

Order Number

497

API Number

30-225-39637

Operator

Apache Corporation

County

Lea

Order Date

7-3-2012

Well Name

DC Hardy

Number

11

Location

P

UL

20

Sec

215

T (+Dir)

37E

R (+Dir)

Oil %

4

Gas %

30

Pool 1

100240

Tubb Oil + Gas (Oil)

Pool 2

19190

Drinkard

66

50

Pool 3

102700

Wantz Abo

30

20

Pool 4

Comments

Posted in RBDMS

7-3-2012

CHM

30-025-39637  
DHC-HOB-497

DOWNHOLE COMMINGLE CALCULATIONS:

OPERATOR: Apache Corporation

PROPERTY NAME: DC Hardy

WNULSTR: 11-P-20-215-37E

SECTION I:	ALLOWABLE AMOUNT
POOL NO. 1 <u>Tubb Oil + Gas (Oil)</u>	<u>142</u> <u>284</u> MCF
POOL NO. 2 <u>Drinkard</u>	<u>142</u> <u>852</u> MCF
POOL NO. 3 <u>Wantz - Abo</u>	<u>187</u> <u>1122</u> MCF
POOL NO. 4 _____	_____ MCF
POOL TOTALS	<u>471</u> <u>2258</u>

SECTION II:	<u>Oil</u>	<u>Gas</u>
POOL NO. 1 <u>Tubb Oil + Gas (Oil)</u>	<u>4%</u>	<u>30%</u>
POOL NO. 2 <u>Drinkard</u>	<u>66%</u>	<u>50%</u>
POOL NO. 3 <u>Wantz - Abo</u>	<u>30% x 471 = 141.3</u>	<u>20%</u>
POOL NO. 4 _____	<u>&lt;141.7</u>	

SECTION III: OIL  
30% ÷ 187 = 623.33

SECTION IV:  
4% x 623 = 24.92  
66% x 623 = 411.18  
30% x 623 = 187.20

<257  
<411  
<187.5

Submit 3 Copies To Appropriate District Office

District I

1625 N French Dr., Hobbs, NM 88240

District II

1301 W Grand Ave., Artesia, NM 88201

District III

1000 Rio Brazos Rd., Aztec, NM 87410

District IV

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

State of New Mexico

**HOBBS OGD**

Minerals and Natural Resources

Form C-103

June 19, 2008

**JUL 02 2012**

CONSERVATION DIVISION

1220 South St. Francis Dr.

Santa Fe, NM 87505

**RECEIVED**

<b>SUNDRY NOTICES AND REPORTS ON WELLS</b> (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. 30-025-39637 ✓
1. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other.		5. Indicate Type of Lease STATE <input type="checkbox"/> FEE <input checked="" type="checkbox"/>
2. Name of Operator Apache Corporation		6. State Oil & Gas Lease No.
3. Address of Operator 303 Veterans Airpark Lane, Suite 3000 Midland, TX 79705		7. Lease Name or Unit Agreement Name DC Hardy ✓
4. Well Location Unit Letter <u>P</u> : 1310 feet from the <u>South</u> line and <u>1250</u> feet from the <u>East</u> line Section <u>20</u> Township <u>21S</u> Range <u>37E</u> NMPM County <u>Lea</u>		8. Well Number <u>011</u> ✓
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3489' GL		9. OGRID Number 873 ✓
		10. Pool name or Wildcat Tubb O&G (Oil) / Drinkard / Wantz; Abo

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

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐  
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐  
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐  
DOWNHOLE COMMINGLE ☒

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐  
COMMENCE DRILLING OPNS. ☐ P AND A ☐  
CASING/CEMENT JOB ☐

OTHER AMEND DHC-HOB-360

☒

OTHER

☐

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 1103. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

*Per R-11363*

Apache would like to amend DHC-HOB-360 with the completion of the Abo formation:

Pool Names:

Tubb Oil & Gas (Oil)

60240

Perforations:

Tubb 6128'-6304'

Drinkard

19190

Drinkard 6601'-6731'

Wantz; Abo

62700

Abo 6881'-6958'

The allocation method will be as follows based on offset production. (See attached application for exception to Rule 303-C)

	OIL	GAS	WATER
Tubb	4%	30%	3%
Drinkard	66%	50%	67%
Abo	30%	20%	30%

Downhole commingling will not reduce the value of these pools. Ownership is the same for each of these pools.

Spud Date: 01/28/2010

Rig Release Date: 02/07/2010

**DHC-HOB-497**

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

SIGNATURE

*Reesa Holland*

TITLE Sr Staff Engr Tech

DATE 07/02/2012

Type or print name Reesa Holland

E-mail address: Reesa.Holland@apachecorp.com

PHONE: 432/818-1062

For State Use Only

APPROVED BY:

*[Signature]*

TITLE

**PETROLEUM ENGINEER**

DATE

**JUL 03 2012**

Conditions of Approval (if any):

**JUL 03 2012**

## District I

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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 October 12, 2005

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

☐ AMENDED REPORT

## WELL LOCATION AND ACREAGE DEDICATION PLAT

<sup>1</sup> API Number 30-025-39637		<sup>2</sup> Pool Code 60240	<sup>3</sup> Pool Name Tubb Oil & Gas (Oil)
<sup>4</sup> Property Code 16814	<sup>5</sup> Property Name DC Hardy		<sup>6</sup> Well Number 011
<sup>7</sup> OGRID No. 873	<sup>8</sup> Operator Name Apache Corporation 303 Veterans Airpark Lane, Suite 3000 Midland, TX 79705		<sup>9</sup> Elevation 3489'

