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 Brazos 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

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-101
Revised July 18, 2013

☐ AMENDED REPORT

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address	2. OGRID Number
Oxy USA Inc. 5 Greenway Plaza, Ste. 110 Houston,TX 77046	16696
	3. API Number 30-059-20554

4. Property Code	5. Property Name	6. Well No.
27111	Bravo Dome Carbon Dioxide Gas Unit	201

7. Surface Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County
G	20	20N	33E		1675'	N	1690'	E	Union

8. Proposed Bottom Hole Location

UL - Lot	Section	Township	Range	Lot Idn	Feet from	N/S Line	Feet From	E/W Line	County

9. Pool Information

Pool Name	Pool Code
Bravo Dome Carbon Dioxide Gas 640	96010

Additional Well Information

11. Work Type	12. Well Type	13. Cable/Rotary	14. Lease Type	15. Ground Level Elevation
N	C	R	P	
16. Multiple	**17. Proposed Depth**	**18. Formation**	**19. Contractor**	**20. Spud Date**
No	2500	Tubb	N/A	

Depth to Ground water	Distance from nearest fresh water well	Distance to nearest surface water

☐ **We will be using a closed-loop system in lieu of lined pits**

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Totco	12 1/4	8 5/8	24#	750	400	Surface
Totco	7 7/8	5 1/2	15.5#	2500	610	Surface

Casing/Cement Program: Additional Comments

22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	3000	250/1000	

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief.
I further certify that I have complied with 19.15.14.9 (A) NMAC ☐ and/or 19.15.14.9 (B) NMAC ☐, if applicable.
Signature: L. Lockett

Printed name: L. Kiki Lockett

Title: Regulatory Analyst

E-mail Address: Kiki_lockett@oxy.com

Date: 4-25-2014 Phone: 713-215-7643

OIL CONSERVATION DIVISION

Approved By: Ed Martin

Title: DISTRICT SUPERVISOR

Approved Date: 5/5/2014 Expiration Date: 5/5/2016

Conditions of Approval Attached

Conditions of Approval for Application to Drill
30-059-20554
OXY USA Inc.
Bravo Dome Carbon Dioxide Gas Unit
Well No. 2333-201G

1. OXY must comply with all New Mexico Oil Conservation Division rules and regulations as they apply to submission of paperwork required during the life of the well. All C103, C104, C105 forms and required logs must be submitted in a timely manner. Failure to comply with these requirements will result in OXY's loss of its allowable for this well until all paperwork requirements have been met.
2. Pit construction and closure must satisfy all requirements of your approved plan, and OCD Rules 19.15.17 NMAC.
3. Once the well is spud, to prevent groundwater contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string.

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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

[1] API Number	[2] Pool Code	[3] Pool Name
30-059-20554	96010	BRAVO DOME CARBON DIOXIDE GAS 640

[4] Property Code	[5] Property Name	[6] Well Number
27111	BRAVO DOME CARBON DIOXIDE GAS UNIT	201

[7] OGRID No.	[8] Operator Name	[9] Elevation
16696	OXY USA INC.	5022.8

[10] Surface Location

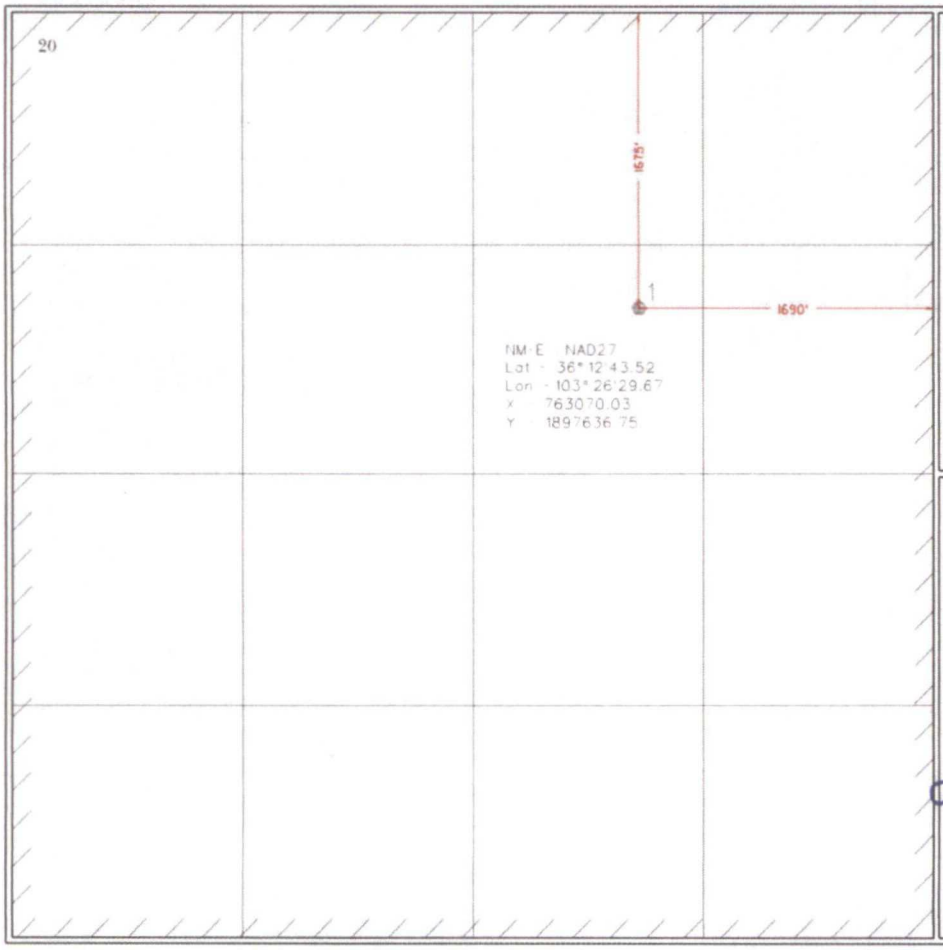
UL or lot no.	Section	Township	Range	Lot Idn.	Feet from the	North/South line	Feet from the	East/West line	County
G	20	23 N	33 E		1675'	NORTH	1690'	EAST	UNION

[11] 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

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
640			

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.



[17] 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.

