

ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
- Engineering Bureau -
1220 South St. Francis Drive, Santa Fe, NM 87505



ADMINISTRATIVE APPLICATION CHECKLIST

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Application Acronyms:

[NSL-Non-Standard Location] [NSP-Non-Standard Proration Unit] [SD-Simultaneous Dedication]
[DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
[PC-Pool Commingling] [OLS - Off-Lease Storage] [OLM-Off-Lease Measurement]
[WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
[SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
[EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

- [1] **TYPE OF APPLICATION** - Check Those Which Apply for [A]
 [A] Location - Spacing Unit - Simultaneous Dedication
☐ NSL ☐ NSP ☐ SD
 Check One Only for [B] or [C]
 [B] Commingling - Storage - Measurement
☒ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM
 [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
☐ WFX ☐ PMX ☐ SWD ☐ IPI ☐ EOR ☐ PPR
 [D] Other: Specify _____

- DHC - 4645-A
- Apache Corporation
873
WCI
- Hawk Federal AS
#3
30-025-37380

- [2] **NOTIFICATION REQUIRED TO:** - Check Those Which Apply, or Does Not Apply
 [A] ☐ Working, Royalty or Overriding Royalty Interest Owners
 [B] ☐ Offset Operators, Leaseholders or Surface Owner
 [C] ☐ Application is One Which Requires Published Legal Notice
 [D] ☒ Notification and/or Concurrent Approval by BLM or SLO
 U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
 [E] ☐ For all of the above, Proof of Notification or Publication is Attached, and/or,
 [F] ☐ Waivers are Attached

Pool
- 466 Oil and Gas
(oil)
60240
- Drink And
19190
- Blinckey Oil
and Gas (oil)
6680

- [3] **SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED ABOVE.**

- Wantz, Ab
62700

[4] **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

REESA FISHER
Print or Type Name

Reesa Fisher
Signature

SR STAFF REG TECH
Title

9/24/2015
Date

HAWK FEDERAL A-5 #3

Reesa.Fisher@apachecorp.com
e-mail Address



September 29, 2015

NM Oil Conservation Division
Attn: Michael McMillan
1220 South St. Francis Dr.
Santa Fe, NM 87505

Re: DHC Application for Apache's Hawk Federal A-5 #3 (30-025-37380)
Lea County, NM

Dear Mr. McMillan

This letter is in reference to Apache's application for a downhole commingle in the Hawk Federal A-5 #3, located in Section 5-21S-37E in Lea County, New Mexico. The OCD identified discrepancies in the DHC BLM Worksheet that Apache would like to clarify.

The OCD has correctly noted that the initial production from the Abo formation does not match the fixed allocation percentage as shown in Row 16 and Row 18 of the attached table. Row 18 shows the fixed allocation percentage of the reserves from each zone over the life of the well. The difference arises from the expected decline rate from the Abo vs. the Blinbry, Tubb, and Drinkard formations. The Abo production is forecasted to decline at a hyperbolic rate and result in a high initial production, but drop rapidly in the first year. The Blinbry, Tubb, and Drinkard formations have been produced from the Hawk Federal A-5 #3 for over 10 years and the decline rate is now exponential and relatively flat.

The fixed allocations for oil, gas, and water in Row 18 of the DHC BLM Worksheet have been corrected to eliminate the rounding error. All allocations of oil, gas, and water now add up to 100%.

Should you have any questions, please do not hesitate to contact me at (432) 818-1601 or at bret.shapot@apachecorp.com.

Sincerely yours,

Apache Corporation

Bret Shapot
Production Engineer - Permian Region

Attachment 1 – DHC BLM Worksheet

District I
1023 N. French Drive, J. Hobbs, NM 87102

District II
1301 N. Grand Avenue, Artesia, NM 87010

District III
1000 Rio Pecos Road, Aztec, NM 87410

District IV
1220 S. W. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

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

Form C-107A
Revised June 10, 2003

APPLICATION TYPE

☒ Single Well

☐ Establish Pre-Approved Pools

EXISTING WELLBORE

☒ Yes ☐ No

APPLICATION FOR DOWNHOLE COMMINGLING

Apache Corporation
Operator

303 Veterans Airpark Lane Suite 3000 Midland TX 79705
Address

Hawk Federal A-5

003

O

5

21S

37E

Lea

Lease

Well No.

Unit Letter-Section-Township-Range

County

OGRID No. 873

Property Code 31036

API No. 30-025-37380

Lease Type: ☒ Federal ☐ State ☐ Fee

DATA ELEMENT	UPPER ZONE	INTERMEDIATE ZONE	LOWER ZONE
Pool Name	Blinebry Oil & Gas (Oil)	Tubb Oil & Gas (Oil)	Drinkard
Pool Code	6660	60240	19190
Top and Bottom of Pay Section (Perforated or Open-Hole Interval)	5737'-6025'	6255'-6388'	6736'-6850'
Method of Production (Flowing or Artificial Lift)	Artificial Lift	Artificial Lift	Artificial Lift
Bottomhole Pressure (Note: Pressure data will not be required if the bottom perforation in the lower zone is within 150% of the depth of the top perforation in the upper zone)			
Oil Gravity or Gas BTU (Degree API or Gas BTU)	37.0	37.0	37.0
Producing, Shut-In or New Zone	Producing	Producing	Producing
Date and Oil/Gas/Water Rates of Last Production. (Note: For new zones with no production history, applicant shall be required to attach production estimates and supporting data.)	Date: See Attached Rates: See Attached	Date: See Attached Rates: See Attached	Date: See Attached Rates: See Attached
Fixed Allocation Percentage (Note: If allocation is based upon something other than current or past production, supporting data or explanation will be required.)	Oil Gas 16 % 30 %	Oil Gas 19 % 6 %	Oil Gas 15 % 0 %

ADDITIONAL DATA

Are all working, royalty and overriding royalty interests identical in all commingled zones?

Yes ☒ No ☐

If not, have all working, royalty and overriding royalty interest owners been notified by certified mail?

Yes ☐ No ☐

Are all produced fluids from all commingled zones compatible with each other?

Yes ☒ No ☐

Will commingling decrease the value of production?

Yes ☐ No ☒

If this well is on, or communitized with, state or federal lands, has either the Commissioner of Public Lands
or the United States Bureau of Land Management been notified in writing of this application?

Yes ☒ No ☐

NMOCD Reference Case No. applicable to this well: _____

Attachments:

C-102 for each zone to be commingled showing its spacing unit and acreage dedication.

Production curve for each zone for at least one year. (If not available, attach explanation.)

For zones with no production history, estimated production rates and supporting data.

Data to support allocation method or formula.

Notification list of working, royalty and overriding royalty interests for uncommon interest cases.

Any additional statements, data or documents required to support commingling.

PRE-APPROVED POOLS

If application is to establish Pre-Approved Pools, the following additional information will be required:

List of other orders approving downhole commingling within the proposed Pre-Approved Pools

List of all operators within the proposed Pre-Approved Pools

Proof that all operators within the proposed Pre-Approved Pools were provided notice of this application.

Bottomhole pressure data.

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

SIGNATURE

Reesa Fisher

TITLE Sr. Staff Regulatory Analyst

DATE 9/30/2015

TYPE OR PRINT NAME Reesa Fisher

TELEPHONE NO. (432) 818-1062

E-MAIL ADDRESS Reesa.Fisher@apachecorp.com

District I
1625 N. Fremont Drive, Hobbs, NM 88240

District II

1301 W. Grand Avenue, Artesia, NM 88210

District III

1000 Rio Pecos Road, Aztec, NM 87410

District IV

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

State of New Mexico
Energy, Minerals and Natural Resources Department

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

Form C-107A
Revised June 10, 2003

APPLICATION TYPE

☒ Single Well

☐ Establish Pre-Approved Pools

EXISTING WELLBORE

☒ Yes ☐ No

APPLICATION FOR DOWNHOLE COMMINGLING

Apache Corporation 303 Veterans Airpark Lane Suite 3000 Midland TX 79705
Operator Address
Hawk Federal A-5 003 O 5 21S 37E Lea
Lease Well No. Unit Letter-Section-Township-Range County
OGRID No. 873 Property Code 31036 API No. 30-025-37380 Lease Type: ☒ Federal ☐ State ☐ Fee

DATA ELEMENT	UPPER ZONE	INTERMEDIATE ZONE	LOWER ZONE
Pool Name			Wantz; Abo
Pool Code			62700
Top and Bottom of Pay Section (Perforated or Open-Hole Interval)			6988'-7190'
Method of Production (Flowing or Artificial Lift)			Artificial Lift
Bottomhole Pressure (Note: Pressure data will not be required if the bottom perforation in the lower zone is within 150% of the depth of the top perforation in the upper zone)			
Oil Gravity or Gas BTU (Degree API or Gas BTU)			38.0
Producing, Shut-In or New Zone			
Date and Oil/Gas/Water Rates of Last Production. (Note: For new zones with no production history, applicant shall be required to attach production estimates and supporting data.)	Date: Rates:	Date: Rates:	Date: See Attached Rates: See Attached
Fixed Allocation Percentage (Note: If allocation is based upon something other than current or past production, supporting data or explanation will be required.)	Oil Gas % %	Oil Gas % %	Oil Gas 50 % 64 %

ADDITIONAL DATA

Are all working, royalty and overriding royalty interests identical in all commingled zones? Yes ☒ No ☐
If not, have all working, royalty and overriding royalty interest owners been notified by certified mail? Yes ☐ No ☐
Are all produced fluids from all commingled zones compatible with each other? Yes ☒ No ☐
Will commingling decrease the value of production? Yes ☐ No ☒
If this well is on, or communitized with, state or federal lands, has either the Commissioner of Public Lands or the United States Bureau of Land Management been notified in writing of this application? Yes ☒ No ☐
NMOCD Reference Case No. applicable to this well: _____

Attachments:

C-102 for each zone to be commingled showing its spacing unit and acreage dedication.
Production curve for each zone for at least one year. (If not available, attach explanation.)
For zones with no production history, estimated production rates and supporting data.
Data to support allocation method or formula.
Notification list of working, royalty and overriding royalty interests for uncommon interest cases.
Any additional statements, data or documents required to support commingling.

PRE-APPROVED POOLS

If application is to establish Pre-Approved Pools, the following additional information will be required:

List of other orders approving downhole commingling within the proposed Pre-Approved Pools
List of all operators within the proposed Pre-Approved Pools
Proof that all operators within the proposed Pre-Approved Pools were provided notice of this application.
Bottomhole pressure data.

