

Submit 1 Copy To Appropriate District Office

District I - (575) 393-6161  
1625 N. French Dr., Hobbs, NM 88240  
District II - (575) 748-1283  
811 S. First St., Artesia, NM 88210  
District III - (505) 334-6178  
1000 Rio Brazos Rd., Aztec, NM 87410  
District IV - (505) 476-3460  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals and Natural Resources

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

Form C-103  
Revised July 18, 2013

SUNDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)		WELL API NO. 30-021-20632
1. Type of Well: Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other <input type="checkbox"/>		5. Indicate Type of Lease STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/>
2. Name of Operator WHITING OIL AND GAS CORPORATION		6. State Oil & Gas Lease No. 313331
3. Address of Operator 400 W ILLINOIS STE 1300 MIDLAND, TX 79701		7. Lease Name or Unit Agreement Name STATE 2028 36
4. Well Location Unit Letter J 1660 feet from the SOUTH line and 1749 feet from the EAST line Section 36 Township 20N Range 28E NMPM County HARDING		8. Well Number 01
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 5388' GR		9. OGRID Number 25078
		10. Pool name or Wildcat BRAVO DOME CARBON DIOXIDE 640

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input checked="" type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>	P AND A <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	MULTIPLE COMPL. <input type="checkbox"/>	CASING/CEMENT JOB <input type="checkbox"/>	
DOWNHOLE COMMINGLE <input type="checkbox"/>			
CLOSED-LOOP SYSTEM <input type="checkbox"/>			
OTHER: <input type="checkbox"/>			

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

SEE ATTACHED P&A PROCEDURE AND SCHEMATIC

Spud Date:  Rig Release Date:

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

SIGNATURE Kay Maddox TITLE: REGULATORY ANALYST DATE: 12/08/2015

Type or print name Kay Maddox E-mail address: [kay.Maddox@Whiting.com](mailto:kay.Maddox@Whiting.com) PHONE: 432-638-8475

For State Use Only

APPROVED BY: [Signature] TITLE DIST IV DATE 12/28/15  
Conditions of Approval (if any):



\* EXP \*

30-021-20632

State 2028 #361 P&A

### RECOMMENDED REMEDIAL WORK

Date December 8, 2015

Lease State 2028 Well No #361 WOG GWI 100.00 % (87.5 % NWI)  
 Pool Bravo Dome, West County Harding State NM API # 30 - 021 - 20632  
 Legal Location: 1660' FSL, 1749' FEL, Sec 36, T - 20 - N, R - 28 - E  
 Completion Date \_\_\_\_\_ @ T. D. 2,360' I. P. / AOF: \_\_\_\_\_  
 Water \_\_\_\_\_ Hrs 24 flowing, Present T. D. 2360' Elevation 5388' GL \_\_\_\_\_ KB = 5513'

#### DESCRIPTION OF PROSPECTIVE OR PAY ZONES

Name or Type of Zone	Top	Bottom	Remarks
<u>Santa Rosa</u>	<u>-1432'</u>	<u>-1820'</u>	<u>Regional CO2 Production Interval</u>
<u>San Andres / Glorieta</u>	<u>-1910'</u>	<u>-2230'</u>	<u>Lost Circulation Interval</u>
<u>Tubb sand</u>	<u>-2960</u>	<u>-3045'</u>	<u>Proposed CO2 Pay Interval (from seismic)</u>

#### CASING AND LINER RECORD

Size	Weight	Grade	Set At	SX CMT	Hole Size	Perf.	Remarks
<u>9-5/8"</u>	<u>36#</u>	<u>J-55</u>	<u>724'</u>	<u>450</u>	<u>12-1/4"</u>		<u>Cement circulated</u>
<u>7"</u>	<u>20#</u>	<u>J-55</u>	<u>1638'</u>	<u>none</u>	<u>8-3/4"</u>		<u>stuck: 1424' - 1638'</u>

