	146.4	109.8	119
TDS	155,309	165,620	119,767	157,193
pH	7	7	6.8	5.3

The various waters are input into SSP at different ratios to calculate scaling index (SI) and potential precipitation (ppt) in pound per thousand barrels (ptb). Bottom hole temperature of 122 F and bottom hole pressures of 5,000 psi were used in the modeling. Results are summarized in Tables 2 to 4.

1st BS + Treated Produced Water:

In general, there is a slight, inherent calcite scaling tendency with the 1st BS water itself. The predicted SI is 0.87 as shown in Table 2. Any scaling index above zero indicates a supersaturation condition of the scale. By mixing TPW with the 1st BS formation it is observed that the scaling index of calcite became slightly higher first at 25% TPW and 75% 1st BS and then becoming smaller as the ratio of TPW increases. However, the maximum, predicted precipitation is less than 50 ptb. Therefore, a slight amount of scale inhibitor is recommended for the injection of the TWP into the 1st BS. The exact amount of scale inhibitor can be determined by lab tests. Both Barite and Celestite are not expected to precipitate at all ratios of mixing.

Table 2. Prediction of Scaling Index (SI) and potential precipitation (PPT) of 3 common oilfield scales by mixing the 1st BS water and TPW at different ratios

% treated PW	Cypress 33-3H	Calcite		Barite		Celestite	
	% 1st BS	SI	ppt (ptb)	SI	ppt (ptb)	SI	ppt (ptb)
100	0	-1.49	0.0	-0.28	0.0	-0.54	0.0
75	25	0.13	4.2	-0.22	0.0	-0.44	0.0
50	50	0.66	29.8	-0.18	0.0	-0.36	0.0
25	75	0.95	49.1	-0.18	0.0	-0.30	0.0
0	100	0.87	41.8	-0.22	0.0	-0.25	0.0

Water Compatibility Analysis

2nd BS + Treated Produced Water:

In general, there is an inherent calcite scaling tendency with the 2nd BS water itself. The predicted SI is 1.21 and the predicted precipitation is 18.6 ptb as shown in Table 3. By mixing TPW with the 2nd BS formation it is observed that the scaling index of calcite becomes smaller as the ratio of TPW increases. In other words, by injecting TPW we expect a reduction of incompatibility between the two waters. Both Barite and Celestite are not expected to precipitate at all ratios of mixing.

Table 3. Prediction of SI and potential PPT of 3 common oilfield scales by mixing the 2nd BS water and TPW at different ratios

% treated PW	CC20-25H % 2nd BS	Calcite		Barite		Celestite	
		SI	ppt (ptb)	SI	ppt (ptb)	SI	ppt (ptb)
100	0	-1.49	0.0	-0.28	0.0	-0.54	0.0
75	25	-0.69	0.0	-0.56	0.0	-0.39	0.0
50	50	-0.15	0.0	-0.55	0.0	-0.26	0.0
25	75	0.43	7.7	-0.54	0.0	-0.15	0.0
0	100	1.21	18.6	-0.53	0.0	-0.05	0.0

3rd BS + Treated Produced Water:

In general, there is a slight, inherent calcite scaling tendency with the 3rd BS water itself. The predicted SI is 0.59 and the predicted precipitation is 8.8 ptb as shown in Table 4. By mixing TPW with the 3rd BS formation it is observed that the scaling index of calcite becomes smaller as the ratio of TPW increases. In other words, by injecting TPW we expect a reduction of incompatibility between the two waters. Both Barite and Celestite are not expected to precipitate at all ratios of mixing.

Table 4. Prediction of SI and potential PPT of 3 common oilfield scales by mixing the 3rd BS water and TPW at different ratios

% treated PW	CC22-15 32H % 3rd BS	Calcite		Barite		Celestite	
		SI	ppt (ptb)	SI	ppt (ptb)	SI	ppt (ptb)
100	0	-1.49	0.0	-0.28	0.0	-0.54	0.0
75	25	-0.88	0.0	-0.56	0.0	-0.39	0.0
50	50	-0.44	0.0	-0.12	0.0	-0.28	0.0
25	75	0.02	0.3	-0.04	0.0	-0.18	0.0
0	100	0.59	8.8	0.05	0.2	-0.08	0.0



Permian Basin Area Laboratory
2101 Market Street,
Midland, Texas 79703

reated produced water
for Injection
Upstream Chemicals

REPORT DATE: 2/8/2017

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER: OXY USA INCORPORATED
DISTRICT: WATER MANAGEMENT - PERMIAN
AREA/LEASE: CC
SAMPLE POINT NAME: CC15SWD
SITE TYPE: FACILITY
SAMPLE POINT DESCRIPTION: NOT PROVIDED

ACCOUNT REP: LARRY G HINES
SAMPLE ID: 201701004772
SAMPLE DATE: 2/2/2017
ANALYSIS DATE: 2/8/2017
ANALYST: JK

OXY USA INCORPORATED, CC, CC15SWD

FIELD DATA			ANALYSIS OF SAMPLE			
			ANIONS:	mg/L	meq/L	CATIONS:
Initial Temperature (°F):			250 Chloride (Cl ⁻):	97631.8		2754.1 Sodium (Na ⁺):
Final Temperature (°F):			80 Sulfate (SO ₄ ²⁻):	389.2		8.1 Potassium (K ⁺):
Initial Pressure (psi):			100 Borate (H ₃ BO ₃):	319.4		5.2 Magnesium (Mg ²⁺):
Final Pressure (psi):			15 Fluoride (F ⁻):	ND		Calcium (Ca ²⁺):
			Bromide (Br ⁻):	ND		Strontium (Sr ²⁺):
pH:			Nitrite (NO ₂ ⁻):	ND		Barium (Ba ²⁺):
pH at time of sampling:			5.3 Nitrate (NO ₃ ⁻):	ND		Iron (Fe ²⁺):
			Phosphate (PO ₄ ³⁻):	ND		Manganese (Mn ²⁺):
			Silica (SiO ₂):	ND		Lead (Pb ²⁺):
						Zinc (Zn ²⁺):
ALKALINITY BY TITRATION:						
Bicarbonate (HCO ₃ ⁻):	mg/L	meq/L				Aluminum (Al ³⁺):
Carbonate (CO ₃ ²⁻):	119.4	2.0				Chromium (Cr ³⁺):
Hydroxide (OH ⁻):	ND					Cobalt (Co ²⁺):
						Copper (Cu ²⁺):
aqueous CO ₂ (ppm):			ORGANIC ACIDS:	mg/L	meq/L	Molybdenum (Mo ²⁺):
aqueous H ₂ S (ppm):			ND Formic Acid:	ND		Nickel (Ni ²⁺):
aqueous O ₂ (ppb):			ND Acetic Acid:	ND		Tin (Sn ²⁺):
			ND Propionic Acid:	ND		Titanium (Ti ²⁺):
			Butyric Acid:	ND		Vanadium (V ²⁺):
Calculated TDS (mg/L):			Valeric Acid:	ND		Zirconium (Zr ²⁺):
Density/Specific Gravity (g/cm ³):						
Measured Specific Gravity						
Conductivity (mmhos):						
Resistivity:						
MCF/D:						
BOPD:						
BWPD:						

SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FURTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

Conditions		Barite (BaSO ₄)		Calcite (CaCO ₃)		Gypsum (CaSO ₄ ·2H ₂ O)		Anhydrite (CaSO ₄)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	0.48	1.023	-0.24	0.000	-0.49	0.000	-0.65	0.000
99°F	24 psi	0.35	0.854	-0.19	0.000	-0.48	0.000	-0.56	0.000
118°F	34 psi	0.24	0.650	-0.12	0.000	-0.47	0.000	-0.46	0.000
137°F	43 psi	0.14	0.415	-0.03	0.000	-0.46	0.000	-0.36	0.000
156°F	53 psi	0.04	0.150	0.06	2.244	-0.45	0.000	-0.26	0.000
174°F	62 psi	-0.04	0.000	0.15	5.282	-0.44	0.000	-0.16	0.000
193°F	72 psi	-0.11	0.000	0.24	8.298	-0.43	0.000	-0.05	0.000
212°F	81 psi	-0.18	0.000	0.34	11.016	-0.43	0.000	0.06	23.450
231°F	91 psi	-0.24	0.000	0.43	13.409	-0.42	0.000	0.17	60.325
250°F	100 psi	-0.29	0.000	0.53	15.533	-0.42	0.000	0.27	88.895

Conditions		Celestite (SrSO ₄)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate (FeCO ₃)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	0.22	82.616	-1.07	0.000	-10.65	0.000	-1.19	0.000
99°F	24 psi	0.24	86.393	-1.08	0.000	-10.71	0.000	-1.09	0.000
118°F	34 psi	0.25	89.399	-1.09	0.000	-10.69	0.000	-0.96	0.000
137°F	43 psi	0.26	92.391	-1.10	0.000	-10.66	0.000	-0.84	0.000
156°F	53 psi	0.27	95.852	-1.11	0.000	-10.61	0.000	-0.74	0.000
174°F	62 psi	0.28	100.037	-1.11	0.000	-10.55	0.000	-0.65	0.000
193°F	72 psi	0.30	105.016	-1.12	0.000	-10.48	0.000	-0.56	0.000
212°F	81 psi	0.32	110.708	-1.12	0.000	-10.41	0.000	-0.48	0.000
231°F	91 psi	0.34	116.922	-1.12	0.000	-10.34	0.000	-0.42	0.000
250°F	100 psi	0.37	123.390	-1.13	0.000	-10.27	0.000	-0.37	0.000

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 eight (8) scales.

Note 3: Saturation Index predictions on this sheet use pH and alkalinity; %CO₂ is not included in the calculations.