L. Lockett 4/25/14
Signature Date

L. Kiki Lockett
Printed Name

Regulatory Compliance Analyst
E-mail Address

[18] 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 18, 2014
Date of Survey

TERRY ASEL
NEW MEXICO
15079
PROFESSIONAL LAND SURVEYOR

Signature and Seal of Professional Surveyor

Terry Asel 4/24/2014

Terry Asel
Certificate Number 15079

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State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-144
Revised June 6, 2013

For temporary pits, below-grade tanks, and multi-well fluid management pits, submit to the appropriate NMOCD District Office.
For permanent pits submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

Pit, Below-Grade Tank, or Proposed Alternative Method Permit or Closure Plan Application

Type of action:
- ☐ Below grade tank registration
- ☒ Permit of a pit or proposed alternative method
- ☐ Closure of a pit, below-grade tank, or proposed alternative method
- ☐ Modification to an existing permit/or registration
- ☐ Closure plan only submitted for an existing permitted or non-permitted pit, below-grade tank, or proposed alternative method

Instructions: Please submit one application (Form C-144) per individual pit, below-grade tank or alternative request

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.
Operator: Oxy USA INC. OGRID #: 16696
Address: 5 Greenway Plaza, Ste. 110, Houston, Tx 77046
Facility or well name: Bravo Dome Unit 2333-201
API Number: 30-059-20554 OCD Permit Number:
U/L or Qtr/Qtr _____ Section 20 Township 23N Range 33E County: UNION
Center of Proposed Design: Latitude _____ Longitude _____ NAD: ☒1927 ☐ 1983
Surface Owner: ☐ Federal ☐ State ☒ Private ☐ Tribal Trust or Indian Allotment

2.
☒ **Pit:** Subsection F, G or J of 19.15.17.11 NMAC
Temporary: ☒ Drilling ☐ Workover
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A ☐ Multi-Well Fluid Management Low Chloride Drilling Fluid ☐ yes ☐ no
☒ Lined ☐ Unlined Liner type: Thickness 20 mil ☒ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
☒ String-Reinforced
Liner Seams: ☒ Welded ☒ Factory ☐ Other _____ Volume: _____bbl Dimensions: L_____ x W_____ x D_____

3.
☐ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC
Volume: _____bbl Type of fluid: _____
Tank Construction material: _____
☐ Secondary containment with leak detection ☐ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other _____
Liner type: Thickness _____mil ☐ HDPE ☐ PVC ☐ Other _____

4.
☐ **Alternative Method:**
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

5.
Fencing: Subsection D of 19.15.17.11 NMAC *(Applies to permanent pits, temporary pits, and below-grade tanks)*
☐ Chain link, six feet in height, two strands of barbed wire at top *(Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)*
☐ Four foot height, four strands of barbed wire evenly spaced between one and four feet
☐ Alternate. Please specify_____

6.

Netting: Subsection E of 19.15.17.11 NMAC *(Applies to permanent pits and permanent open top tanks)*

☐ Screen ☐ Netting ☐ Other_____

☐ Monthly inspections (If netting or screening is not physically feasible)

7.

Signs: Subsection C of 19.15.17.11 NMAC

☒ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

☒ Signed in compliance with 19.15.16.8 NMAC

8.

Variances and Exceptions:

Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

Please check a box if one or more of the following is requested, if not leave blank:

☒ Variance(s): Requests must be submitted to the appropriate division district for consideration of approval.

☐ Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

9.

Siting Criteria (regarding permitting): 19.15.17.10 NMAC

Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. **Siting criteria does not apply to drying pads or above-grade tanks.**

General siting	
Ground water is less than 25 feet below the bottom of a low chloride temporary pit or below-grade tank. - ☐ NM Office of the State Engineer - iWATERS database search; ☐ USGS; ☐ Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit . NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. **(Does not apply to below grade tanks)** - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☒ No
Within the area overlying a subsurface mine. **(Does not apply to below grade tanks)** - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☒ No
Within an unstable area. **(Does not apply to below grade tanks)** - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☒ No
Within a 100-year floodplain. **(Does not apply to below grade tanks)** - FEMA map	☐ Yes ☒ No
Below Grade Tanks	
Within 100 feet of a continuously flowing watercourse, significant watercourse, lake bed, sinkhole, wetland or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption;. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Temporary Pit using Low Chloride Drilling Fluid (maximum chloride content 15,000 mg/liter)	
Within 100 feet of a continuously flowing watercourse, or any other significant watercourse or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). (Applies to low chloride temporary pits.) - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 300 feet from a occupied permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☒ No
Within 200 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 300feet of any other fresh water well or spring, in existence at the time of the initial application. NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☒ No

Within 100 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Temporary Pit Non-low chloride drilling fluid	
Within 300 feet of a continuously flowing watercourse, or any other significant watercourse, or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☒ No
Within 500 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 1000 feet of any other fresh water well or spring, in the existence at the time of the initial application; - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 300 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Permanent Pit or Multi-Well Fluid Management Pit	
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☒ No
Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No

10.
Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
☒ Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
☒ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
☒ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☒ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☒ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

11.
Multi-Well Fluid Management Pit Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
☐ A List of wells with approved application for permit to drill associated with the pit.
☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC
☐ Hydrogeologic Data - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

12.
Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC
Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Climatological Factors Assessment
- ☐ Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Quality Control/Quality Assurance Construction and Installation Plan
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Nuisance or Hazardous Odors, including H_2S, Prevention Plan
- ☐ Emergency Response Plan
- ☐ Oil Field Waste Stream Characterization
- ☐ Monitoring and Inspection Plan
- ☐ Erosion Control Plan
- ☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

13.
Proposed Closure: 19.15.17.13 NMAC
Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

Type: ☒ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ P&A ☐ Permanent Pit ☐ Below-grade Tank ☐ Multi-well Fluid Management Pit ☐ Alternative

Proposed Closure Method: ☐ Waste Excavation and Removal
☐ Waste Removal (Closed-loop systems only)
☒ On-site Closure Method (Only for temporary pits and closed-loop systems)
☒ In-place Burial ☐ On-site Trench Burial
☐ Alternative Closure Method

14.
Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

- ☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.13 NMAC
- ☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
- ☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

15.
Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC
Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria require justifications and/or demonstrations of equivalency. Please refer to 19.15.17.10 NMAC for guidance.