#### COMPLETION AND REMEDIAL WORK RECORD

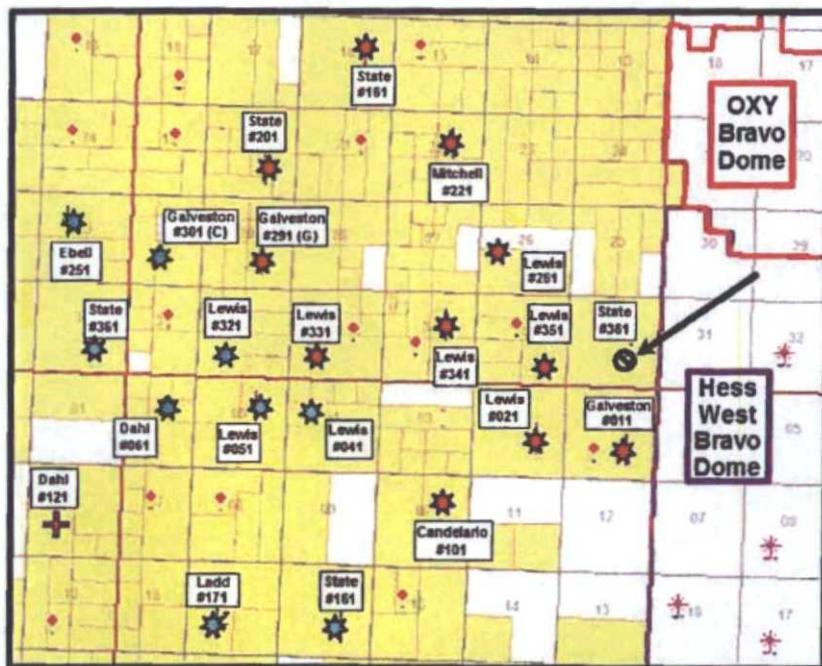
Production Test Before				Treatment				Production Test After			
Date	Gas	@ psi	water Hrs	Type	Amount	From	To	Gas	@ psi	water Hrs	
<u>07-03-14</u>	<u>Drill to 2360', no circulation.</u>			<u>Ran 7" to 1638', suspended drilling</u>							<u>x</u>
<u>01-26-15</u>	<u>fill casing with mud and drill out 7" casing shoe</u>										<u>x</u>
											<u>x</u>

CUM. Prod. \_\_\_\_\_ MMCF, \_\_\_\_\_ MBW as of: \_\_\_\_\_  
 Last Test: \_\_\_\_\_ MCFPD \_\_\_\_\_ BWPD Date: \_\_\_\_\_

#### Reasons for Plug and Abandonment:

This is a wildcat well offset to Hess's West Bravo Dome CO2 Unit and OXY's Bravo Dome CO2 Unit. This well hit a cavern in the San Andres and circulation could not be restored. A 7" liner was run to cover the loss zone, but it got stuck in the way down. Subsequent seismic work indicated the Tubb sand is structurally low and probably wet, so no further work was done on the well.

Robert McNaughton \_\_\_\_\_



**Objective: Plug and Abandon****Basic Procedure:**

**Background:** Circulation was lost while drilling the production hole in the San Andres at 2070'. LCM pills and 150 sx were unable to restore circulation. The hole was dry-drilled to a casing seat at 2360' and 7" casing was run. On the second run attempt, the casing stacked out at 1638' and would not move up or down. Mud was pumped on a strong vacuum while the casing was rotated. A free point indicated the casing was stuck from 1424' to 1638'. Remedial options were very limited and further work was suspended due to the tight drilling rig schedule.

Over the next two months, leftover drilling mud and pit fluids were dumped in the casing in attempt to seal up the caverns. After 1410 Bbls of fluid was dumped in the well, it caught pressure when it was filled up on January 20<sup>th</sup>. Six days later, the 7" casing shoe was drilled out to facilitate any future wellbore work. No fluid was tagged in the well going in with the bit, so fluid was still leaking off into the formation.

- **Dig out the 9-5/8" casing valve and check the annulus for any pressure. Tie onto the 7" x 9-5/8" casing valve and try to pump into the annulus.**
- **PU a workstring and bit and TIH. Tag TD and check for fill. Note the fluid level if tagged.**
- **Pump 150 sx on bottom from 1960' to 2360' to seal off formation fractures. WOC and pump water in to see if circulation is restored.**
- **Load hole w/ 10 PPG salt gel mud. If hole won't load, may need to pump more cement on bottom. Establishing circulation makes the P&A much easier, but is not necessary.**
- **Set a 5-1/2" retainer above the 7" casing shoe at about 1600' and gently pump 100 sx or as directed.**
- **Cut & Pull 7" casing at about 774' to 800'. If using a collar buster, a CCL strip will need to be run as no other logs were run in the well. A free-point and manual back-off can be tried, but the plugging rig may not be big enough to pull enough on the casing for an accurate stretch measurement.**
- **Pump a 75 sx plug across the 9-5/8" casing shoe from 600' to 800' (to top of cut casing). Pump a 75 sx FW plug from 300' to 500'. If the NMOCD requires tags, it may be faster and cheaper to just fill the casing to surface with cement (~280 sx from 774').**
- **Pump 20 sx and fill casing from 50' to the surface.**
- **Fill in the annulus around the 9-5/8" at the surface with cement as needed.**
- **Remove the wellhead and weld on cap with standard dry - hole marker.**
- **Cut off rig anchors and smooth location. Remove fences and caliche as needed**