ScaleSoftPitzer™
SSP2010

Comments:

W2C3

15/21

1 1/2 15.5.
Native Water

NALCO Champion

An Ecolab Company

Water Analysis Report

Attention: ljsandmann@ecolab.com

Location Code: 374553

Sample ID: AK17198

Login Batch: 2018-02-05-001_ACC

Collection Date: 01/29/2018

Receive Date: 02/02/2018

Report Date: 02/07/2018

Customer: OXY USA WTP LP

Region: Carlsbad NM

Location: Cypress 33 Federal Lease

System: Production System

Equipment: Well 003H

Lab ID: ABU-1031

Sample Point: Well Head

Analyses	Result	Unit
Calculated pH	7.00	
Dissolved CO2	270	mg/L
Dissolved H2S	0	mg/L
Gas per Day	169	Mcf/D
Oil per Day	31	B/D
Pressure	500	psi
Temperature	61	° F
Water per Day	37	B/D

Analyses	Result	Unit
Bicarbonate	561.2	mg/L
Conductivity (Calculated)	242645	µS - cm3
Ionic Strength	2.73	
Resistivity	0.041	ohms - m
Specific Gravity	1.110	
Total Dissolved Solids	155309.3	mg/L

Cations	Result	Unit
Iron	15.89	mg/L
Manganese	0.38	mg/L
Barium	0.84	mg/L
Strontium	266.6	mg/L
Calcium	1097.65	mg/L
Magnesium	360.47	mg/L
Sodium	62308.26	mg/L
Potassium	1273.71	mg/L
Boron	13.92	mg/L
Lithium	92.65	mg/L
Copper	0.05	mg/L
Zinc	0.01	mg/L
Lead	0.09	mg/L
Cobalt	0.03	mg/L
Chromium	0.03	mg/L
Silicon	8.07	mg/L
Aluminum	0.05	mg/L
Molybdenum	0.04	mg/L
Phosphorus	0.06	mg/L

Anions	Result	Unit
Bromide	879	mg/L
Chloride	90167	mg/L
Sulfate	531	mg/L

Scaling predictions calculated using Scale Soft Pitzer 2017

This document contains the confidential and/or proprietary information of NALCO Champion. The recipient agrees to maintain the confidentiality of the terms of this document, and shall not reproduce it by any means, disclose the contents of it to any third party, or use the contents of it for any purpose other than the purpose for which it was intended by NALCO Champion.

02/12/2018

Page 1 of 5

10/21

L'Am B.S.
Native Water

NALCO Champion

An Ecolab Company

Water Analysis Report

Attention: Ramon.Artalejo@ecolab.com

Location Code: 395860

Sample ID: AL86756

Login Batch: 2018-10-30-001 GC

Collection Date: 10/18/2018

Receive Date: 10/30/2018

Report Date: 10/31/2018

Customer: OXY PERMIAN RES - NEW MEXICO

Region: Delaware Basin

Location: Cedar Canyon 20 Lease

System: Production System

Equipment: Cedar Canyon 20-25H

Lab ID: ABU-1031

Sample Point: Wellhead

Analyses	Result	Unit
Dissolved CO2	400	mg/L
Dissolved H2S	0.1	mg/L
pH	7.0	
Pressure	160	psi
Temperature	54	° F

Analyses	Result	Unit
Bicarbonate	146.4	mg/L
Conductivity (Calculated)	255694	µS - cm3
Ionic Strength	3.14	
Resistivity	0.039	ohms - m
Specific Gravity	1.119	
Total Dissolved Solids	165620	mg/L

Cations	Result	Unit
Iron	40.6	mg/L
Manganese	0.972	mg/L
Barium	1.15	mg/L
Strontium	688	mg/L
Calcium	9220	mg/L
Magnesium	1320	mg/L
Sodium	53400.00	mg/L
Potassium	890	mg/L
Boron	41.8	mg/L
Lithium	29.3	mg/L
Copper	0.042	mg/L
Zinc	0.171	mg/L
Lead	0.128	mg/L
Cobalt	0.022	mg/L
Chromium	0.014	mg/L
Silicon	6.44	mg/L
Aluminum	Not Detected	mg/L
Molybdenum	0.03	mg/L
Phosphorus	Not Detected	mg/L

Anions	Result	Unit
Bromide	964.15	mg/L
Chloride	98451.27	mg/L
Fluoride	2.4470	mg/L
Sulfate	417.39	mg/L

This document contains the confidential and/or proprietary information of NALCO Champion. The recipient agrees to maintain the confidentiality of the terms of this document, and shall not reproduce it by any means, disclose the contents of it to any third party, or use the contents of it for any purpose other than the purpose for which it was intended by NALCO Champion

10/31/2018

Page 1 of 2

17/21

3rd B.S.

Native Water

NALCO Champion

An Ecolab Company

Complete Water Analysis Report

Customer: OXY USA WTP LP

Region: Delaware Basin

Location: Cedar Canyon 22 Lease

System: Production System

Equipment: Cedar Canyon 22-15 Fee 32H

Sample Point: Wellhead

Sample ID: AL71401

Acct Rep Email: Ramon.Artalejo@ecolab.com

Collection Date: 10/03/2018

Receive Date: 10/04/2018

Report Date: 10/12/2018

Location Code: 394555

Field Analysis

Bicarbonate	109.8 mg/L	Dissolved CO2	280 mg/L	Dissolved H2S	8.55 mg/L
Pressure Surface	200 psi	Temperature	83 ° F	pH of Water	6.8

Sample Analysis

Calculated Gaseous CO2	0.62%	Calculated pH	6.80	Conductivity (Calculated)	187104 µS - cm3
Ionic Strength	2.22	Resistivity	0.053 ohms - m	Specific Gravity	1.085
Total Dissolved Solids	119766.6 mg/L				

Cations

Iron	19.1 mg/L	Manganese	0.899 mg/L	Barium	3.45 mg/L
Strontium	1030 mg/L	Calcium	4970 mg/L	Magnesium	767 mg/L
Sodium	38000.00 mg/L	Potassium	664 mg/L	Boron	87.3 mg/L
Lithium	20.6 mg/L	Copper	0.328 mg/L	Nickel	0.042 mg/L
Zinc	0.396 mg/L	Lead	0.144 mg/L	Cobalt	0.021 mg/L
Chromium	0.004 mg/L	Silicon	10.2 mg/L	Aluminum	Not Detected mg/L
Molybdenum	0.012 mg/L	Phosphorus	0.1 mg/L		

Anions

Bromide	575.661 mg/L	Chloride	74630 mg/L	Sulfate	236.327 mg/L
---------	--------------	----------	------------	---------	--------------

PTB Value

	Barite PTB	Calcite PTB	Celestite PTB	Gypsum PTB	Halite PTB	Iron Carbonate PTB	Iron Sulfide PTB
50°	1.74	7.35	16.12	0.00	0.00	0.00	7.70
75°	1.51	10.25	17.01	0.00	0.00	0.00	7.70
100°	1.19	12.64	23.75	0.00	0.00	0.00	7.83
125°	0.78	14.64	33.70	0.00	0.00	0.00	8.02
150°	0.28	16.35	45.15	0.00	0.00	0.00	8.25
175°	0.00	17.85	56.88	0.00	0.00	1.84	8.48
200°	0.00	19.20	68.07	0.00	0.00	3.48	8.72
225°	0.00	20.42	78.34	0.00	0.00	4.76	8.95
250°	0.00	21.54	87.50	0.00	0.00	5.76	9.17
275°	0.00	22.58	95.55	0.00	0.00	6.51	9.37
300°	0.00	23.55	102.58	0.00	0.00	7.03	9.55
325°	0.00	24.43	108.73	0.00	0.00	7.35	9.70
350°	0.00	25.22	114.10	0.00	0.00	7.46	9.83
375°	0.00	25.92	118.76	0.00	0.00	7.34	9.93
400°	0.00	26.66	122.72	0.00	0.00	7.76	9.89

Saturation Index

	Barite SI	Calcite SI	Celestite SI	Gypsum SI	Halite SI	Iron Carbonate SI	Iron Sulfide SI
50°	0.82	0.31	0.06	-0.91	-1.32	-0.78	1.45
75°	0.58	0.44	0.06	-0.93	-1.34	-0.55	1.39
100°	0.38	0.56	0.08	-0.93	-1.35	-0.35	1.37
125°	0.21	0.67	0.12	-0.92	-1.35	-0.17	1.38
150°	0.07	0.76	0.17	-0.91	-1.37	-0.02	1.40
175°	-0.05	0.89	0.23	-0.92	-1.38	0.12	1.44
200°	-0.14	1.00	0.23	-0.94	-1.38	0.24	1.50
225°	-0.22	1.11	0.34	-0.97	-1.38	0.35	1.56
250°	-0.30	1.22	0.40	-1.01	-1.38	0.43	1.64
275°	-0.36	1.33	0.46	-1.05	-1.37	0.50	1.72
300°	-0.42	1.43	0.52	-1.08	-1.37	0.55	1.80
325°	-0.48	1.53	0.57	-1.08	-1.36	0.58	1.88
350°	-0.55	1.63	0.62	-1.04	-1.35	0.58	1.96
375°	-0.62	1.71	0.68	-0.93	-1.33	0.56	2.03
400°	-0.70	1.86	0.72	-0.73	-1.32	0.60	2.16

Scaling predictions calculated using Scale Soft Pitzer 2017

Scaling predictions dependent on provided field data. Incomplete/partial field data may impact results generated by scaling software.

This document contains the confidential and/or proprietary information of Nalco Champion. The recipient agrees to maintain the confidentiality of the terms of this document, and shall not reproduce it by any means, disclose the contents of it to any third party, or use the contents of it for any purpose other than the purpose for which it was intended by Nalco Champion.

10/12/2018

Page 1 of 2

18/21

Part VIII- Geologic Information for Cypress 34 Fed 3H

The Cypress 34 Fed 3H will be injecting into the 1st Bone Spring Sandstone of the Bone Spring Formation. The well has a TVD of approximately 7,949 ft. with a lateral length of approximately 3,300 ft. It will be injecting into a reservoir composed of tight siltstone. Core data indicates that the grain sizes range from coarse siltstone to very-fine-grained subarkose (Folk, 1980) sandstone. Samples show evidence of moderate compaction. Minor amounts of illite and smectite clays are found throughout the samples ranging from 5% to 15%. Cements are Fe-calcite, Fe-dolomite, with some quartz overgrowths. Minor amounts of pyrite (<1%) are present. The resulting reservoir rock has porosity of 8-18% with an average porosity of 11.7%. Permeability measured by injection fall-off tests conducted within the reservoir ranges from 0.02 millidarcies to 0.001 millidarcies.