Ground water is less than 25 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Ground water is between 25-50 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☒ Yes ☐ No ☐ NA
Ground water is more than 100 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Within 100 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	☐ Yes ☒ No
Within 300 horizontal feet of a private, domestic fresh water well or spring used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☒ No
Within 300 feet of a wetland. US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance	

adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; Written approval obtained from the municipality	☐ Yes ☒ No
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division	☐ Yes ☒ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map	☐ Yes ☒ No
Within a 100-year floodplain. - FEMA map	☐ Yes ☒ No

16.
On-Site Closure Plan Checklist: (19.15.17.13 NMAC) ***Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.***

- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection E of 19.15.17.13 NMAC
- ☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of Subsection K of 19.15.17.11 NMAC
- ☐ Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Waste Material Sampling Plan - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)
- ☐ Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

17.
Operator Application Certification:

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): L. Kiki Lockett Title: Regulatory Specialist

Signature: L. Lockett Date: 4/25/2014

e-mail address: kiki_lockett@oxy.com Telephone: 713-215-7643

18.
OCD Approval: ☑ Permit Application (including closure plan) ☐ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: Ed Martin **Approval Date:** 5/5/2014

Title: DISTRICT SUPERVISOR **OCD Permit Number:**

19.
Closure Report (required within 60 days of closure completion): 19.15.17.13 NMAC

Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.

☐ **Closure Completion Date:**

20.
Closure Method:

☐ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternative Closure Method ☐ Waste Removal (Closed-loop systems only)
☐ If different from approved plan, please explain.

21.
Closure Report Attachment Checklist: ***Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.***

- ☐ Proof of Closure Notice (surface owner and division)
- ☐ Proof of Deed Notice (required for on-site closure for private land only)
- ☐ Plot Plan (for on-site closures and temporary pits)
- ☐ Confirmation Sampling Analytical Results (if applicable)
- ☐ Waste Material Sampling Analytical Results (required for on-site closure)
- ☐ Disposal Facility Name and Permit Number
- ☐ Soil Backfilling and Cover Installation
- ☐ Re-vegetation Application Rates and Seeding Technique
- ☐ Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude _____ Longitude _____ NAD: ☐ 1927 ☐ 1983

22.

Operator Closure Certification:

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): L. Ki Ki Lockett Title: Reg Specil.

Signature: L Lockett Date: 4/25/14

e-mail address: Ki Ki-Lockett@oxy.com Telephone: 713-215-7643

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

No records found.

Basin/County Search:

County: Union

PLSS Search:

Section(s): 20 **Township:** 23N **Range:** 33E

Pit Design and Construction Plan

In accordance with Rule 19 15 17 the following information describes the design and construction of temporary pits on Occidental Permian Ltd (OXY) locations. This is OXY's standard procedure for all temporary pits. A separate plan will be submitted for any temporary pit which does not conform to this plan.

1. OXY will design and construct a temporary pit to contain liquids and solids and prevent contamination of fresh water and protect public health and environment.

2. Prior to constructing the pit, topsoil will be stockpiled in the construction zone for later use in restoration.

3. OXY will post a well sign, not less than 12" by 24", on the well site prior to construction of the temporary pit. The sign will list the operator on record as the operator, the location of the well site by unit letter, section, township range, and emergency telephone numbers.

4. OXY shall construct all new fences utilizing 4 strand barbed wire. T-posts shall be installed every 12 feet and corners shall be anchored utilizing a wooded posts. Entire location including pits will be fenced at all times.

5. OXY shall construct the temporary pit so that the foundation and interior slope are firm and free of rocks, debris, sharp edges or irregularities to prevent liner failure.

6. OXY shall construct the pit so that the slopes are no steeper than two horizontal feet to one vertical foot.

7. Pit walls will be walked down by a crawler type tractor following construction.

8. All temporary pits will be lined with 20-mil, string reinforced, LLDPE liner, complying with EPA SW-846 method 9090A requirements.

9. Geotextile will be installed beneath the liner when rocks, debris, sharp edges or irregularities cannot be avoided.

10. All liners will be anchored in the bottom of a compacted earth-filled trench at least 18 inches deep.

11. OXY will minimize liner seams and orient them up and down, not across a slope. Factory seams will be used whenever possible. OXY will ensure all field seams are welded by qualified personnel. Field seams will be overlapped four to six inches and will be oriented parallel to the line of maximum slope. OXY will minimize the number of field seams in corners and irregularly shaped areas.

12. The liner shall be protected from and fluid force or mechanical damage through the use of mud pit slides, or a manifold system.

13. The pit shall be protected form run-off by constructing and maintaining diversion ditches around the location or around the perimeter of the pit in some cases.

14. The volume of the pit shall not exceed 10 acre-feet, including freeboard.

15. Temporary blow pits will be constructed to allow gravity flow to discharge into the lined drill pit.

16. The lower half of the blow pit (nearest lined pit) will be lined with 20 mil liner. The upper half of the blow pit will remain unlined as allowed in Rule 19.15.17.11 F.11.

17. OXY will not allow freestanding liquids to remain on the unlined portion of the blow pit.

OXY Bravo Dome
Pit Closure Plan

In accordance with Rule 19 15 17 12 NMAC the following information describes the closure requirements of temporary pits on locations. This is Oxy Bravo Dome's standard procedure for all temporary pits. A separate plan will be submitted for any temporary pit which does not conform to this plan.

All closure activities will include proper documentation and be available for review upon request and will be submitted to NMOCD within 60 days of pit closure. Closure report will be filed on C-144 and incorporate the following

- Details on Capping and Covering, where applicable
- Plot Plan (Pit Diagram)
- Inspection Reports
- Sampling Results

General Plan

1. Free standing liquids will be removed as soon as practical for recycle use in the drilling of other wells. Any free standing liquids that are not recycled will be removed prior to pit closure and disposed of in a division –approved facility or recycle, reuse or reclaim the liquids in a manner that the appropriate division district office approves. Pit solids will be allowed to air dry as completely as possible prior to starting pit closing activities.
2. The preferred method of closure for all temporary pits will be on-site burial, assuming that all the criteria listed in sub-section (8) of 19 15 17 13 are met.
3. The surface owner shall be notified of Oxy Bravo Dome's proposed closure plan using a means that provides proof of notice i e, certified mail, return receipt requested.
4. Within 6 months of the Rig Off status occurring, Oxy Bravo Dome will ensure that temporary pits are closed, re-contoured.
5. Notice of Closure will be given to the Santa Fe Division office between 72 hours and one week of closure, via email, or verbally. The notification of closure will include the following:
   I Operator's name
   II Location by Unit Letter, Section, Township, and Range.. Well name and API number