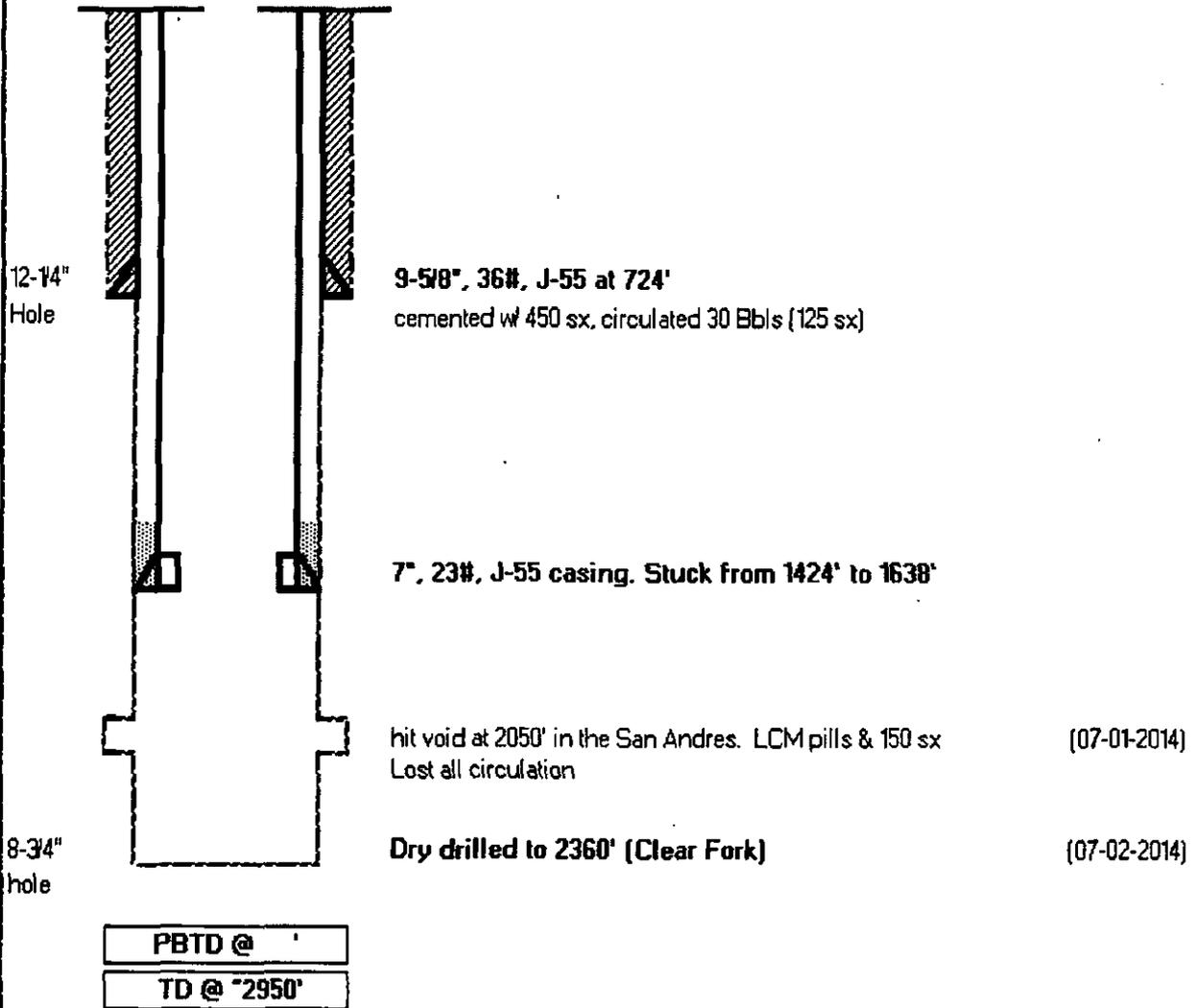
**SI - CO2 Supply Well**

FIELD: **Bravo Dome, West**  
 LEASE: **State 2028**  
 COUNTY: **Harding**

DATE: **Aug. 10, 2014**  
 BY: **RTM**  
 WELL: **#361**  
 STATE: **New Mexico**