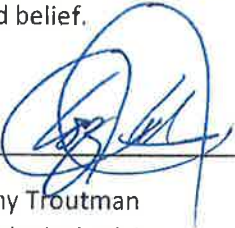
The injection area for this well is bounded by two producing wells in the same reservoir interval that is 300 ft. thick. Low-permeability barriers act as seals above and below the reservoir. These barriers consist of carbonate mudstone, dolomudstone, and shales that are 130 ft. thick above and 455 ft. thick below. Laterally the injection will be primarily contained by the reservoir volume that has been previously and partially depleted by the adjacent producing wells. The tight low-permeability reservoir and the production from the adjacent wells will be the primary constraints on the conformance of the injection to the project area and are expected to contain the injected gas.

The top of the Bone Spring Formation is at 6,826 ft. (log depth) with over 1,660 ft. of carbonate mudstones and shales acting as permeability barriers to upward migration of injected gas. Above that the Delaware Mountain Group consists of connate-water bearing and hydrocarbon-bearing sands, with minor limestone and shale intervals and is 3,700 ft. thick. Above that is the Castile Formation consisting of very low permeability anhydrite, gypsum, and calcite that acts as another 1,500 ft. thick barrier to upward movement of fluids. The Salado overlies the Castile and forms a 1,000 ft. thick barrier of salt. The top of the Salado is at 650 ft. and the deep aquifers found just above the Salado at the base of the Rustler are saline water. The top of Rustler Formation is at 261 ft. The Rustler top is a continuous anhydrite layer that acts as another permeability barrier creating a perched aquifer above it that is the lowest level where fresh water is known in the area. Water wells drilled in the area typically have not reached this depth. Because of the thickness of multiple impermeable rock layers above the injection reservoir there is no possible path for migration upward into freshwater aquifers where they exist.

Locate freshwater wells within two miles:

An investigation of existing shallow water wells has not found any freshwater wells within a two mile radius of this injector.

I hereby certify that the information presented above is true and correct to the best of my knowledge and belief.


Tony Troutman
Geological Advisor

11/30/2018
Date

Part VIII- Geologic Information for Cypress 34 Federal 8H

The Cypress 34 Federal 8H will be injecting into the 2nd Bone Spring Sandstone of the Bone Spring Formation. The well has a TVD of approximately 8,910 ft. with a lateral length of approximately 4,163 ft. It will be injecting into a reservoir composed of tight siltstone. Core data indicates that the grain sizes range from coarse siltstone to very-fine-grained subarkose (Folk, 1980) sandstone. Samples show evidence of moderate compaction. Minor amounts of illite and smectite clays are found throughout the samples ranging from 5% to 15%. Cements are Fe-calcite, Fe-dolomite, with some quartz overgrowths. Minor amounts of pyrite (<1%) are present. The resulting reservoir rock has porosity of 8-18% with an average porosity of 11.7%. Permeability measured by injection fall-off tests conducted within the reservoir ranges from 0.02 millidarcies to 0.001 millidarcies.

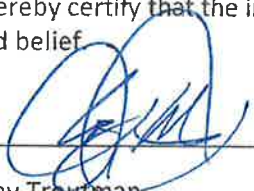
The injection area for this well is bounded by two producing wells in the same reservoir interval that is 320 ft. thick. Low-permeability barriers act as seals above and below the reservoir. These barriers consist of carbonate mudstone and dolomudstone that are 455 ft. thick above and 795 ft. thick below. Laterally the injection will be primarily contained by the reservoir volume that has been previously and partially depleted by the adjacent producing wells. The tight low-permeability reservoir and the production from the adjacent wells will be the primary constraints on the conformance of the injection to the project area and are expected to contain the injected gas.

The top of the Bone Spring Formation is at 6,807 ft. (log depth) with over 2,000 ft. of carbonate mudstones and shales acting as permeability barriers to upward migration of injected gas. Above that the Delaware Mountain Group consists of connate-water bearing and hydrocarbon-bearing sands, with minor limestone and shale intervals and is 3,700 ft. thick. Above that is the Castile Formation consisting of very low permeability anhydrite, gypsum, and calcite that acts as another 1,500 ft. thick barrier to upward movement of fluids. The Salado overlies the Castile and forms a 1,000 ft. thick barrier of salt. The top of the Salado is at 655 ft. and the deep aquifers found just above the Salado at the base of the Rustler are saline water. The top of Rustler Formation is at 551 ft. The Rustler top is a continuous anhydrite layer that acts as another permeability barrier creating a perched aquifer above it that is the lowest level where fresh water is known in the area. Water wells drilled in the area typically have not reached this depth. Because of the thickness of multiple impermeable rock layers above the injection reservoir there is no possible path for migration upward into freshwater aquifers where they exist.

Locate freshwater wells within two miles:

An investigation of existing shallow water wells has not found any freshwater wells within a two mile radius of this injector.

I hereby certify that the information presented above is true and correct to the best of my knowledge and belief.



Tony Troutman
Geological Advisor

11/30/2018

Date

C-108 Injection Application
Item XIII - Proof of Notice
OXY USA Inc.
Cypress 34 Federal 3H and 8H

New Mexico Oil Conservation Division
811 S. First St.
Artesia, NM 88210

New Mexico Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

United State Dept of Interior
Bureau of Land Management
620 E. Greene Street
Carlsbad, NM 88220

Allar Company
P.O. Box 1567
Graham, TX 76450

Animas Energy LLC
P.O. Box 369
Ignacio, CO 81137

Chesapeake Exploration LLC
P.O. Box 18496
Oklahoma City, OK 73154

Chevron Midcontinent LP
6301 Deauville
Midland, TX 79706

Chevron USA Inc.
6301 Deauville
Midland, TX 79706

Echo Production Inc.
P.O. Box 1210
Graham, TX 76450

EOG Y Resources Inc.
104 S. Fourth Street
Artesia, NM 88210

EOG A Resources Inc.
104 S. Fourth Street
Artesia, NM 88210

EOG M Resources Inc.
104 S. Fourth Street
Artesia, NM 88210

Devon Energy Production CO LP
6100 N. Western
Oklahoma City, OK 73118

Highland Texas Energy Company
7557 Rambler Road, Ste 918
Dallas, TX 75231

Strategic Energy Income Fund IV LP
2350 North Forest Road
Getzville, NY 14063

Tap Rock Resources, LLC
602 Park Point Drive
Golden, CO 80401

Vision Energy, Inc.
P.O. Box 2459
Carlsbad, NM 88221

State of New Mexico
P.O. Box 1148
Santa Fe, NM 87504

Mesquite SWD, Inc
PO Box 1479
Carlsbad, NM 88221

24/24

WELL ID NUMBER	RESPONSIBLE OPERATOR	LEASE NAME	WELL NO.	WELL TYPE	STATUS	FTD N/A	FTD E/W	UNIT	EC	THD	RNG	DATE BOILED	TOTAL FTD	TOTAL TOL	CHG SIZE	BT	Y	CON	HOW	DIV	CURRENT PROD	COMMENTS	ADDITIONAL INFORMATION
17	30-012-0117	REG-REDOUBLES BRULLACK FERRAL INC.	1	Oil	ACTIVE	1380	FM	1800	PSL	G	3	24.5	23.5	11.2"	13.36"	100	600	Surf	Circ	5003	ORDAN CANYON	1922 - 1928	
												12/27/1984	6250	6250								JONES SPRING	
18	30-012-0387	QAT USA INC. OYERESS 33 FPD282L	3H	Oil	ACTIVE	1550	PSL	100	PSL	I	3.3	23.5	23.5	7.08"	8.24"	3003	850	Surf	Circ	7212	ORDAN CANYON	1925 - 1927	
												09/10/2009	7150	11500								JONES SPRING	
														12.1/4"	9.24"	3030	1000	Surf	Circ				
														8.1/2"	5.1/2"	11970	3100	Surf	Circ	31407			
19	30-012-4191	TRIP ROCK OYERESS 24 FERRAL OPERATING LLC OOM	1EH	Oil	ACTIVE	1407	FM	1347	PSL	L4	3	24.5	23.5	11.2"	13.36"	380	607	Surf	Circ	4707	PURPLE LAKES	0225 - 1120	Some data directional survey, completion reports not yet available on NMOD website.
												01/06/2018	14852	14852								WOLF CAMP (OAS)	
														12.1/4"	9.6/8"	3227	1203	Surf	Circ				
															8.9/4"	5.1/2"	14832	2483	1700'	Circ			

**STATE OF NEW MEXICO
DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES
OIL CONSERVATION DIVISION**

**APPLICATION OF OXY USA INC. FOR APPROVAL
OF A PRESSURE MAINTENANCE PROJECT,
EDDY COUNTY, NEW MEXICO.**

CASE NO. 20195

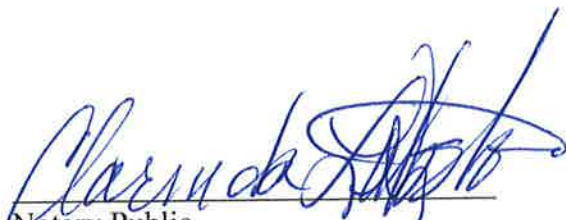
AFFIDAVIT

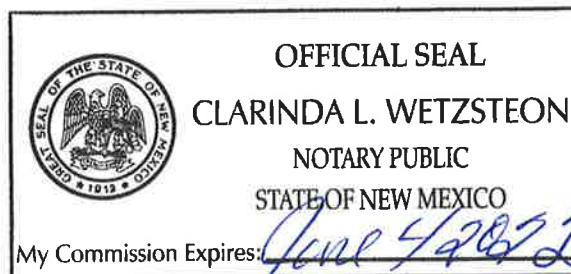
STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

Michael Feldewert, attorney in fact and authorized representative of **OXY USA, INC.**, the Applicant herein, being first duly sworn, upon oath, states that the above-referenced Applications have been provided under the notice letters and proof of receipts attached hereto.