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

SIGNATURE Reesa Fisher TITLE Sr. Staff Regulatory Analyst DATE 9/30/2015
TYPE OR PRINT NAME Reesa Fisher TELEPHONE NO. (432) 818-1062
E-MAIL ADDRESS Reesa.Fisher@apachecorp.com

DISTRICT I
1528 N. FRANKLIN DR., ROSA, NM 88240

DISTRICT II
1501 V. GRAND AVENUE, ARIZONA, NM 88210

DISTRICT III
1000 Rio Uragua 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

OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised JUNE 10, 2003
Submit to Appropriate District Office
State Lease - 4 Copies
Free Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-025-37380		Pool Code 06660	Pool Name Blinebry Oil & Gas (Oil)
Property Code 24426	Property Name HAWK A-5		Well Number 3
OGRIID No. 00873	Operator Name APACHE CORPORATION		Elevation 3502'

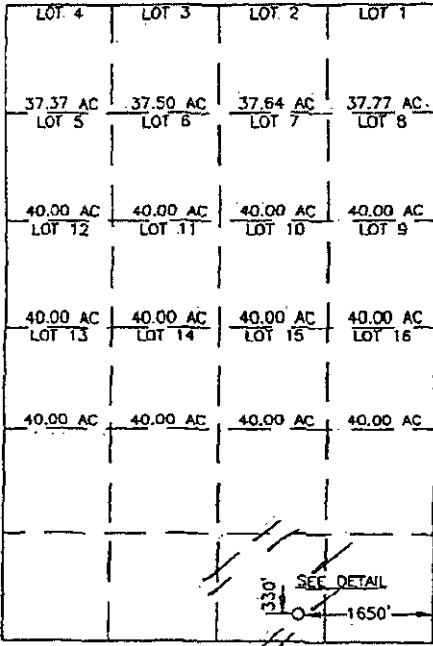
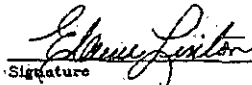
Surface Location

UL or Lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	5	21-S	37-E		330	SOUTH	1650	EAST	LEA

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
Dedicated Acres 4.9		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

 SCALE - 1"=2000'	SEE DETAIL 3501.3' 3497.1' 3507.5' 3502.7' GEODETIC COORDINATES NAD 27 NME Y=548072.9 N X=855126.6 E LAT.=32°30'05.36" N LONG.=103°10'53.27" W	OPERATOR CERTIFICATION I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.  Signature Elaine Linton Printed Name Engineering Technician Title 12/1/2005 Date 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. DECEMBER 16, 2004 Date Surveyed Signature & Seal of Professional Surveyor NEW MEXICO 12/26/04 04.14.1691 Certificate No. GARY ELLISON 12841
---	--	---

OCT 10 2013

DISTRICT I
1625 N. YERGEN DR., BOBBS, NM 86240

DISTRICT II
1625 N. YERGEN DR., BOBBS, NM 86240

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

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

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WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-025-37380	Pool Code 60240	Pool Name Tubb Oil & Gas (Oil)
Property Code 24426	Property Name HAWK A-5	Well Number 3
OGRID No. 00873	Operator Name APACHE CORPORATION	Elevation 3502'

Surface Location

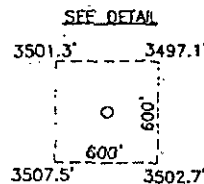
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	5	21-S	37-E		330	SOUTH	1650	EAST	LEA

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
Dedicated Acres	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

LOT 4	LOT 3	LOT 2	LOT 1
37.37 AC LOT 5	37.50 AC LOT 6	37.64 AC LOT 7	37.77 AC LOT 8
40.00 AC LOT 12	40.00 AC LOT 11	40.00 AC LOT 10	40.00 AC LOT 9
40.00 AC LOT 13	40.00 AC LOT 14	40.00 AC LOT 15	40.00 AC LOT 16
40.00 AC	40.00 AC	40.00 AC	40.00 AC



GEODETIC COORDINATES
NAD 27 NME

Y=548072.9 N
X=855126.6 E

LAT.=32°30'05.36" N
LONG.=103°10'53.27" W

SEE DETAIL

330' 1650'

SCALE - 1"=2000'

OPERATOR CERTIFICATION

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

Elaine Linton
Signature

Elaine Linton
Printed Name

Engineering Technician
Title

2/1/2006
Date

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.

DECEMBER 16, 2004

Date Surveyed
Signature & Seal of
Professional Surveyor

Gary Edson
04.11.16915

Certificate No. GARY EDSON 12641

DISTRICT I

1625 N. FRISCO DR., ROSA, NM 86240

DISTRICT II

TRAND AVENUE, ARTESIA, NM 88210

DISTRICT III

1000 Rio Brakes Rd., Artesia, NM 87410

DISTRICT IV

1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

State of New Mexico

Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102

Revised JUNE 10, 2003

Submit to Appropriate District Office

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WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-025-37380	Pool Code 19190	Pool Name Drinkard
Property Code 24426	Property Name HAWK A-5	Well Number 3
OCRID No. 00873	Operator Name APACHE CORPORATION	Elevation 3502

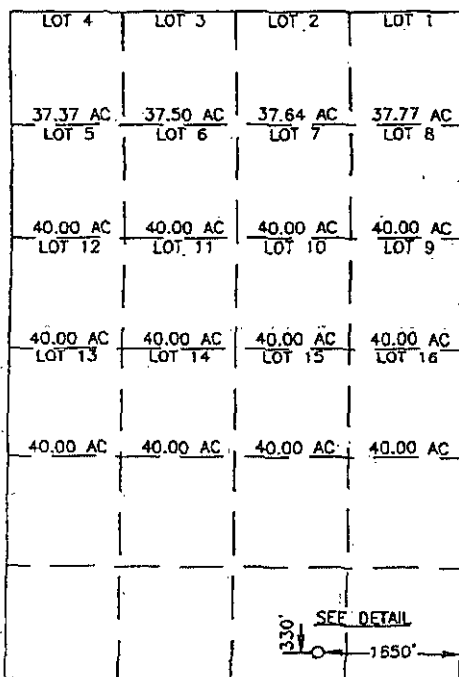
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	5	21-S	37-E		330	SOUTH	1650	EAST	LEA

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
Dedicated Acres	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



SCALE - 1"=2000'

OPERATOR CERTIFICATION

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

Elaine Linton
Signature

Elaine Linton
Printed Name

Engineering Technician
Title

2/1/2006
Date

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.

DECEMBER 16, 2004

Date Surveyed
Signature and Seal of Professional Surveyor

Harry K. Edson
04.11.1691

Certificate No. GARY-EDSON 12641

SEE DETAIL
3501.5' 3497.1'
3507.5' 3502.7'

GEODETIC COORDINATES
NAD 27 NME

Y=548072.9 N
X=855126.6 E

LAT.=32°30'05.36" N
LONG.=103°10'53.27" W

District I

1625 N. French Dr., Hobbs, NM 83240

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

*API Number 30-025-37380		*Pool Code 62700	*Pool Name Wantz Abo
*Property Code 31036	*Property Name Hawk Federal A-5		*Well Number 003
*OGRJD No. 873	*Operator Name Apache Corporation: 303 Veterans Airpark Lane, Suite 3000 Midland, TX: 79705		*Elevation 3502'

10 Surface Location

UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
0	5	21S	37E		330	South	1650	East	Lea

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Ida	Feet from the	North/South line	Feet from the	East/West line	County
*Dedicated Acres 40		*Joint or Infill		*Consolidation Code		*Order No. DHC-HOB-0138			

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 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 in 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 hereby entered by the division. <i>Reesa Fisher</i> 09/11/2013 Signature Date Reesa Holland Fisher Printed Name
					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. Date of Survey Signature and Seal of Professional Surveyor: Certificate Number



Dowhole Commingle Memo

Date: September 21, 2015
From: Bret Shapot
Subject: Application for Downhole Commingle
Hawk A-5 #3 (API: 30-025-37380)
Unit O, Section 5, T21S, R37E
Lea County, New Mexico

Summary

Apache requests permission to downhole commingle the Wantz Abo (62700) with the existing downhole commingle of Blinebry Oil & Gas (6660), Tubb Oil & Gas (60240), and Drinkard (19190). The ownerships (WI, NRI, and ORRI) of these pools are identical in this wellbore. Following a review of the individual oil, gas, and water samples, the fluids from each of these pools are compatible. This is consistent with results from 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.

This well is currently producing from the Blinebry-Tubb-Drinkard and we would like to add Abo production. Apache's performance prediction for the Abo used the offset Hawk B-1 #69 well, which is producing from the Abo only, as a type well. To generate predictions for the Hawk A-5 #3, our engineer, Bret Shapot, utilized the production forecast for the Hawk B-1 #69 and adjusted it by the hydrocarbon net pay in each well relative to the Hawk B-1 #69. Hydrocarbon net pay in the Hawk B-1 #69 and Hawk A-5 #3 are 2.61 ft, and 1.05 ft, respectively.

For the Hawk A-5 #3 from the Abo, we are predicting an initial 30 day IP of 36.8 BOPD, declining hyperbolically with a b-factor of 0.91 and initial decline rate of 20.8% per month. The EUR for the Abo when commingled is 20.8 MB at an economic limit of 0.4 BOPD after 28.4 years of production.

Samples were collected from the Blinebry, Tubb, Drinkard, and Abo for use in the downhole commingle worksheet. Table 1 below details the sample location and explains why each sample is relevant to the downhole commingle. The following list of attachments contains supporting documentation.

If you need additional information or have any questions, please contact Bret Shapot at (432) 818-1601.