6. Liner of temporary pit shall be removed above "mud level" after stabilization. Removal of liner will consist of manually or mechanically cutting liner at mud level and removing all remaining liner. Care will be taken to remove "All" of the liner I e, edges of liner entrenched or buried. All excessive liner will be disposed of at a licensed disposal facility. Or at the request of the landowner, the deep burial pit closure method will be used.
7. Pit contents shall be tested prior to mixing of any soils. Test results will be compared to NMOCD limits. If the test results are within the NMOCD limits no soils will be mixed with the pit contents. If the sample results exceed the NMOCD limits the contents will be mixed with non-waste containing, earthen material in order to achieve the solidification process. The mixing ratio shall not exceed 3 parts clean soil to 1 part pit contents. The mixed contents will then be re-tested and the results will be compared to the NMOCD limits.
8. A five point composite sample will be taken of the pit using sampling tools and all samples tested per subsection B of 19 15 17 13(B)(1)(b). In the event that the criteria are not met, all contents will be handled per Subparagraph (a) of Paragraph (1) of Subsection B of 19 15 17 13 i e, Dig and Haul

Composites	Tests Method	Limit (mg/Kg)
Benzene	EPA SW-846 8021B or 826oB	0.2
BTEX	EPA SW-846 8021B or 826oB	50
TPH	EPA SW-846 418 1	2500
GRO/DRO	EPA SW-846 8015M	500
Chlorides	EPA 300 1	500

9. Upon completion of testing, the pit area will be backfilled with compacted, non-waste containing, earthen material. A minimum of four feet of cover shall be achieved and the cover shall include one foot of suitable material to establish vegetation at the site, or the background thickness of topsoil, whichever is greater.
10. Re-contouring of location will match fit, shape, line , form and texture of the surrounding as closely as possible. Re-shaping will include drainage control, prevent ponding, and prevent erosion. Natural drainages will be unimpeded and water bars and/or silt traps will be placed in areas where needed to prevent erosion on a large scale. Final

re-contour shall have a uniform appearance with smooth surface, fitting the natural landscape.

11. Notification will be sent to NMOCD when the reclaimed area is seeded
12. Bravo Dome shall seed the disturbed areas upon abandonment of the pit and well site. Seeding will be accomplished via drilling on the contour whenever practical or by other division-approved methods. Vegetative cover will equal 70% if the native perennial vegetative cover (un-impacted) consisting of at ***least three native plant species,*** including at least one grass, but not including noxious weeds, and maintain that cover through two successive growing seasons.
13. The temporary pit will be located with a steel marker, no less than four inches in diameter, cemented in a hole three feet deep in the center of the onsite burial upon the abandonment of all the wells on the pad. The marker will be flush with the ground to allow access of the active well pad and for safety concerns. The marker will include a threaded collar to be used for future abandonment. The top of the marker will contain a welded steel 12" square plate that indicated the onsite burial of the temporary pit. The plate will be easily removable and a four foot tall riser will be threaded into the top of the collar marker and welded around the base with the operator's information at the time of all wells on the pad are abandoned. The operator's information will include the following – Operator Name, Lease Name, Well name and number, Unit Number, Section, Township, Range and an indicator that the marker is an onsite burial location

3. PRESSURE CONTROL EQUIPMENT

Surface: 0 – 750' will be drilled with no conductor and no pressure control equipment at surface.

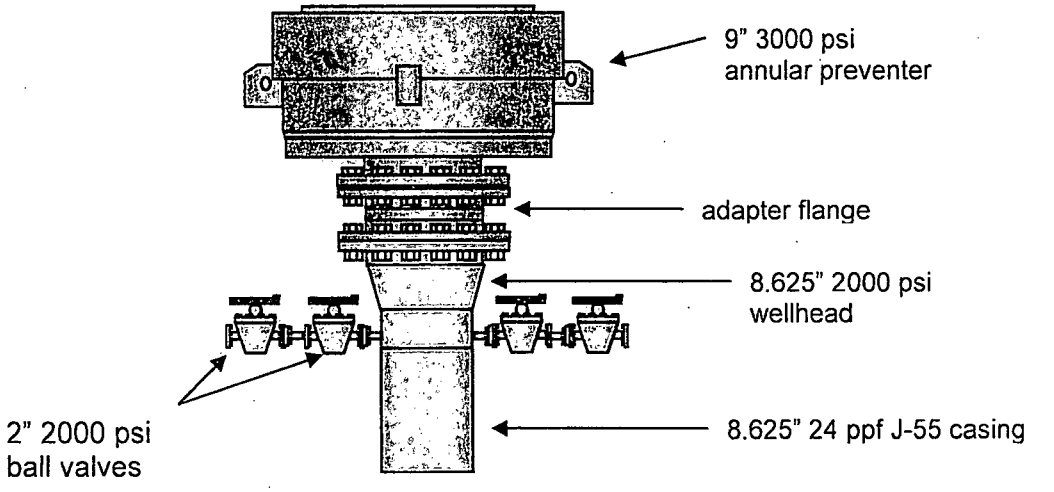
Production: 750' – 2200' will be drilled with a 9" 3M annular preventer.

a. The annular preventer will be functionally tested and pressure tested upon nipple up to wellhead **every well**. In the rare case that a well lasts longer than three weeks, the preventer will be subsequently tested every 21 days. The test will consist of a 250 psi low test and a 1000 psi high test.

b. See BOP diagram.

c. A Kelly cock will be in the drill string at all times while drilling.

d. A full opening drill pipe stabbing valve with the appropriate connections will be on the rig floor at all times



Temporary Pit Inspection

Wellname:		API #:		Rig Mobe Date:	
County:		Pit liner thickness:		Rig Demobe Date:	

Inspection Date	Time	By Whom	Has any hazardous waste been disposed of in pit(s)?	Is the liner of the pit intact and free of penetrations?	Is there an oil absorbent boom on location?	Distance from top of pit to fluid level (minimum 2')

All pits to be inspected DAILY during drilling/workover operations.
Any penetration of the pit liner shall be reported to the NMOCD within 48 hours.