Michael H. Feldewert

SUBSCRIBED AND SWORN to before me this 10th day of January 2019 by Michael H. Feldewert.


Notary Public



BEFORE THE OIL CONSERVATION DIVISION
Santa Fe, New Mexico
Exhibit No. 4
Submitted by: **OXY USA INC**
Hearing Date: January 10, 2019
Case Nos. 20195



December 21, 2018

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

TO: AFFECTED PARTIES

**Re: Application of OXY USA Inc. for Approval of a Pressure
Maintenance Project, Eddy County, New Mexico**
[Cypress 34 Federal 3H well and Cypress 34 Federal 8H well in Section
34, Township 23 South, Range 29 East]

Ladies and Gentlemen:

This letter is to advise you that OXY USA Inc. has filed the enclosed application with the New Mexico Oil Conservation Division. A hearing has been requested before a Division Examiner on January 10, 2019, and the status of the hearing can be monitored on the Division's website. Division hearings will commence at 8:15 a.m. in Porter Hall at the Oil Conservation Division's Santa Fe Offices located at 1220 South Saint Francis Drive, Santa Fe, New Mexico 87505. You are not required to attend this hearing, but as an owner of an interest that may be affected by this application, you may appear and present testimony. Failure to appear at that time and become a party of record will preclude you from challenging the matter at a later date.

Parties appearing in cases are required by Division Rule 19.15.4.13.B to file a Pre-Hearing Statement with the Oil Conservation Division's Santa Fe office, four business days in advance of a scheduled hearing, but at least on the Thursday preceding the hearing. This statement must be filed at the Division's Santa Fe office at the above specified address and should include: the names of the parties and their attorneys; a concise statement of the case; the names of all witnesses the party will call to testify at the hearing; the approximate time the party will need to present its case; and identification of any procedural matters that are to be resolved prior to the hearing.

If you have any questions regarding this application, please contact Kelley Montgomery at (713) 366-5716 or Kelley_Montgomery@oxy.com

Sincerely,

Michael H. Feldewert
ATTORNEY FOR OXY USA, INC.

Enclosures



Shipment Confirmation Acceptance Notice

A. Mailer Action

Note to Mailer: The labels and volume associated to this form online, **must** match the labeled packages being presented to the USPS® employee with this form.

OXY - Cypress
CM# 44506.0005
Notice List

Shipment Date: 12/17/2018

Shipped From:

Name: HOLLAND & HART LLP

Address: 110 N GUADALUPE ST # 1

City: SANTA FE

State: NM ZIP+4® 87501

Type of Mail	Volume
Priority Mail Express®	
Priority Mail®	0
First-Class Package Service®	
Returns	
International*	
Other	19
Total	19

*Start time for products with service guarantees will begin when mail arrives at the local Post Office™ and items receive individual processing and acceptance scans.

B. USPS Action

Note to RSS Clerk:

1. Home screen > Mailing/Shipping > More
2. Select Shipment Confirm
3. Scan or enter the barcode/label number from PS Form 5630
4. Confirm the volume count message by selecting Yes or No
5. Select Pay and End Visit to complete transaction

USPS EMPLOYEE: Please scan upon pickup or receipt of mail.
Leave form with customer or in customer's mail receptacle.

USPS SCAN AT ACCEPTANCE



9275 0901 1935 6200 0011 7974 48



Firm Mailing Book For Accountable Mail

Name and Address of Sender Holland & Hart LLP 110 N Guadalupe St # 1 Santa Fe NM 87501		Check type of mail or service ☐ Adult Signature Required ☐ Adult Signature Restricted Delivery ☒ Certified Mail ☐ Certified Mail Restricted Delivery ☐ Collect on Delivery (COD) ☐ Insured Mail ☐ Priority Mail ☐ Priority Mail Express ☐ Registered Mail ☐ Return Receipt for Merchandise ☐ Signature Confirmation ☐ Signature Confirmation Restricted Delivery		Affix Stamp Here (if issued as an international certificate of mailing or for additional copies of this receipt). Postmark with Date of Receipt.												
USPS Tracking/Article Number		Addressee (Name, Street, City, State, & ZIP Code™)		Postage	(Extra Service) Fee	Handling Charge	Actual Value if Registered	Insured Value	Due Sender if COD	ASR Fee	ASRD Fee	RD Fee	RR Fee	SC Fee	SCRD Fee	SH Fee
1. 9214 8901 9403 8376 4958 22		New Mexico Oil Conservation Division 811 S First St Artesia NM 88210		2.26	3.45								1.50			
2. 9214 8901 9403 8376 4958 39		Aller Company PO BOX 1567 Graham TX 76450		2.26	3.45								1.50			
3. 9214 8901 9403 8376 4958 46		Chevron Midcontinent LP 6301 Deauville Midland TX 79706		2.26	3.45								1.50			
4. 9214 8901 9403 8376 4958 53		EOG Y Resources Inc 104 S Fourth Street Artesia NM 88210		2.26	3.45								1.50			
5. 9214 8901 9403 8376 4958 60		Devon Energy Production CO LP 6100 N Western Oklahoma City OK 73118		2.26	3.45								1.50			
6. 9214 8901 9403 8376 4958 77		Tap Rock Resources LLC 602 Park Point Drive Golden CO 80401		2.26	3.45								1.50			
7. 9214 8901 9403 8376 4958 84		Mesquite SWD Inc PO BOX 1479 Carlsbad NM 88221		2.26	3.45								1.50			
8. 9214 8901 9403 8376 4958 91		New Mexico Oil Conservation Division 1220 South St Francis Dr Santa Fe NM 87507		2.26	3.45								1.50			
Total Number of Pieces Listed by Sender 19		Postmaster, Per (Name of receiving employee)														



Check type of mail or service

Postmark with Date of Receipt

16. 9214 8901 9403 8376 4959 76

Privacy Notice: For more information on USPS privacy policies, visit usps.com/privacypolicy.

100



Firm Mailing Book For Accountable Mail

[illegible]

Welcome Clary Welzsteen, (Not [Clary Welzsteen?](#))

Company:

Holland & Hart LLP

[Home](#) [My Queue](#) [Piece Search](#) [Support](#) [Logout](#)[History](#) > [Mail Jobs](#) > [Mail Job Details](#)

My Tools

[Mail Jobs](#)[Mail Pieces](#)[Manual Mailings](#)[Reports](#)[Setup](#)[Account](#)[Tools](#)

⚠ As part of the end-of-life (EOL) plans announced in April 2018, customer migrations from e-Certify 3.0 to e-Certify 4.0 a customer roll-out. Questions regarding the migration can be directed to [ConnectSuite](#)

➡ To upgrade your version of e-Certify to the new version, [Click Here](#)

Mail Pieces

Filter:

< No Filter >

Barcode	Recipient	Status	DL	Custom
9214 8901 9403 8376 4960 03	State of New Mexico PO BOX 1148 Santa FE NM 87504	Delivered Signature Received	No	
9214 8901 9403 8376 4959 90	Strategic Energy Income Fund IV LP 2350 North Forest Road Getzville NY 14063	Delivered Signature Received	No	
9214 8901 9403 8376 4959 83	Echo Production Inc PO BOX 1210 Graham TX 76450	Delivered Signature Received	No	
9214 8901 9403 8376 4959 76	Chesapeake Exploration LLC PO BOX 18496 Oklahoma City OK 73154	Delivered Signature Received	No	
9214 8901 9403 8376 4959 69	United States Dept of Interior Bureau of Land Management 620 E Greene Street Carlsbad NM 88220	In-Transit	No	
9214 8901 9403 8376 4959 52	Vision Energy Inc PO BOX 2459 Carlsbad NM 88221	Delivered Signature Received	No	
9214 8901 9403 8376 4959 45	Highland Texas Energy Company 7557 Rambler Road Ste 918 Dallas TX 75231	Delivered Signature Received	No	
9214 8901 9403 8376 4959 38	EOG M Resources Inc 104 S Fourth Street Artesia NM 88210	Delivered Signature Received	No	
9214 8901 9403 8376 4959 21	EOG A Resources Inc 104 S Fourth Street Artesia NM 88210	Delivered Signature Received	No	
9214 8901 9403 8376 4959 14	Chevron USA Inc 6301 Deauville Midland TX 79706	Delivered Signature Received	No	
9214 8901 9403 8376 4959 07	Animas Energy LLC PO BOX 369 Ignacio CO 81137	Delivered Signature Received	No	
9214 8901 9403 8376 4958 91	New Mexico Oil Conservation Division 1220 South St Francis Dr Santa FE NM 87507	Delivered Signature Received	No	
9214 8901 9403 8376 4958 84	Mesquite SWD Inc PO BOX 1479 Carlsbad NM 88221	Delivered Signature Received	No	
9214 8901 9403 8376 4958 77			No	

Barcode	Recipient	Status	DL	Custom
	Tap Rock Resources LLC 602 Park Point Drive Golden CO 80401	Delivered Signature Received		
9214 8901 9403 8376 4958 60	Devon Energy Production CO LP 6100 N Western Oklahoma City OK 73118	Delivered Signature Received	No	
9214 8901 9403 8376 4958 53	EOG Y Resources Inc 104 S Fourth Street Artesia NM 88210	Delivered Signature Received	No	
9214 8901 9403 8376 4958 46	Chevron Midcontinent LP 6301 Deauville Midland TX 79706	Delivered Signature Received	No	
9214 8901 9403 8376 4958 39	Allar Company PO BOX 1567 Graham TX 76450	Delivered Signature Received	No	
9214 8901 9403 8376 4958 22	New Mexico Oil Conservation Division 811 S First St Artesia NM 88210	In-Transit	No	

1

20

items per page

© 2017 Connect-Suite.com.
Release: v4.24
[WIRIRK20P4JQF6N]

Welcome Clory Wetzsteon, (Not Clory Wetzsteon?)