Attachment 1 – DHC BLM Worksheet

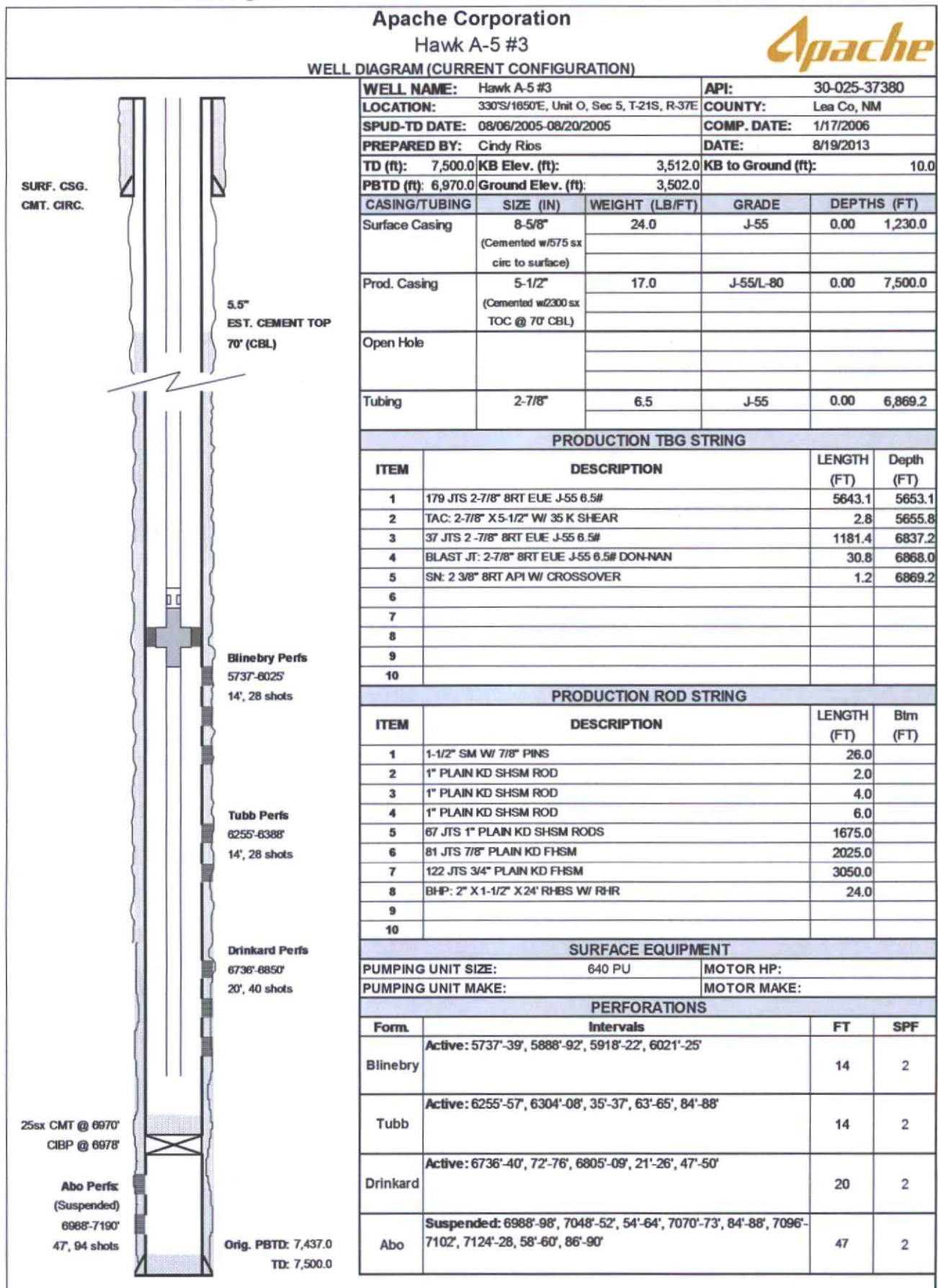
Operator: Apache Corp (873)

Lease/Well Name/API Number/Location: Hawk Federal A-5 #003 30-025-37380 O-5-T21S-R37E 330' FSL & 1650' FEL

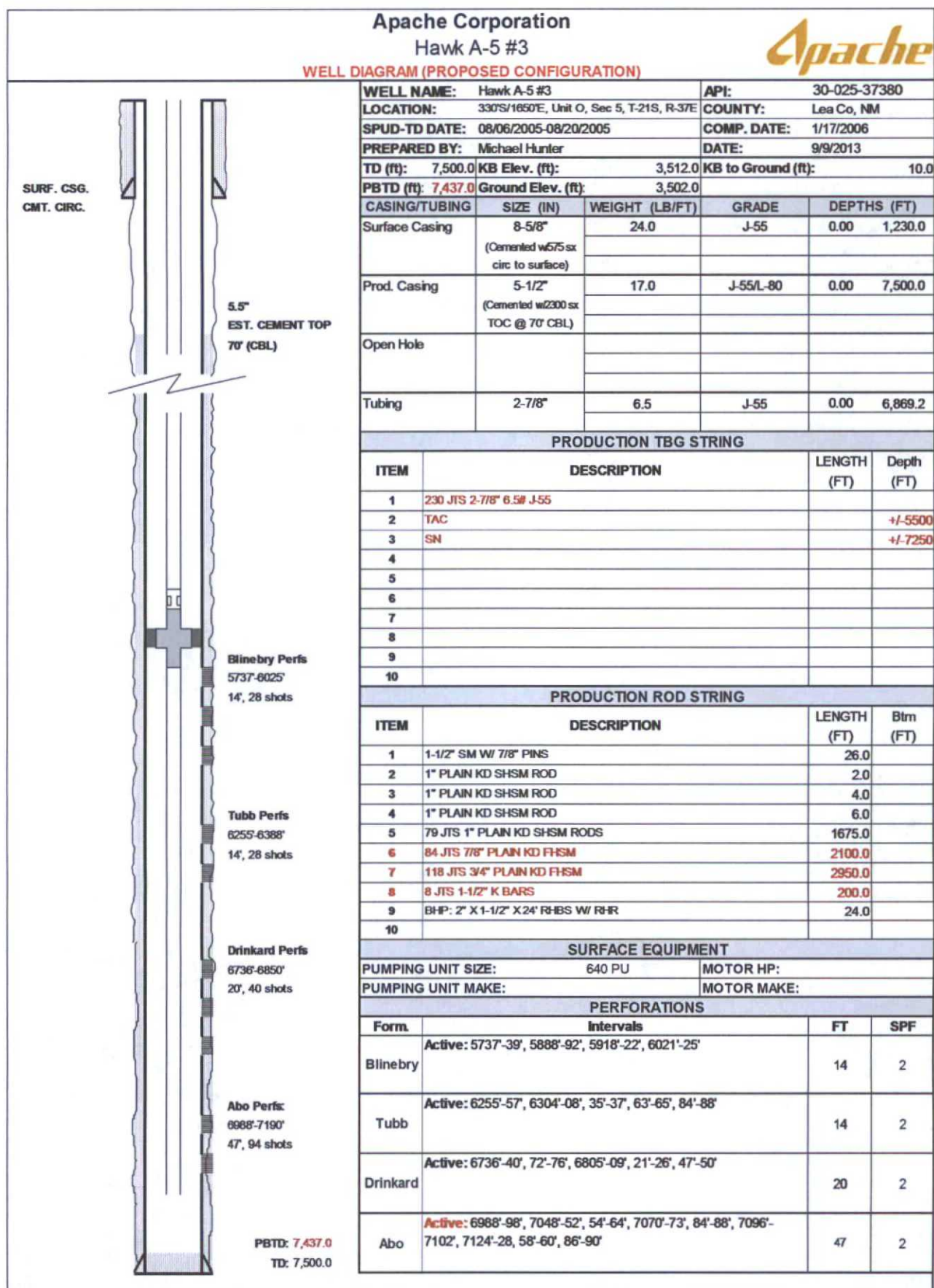
Date: 9/21/2015

Row	Data	Bottom Formation	Intermediate 2 Formation	Intermediate 1 Formation	Upper Formation	Estimated Combined Production Data
1	Pool name	Wantz, Abo	Drinkard	Tubb O&G (Oil)	Blinbry O&G (Oil)	*
2	Pool Code	62700	19190	60240	6660	*
3	State Form C-102, with dedicated Acres Provided	Yes	Yes	Yes	Yes	*
4	Formation Name	Abo	Drinkard	Tubb	Blinbry	*
5	Top and Bottom of Pay Section (Perforated or open-Hole Interval)	6988'-7190'	6736'-6850'	6255'-6388'	5737'-6025'	5737'-7190'
6	Method of production	Artificial Lift	Artificial Lift	Artificial Lift	Artificial Lift	Artificial Lift
7	Bottom Hole Pressure	2150 psia	750 psia	350 psia	400 psia	2150 psia
8	Reservoir Drive mechanism	Solution Gas Drive	Solution Gas Drive	Solution Gas Drive	Solution Gas Drive	Solution Gas Drive
9	Oil gravity and/or BTU	Oil: 38.9, 1198	Oil: 38.5; Gas: 1188	Oil: 36.7; Gas: 1267	Oil: 38.7; Gas: 1192	Oil: 38.6; Gas: 1201
10	Average Sulfur Content (Wt %)	0.284	1.104	0.503	0.592	0.374
11	Oil sample Analysis provided	Yes	Yes	Yes	Yes	*
12	Gas Analysis provided	Yes	Yes	Yes	Yes	*
13	Produce Water Analysis provided	Yes	Yes	Yes	Yes	*
14	H2S present	Not Detected	Not Detected	Not Detected	Not Detected	Not Predicted
15	Producing, Shut-In or New Zone	New Zone (Shut-in)	Producing	Producing	Producing	*
16	Date and Oil/Gas/Water rates of Last Production (new zones or no production history Operator shall attached production estimated and supporting data)	Estimated IP: 36.8 BOPD 350 MCFD 3.7 BWPD	Date: 8/2015 1 BOPD 0 MCFD 9 BWPD	Date: 8/1/2015 2 BOPD 6 MCFD 3 BWPD	Date: 8/1/2015 1 BOPD 20 MCFD 1 BWPD	Estimated IP: 40.9 BOPD 377 MCFD 16.7 BWPD
17	Average decline % (provide back up data)	b = 0.91 di = 20.8% per Mo.	6.0%	6.0%	6.0%	b = 1.36 di = 26.8%
18	Fixed Allocation Percentage	51% / 64% / 3%	14% / 0% / 66%	19% / 6% / 22%	16% / 30% / 9%	*

A2. Current Wellbore Diagram



A3. Proposed Wellbore Diagram



A5. Proposed Workover Procedure

Summary: **Drill out CBP over Abo Perforations, Acid Stimulate the Abo,
Return well to Production with Abo & BTD DHC**

API: 30-025-37380

330' FSL & 1650' FEL, Unit O

Section 5, Township 21S, Range 37E

Lea County, New Mexico

Production Casing: 5-1/2", 17 lb/ft J-55/L-80 set @ 7500' w/ 2300 sx cmt (TOC @ 70')

Procedure:

Day 1: MIRU. POOH w/ rods and pump. NU BOP. POOH w/ 2-7/8" production tubing.

Day 2: RIH w/ 4-3/4" bit on 2-7/8" tubing, drill out CBP @ 6970'. Cont. RIH to PBTD @ +/- 7437'. Circulate well clean. POOH.