Drilling Engineer: _____ 4/25/2014
Janice Chiu — Date

Drilling Superintendent: _____ 4/25/2014.
Kevin Videtich — Date

Drilling Engineering Supervisor: _____ 4/25/14
Adriano Celli — Date

Drilling Manager: _____ 4-25-14
Mike Tessari — Date

1. GENERAL WELL INFORMATION

1.1 Hole Section Summary

String	Hole Size	Casing	Approx. Depth	Depth Criteria
Surface	12 ¼"	8 ⅝" 24# J-55 LTC	750'	Drill to fit casing – deeper is preferred
Production	7 7/8"	5 ½" steel and fiberglass	TD	Please see Supplemental Procedure for Production casing and TD information.

1.2 Casing Characteristics

String	Depth (ft) TVD	OD (in)	ID (in)	Coupling OD (in)	Drift (in)	Weight (#/ft)	Grade	CXN	Burst (psi)	Collapse (psi)	Tension (k-lbs)	Torque (ft-lbs)		
												Minimum	Optimum	Maximum
Surface	750'	8.625	8.097	9.625	7.972	24	J-55	STC	2950	1370	244	-	2440	-
Please see Supplemental Procedure for Production casing and TD information.														

1.3 Mud Program

Hole Section	Fluid Type	Mud Weight (ppg)	Funnel Visc (s/qt)	PV	YP	pH	API Fluid Loss	Cl- (mg/L)	Drill Solids (%)	
12 ¼" 0-750'	FW native mud	8.4-9.1	26-32	2-6	1-10	9.5 - 10	NC	-	-	
Some wells will have very sandy surface holes which could experience severe losses and hole instability. If losses occur in the surface hole, go to the steel pits and mud up with gel, using drilling paper as LCM.										
7 ⅞" 750'- 2000 ft	FW native mud	8.4 – 9.0	26-32	1 – 4	1 – 3	9.5 – 10	N/A	<2000	< 5	
7 ⅞" 2000' – TD	FW/KCl	8.4 – 9.0	30-42	5 – 10	8 – 12	9.5 - 10	<15	6 – 8 % KCl	< 5	
We will begin to circulate through the steel pits prior to drilling into the Santa Rosa formation(See Supplemental Procedure for depth) and begin controlling fluid loss to <10cc. Continue using the steel pits until we have drilled through the Glorieta formation (See Supplemental Procedure for depth). We will then switch back to circulating to the reserve pits while drilling through the Yeso formation(400~500 feet thick) and cleaning out the steel pits simultaneously. Then we will switch back to the steel pits and start adding KCl, Poly Pac, and Myacide above the top of Cimarron(Discuss timing with mud engineer). Keep MW down in production hole!										

1.4 BHA Program

Section	Hole Size	Description
Surface	12 ¼"	• 12 ¼" Tri-cone bit • Bit sub w/ float valve • 20 – 6 ½" DC • XO • 4 ½" DP to surface **NOTE:** Buoyed Weight of BHA in 8.4 ppg water is 49.5 klbs

Production	7 ⅞"	• 7 ⅞" Tri-cone bit • Bit sub w/ float valve • 20 – 6 ½" DC • XO • 4 ½" DP to surface **NOTE:** Buoyed Weight of BHA in 8.4 ppg water is 49.5 klbs

1.5 Survey Program

Hole	Type	Comments
12 ¼"	Totco / Inc Only	At 400' and at casing point
7 ⅞"	Totco / Inc Only	One every 400' and at casing point. Frequency should be increased if there are inclination issues.

NOTE: Ensure **all** surveys are recorded on the IADC report and in OpenWells.

1.6 Targets

KB Depth (ft)	Departure from BHL	Comments
See PWIS for TD depth	100' radius	Target is a 100' radius at proposed TD. See Supplemental Procedure for proposed TD for each well.

1.7 Well Head Information

Section	Man	Bottom Flange		Top Flange		Comments
		Size (in.)	WP (psi)	Size (in.)	WP (psi)	
Larkin Head	R&M	8 ⅝" 8rd API	2000	10 ¾" 8rd	2000	2 x 2" 2000 psi valves to be installed on both side outlets while drilling. Will leave one valve on one side and a bull plug on the other when rigging down. Ensure casing dope used to make up casing head to pipe. Paint mark on Larkin Head and casing and make periodic inspections.
Xmas Tree	R&M	5" 8rd Pin	2000	5" 8rd Pin	2000	Production tubing will be landed with a stainless steel mandrel. Chrome sub and production valves will be set by Completions group.

1.8 BOP Information

Casing Size (in.)	Wellhead Flange		BOP Stack			Pressure Test (psi)	
	Size (in.)	Pressure (psi)	Type	Size (in.)	Pressure (psi)	Initial Ann	Subsequent Ann
8 ⅝"	10 ¾"	2000	**Annular**	9"	3000	250/**1000**	250/**1000**

All BOPE test pressures to be held for a minimum of 5 minutes. Relevant well control equipment shall be tested following replacement of any pressure containing component; or following removal, then reinstallation of BOP stack; or following installation of each casing string; or at the discretion of the Drill Site Manager or Drilling Superintendent. Use a new gasket every time the BOP is installed.

8 5/8" surface shoe at 750 ft and TD of well at 2000 - 2800 ft should be reached within 21 days

MW at TD = 9.0 ppg MASP = 502 psi MASP+500 = 1002 psi

BOP Test to be performed at 1000 psi.

MASP is based on FIT at the shoe (14.8 ppg EMW) and a 0.1 psi/ft gas gradient.

2. STANDARD DRILLING PROCEDURE

2.1 Purpose

The objective of this Drilling Procedure is to provide a consistent and detailed set of drilling operations procedures for the Bravo Dome wells.

2.2 Application

These general guidelines apply to all the wells drilled in the 2011 Bravo Dome drilling program.

2.3 Roles and Responsibilities

Drill Site Manager (DSM) – Responsible for the execution of this Standard Drilling Procedure.

Drilling Field Superintendent (DFS) – Responsible for being first point of contact for troubleshooting and communications between office and field. Will Manage field ops.

Drilling Engineer (DE) – Responsible for keeping this Standard Drilling Procedure up to date and for ensuring the DSM has the latest revision of this Drilling Procedure. Responsible for initiating MOC's for deviations to this Drilling Procedure.

Drilling Engineering Supervisor (DES) – Responsible for reviewing and approving the Standard Drilling Procedure for quality and format compliance.

Drilling Manager (DM) – Responsible for final approval of this Standard Drilling Procedure.

Drilling Superintendent (DS) – Responsible for approving the Standard Drilling Procedure.