Company:

Holland & Hart LLP

[Home](#) [My Queue](#) [Piece Search](#) [Support](#) [Logout](#)[History](#) > [Mail Jobs](#) > [Mail Job Details](#) > [Piece Tracking](#)

My Tools

[Mail Jobs](#)[Mail Pieces](#)[Manual Mailings](#)[Reports](#)[Setup](#)[Account](#)[Tools](#)

! As part of the end-of-life (EOL) plans announced in April 2018, customer migrations from e-Certify 3.0 to e-Certify 4.0 are scheduled to begin Sunday, January 6th, in a phased customer roll-out. Questions regarding the migration can be directed to [ConnectSuite Product Support](#).

➡ To upgrade your version of e-Certify to the new version, [Click Here](#).

Mail Piece Tracking Number: **9214 8901 9403 8376 4959 69**

Recipient

United States Dept of Interior Bureau of Land Management
620 E Greene Street
Carlsbad NM 88220

Date & Time	Event	Event Location
01/02/2019 14:25	NO ACCESS	CARLSBAD,NM, 88220
01/01/2019 07:53	ARRIVAL AT UNIT	CARLSBAD,NM, 88220
01/01/2019 00:39	PROCESSED THROUGH USPS FACILITY	LUBBOCK,TX, 79402
12/31/2018 23:55	PROCESSED THROUGH USPS FACILITY	LUBBOCK,TX, 79402
12/30/2018 12:43	PROCESSED THROUGH USPS FACILITY	ALBUQUERQUE,NM, 87101
12/28/2018 22:28		LUBBOCK,TX, 79402

	DEPART USPS FACILITY	
12/28/2018 19:44	PROCESSED THROUGH USPS FACILITY	LUBBOCK,TX, 79402
12/23/2018 16:40	PROCESSED THROUGH USPS FACILITY	ALBUQUERQUE,NM, 87101
12/21/2018 22:36	DEPART USPS FACILITY	ALBUQUERQUE,NM, 87101
12/21/2018 20:50	PROCESSED THROUGH USPS FACILITY	: ALBUQUERQUE,NM, : 87101
12/21/2018 20:39	SHIPMENT RECEIVED ACCEPTANCE PENDING	SANTA FE,NM, 87501
12/21/2018 19:35	ORIGIN ACCEPTANCE	SANTA FE,NM, 87501
12/17/2018 14:21	PRE-SHIPMENT INFO SENT USPS AWAITS ITEM	: SANTA FE,NM, 87501

© 2017 Connect-Suite.com.
Release: v4.24
(WIN-9K2QP4JQF6N)



Welcome Clory Wetzsteen, (Not Clory Wetzsteen?)
Company:
Holland & Hart LLP

[Home](#) [My Queue](#) [Piece Search](#) [Support](#) [Logout](#)

[History](#) > [Mail Jobs](#) > [Mail Job Details](#) > [Piece Tracking](#)



My Tools

[Mail Jobs](#)
[Mail Pieces](#)
[Manual Mailings](#)
[Reports](#)
[Setup](#)
[Account](#)
[Tools](#)

⚠ As part of the end-of-life (EOL) plans announced in April 2018, customer migrations from e-Certify 3.0 to e-Certify 4.0 are scheduled to begin Sunday, January 6th, in a phased customer roll-out. Questions regarding the migration can be directed to [ConnectSuite Product Support](#).

➡ To upgrade your version of e-Certify to the new version, [Click Here](#).

Mail Piece Tracking Number: **9214 8901 9403 8376 4958 22**

Recipient

New Mexico Oil Conservation Division
811 S First St
Artesia NM 88210

Date & Time	Event	Event Location
12/31/2018 03:16	REMINDER TO SCHEDULE REDELIVERY	ARTESIA,NM, 88210
12/27/2018 09:41	AVAILABLE FOR PICKUP	ARTESIA,NM, 88210
12/27/2018 09:39	ARRIVAL AT UNIT	ARTESIA,NM, 88211
12/26/2018 09:33	NO AUTHORIZED RECIPIENT AVAILABLE	ARTESIA,NM, 88210
12/24/2018 17:40	PROCESSED THROUGH USPS FACILITY	LUBBOCK,TX, 79402
12/24/2018 06:14	DEPART USPS FACILITY	LUBBOCK,TX, 79402

12/23/2018 17:33	PROCESSED THROUGH USPS FACILITY	LUBBOCK, TX, 79402
12/21/2018 22:36	DEPART USPS FACILITY	ALBUQUERQUE, NM, 87101
12/21/2018 20:50	PROCESSED THROUGH USPS FACILITY	ALBUQUERQUE, NM, 87101
12/21/2018 20:39	SHIPMENT RECEIVED ACCEPTANCE PENDING	SANTA FE, NM, 87501
12/21/2018 19:35	ORIGIN ACCEPTANCE	SANTA FE, NM, 87501
12/17/2018 14:21	PRE-SHIPMENT INFO SENT USPS AWAITS ITEM	SANTA FE, NM, 87501

© 2017 Connect-Suite.com,
Release: v4.24
[WIN-9K2QP4JQF6N]

CARLSBAD CURRENT-ARGUS

AFFIDAVIT OF PUBLICATION

Ad No.
0001272215

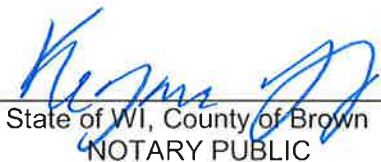
DAVID WASHINGTON
110 NORTH GUADALUPE, SUITE 1 PO BOX 2208
SANTA FE NM 87504

I, a legal clerk 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:

12/22/18


Legal Clerk

Subscribed and sworn before me the
24th of December 2018.


State of WI, County of Brown
NOTARY PUBLIC

11/9/22
My Commission Expires

Ad#:0001272215
P O : 0001272215
of Affidavits :0.00



STATE OF NEW MEXICO ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT OIL CONSERVATION DIVISION SANTA FE, NEW MEXICO

The State of New Mexico through its Oil Conservation Division hereby gives notice pursuant to law and the Rules and Regulations of the Division of the following public hearing to be held at 8:15 A.M. on **January 10, 2019**, in the Oil Conservation Division Hearing Room at 1220 South St. Francis, Santa Fe, New Mexico, before an examiner duly appoint for the hearing. If you are an individual with a disability who is in need of a reader, amplifier, qualified sign language interpreter, or any other form of auxiliary aid or service to attend or participate in the hearing, please contact: Florene Davidson at 505-476-3458 or through the New Mexico Relay Network, 1-800-659-1779 by **December 31, 2018**. Public documents, including the agenda and minutes, can be provided in various accessible forms. Please contact Florene Davidson if a summary or other type of accessible form is needed.

STATE OF NEW MEXICO TO: All named parties and persons having any right, title, interest or claim in the following case and notice to the public.

(NOTE: All land descriptions herein refer to the New Mexico Principal Meridian whether or not so stated.)

TO: All overriding royalty interest owners and pooled parties, including: New Mexico Oil Conservation Division; United States Dept of Interior, Bureau of Land Management; Allar Company; Animas Energy LLC; Chesapeake Exploration LLC; Chevron Midcontinent LP; Chevron USA Inc.; Echo Production Inc.; EOGY Resources Inc.; EOGA Resources Inc.; EOGM Resources Inc.; Devon Energy Production CO LP; Highland Texas Energy Company; Strategic Energy Income Fund IV LP; Tap Rock Resources, LLC; Vision Energy, Inc.; State of New Mexico; Mesquite SWD, Inc.

Case No. 20195 Application of OXY USA Inc. for Approval of a Pressure Maintenance Project, Eddy County, New Mexico. Applicant in the above-styled cause seeks an order approving a pressure maintenance project in the Bone Spring formation (Cedar Canyon Bone Spring Pool (Pool Code 11520)) underlying Section 34, Township 23 South, Range 29 East, NMPM, Eddy County, New Mexico. Produced gas, produced water and carbon dioxide may be injected into the First Bone Spring interval through the **Cypress 34 Federal 3H well** (API No. 30-015-35692) at a total vertical depth of approximately 7896 feet to approximately 7949 feet along the horizontal portion of this wellbore and into the Second Bone Spring interval through the **Cypress 34 Federal 8H well** (API No. 30-015-39430) at a total vertical depth of approximately 8658 feet to approximately

8910 feet along the horizontal portion of this wellbore. Oxy seeks approval to inject at the following surface injection pressures:

Cypress 34 Federal 3H (First BS)

Produced gas: 3850 psi

Produced water: 1580 psi

Carbon dioxide: 2000 psi

Cypress 34 Federal 8H (Second BS)

Produced gas: 4350 psi

Produced water: 1730 psi

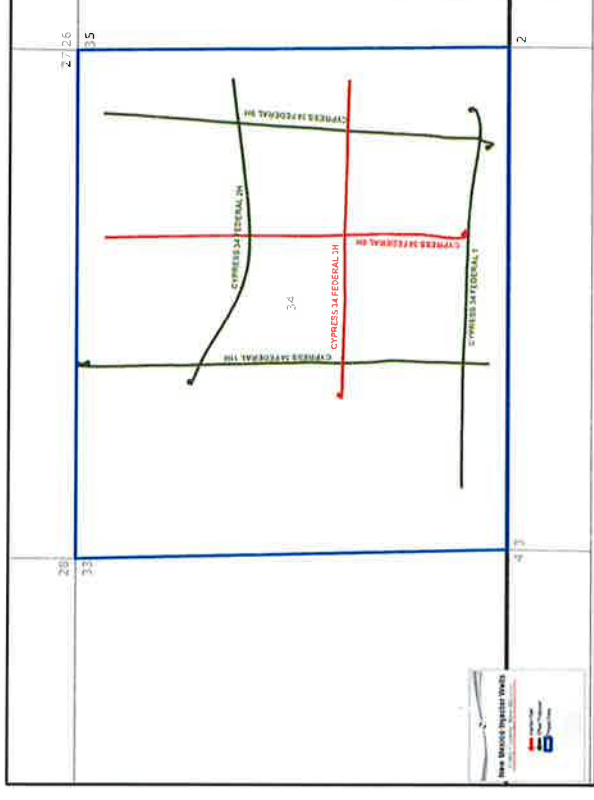
Carbon dioxide: 2300 psi

The source of the produced gas and produced water will be the Bone Spring and Delaware formations. The source of the carbon dioxide is unknown. Oxy also seeks an exception to the packer setting depth for these injection wells and for allowance to use unlined tubing. The proposed project is located approximately six miles southeast of Loving, New Mexico.