Day 3: RIH w/ casing scraper on 2-7/8" tubing to +/-7437'. POOH
RIH w/treating packer on 3-1/2" L-80 work string. Set packer @ +/- 6,950'

Day 4: MIRU Acid Crew.
Acidize the Drinkard w/10,000 gals 15% HCl and ball sealers in 3 equal stages @ +/- 10 BPM.
Release packer and POOH w/ 3-1/2" tubing.
MIRU WL. RIH w/ junk basket to knock off balls, POOH
Shut well in overnight to allow acid to spend

Day 5: Open well up and flow back.
RIH w/ 2-7/8" production tubing, set SN @ +/- 7220'.

Day 6: RIH w/ 1-1/2" pump and rods
Return well to production. Place well in test

T-21S, R-37E

5

Hawk A-5 #3

Hawk A-5 #9

4

Hawk A #37
Abo Completed 1/2013
Abo IP30: 47 BOPD
Abo Cum: 5.7 MB (1/2013 – 7/2013)
Abo EUR: 24.6 MB

WBDU #28

Hawk B-1 #70
Abo Completed 10/2012
Abo IP30: 23 BOPD/576 MCFD
Abo Cum: 2.3 MB/111 MMCF (10/2012 – 7/2013)

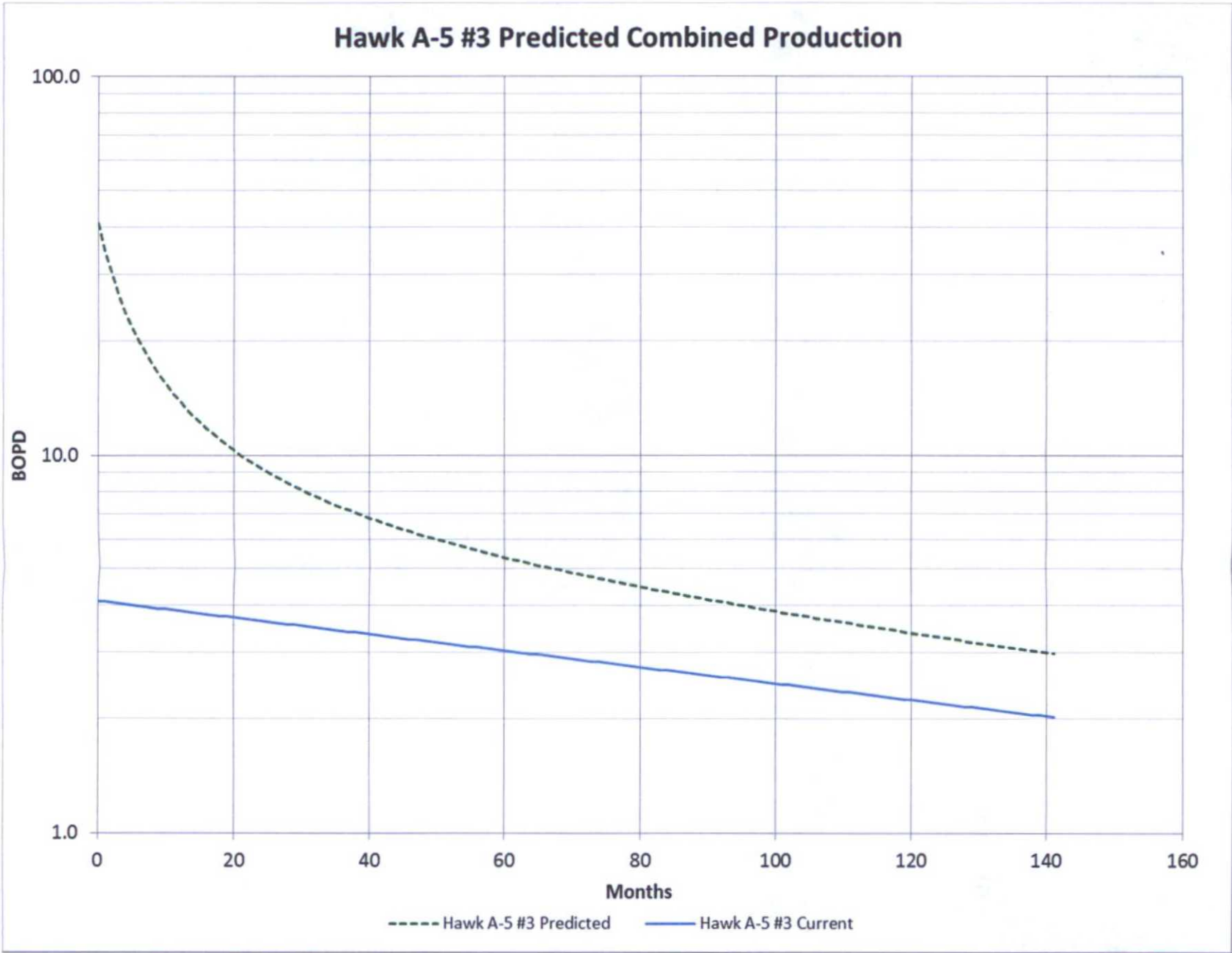
8

Hawk B-1 #69
Abo Completed 6/2012
Abo IP30: 96 BOPD
Abo Cum: 17.7 MB (6/2012 – 7/2013)

A6. Hawk A-5 #3 Allocated Reserves Forecast

Hawk A-5 #3 Allocated Forecast Reserves						
Zone	Oil		Gas		Water	
	BBL	%	MCF	%	BBL	%
Blinebry	6,776	16%	114,027	30%	7,093	9%
Tubb	7,780	19%	21,354	6%	18,051	22%
Drinkard	5,944	14%	0	0%	53,431	66%
Abo	20,800	50%	245,440	64%	2,080	3%
Total	41,300	100.0%	380,822	100.0%	80,655	100.0%

Hawk A-5 #3 Combined		
qi	40.9	BOPD
qf	1.0	BOPD
b	1.2000	
di	20.0%	/Mo.



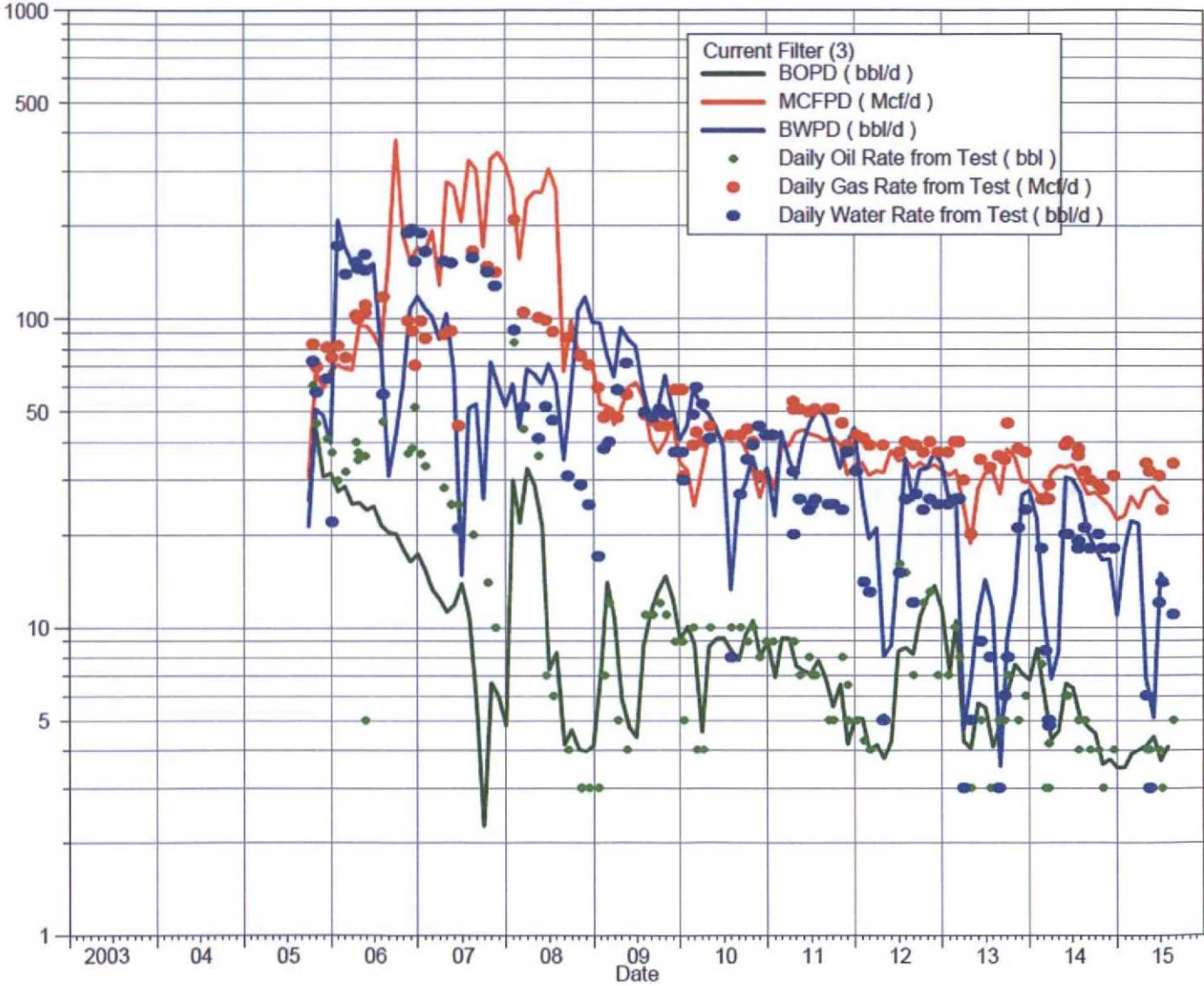
A8. Hawk A-5 #3 Production History

Hawk A-5 #3 Allocated Cumulative Production			
Formation	Oil (BBL)	Gas (MCF)	Water (BBL)
Blinebry	12,461	226,458	15,904
Tubb	14,309	42,410	40,476
Drinkard	10,931	0	119,808
CUM	37,701	268,868	176,189

Hawk A-5 #3 BTD Allocations			
	Oil	Gas	Water
Blinebry	0.331	0.842	0.090
Tubb	0.380	0.158	0.230
Drinkard	0.290	0.000	0.680