2.4 Pre-Rig Move

a) Ensure that the Emergency Evacuation Procedure, the location coordinates, and the helicopter lift zone are identified and documented prior to rig move.

b) Review the Emergency Response Plan and the emergency contact list.

c) Ensure that the following information is received prior to the rig move: directions, permit, Well Specific Supplemental Procedure, and OpenWells file.

d) Drive to the location and note all road hazards and power lines per the "Infield Rig Move Overhead Power Line Inspection Checklist". Coordinate with DFS.

e) Ensure that the pits are lined with 20 mil plastic and filled with fresh water.

f) Have a JSA from the rig contractor prior to the rig move.

g) Conduct a pre-job safety meeting with all persons (including 3rd party personnel) involved in rig move prior to mobilization. Update the JSA as necessary.

2.5 Rig Move & Pre-spud (OpenWells Phase: 01MIRU)

a) Move the rig from the previous location per the rig contractor's move plan.

b) In the morning report, note any downtime or waiting conditions during the move (including waiting on trucks, waiting on daylight, waiting on location, or impassible road conditions).

c) Notify the New Mexico Oil and Gas Conservation Division (NMOCD) prior to spudding the well. Note the time of notification and the name of the operator in the morning report.

d) Complete the pre-spud rig inspection with the rig manager.

2.6 Surface Hole Drilling (OpenWells Phase: 14SUDR)

a) Anticipated Problems

Type	Comments
Losses	There is a chance of major losses in the surface hole. Be prepared to go to the steel pits and mud up to help control losses. Refer to the mud program for LCM pills and sweeps. Drilling paper should be used as a preventative measure.

b) Make up the 12 ¼" surface hole BHA as per **Section 1.4.**

c) Spud well with low RPM and flowrate until hole is established. Increase parameters as conditions allow.

d) Drill the surface hole with 600 GPM flowrate and 100+ RPM to TD of ±750 ft MD.

- Watch returns and monitor hole conditions while spudding and beginning to drill ahead. Due to the sandy nature of the area, many surface holes may require going to the steel pits and mudding up. Refer to the mud program if this is required and begin adding gel and drilling paper.
- Take a survey at 400 ft and section TD. Immediately report any surveys over 2 degrees to the DS.
- Monitor pick up, slack off, torque, returns, and standpipe pressure to evaluate hole cleaning.
- Pump sweeps as per mud program every 100 ft or as required.
- **SIMOPS:** While drilling the surface hole – strap, inspect, and drift the surface casing; ensure that the necessary centralizers are onsite. Visually inspect float equipment for damage; ensure that manufacturer model and numbers match with the descriptions below.

e) A wiper trip is not required to run casing. Pump a viscous sweep at TD prior to tripping out of the hole. Circulate a minimum of 2 x bottoms up at TD.

f) POOH and lay down DP and BHA.

g) Notify the NMOCD of running and cementing surface casing if not done prior to spud. Note notification in morning report. **Coordinate with Halliburton field hands in Bravo Dome in order to ensure no downtime.**

2.7 Surface Hole Casing (OpenWells Phase: 14SURC)

a) Conduct a pre-job safety meeting with the rig crew. Rig up casing running tools to run 8 ⅝" 24 ppf J-55 LTC casing.

- Have a circulating swedge, swivel joint, and 2" lo-torq available on the rig floor; function test low-torque valve on XO's.

- Visually inspect float equipment for damage

b) Make up and run 8 ⅝" 24 ppf J55 STC casing as follows:
   - Guide Shoe – Texas Pattern (thread locked)
   - 1 joints 8 ⅝" 24 ppf J55 STC casing
   - Float Collar - Halliburton Insert Float (thread locked)
   - 8 ⅝" 24 ppf J55 STC casing to surface
     - Bow spring centralizers to be installed as follows:
       - 1 bow spring on collar stop 10' above shoe
       - 1 bow spring on joint above shoe joint
       - 1 bow spring on every fourth joint to surface

c) Plan casing space out with pup joint to set wellhead 1 ft below ground level.

d) Wash down with the last joint of casing and tag bottom lightly.

e) Pick up and space out to place wellhead 1 ft below ground level. Mark the pipe at the rotary table when wellhead is at desired setting depth.

f) Circulate 2 x bottoms up at max rate allowable while reciprocating casing to condition mud.

g) **SIMOPS:** Conduct pre-job safety meeting with cementing crew prior to cement job while circulating. Continue reciprocating and circulating during safety meeting.

h) Rig up to displace either with cement or rig pumps.

i) Rig up cementing head (with top wiper plug pre-installed in cement head, DSM to verify installation) and surface lines. Pressure test lines to 1000 psi above anticipated pump pressure; ensure that surface equipment is isolated from downhole while testing.

j) Pump 20 bbl of fresh water spacer.

k) Mix and pump cement as follows:

Cement Design 8 5/8" Surface Casing

Stage	Weight (ppg)	TOC (ft)	BOC (ft)	Hole Size (in)	% Open Hole Excess	Cement Volume (sacks)	Slurry Volume	Remarks
Lead	14.8	Surface	750	12.25	150	400	96 bbls	Should have full returns

LEAD SLURRY	
Cement Type:	Premium Plus
Accelerator:	2% $CaCl_2$
Additive:	0.125 lbm/sk Poly-E-Flake
Mix Water:	6.35 gal/sack Freshwater
Slurry Density:	14.8 ppg
Yield:	1.35 ft^3/sack
Thickening Time:	2:10
Compressive Strengths:	24 hours = 1808 psi

Pumping Schedule

Fluid #	Fluid Type	Fluid Name	Estimated Avg Rate bbl/min	Downhole Volume	Time min
1	Spacer	Spacer	8	20	2.5
2	Cement	Lead Cement	8	96	12
4		Displacement Fluid (Freshwater)	8	45	5.7
				Job Time	20.2
				Contingency Time	60

h) Drop top wiper plug and displace at 8 bpm with using rig pumps. (Leave line open to cementing unit to record displacement in Halliburton record of cement job.)

i) Decrease rate to ~2 bpm for last 5 bbls. **DO NOT OVERDISPLACE MORE THAN ½ SHOE TRACK (1.3 BBLS).**

j) Bump plug and pressure up to 500 psi over final displacing pressure for 5 minutes, then bleed back to 0 psi. Check for back flow. Flow check annulus and confirm fluid level is holding at surface and record results.