Pub: December 22, 2018 #1272215

C-108 Overview – Cypress Gas Injection

- Oxy is proposing to inject produced field gas, CO₂, and water into existing 1st BS lateral - the Cypress 34 Fed 3H and existing 2nd BS lateral - the Cypress 34 Fed 8H
- The field gas will reach miscible pressure at bottom hole conditions and mobilize incremental oil
- Oxy plans to continuously inject produced gas into the two injectors. Oxy plans to inject water if necessary and CO₂ when available
- Produced gas injection could provide an effective alternative to flaring in a highly constrained gas market



Cypress 34 Federal 8H: Calculation for Surface Injection Pressure Limit

For Water Injection: 1730 psi

The calculation for surface pressure limit: $0.2 \text{ (psi/ft)} * \text{TVD (ft)}$ of shallowest perforation. This is based on "The permitted injection pressure is limited to 0.2 psi/ft. to the uppermost perforation" (NMOCD UIC Manual Section III.A.2)

Well	TVD (ft)	Max Water Injection THP, psi
Cypress 34 Federal 8H	8658	1730

For Produced Gas: 4350 psi

For CO2: 2300 psi

The calculation procedure is shown below:

1. Based on the surface pressure limit for water and assuming fresh water gradient (0.433 psi/ft). The Bottom Hole Pressure Limit is $(0.2 + 0.433) * \text{TVD (ft)}$ of shallowest perforation (or 0.63 psi/ft)
2. The composition for the proposed injection produced gas is shown in the table. While CO2 injection case composition is only CO2.

Component	%
Nitrogen	1.62
H2S	0.00
Methane	77.19
CO2	0.19
Ethane	12.58
Propane	5.73
i-Butane	0.58
n-Butane	1.33
i-Pentane	0.25
n-Pentane	0.24
Hexanes+	0.29
Total	100.00



Well	TVD (ft)	Max Inj BHP	Max Gas Inj THP, psi	Max CO2 Inj THP, psi
Cypress 34 Federal 8H	8658	5480	4350	2300

* Prosper Model is industrial standard nodal analysis software for pressure calculation includes phase behavior change, friction loss.

BEFORE THE OIL CONSERVATION DIVISION

Santa Fe, New Mexico

Exhibit No. 7

Submitted by: OXY USA INC

Hearing Date: January 10, 2019

Case Nos. 20195



Cypress 34 Federal 3H: Calculation for Surface Injection Pressure Limit

For Water Injection: 1580 psi

The calculation for surface pressure limit: $0.2 \text{ (psi/ft)} * \text{TVD (ft)}$ of shallowest perforation. This is based on "The permitted injection pressure is limited to 0.2 psi/ft. to the uppermost perforation" (NMOCD UIC Manual Section III.A.2)

Well	TVD (ft)	Max Water Injection THP, psi
Cypress 34 Federal 3H	7896	1580

For Produced Gas: 3850 psi

For CO₂: 2000 psi

The calculation procedure is shown below:

1. Based on the surface pressure limit for water and assuming fresh water gradient (0.433 psi/ft). The Bottom Hole Pressure Limit is $(0.2 + 0.433) * \text{TVD (ft)}$ of shallowest perforation (or 0.63 psi/ft)
2. The composition for the proposed injection produced gas is shown in the table. While CO₂ injection case composition is only CO₂.

Component	%
Nitrogen	1.62
H ₂ S	0.00
Methane	77.19
CO ₂	0.19
Ethane	12.58
Propane	5.73
i-Butane	0.58
n-Butane	1.33
i-Pentane	0.25
n-Pentane	0.24
Hexanes+	0.29
Total	100.00

3. A Petroleum Expert Prosper[®] Model was used to calculate the surface pressure with tubing ID (2.323"), reservoir depth, injection gas composition and the BHP limit calculated in the step 1.

* Prosper Model is industrial standard nodal analysis software for pressure calculation includes phase behavior change, friction loss.

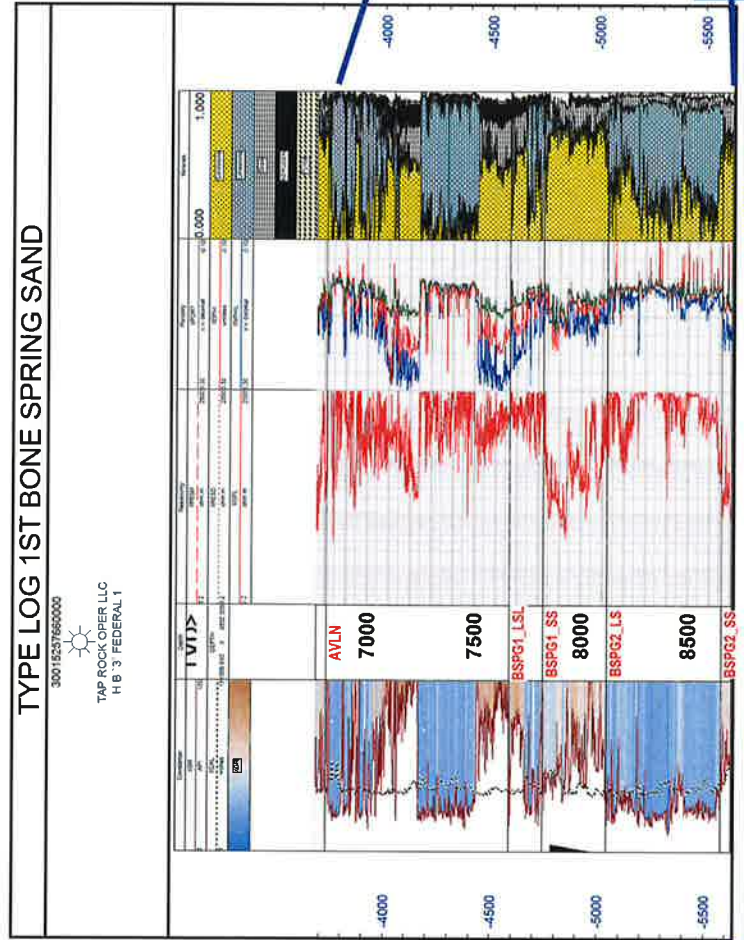
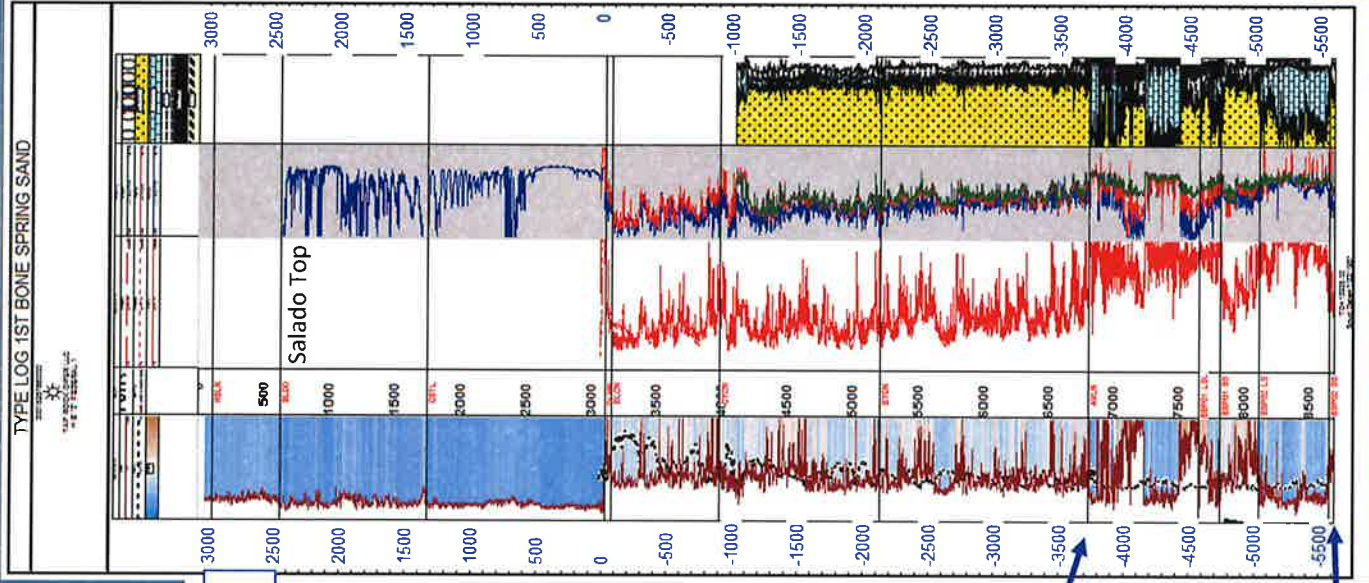
Well	TVD (ft)	Max Inj BHP	Max Gas Inj THP, psi	Max CO ₂ Inj THP, psi
Cypress 34 Federal 3H	7896	4998	3850	2000



Cypress 34 Fed 3H 1st Bone Spring Type Log

- Gamma Ray, Depth, Resistivity, Porosity, Lithology (Fm tops in red)
- Low porosity limestone above and below the 1st Bone Spring Sand acting as a seal
- Upper barriers protecting fresh water: Salado Salt (1300' thick); Castile anhydrite (1500' thick); low porosity/low permeability lime in 1st BS (400' thick)
- Lower barrier 2nd BS Lime (500' thick)