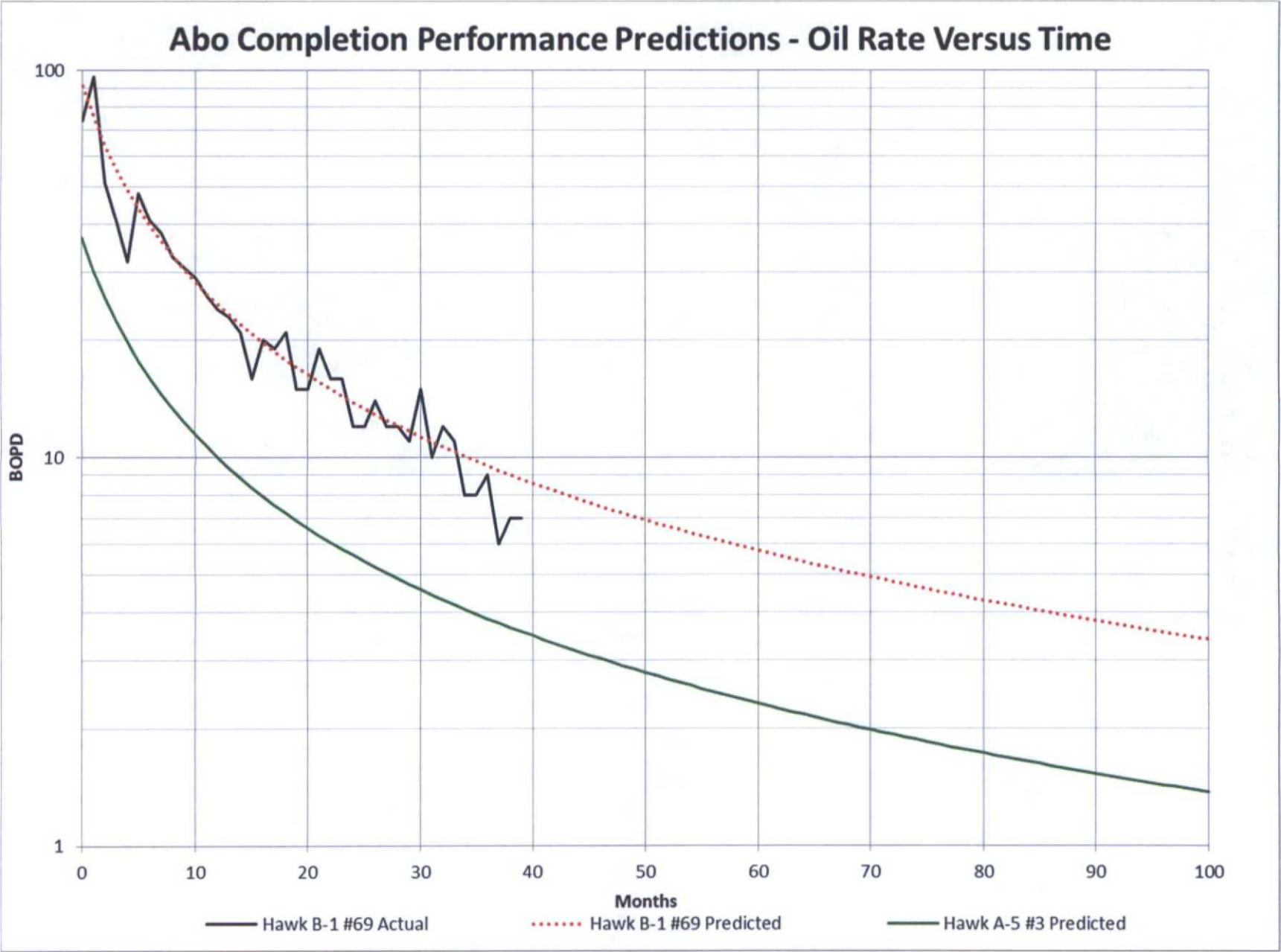
Hawk A-5 #3 Reserves			
	Oil	Gas	Water
Blinebry	6,776	114,027	7,093
Tubb	7,780	21,354	18,051
Drinkard	5,944	0	53,431
Total	20,500	135,382	78,575

Hawk A-5 #3 Production History
Production History



A9. Hawk A-5 #3 Recent Well Tests

Well	Test Date	Oil	Gas	Water	WOR	GOR
		(BBL)	(MCF)	(BBL)	(BBL/BBL)	(MCF/BBL)
Hawk A-5 #3	1/16/2010	5	31	30	6.0	6.2
Hawk A-5 #3	2/26/2010	10	39	49	4.9	3.9
Hawk A-5 #3	3/12/2010	4	43	60	15.0	10.8
Hawk A-5 #3	4/8/2010	4	40	53	13.3	10.0
Hawk A-5 #3	5/7/2010	10	45	41	4.1	4.5
Hawk A-5 #3	8/3/2010	10	42	8	0.8	4.2
Hawk A-5 #3	9/10/2010	10	42	27	2.7	4.2
Hawk A-5 #3	10/10/2010	9	44	35	3.9	4.9
Hawk A-5 #3	11/2/2010	10	40	39	3.9	4.0
Hawk A-5 #3	11/29/2010	8	31	45	5.6	3.9
Hawk A-5 #3	12/27/2010	9	42	42	4.7	4.7
Hawk A-5 #3	1/24/2011	9	42	42	4.7	4.7
Hawk A-5 #3	4/21/2011	9	54	32	3.6	6.0
Hawk A-5 #3	4/22/2011	9	51	20	2.2	5.7
Hawk A-5 #3	5/17/2011	7	51	26	3.7	7.3
Hawk A-5 #3	6/24/2011	8	50	24	3.0	6.3
Hawk A-5 #3	7/7/2011	7	50	25	3.6	7.1
Hawk A-5 #3	7/21/2011	7	51	26	3.7	7.3
Hawk A-5 #3	9/14/2011	5	51	25	5.0	10.2
Hawk A-5 #3	10/4/2011	5	51	25	5.0	10.2
Hawk A-5 #3	11/10/2011	8	46	24	3.0	5.8
Hawk A-5 #3	12/1/2011	7	39	37	5.3	5.6
Hawk A-5 #3	12/3/2011	5	39	37	7.4	7.8
Hawk A-5 #3	1/9/2012	5	42	32	6.4	8.4
Hawk A-5 #3	2/9/2012	4	41	14	3.5	10.3
Hawk A-5 #3	3/4/2012	4	39	13	3.3	9.8
Hawk A-5 #3	4/29/2012	5	39	5	1.0	7.8
Hawk A-5 #3	7/8/2012	16	37	15	0.9	2.3
Hawk A-5 #3	8/2/2012	15	40	26	1.7	2.7
Hawk A-5 #3	9/2/2012	7	39	12	1.7	5.6
Hawk A-5 #3	9/15/2012	12	39	27	2.3	3.3
Hawk A-5 #3	10/15/2012	12	37	24	2.0	3.1
Hawk A-5 #3	11/12/2012	13	40	26	2.0	3.1
Hawk A-5 #3	12/15/2012	7	37	25	3.6	5.3
Hawk A-5 #3	1/27/2013	7	37	25	3.6	5.3
Hawk A-5 #3	2/24/2013	10	40	26	2.6	4.0
Hawk A-5 #3	3/15/2013	8	40	26	3.3	5.0
Hawk A-5 #3	4/2/2013	3	30	3	1.0	10.0
Hawk A-5 #3	5/2/2013	3	20	5	1.7	6.7
Hawk A-5 #3	6/12/2013	5	35	9	1.8	7.0
Hawk A-5 #3	7/22/2013	3	33	8	2.7	11.0
Hawk A-5 #3	8/27/2013	5	36	3	0.6	7.2
Hawk A-5 #3	9/20/2013	5	35	6	1.2	7.0
Hawk A-5 #3	10/3/2013	7	46	8	1.1	6.6
Hawk A-5 #3	11/15/2013	5	38	21	4.2	7.6
Hawk A-5 #3	12/15/2013	6	37	24	4.0	6.2
Hawk A-5 #3	2/21/2014	8	26	18	2.3	3.3
Hawk A-5 #3	3/9/2014	3	26	8	2.7	8.7
Hawk A-5 #3	3/22/2014	3	26	5	1.7	8.7
Hawk A-5 #3	3/23/2014	4	29	5	1.3	7.3
Hawk A-5 #3	5/30/2014	6	39	20	3.3	6.5
Hawk A-5 #3	6/10/2014	6	40	20	3.3	6.7
Hawk A-5 #3	7/24/2014	5	36	18	3.6	7.2
Hawk A-5 #3	7/25/2014	4	38	19	4.8	9.5
Hawk A-5 #3	8/20/2014	5	32	21	4.2	6.4
Hawk A-5 #3	9/10/2014	4	30	18	4.5	7.5
Hawk A-5 #3	10/16/2014	4	29	20	5.0	7.3
Hawk A-5 #3	11/4/2014	3	28	18	6.0	9.3
Hawk A-5 #3	12/18/2014	4	31	18	4.5	7.8
Hawk A-5 #3	5/4/2015	4	34	6	1.5	8.5
Hawk A-5 #3	5/17/2015	4	32	3	0.8	8.0
Hawk A-5 #3	6/26/2015	4	31	12	3.0	7.8
Hawk A-5 #3	7/8/2015	3	24	14	4.7	8.0
Hawk A-5 #3	8/24/2015	5	34	11	2.2	6.8