k) Report cement returns throughout cement job and report final volume of returns in both barrels and sacks in morning report.

l) If there are no cement returns to surface, a top job with 1" tubing will be necessary. Discuss remedial actions with drilling superintendent before calling the NMOCD.

m) Conduct PJSM; rig down cementing head and lines. Pump out cellar and wash out cement as required.

n) Back out landing joint and install BOPe adapter flange (10 ¾" 8rd box bottom x 9" 3k top flange).

o) Install 2 x 2" 2000 psi valves on both side of wellhead.

p) **Measure hang off point inside wellhead to rotary table and record for later.**

q) Nipple up the 9" 3M BOPe per **Sec 1.8 BOP Information.**

- SIMOPS: Make up the test plug offline with one joint of DP below the test plug. (The joint of drillpipe is used to prevent the test plug from becoming cocked.)

r) Run a test plug and test the BOP to 250/1000 psi for 5 minutes and chart the same. Ensure that the casing valve is open for the duration of the test. Record each test on the morning report. Consult the drilling superintendent if you have questions. See **Sec 1.8 BOP Information** for test assumptions.

s) Retrieve the test plug and file the BOP test chart in the well file.

t) PU 7 ⅞" production hole BHA per **Sec. 1.4 BHA Program**

u) **NOMCD requires 8 hr WOC time from the time cement is in place, prior to testing casing.**

v) Tag top of cement; note same on morning report. If TOC is >150' above the float collar, test casing to 1000 psi for 5 minutes and drill cement and float collar. If TOC is <150' above the float collar, the 5 minute test will not be done. Commence drilling down to float collar.

- NOTE: the 5 min test is done in order to eliminate potential leak paths if the casing does not test after drilling out cement and float – when cement is found high.

w) Tag float collar and pressure test casing to 1000 psi for 30 minutes on a chart. Surface pressure should not decline more than 10% in 30 minutes. If casing test fails, notify superintendent prior to drilling out shoe track.

2.8 Production Hole Drilling (OpenWells Phase: 31PRDR)

a) Anticipated Problems

Type	Comments
Lost Circulation (1000 – top of Cimarron)	-Partial to total losses can be experienced in Bravo Dome and are not necessarily tied to a specific formation. Be prepared at all point of the production hole. A decision tree for LCM should be provided for extreme to total losses. Seepage to minimal losses will be handled per the mud program. Keeping mud weight as low as possible and good hole cleaning are key. Max flow rate and high RPM should be used at all times and sweeps pumped every 100 ft.
Calling top of Cimarron Formation (See Supplemental Procedure for depth)	-Identifying the top of the Cimarron formation is key for the Bravo Dome wells. In wells where casing is top set, it will determine the TD of the well. In wells where fiberglass casing is run, it will determine where to crossover from fiberglass to steel casing. **The DSM needs to be on the rig floor and monitoring ROP prior to anticipated top of Cimarron depth.** The Cimarron is a hard anhydrite and the ROP will drop significantly while drilling it. Utilize reduced RPM and increased WOB to drill this section. Make note of top and bottom of Cimarron depths.

b) Drill the production hole section to TD as referenced in the Supplemental Drilling Procedure.

- Pump at max rate practical as hole dictates to optimize hydraulics, hole cleaning, and ROP; target flow rate is 450 GPM.
- Refer to **Table 1.3 Mud Program** and the Supplemental Procedure for determining mud and circulation criteria
- Maintain surface RPM 60 – 80 rpm
- Have LCM on location, per mud program, at all times during drilling
- Take surveys every 400' at TD. Frequency of surveys may increase if inclination becomes an issue.
- Monitor and record pick up, slack off, and rotary torque every stand and evaluate for hole cleaning
- **SIMOPS:** While drilling production hole – strap, inspect, and drift 5 ½" 17# casing and ensure that centralizers are on site.

c) 50 ft before the predicted top of the Cimarron (see Supplemental Procedure for each well's depth) lock in drilling parameters and begin monitoring ROP closely. When the top of the Cimarron is encountered, ROP will drop significantly.

d) Note the top of the Cimarron. Reference the predicted Cimarron thickness (given in the Supplemental Procedure) and be prepared for the next ROP change at the base of the Cimarron. Note the base of the Cimarron depth where ROP will begin to increase

- NOTE: The first 10 ft of the Tubb is not good reservoir rock and while it will drill faster than the Cimarron, a second increase in ROP should be seen below that 10 ft., once good rock is encountered
- Make note of all of these depths. Depending on the production casing program given in the Supplemental Procedure, this data will be critical.

e) At TD pump a viscous sweep and circulate a minimum of 2 x bottoms up. Continue circulating as required, until hole is clean.

f) Check for flow TD.

g) Pull out of hole laying down drill pipe and BHA – consult with DS and DE about need for wiper trip after logging on wells where OH logs are run.

2.9 Production Evaluation (OpenWells Phase: 31PREV)

c) Refer to Supplemental Procedure for OH logging requirements.

2.10 Production Casing (OpenWells Phase: 31PRRC)

a) Conduct pre-job safety meeting and rig up casing running tools.

- Have a circulating swedge, swivel joint, and 2" low-torque available on the rig floor; function test low-torque valve on XO's.
- Visually inspect float equipment for damage and proper operation.

b) Make up and run casing as per Supplemental Procedure.

c) Mix and pump cement as per Supplemental Procedure. 2 Production

Cement Design 5 1/2" ~~Surface Casing~~								
Stage	Weight (ppg)	TOC (ft)	BOC (ft)	Hole Size (in)	% Open Hole Excess	Cement Volume (sacks)	Slurry Volume	Remarks
Lead	11.1	Surface	2286	7.875	400	460	263 bbls	Should have full returns
Tail	13.2	2286	2600	7.875	400	150	50 bbls	Should have full returns

LEAD SLURRY	
Cement Type:	Premium Plus
Accelerator:	2% $CaCl_2$
Additive:	0.25 lbm/sk Poly-E-Flake
Mix Water	20.44 gal/sack Freshwater
Slurry Density:	11.1 ppg
Yield:	3.25 ft^3/sack

Tail SLURRY	
Cement Type:	Premium Plus
Accelerator:	2% $CaCl_2$
Additive:	0.25 lbm/sk Poly-E-Flake
Mix Water	9.95 gal/sack Freshwater

Slurry Density:	13.2 ppg
Yield:	1.85 ft^3/sack

d) After production casing is ran and cemented: nipple down BOPe, remove both 2" valves from one side of wellhead and replace with bull plug, remove one 2" valve from other side of wellhead, leaving one valve in place. Secure well.

e) Prepare for rig move.