Lowest fresh water
near base of Rustler



BEFORE THE OIL CONSERVATION DIVISION

Santa Fe, New Mexico

Exhibit No. 8

Submitted by: OXY USA INC

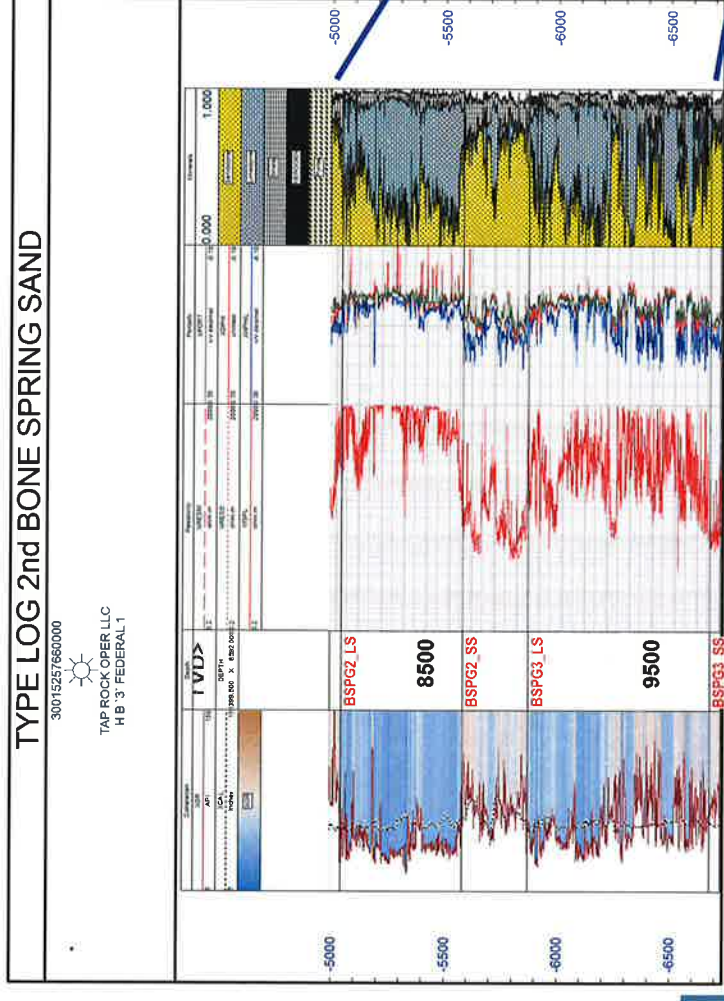
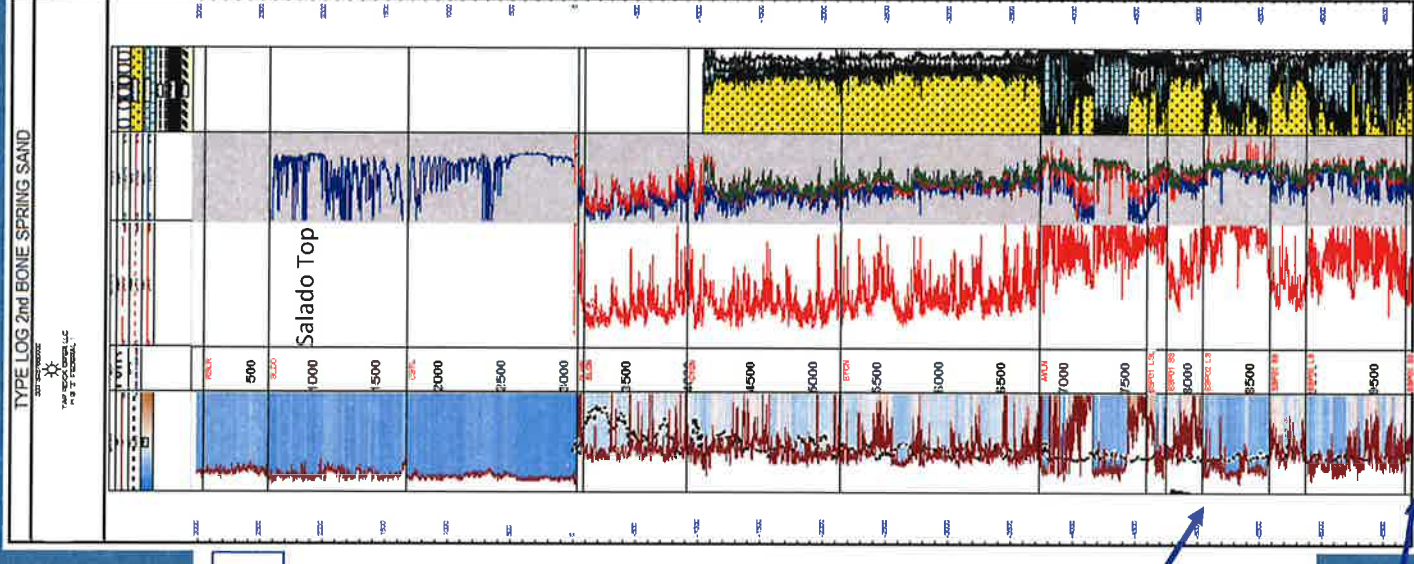
Hearing Date: January 10, 2019

Case Nos. 20195

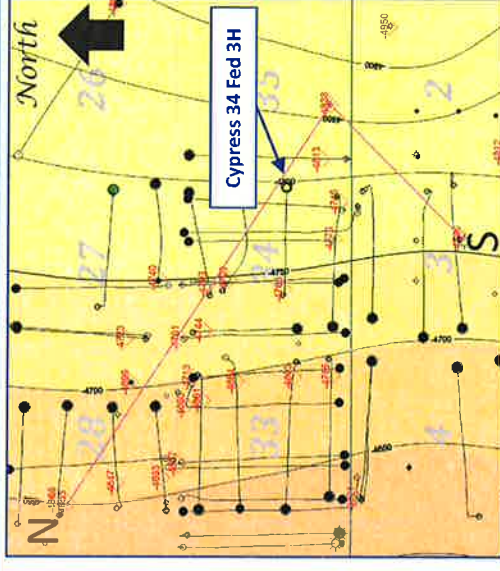
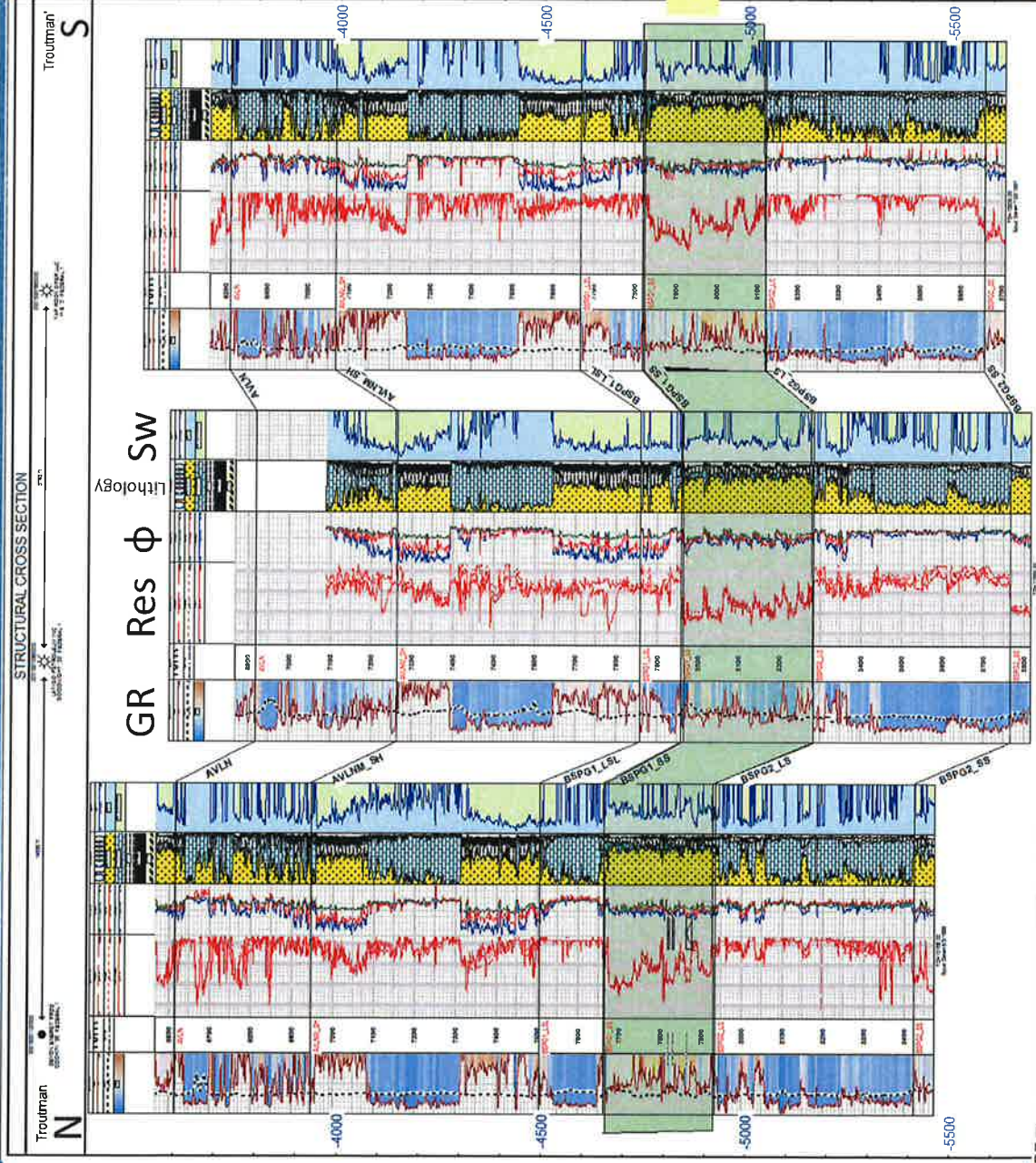
Cypress 34 Fed 8H 2nd Bone Spring Type Log