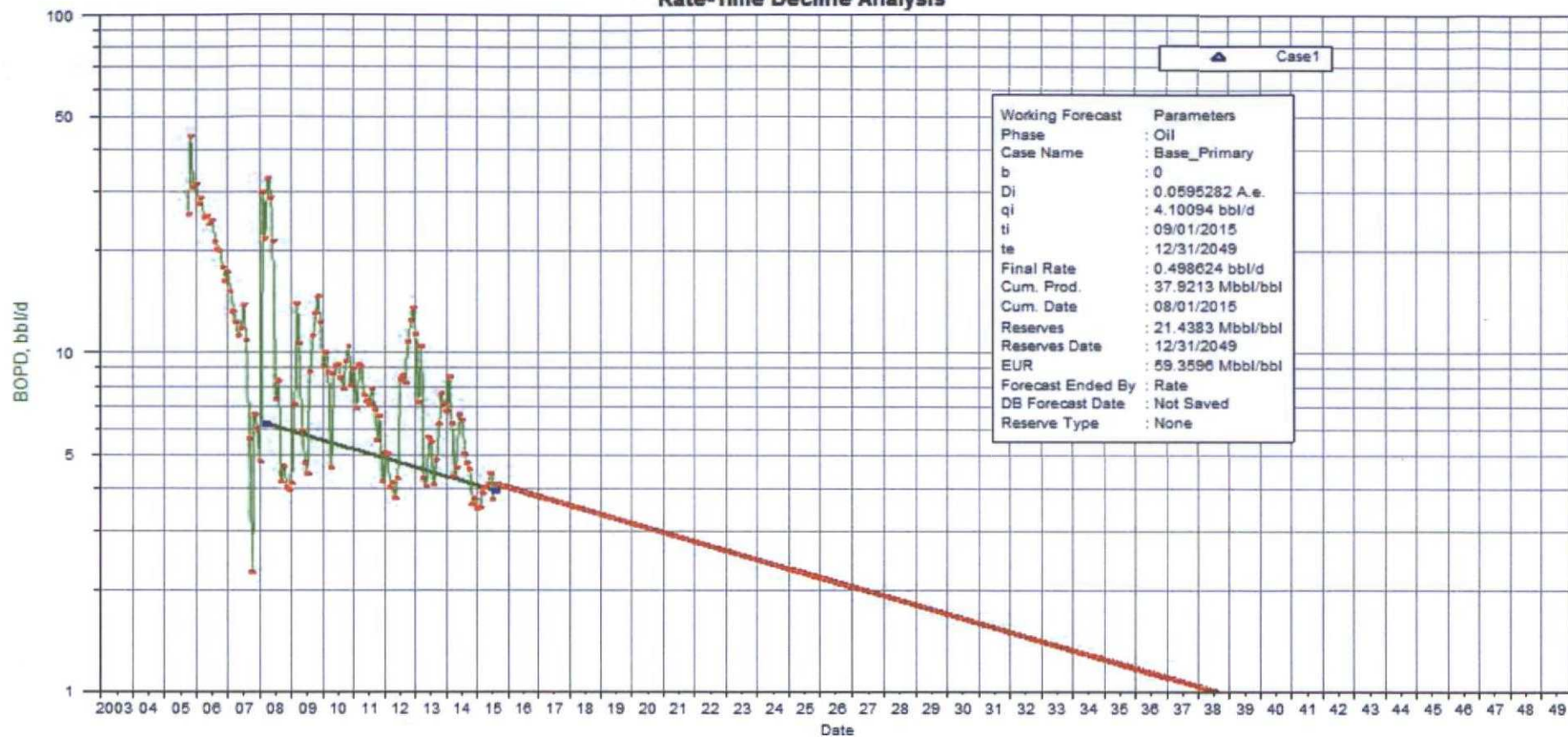


Hawk B-1 #69		
qi	91.3	BOPD
qf	1.0	BOPD
b	0.91	
di	20.8%	/Mo.
tf	302	Mo
Qf	51	MB
Hawk A-5 #3 (Abo)		
qi	36.8	BOPD
qf	1.0	BOPD
b	0.91	
di	20.8%	/Mo.
tf	135	Mo
Qf	17.2	MB

Well	h (ft)	Phi	Sw	SoPhiH (ft)
Hawk B-1 #69	33	0.112	0.293	2.61
Hawk A-5 #3	17	0.095	0.347	1.05

A11. Hawk A-5 #3 Blinebry, Tubb, and Drinkard Decline Analysis

Hawk A-5 #3 Decline Analysis Rate-Time Decline Analysis



A7. Hawk B-1 #69 Monthly Production History

Hawk B-1 #69 Cumulative Abo Production		
Oil	Gas	Water
(BBL)	(MCF)	(BBL)
28,318	225,935	5,238

Hawk B-1 #69 Monthly Production					
Month	BOPD	MCFD	BWPD	GOR	WOR
Jun-12	74	119	65	1.6	0.9
Jul-12	96	314	29	3.3	0.3
Aug-12	51	210	2.42	4.1	0.0
Sep-12	41	162	1.6	4.0	0.0
Oct-12	32	132	1.22	4.1	0.0
Nov-12	48	176	10	3.7	0.2
Dec-12	41	403	2.19	9.8	0.1
Jan-13	38	205	2.1	5.4	0.1
Feb-13	33	240	5	7.3	0.2
Mar-13	31	169	1.44	5.5	0.0
Apr-13	29	163	4	5.6	0.1
May-13	26	166	1.21	6.4	0.0
Jun-13	24	173	0.41	7.2	0.0
Jul-13	23	176	0.55	7.7	0.0
Aug-13	21	178	0.37	8.5	0.0
Sep-13	16	169	0	10.6	0.0
Oct-13	20	184	0.68	9.2	0.0
Nov-13	19	198	0.78	10.4	0.0
Dec-13	21	161	1.03	7.7	0.0
Jan-14	15	153	0.54	10.2	0.0
Feb-14	15	128	29	8.5	1.9
Mar-14	19	181	13	9.5	0.7
Apr-14	16	203	0.43	12.7	0.0
May-14	16	186	0.06	11.6	0.0
Jun-14	12	177	0.03	14.8	0.0
Jul-14	12	183	0.02	15.3	0.0
Aug-14	14	180	0.03	12.9	0.0
Sep-14	12	179	0.03	14.9	0.0
Oct-14	12	177	0.03	14.8	0.0
Nov-14	11	171	0.03	15.5	0.0
Dec-14	15	168	0	11.2	0.0
Jan-15	10	174	0	17.4	0.0
Feb-15	12	176	0	14.7	0.0
Mar-15	11	179	0	16.3	0.0
Apr-15	8	184	0	23.0	0.0
May-15	8	184	0	23.0	0.0

Jun-15	9	181	0	20.1	0.0
Jul-15	6	189	0	31.5	0.0
Aug-15	7	190	0	27.1	0.0
Sep-15	7	187	0	26.7	0.0



LABORATORY SERVICES

Natural Gas Analysis

www.permianls.com

575.397.3713 2609 W Marland Hobbs NM 88240

For: Apache Corporation
Attention: Brad Beckham
P. O. Box 1849
Eunice, New Mexico 88231

Sample:
Identification: Hawk B1 #69
Company: Apache Corporation
Lease:
Plant:

Sample Data: Date Sampled 8/6/2015
Analysis Date 8/7/2015
Pressure-PSIA
Sample Temp F
Atmos Temp F

Sampled by: Brad Beckham
Analysis by: Vicki McDaniel

H2S =

Component Analysis

		Mol Percent	GPM
Hydrogen Sulfide	H2S		
Nitrogen	N2	3.268	
Carbon Dioxide	CO2	0.101	
Methane	C1	80.457	
Ethane	C2	8.548	2.280
Propane	C3	4.385	1.205
I-Butane	IC4	0.449	0.147
N-Butane	NC4	1.407	0.442
I-Pentane	IC5	0.307	0.112
N-Pentane	NC5	0.405	0.146
Hexanes Plus	C6+	<u>0.673</u>	<u>0.291</u>
		100.000	4.624

REAL BTU/CU.FT.

At 14.65 DRY 1198.0
At 14.65 WET 1177.1
At 14.696 DRY 1201.7
At 14.696 WET 1181.2
At 14.73 DRY 1204.5
At 14.73 Wet 1183.7

Specific Gravity

Calculated 0.7109

Molecular Weight 20.5907

Z Factor (DRY) 0.9967

Z Factor (WET) 0.9963



LABORATORY SERVICES
Natural Gas Analysis

www.permianls.com
575.397.3713 2609 W Marland Hobbs NM 88240

ASTM DISTILLATION

Apache Corporation
Attention: Randy Hunter
P. O. Box 1849
Eunice, New Mexico 88231

Sampled By: Mike Oney/Baker
Sample Date: 7/24/15

Sample ID: Hawk Fed. B1 #69

<u>Percent Distilled</u>	<u>Temperature</u>		
IBP	116		
5	179		
10	225		
20	309	%Recovered =	93.0
30	385	% Residue =	3.0
40	467	% Loss =	4.0
50	555		
60	595		
70	620		
80	675		
90	718		
EP	720		

<u>Total Sulfur</u>	<u>API Gravity</u>	<u>Specific Gravity</u>	<u>RVP</u>
0.284 wt. %	38.9	0.8303	

Distillation	ASTM D 86	Sulfur	ASTM D 4294
Gravity	ASTM D 287	Vapor Pres	ASTM D 323



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

Upstream Chemicals

REPORT DATE: 8/6/2015

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER: APACHE CORPORATION
DISTRICT: NEW MEXICO
AREA/LEASE: HAWK B1
SAMPLE POINT NAME: HAWK FEDERAL B1 #69
SITE TYPE: WELL SITES
SAMPLE POINT DESCRIPTION: WELL HEAD

ACCOUNT REP: MIKE ONEY
SAMPLE ID: 201501027970
SAMPLE DATE: 7/27/2015
ANALYSIS DATE: 8/4/2015
ANALYST: SAMUEL NEWMAN

APACHE CORPORATION, HAWK B1, HAWK FEDERAL B1 #69

FIELD DATA			ANALYSIS OF SAMPLE					
			ANIONS:		mg/L		meq/L	
Initial Temperature (°F):	250	Chloride (Cl ⁻):	107364.4		3028.6	Sodium (Na ⁺):	47085.3	2049.0
Final Temperature (°F):	80	Sulfate (SO ₄ ²⁻):	1088.3		22.7	Potassium (K ⁺):	933.2	23.9
Initial Pressure (psi):	100	Borate (H ₃ BO ₃):	147.7		2.4	Magnesium (Mg ²⁺):	3188.8	262.5
Final Pressure (psi):	15	Fluoride (F ⁻):	ND			Calcium (Ca ²⁺):	10522.7	525.1
pH:		Bromide (Br ⁻):	ND			Strontium (Sr ²⁺):	264.0	6.0
pH at time of sampling:	6.5	Nitrite (NO ₂ ⁻):	ND			Barium (Ba ²⁺):	0.0	0.0
		Nitrate (NO ₃ ⁻):	ND			Iron (Fe ²⁺):	12.0	0.4
		Phosphate (PO ₄ ³⁻):	ND			Manganese (Mn ²⁺):	0.0	0.0
		Silica (SiO ₂):	ND			Lead (Pb ²⁺):	ND	
						Zinc (Zn ²⁺):	0.0	0.0
ALKALINITY BY TITRATION:								
	mg/L	meq/L						
Bicarbonate (HCO ₃ ⁻):	305.0	5.0						
Carbonate (CO ₃ ²⁻):	ND							
Hydroxide (OH ⁻):	ND							
			ORGANIC ACIDS:		mg/L		meq/L	
aqueous CO ₂ (ppm):	50.0	Formic Acid:	ND					
aqueous H ₂ S (ppm):	102.0	Acetic Acid:	ND					
aqueous O ₂ (ppb):	ND	Propionic Acid:	ND					
		Butyric Acid:	ND					
		Valeric Acid:	ND					
Calculated TDS (mg/L):	170911							
Density/Specific Gravity (g/cm ³):	1.1100							
Measured Specific Gravity	1.1235							
Conductivity (mmhos):	ND							
Resistivity:	ND							
MCF/D:	No Data							
BOPD:	No Data							
BWPD:	No Data							
			Anion/Cation Ratio:		1.07		ND = Not Determined	