3. REFERENCE DATA

- Contact List / Emergency Numbers
- Reporting requirements
- Wellhead Diagram
- Well Specific Attachments List

3.1 Contact List

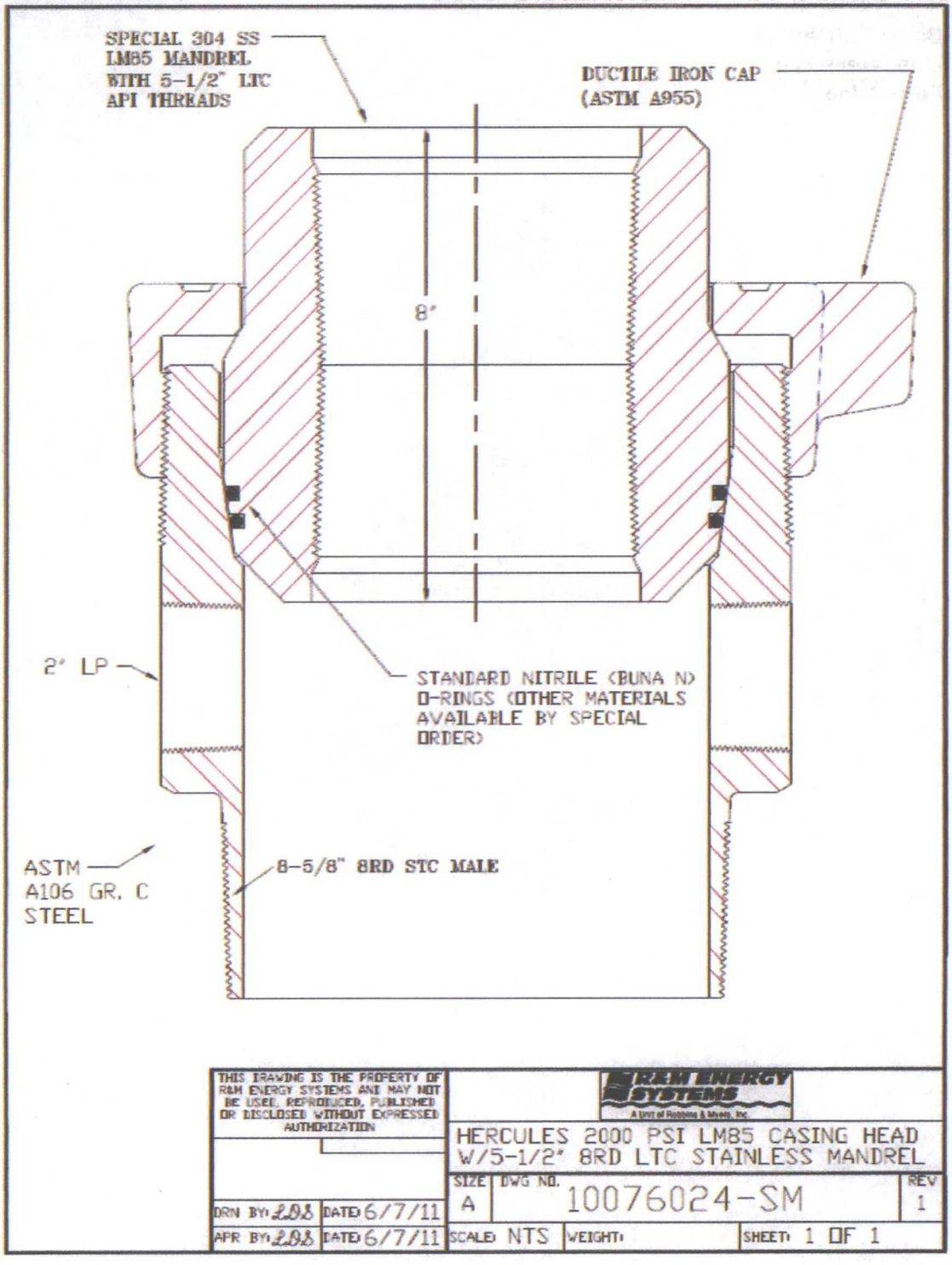
Position	Contact Person	Phone Number(s)
DSM Office	Rig 216	[redacted]
Drilling Superintendent	Kevin Videtich	Office: 713-985-1929 Cell: 806-891-2000
Drilling Manager	Mike Tessari	Office: 713-840-3092 Cell: 713-449-3666
Drilling Engineering Supervisor	Adriano Celli	Office: 713-985-6371 Cell: 713-562-3051
Drilling Engineer	Janice Chiu	Office: 713-215-7867 Cell: 281-433-9139
HES Supervisor	Mike Miller	Cell: 432-634-4882
Drilling Construction Specialist	Dusty Weaver	Cell: 806-893-3067 Office 432-685-5723
Bravo Dome Plant Manager	Eddie Corely	Cell: 575-799-6849 Office: 575-374-3052
Bravo Dome Production Coordinator	Lynn Clay	Cell: 806-367-1488 Office: 575-374-3058
Bravo Dome Plant Specialist	Charles Terry	Cell: 806-252-2801 Office: 575-374-3055
Bravo Dome Admin.	Sharon Reid	Cell: 575-309-9767 Office: 575-374-3000
Production/Reservoir Engineer	Al Giussani	Cell: 806-638-1296 Office: 806-894-0200

Please see Bravo Dome Contact List for other contacts. Each rig and DFS will have a copy.

3.2 Reporting Requirements

Report	Frequency	Notes
Morning Report (Adobe Acrobat File)	Daily	Send by email at 0600 hrs to OP-Drilling Morning Reports
Morning Report (Openwells file)	Daily	Synchronized to Houston OpenWells
24 Hour Plan	Daily	Send by email to Superintendent, Engineer, Drilling Manager
Afternoon Report	Daily	Send by email at 1500 hrs to OP-Drilling Morning Reports
Mud Reports	Daily	Send to Engineer & Superintendent

3.3 Wellhead Diagram



4. WELL SPECIFIC ATTACHMENTS LIST

- Bit Specifications
- OpenWells File
- Permit/Plat

2014 BRAVO DOME DRILLING PAD