<sup>10</sup> 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	20	21S	37E		1310	South	1250	East	Lea

<sup>11</sup> 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
<sup>12</sup> Dedicated Acres 40		<sup>13</sup> Joint or Infill		<sup>14</sup> Consolidation Code		<sup>15</sup> Order No. DHC-HOB-360			

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					<sup>17</sup> 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 undivided 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>Reesa Holland</i> 07/02/2012 Signature Date Reesa Holland Printed Name
					<sup>18</sup> 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 of Survey Signature and Seal of Professional Surveyor. Certificate Number

District I  
1625 N. French Dr., Hobbs, NM 88240  
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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  
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☐ AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

<sup>1</sup> API Number 30-025-39637		<sup>2</sup> Pool Code 19190	<sup>3</sup> Pool Name Drinkard
<sup>4</sup> Property Code 16814	<sup>5</sup> Property Name DC Hardy		<sup>6</sup> Well Number 011
<sup>7</sup> OGRID No. 873	<sup>8</sup> Operator Name Apache Corporation, 303 Veterans Airpark Lane, Suite 3000 Midland, TX 79705		<sup>9</sup> Elevation 3489'

<sup>10</sup> 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	20	21S	37E		1310	South	1250	East	Lea

<sup>11</sup> 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
<sup>12</sup> Dedicated Acres 40		<sup>13</sup> Joint or Infill		<sup>14</sup> Consolidation Code		<sup>15</sup> Order No. DHC-HOB-360			

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				<sup>17</sup> <b>OPERATOR CERTIFICATION</b> 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. <u>Reesa Holland</u> 07/02/2012 Signature Date Reesa Holland Printed Name
				<sup>18</sup> <b>SURVEYOR CERTIFICATION</b> 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 of Survey Signature and Seal of Professional Surveyor Certificate Number

1250'

1310'

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☐ AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

<sup>1</sup> API Number 30-025-39637		<sup>2</sup> Pool Code 62700	<sup>3</sup> Pool Name Wantz, Abo
<sup>4</sup> Property Code 16814	<sup>5</sup> Property Name DC Hardy		<sup>6</sup> Well Number 011
<sup>7</sup> OGRID No. 873	<sup>8</sup> Operator Name Apache Corporation 303 Veterans Airpark Lane, Suite 3000 Midland, TX 79705		<sup>9</sup> Elevation 3489'

<sup>10</sup> 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	20	21S	37E		1310	South	1250	East	Lea

<sup>11</sup> 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

<sup>12</sup> Dedicated Acres 40	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No DHC-HOB-360
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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				<p><sup>17</sup> <b>OPERATOR CERTIFICATION</b> 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 undivided 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 has therefore entered by the division</p> <p><i>Reesa Holland</i> 07/02/2012 Signature Date</p> <p>Reesa Holland Printed Name</p>
				<p><sup>18</sup> <b>SURVEYOR CERTIFICATION</b> 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</p> <p>Date of Survey Signature and Seal of Professional Surveyor</p> <p>Certificate Number</p>

July 2, 2012

Mr. Paul Kautz  
New Mexico Oil Conservation Division  
1625 N French Drive  
Hobbs, New Mexico 88240

RE: Application for Exception to Rule 303-C – Downhole Commingling  
DC Hardy #11 API 30-025-39637  
Unit P, Section 20, T21S, R37E  
Tubb Oil & Gas (Oil) 60240; Drinkard 19190 & Wantz; Abo 62700  
Lea County, New Mexico

Dear Mr. Kautz,

Enclosed please find form C-103 and attachments for downhole commingling the captioned well. The ownerships (WI, NRI and ORRI) of these pools are identical in this wellbore. The fluids from each of these pools are compatible as seen in other similar commingles in the area. Combining these fluids will not result in any damage to these pools. Commingling will improve the efficiency of present and future recovery operations. Cross flow will not be a problem due to having a production lift system capable of keeping the well pumped off thereby maximizing production. This commingling will not reduce the value of the total remaining production.

The allocation method used for this well was determined by analyzing the cumulative oil, gas and water production in a nine section area of review surrounding this well. Supporting documentation is shown on the attached spreadsheet. Production for active and inactive wells was grouped by pool in the area of review. The totals for each phase were then divided by the number of wells associated with this pool yielding an average. This average was used to determine the percentage allocation.

The main reason for using this method is based on economics and minimizing reservoir damage. Past completion practices had all three zones perforated and fracture stimulated during one full week. Each zone was isolated by a retrievable bridge plug to allow for production testing of each zone for allocation purposes. This testing period lasted as long as one month before a stabilized rate was observed thus allowing the next zone to be brought on and tested. During this time period the completion fluids used were still confined to the other reservoirs causing gel damage. It is a common practice to get these fluids out of the wellbore as soon as possible to help maximize productivity. On a cost basis it is more expensive to have a completion rig move in and out multiple times to bring on each new zone. Several other factors such as weather, other new completions and regulatory well work may interfere with these new wells.

The area of review used encompasses what has been accepted as a good statistical representation for allocation purposes. By using this allocation method all zones will be brought online in a more effective and efficient manner. This will in turn generate a higher productive rate and quicker revenue streams not only for the operator but for the State of New Mexico too.

If you need additional information or have any questions, please give me a call at (432) 818-1062.

Sincerely,

A handwritten signature in cursive script that reads "Reesa Holland".

**Reesa Holland**  
**Sr. Staff Engineering Technician**