Location: **1660' FSL & 1749' FEL Sec. 36 - T20N- R28E**  
 Spud: **06/28/2014** Completed: **NA**  
 Current Status: **SI - Suspended**  
 Formation: **Tubb (CO2)**

KB = **5,394'**  
 GL = **5,388'**  
 API = **30-021-20632**



There are two main issues with properly plugging this well: Sealing off the 7" shoe and how to handle the uncemented 7" casing. Washing over the stuck 7" casing and pulling all of it isn't practical and is unnecessary since we are plugging the well.

- **7" shoe:** The first problem is sealing off the annulus and casing around the 7" shoe (if the NMOCD tells us to do it). After getting stuck, the casing could be rotated, so there is no guarantee that the annulus was or is now effectively sealed off. After we set the bottom cement plug, it should allow circulation like it did after the first squeeze. If successful, my recommendation is set a retainer above the casing shoe and gently pump 100 sx to seal the casing below the shoe.

The second and more important consideration is how to handle the uncemented 7" casing.

- **7" annulus – SQZ:** The simplest option is to bradenhead–squeeze the annulus. At 100% fill, 125 sx will fill the casing annulus down to 900'. But there is no guarantee where it will go and the NMOCD may require a CBL and more SQZ perms to prove it is sealed off. The prudent method is to shoot SQZ perms at the bottom and circulate cement to the surface. But that may still require more SQZ work and a bigger working pit at the surface. When properly cemented, the extra casing string adds a layer of protection for the fresh water formations, but that's not a major concern if the casing is filled with cement.
- **7" – cut and pull:** The other option is cut the casing at around 800' (at least 50' below surface casing shoe) and lay it down. The casing cost was \$10.95/ ft., but after pulling and laying it all down, shipping to Odessa and inspection..., it doesn't have any significant value. If the well will hold fluid, then the rest of the P&A is relatively simple, although it will take a lot of cement. Filling up the 9-5/8" casing from 800' will take almost 300 sx.