- Gamma Ray, Depth, Resistivity, Porosity, Lithology
- Formation tops in red
- Low porosity limestone above and below the 2nd Bone Spring Sand acting as a seal
- Upper barriers protecting fresh water: Salado Salt (1300' thick); Castile anhydrite (1500' thick); low porosity/low permeability 2nd BS lime (500' thick)
- Lower barrier 3rd BS Lime (700' thick)

Lowest fresh water
near base of Rustler



Cypress 34 Fed 3H Cross-section

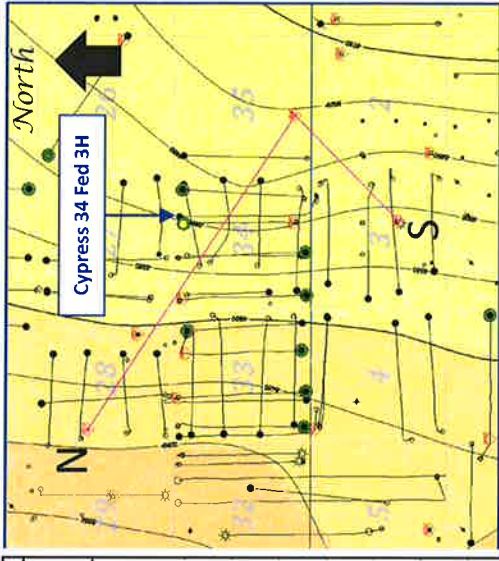


Cross-section location

1st Bone Spring Sand

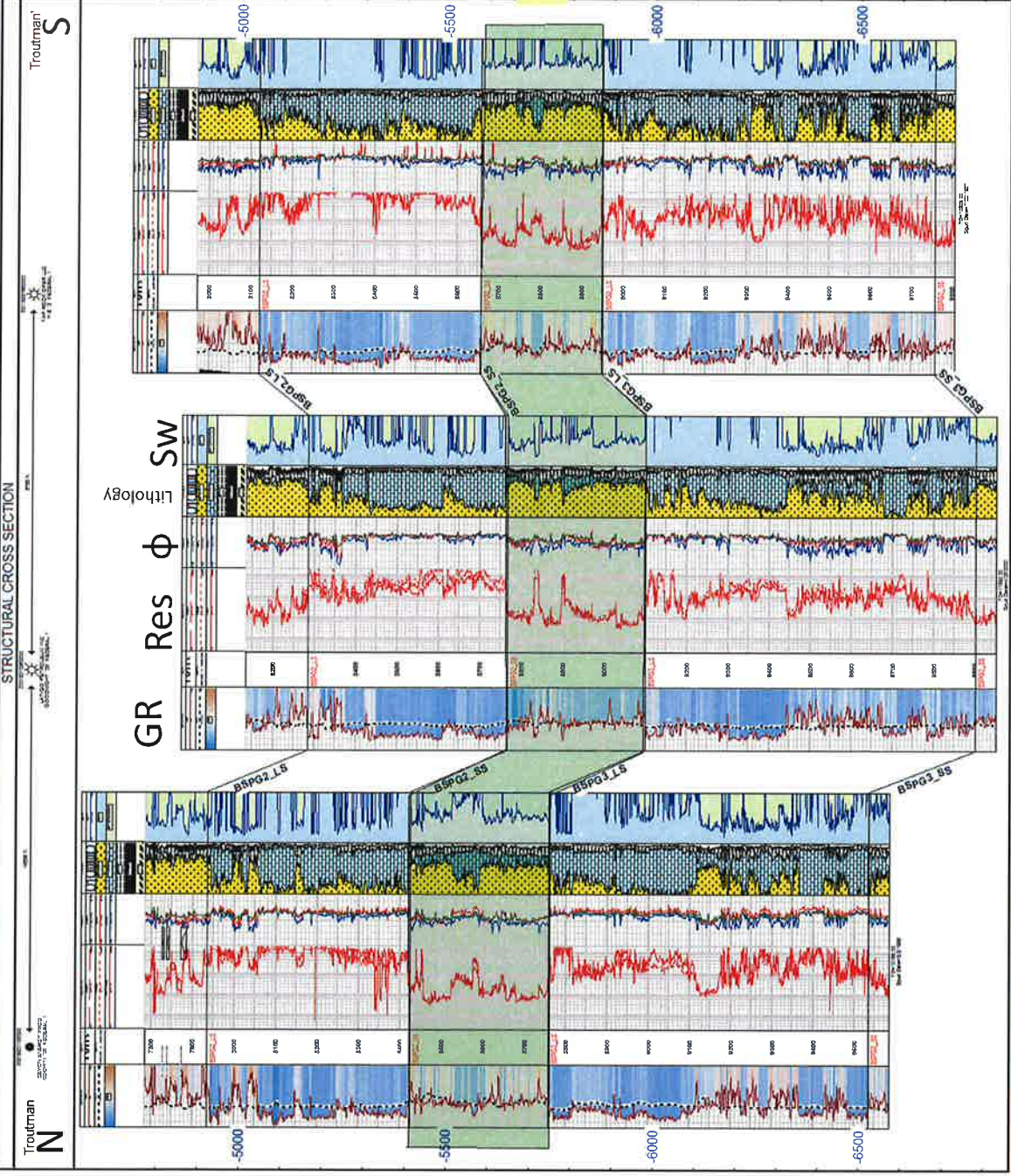


Cypress 34 Fed 8H Cross-section



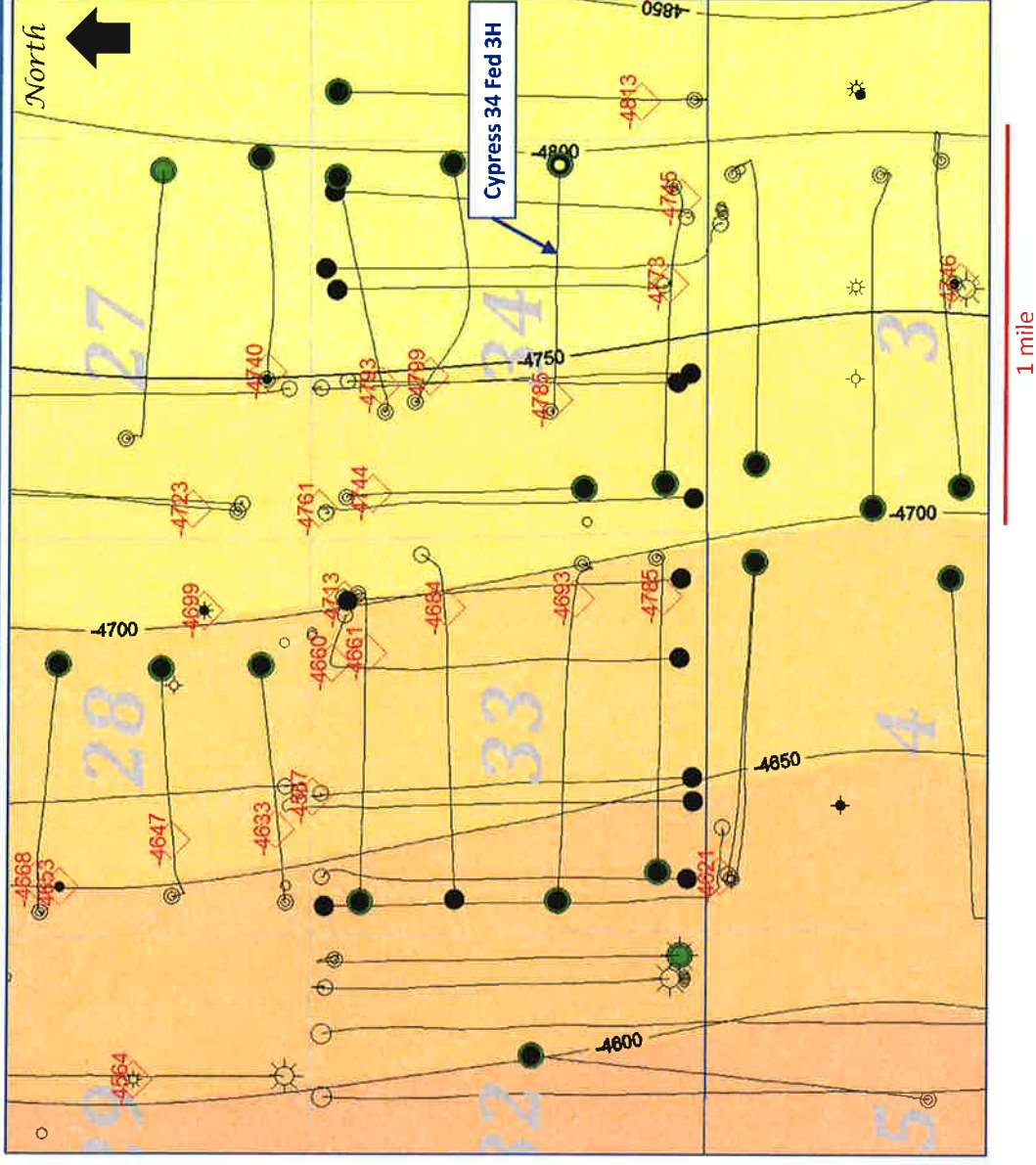
Cross-section location

2nd Bone Spring Sand



Cypress 34 Fed 3H 1st Bone Spring Sand Top Structure

- Posted depths show well control
- Depths are TVD Subsea, Contour Interval 50 ft
- 1st Bone Spring wells marked by green highlights
- Section 34, S 33, N/2 S3 are Oxy operated



BEFORE THE OIL CONSERVATION DIVISION

Santa Fe, New Mexico

Exhibit No. 10

Submitted by: OXY USA INC

Hearing Date: January 10, 2019

Case Nos. 20195



Cypress 34 Fed 8H 2nd Bone Spring Sand Top Structure

- Posted depths show well control
- Depths are TVD subsea, contour interval 50 ft
- 2nd Bone Spring wells marked by green highlights
- Section 34, S 33, N/2 S3 are Oxy operated