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		0.000	1.19	62.300	-0.03	0.000	-0.18	0.000
99°F	24 psi		0.000	1.16	61.138	-0.02	0.000	-0.09	0.000
118°F	34 psi		0.000	1.16	60.309	-0.01	0.000	0.00	3.925
137°F	43 psi		0.000	1.16	59.629	0.00	0.000	0.10	106.555
156°F	53 psi		0.000	1.17	59.113	0.00	3.805	0.20	193.137
174°F	62 psi		0.000	1.19	58.803	0.01	14.666	0.30	264.967
193°F	72 psi		0.000	1.21	58.733	0.02	25.111	0.41	323.445
212°F	81 psi		0.000	1.24	58.992	0.02	34.134	0.52	370.197
231°F	91 psi		0.000	1.28	59.526	0.03	40.439	0.62	406.975
250°F	100 psi		0.000	1.33	60.296	0.03	42.503	0.73	435.509

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	0.12	39.539	-0.98	0.000	3.01	6.588	-0.13	0.000
99°F	24 psi	0.13	42.201	-1.00	0.000	2.85	6.584	-0.10	0.000
118°F	34 psi	0.14	44.351	-1.01	0.000	2.74	6.581	-0.06	0.000
137°F	43 psi	0.15	46.676	-1.02	0.000	2.66	6.578	-0.02	0.000
156°F	53 psi	0.16	49.604	-1.03	0.000	2.60	6.576	0.00	0.075
174°F	62 psi	0.17	53.348	-1.03	0.000	2.56	6.574	0.03	0.410
193°F	72 psi	0.19	57.940	-1.04	0.000	2.53	6.572	0.04	0.634
212°F	81 psi	0.21	63.271	-1.05	0.000	2.52	6.572	0.05	0.830
231°F	91 psi	0.24	69.128	-1.05	0.000	2.53	6.572	0.06	0.957
250°F	100 psi	0.26	75.230	-1.05	0.000	2.54	6.573	0.07	1.001

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.

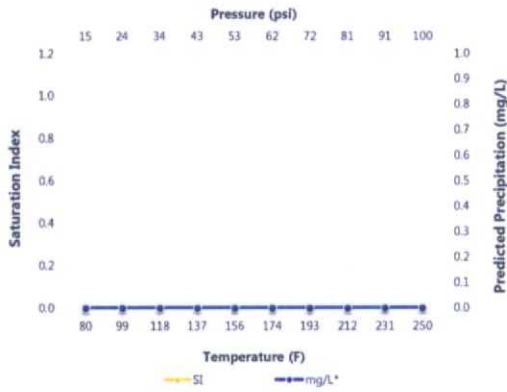
Note 3: Saturation Index predictions on this sheet use pH and alkalinity; %CO₂ is not included in the calculations.

ScaleSoftPit™
SSP2010

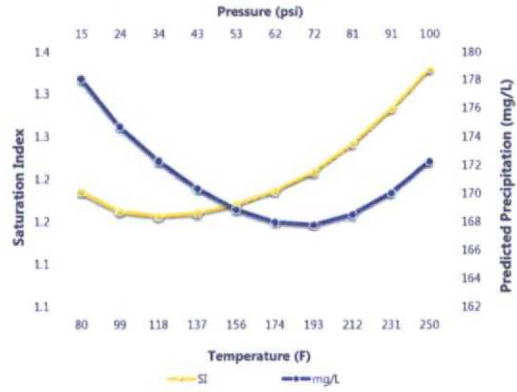
Comments:

ABO FORMATION

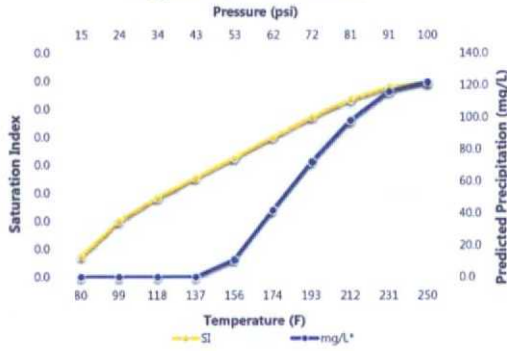
Barite (BaSO₄)



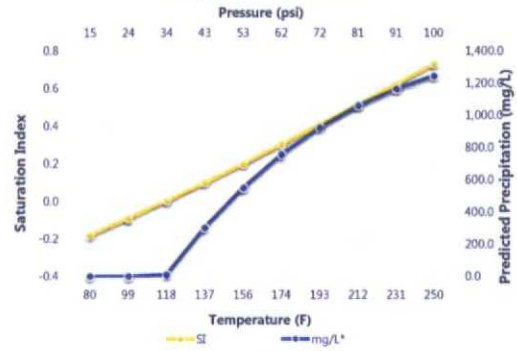
Calcite (CaCO₃)



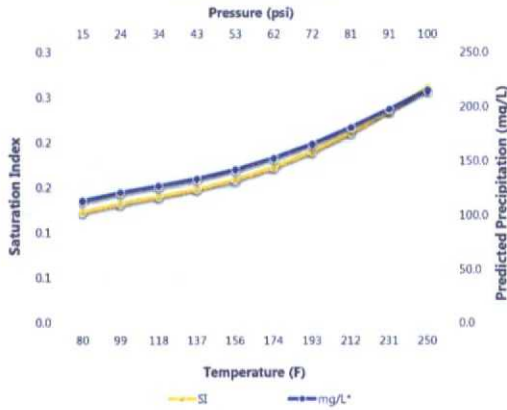
Gypsum (CaSO₄·2H₂O)



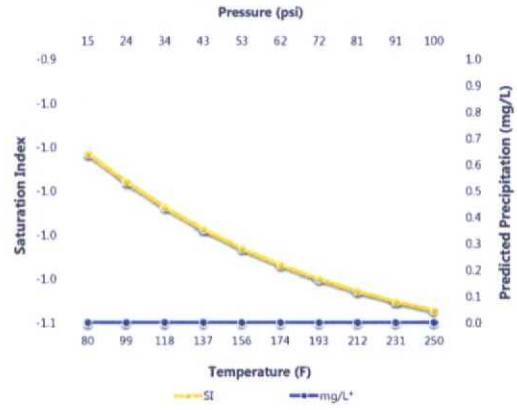
Anhydrite (CaSO₄)



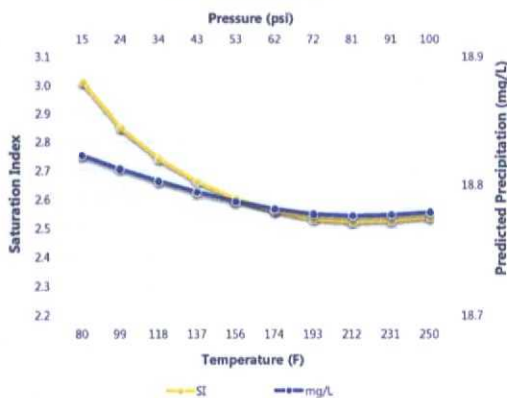
Celestite (SrSO₄)



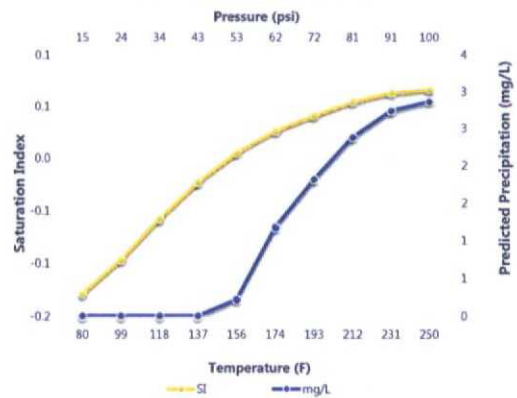
Halite (NaCl)



Iron Sulfide (FeS)



Iron Carbonate (FeCO₃)



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



LABORATORY SERVICES
Natural Gas Analysis

www.permianls.com

575.397.3713 2609 W Marland Hobbs NM 88240

For:	Apache Corporation	Sample:	Blinebry Zone
	Attention: Jim White	Identification:	Hawk A5 #9
	P. O. Box 1849	Company:	Apache Corporation
	Eunice, New Mexico 88231	Lease:	
		Plant:	

Sample Data:	Date Sampled	6/25/2015		
	Analysis Date	6/26/2015		
	Pressure-PSIA		Sampled by:	Kelly
	Sample Temp F		Analysis by:	Vicki McDaniel
	Atmos Temp F			

H2S =

Component Analysis

		Mol Percent	GPM
Hydrogen Sulfide	H2S		
Nitrogen	N2	2.152	
Carbon Dioxide	CO2	0.980	
Methane	C1	79.326	
Ethane	C2	10.872	2.900
Propane	C3	4.275	1.175
I-Butane	IC4	0.483	0.158
N-Butane	NC4	1.009	0.317
I-Pentane	IC5	0.202	0.074
N-Pentane	NC5	0.208	0.075
Hexanes Plus	C6+	<u>0.493</u>	<u>0.213</u>
		100.000	4.912

REAL BTU/CU.FT.