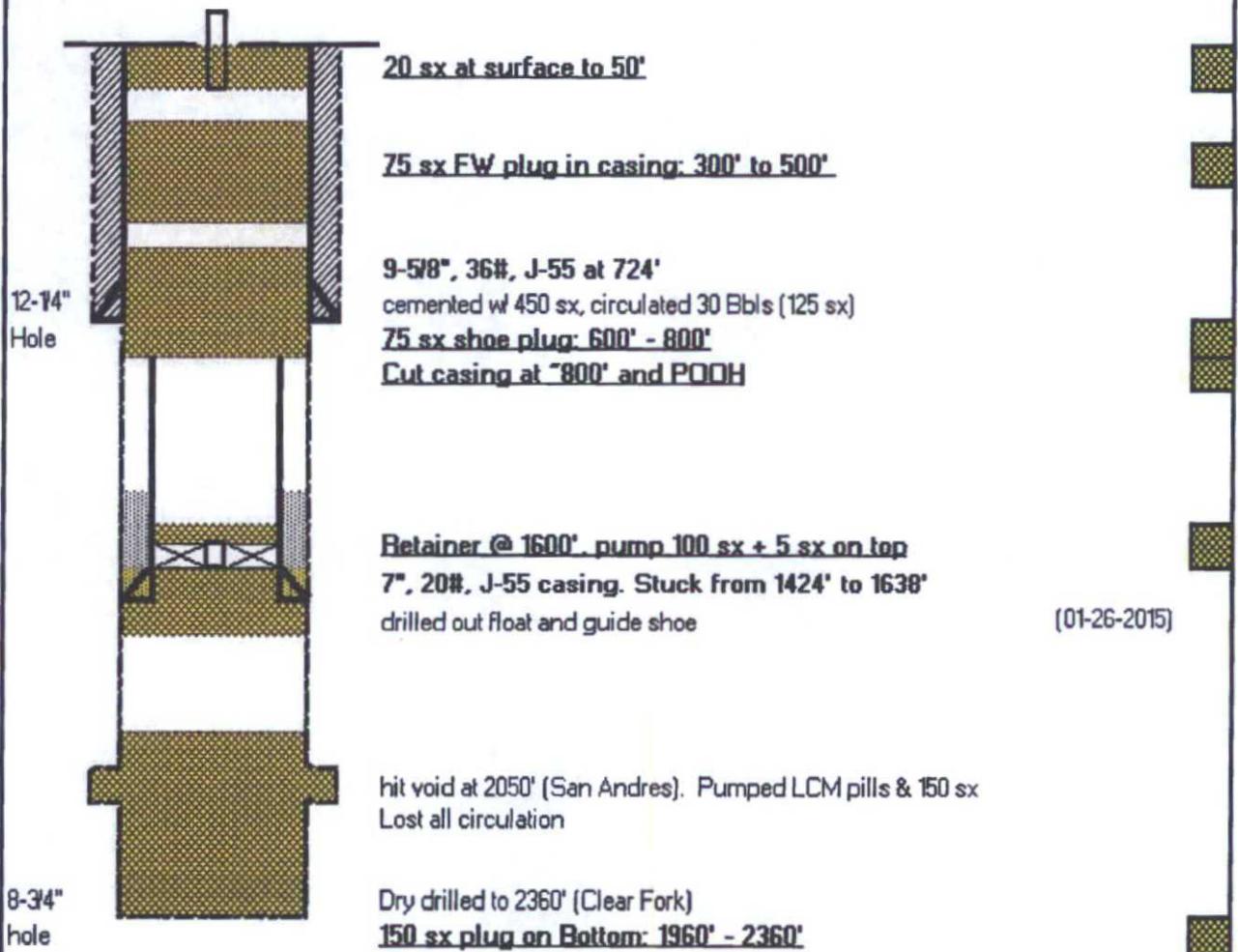
**Proposed P&A**

FIELD: Bravo Dome, West  
 LEASE: **State 2028-36**  
 COUNTY: Harding

DATE: Nov. 30, 2015  
 BY: RTM  
 WELL: **#1**  
 STATE: New Mexico

Location: 1660' FSL & 1749' FEL Sec. 36 - T20N- R28E  
 Spud: 06/28/2014 Suspended: 07/03/2014  
 Current Status: SI  
 Formation: Tubb (CO2)

KB = 5,394'  
 GL = 5,388'  
 API = 30-021-20632



PBTD @ '

TD @ ~2360'

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**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone (505) 476-3470 Fax (505) 476-3462

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

Form C-101  
August 1, 2011  
Permit 188172

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

1. Operator Name and Address WHITING OIL AND GAS CORPORATION 400 W. Winkles Midland, TX 79701		2. OGRID Number 25078
4. Property Code 313331		3. API Number 30-021-20632
5. Property Name STATE 2028 36		6. Well # 1

7. Surface Location									
UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
J	36	20N	28E		1680	S	1749	E	Harding

8. Proposed Bottom Hole Location									
UL - Lot	Section	Township	Range	Lot Idn	Feet From	N/S Line	Feet From	E/W Line	County
J	36	20N	28E	J	1680	S	1749	E	Harding

9. Pool Information	
BRAVO DOME CARBON DIOXIDE GAS 640	66010

Additional Well Information				
11. Well Type New Well	12. Well Type CO2	13. Casing/Rotary	14. Lease Type State	15. Ground Level Elevation 5388
16. Multiple N	17. Proposed Depth 3800	18. Formation Tubb	19. Contractor	20. Spud Date 6/12/2014
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	Well Size	Casing Size	Casing Weight	Setting Depth	Seals of Cement	Estimated TOC
Surf	12.25	9.875	36	750	500	0
Prod	8.75	5.5	15.5	3800	450	0

**Casing/Cement Program: Additional Comments**

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22. Proposed Blowout Prevention Program			
Type	Working Pressure	Test Pressure	Manufacturer
Annular	3000	3000	REGAN TAURUS

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief. I further certify I have complied with 19.15.14.9 (A) NMAC and/or 19.15.14.9 (B) NMAC if applicable.		<b>OIL CONSERVATION DIVISION</b>	
Signature		Approved By	Charlie Perrin
Printed Name	Electronically filed by Kay Maddox	Title	District Supervisor
Title	Regulatory Agent	Approved Date	6/5/2014
Email Address	kay.maddox@whiting.com	Expiration Date	6/5/2016
Date	5/30/2014	Phone	432-686-8709
		Conditions of Approval Attached	