At 14.65 DRY	1191.7
At 14.65 WET	1170.9
At 14.696 DRY	1195.4
At 14.696 WET	1175.0
At 14.73 DRY	1198.1
At 14.73 Wet	1177.5

Specific Gravity

Calculated 0.7091

Molecular Weight 20.5366

Z Factor (DRY) 0.9967

Z Factor (WET) 0.9963



LABORATORY SERVICES
Natural Gas Analysis

www.permianls.com

575.397.3713 2609 W Marland Hobbs NM 88240

ASTM DISTILLATION

Apache Corporation
Attention: Randy Hunter
P. O. Box 1849
Eunice, New Mexico 88231

Sampled By: Mike Oney/Baker
Sample Date: 6/26/15

Sample ID: Hawk A5 #9 Blinebry

<u>Percent Distilled</u>	<u>Temperature</u>		
IBP	138		
5	161		
10	212		
20	288	% Recovered =	92.0
30	366	% Residue =	4.0
40	436	% Loss =	4.0
50	540		
60	584		
70	635		
80	696		
90	716		
EP			

<u>Total Sulfur</u>	<u>API Gravity</u>	<u>Specific Gravity</u>	<u>RVP</u>
0.592 wt. %	38.7	0.8313	

Distillation	ASTM D 86	Sulfur	ASTM D 4294
Gravity	ASTM D 287	Vapor Pres	ASTM D 323



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

Upstream Chemicals

REPORT DATE: 7/27/2015

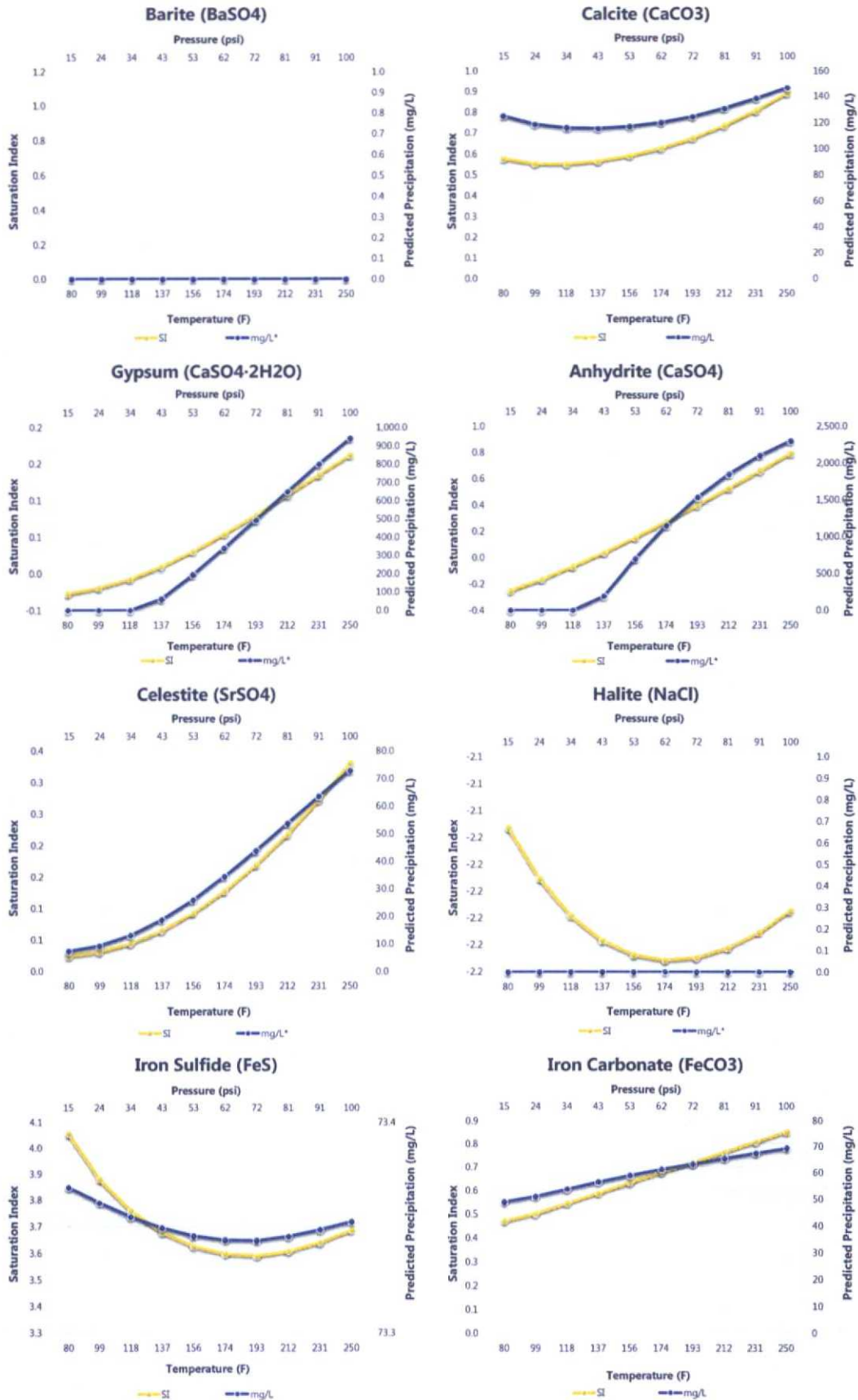
COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER: APACHE CORPORATION
DISTRICT: NEW MEXICO
AREA/LEASE: WEST BLINEBERRY DRINKARD UNIT
SAMPLE POINT NAME: WBDU #28 WELLHEAD DISCHARGE
SITE TYPE: WELL SITES
SAMPLE POINT DESCRIPTION: SWABBED FLUID/WORKOVER

ACCOUNT REP: MIKE ONEY
SAMPLE ID: 201501026173
SAMPLE DATE: 7/14/2015
ANALYSIS DATE: 7/23/2015
ANALYST: SAMUEL NEWMAN

APACHE CORPORATION, WEST BLINEBERRY DRINKARD UNIT, WBDU #28 WELLHEAD DISCHARGE

FIELD DATA			ANALYSIS OF SAMPLE							
			ANIONS:		mg/L	meq/L	CATIONS:		mg/L	meq/L
Initial Temperature (°F):	250	Chloride (Cl ⁻):	31067.8	876.4	Sodium (Na ⁺):	16118.6	701.4			
Final Temperature (°F):	80	Sulfate (SO ₄ ²⁻):	2051.7	42.7	Potassium (K ⁺):	363.3	9.3			
Initial Pressure (psi):	100	Borate (H ₃ BO ₃):	80.5	1.3	Magnesium (Mg ²⁺):	776.9	63.9			
Final Pressure (psi):	15	Fluoride (F ⁻):	ND		Calcium (Ca ²⁺):	2912.8	145.3			
pH:		Bromide (Br ⁻):	ND		Strontium (Sr ²⁺):	66.2	1.5			
		Nitrite (NO ₂ ⁻):	ND		Barium (Ba ²⁺):	0.0	0.0			
	pH at time of sampling:	6.9	Nitrate (NO ₃ ⁻):	ND		Iron (Fe ²⁺):	46.6	1.7		
			Phosphate (PO ₄ ³⁻):	ND		Manganese (Mn ²⁺):	10.1	0.4		
		Silica (SiO ₂):	ND		Lead (Pb ²⁺):	ND				
					Zinc (Zn ²⁺):	0.0	0.0			
ALKALINITY BY TITRATION:			mg/L	meq/L						
Bicarbonate (HCO ₃ ⁻):	366.0		6.0		Aluminum (Al ³⁺):		ND			
Carbonate (CO ₃ ²⁻):	ND				Chromium (Cr ³⁺):		ND			
Hydroxide (OH ⁻):	ND				Cobalt (Co ²⁺):		ND			
			ORGANIC ACIDS:		mg/L	meq/L	Copper (Cu ²⁺):		ND	
aqueous CO ₂ (ppm):	100.0	Formic Acid:	ND				Molybdenum (Mo ²⁺):		ND	
aqueous H ₂ S (ppm):	170.0	Acetic Acid:	ND				Nickel (Ni ²⁺):		ND	
aqueous O ₂ (ppb):	ND	Propionic Acid:	ND				Tin (Sn ²⁺):		ND	
		Butyric Acid:	ND				Titanium (Ti ²⁺):		ND	
		Valeric Acid:	ND				Vanadium (V ²⁺):		ND	
Calculated TDS (mg/L):	53861						Zirconium (Zr ²⁺):		ND	
Density/Specific Gravity (g/cm ³):	1.0348									
Measured Specific Gravity	1.0378									
Conductivity (mmhos):	ND						Total Hardness:	10558	N/A	
Resistivity:	ND									
MCF/D:	No Data									
BOPD:	No Data									
BWPD:	No Data									
			Anion/Cation Ratio:		1.00	ND = Not Determined				



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



LABORATORY SERVICES

Natural Gas Analysis

www.permianls.com

575.397.3713 2609 W Marland Hobbs NM 88240

For:	Apache Corporation	Sample:	Drinkard Zone
	Attention: Jim White	Identification:	Hawk A5 #9
	P. O. Box 1849	Company:	Apache Corporation
	Eunice, New Mexico 88231	Lease:	
		Plant:	

Sample Data:	Date Sampled	6/25/2015	
	Analysis Date	6/26/2015	
	Pressure-PSIA		Sampled by: Kelly
	Sample Temp F		Analysis by: Vicki McDaniel
	Atmos Temp F		

H2S =

Component Analysis

		Mol Percent	GPM
Hydrogen Sulfide	H2S		
Nitrogen	N2	3.067	
Carbon Dioxide	CO2	0.023	
Methane	C1	81.834	
Ethane	C2	8.245	2.199
Propane	C3	3.785	1.040
I-Butane	IC4	0.389	0.127
N-Butane	NC4	1.165	0.366
I-Pentane	IC5	0.269	0.098
N-Pentane	NC5	0.340	0.123
Hexanes Plus	C6+	<u>0.883</u>	<u>0.382</u>
		100.000	4.336

REAL BTU/CU.FT.		Specific Gravity	
At 14.65 DRY	1188.1	Calculated	0.7013
At 14.65 WET	1167.4		
At 14.696 DRY	1191.8		
At 14.696 WET	1171.5	Molecular Weight	20.3112
At 14.73 DRY	1194.6		
At 14.73 Wet	1173.9		
		Z Factor (DRY)	0.9968
		Z Factor (WET)	0.9964



LABORATORY SERVICES
Natural Gas Analysis

www.permianls.com
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ASTM DISTILLATION

Apache Corporation
Attention: Randy Hunter
P. O. Box 1849
Eunice, New Mexico 88231

Sampled By: Mike Oney/Baker
Sample Date: 7/13/15

Sample ID: ~~Web DVC~~ 28 Drinkard

<u>Percent Distilled</u>	<u>Temperature</u>		
IBP	98		
5	148		
10	192		
20	243	%Recovered =	94.0
30	302	% Residue =	5.0
40	375	% Loss =	1.0
50	461		
60	524		
70	569		
80	605		
90	631		
EP	635		

<u>Total Sulfur</u>	<u>API Gravity</u>	<u>Specific Gravity</u>	<u>RVP</u>
1.104 wt. %	38.5	0.8323	

Distillation	ASTM D 86	Sulfur	ASTM D 4294
Gravity	ASTM D 287	Vapor Pres	ASTM D 323

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER:	APACHE CORPORATION
DISTRICT:	NEW MEXICO
AREA/LEASE:	HAWK A5
SAMPLE POINT NAME	HAWK A5 #9
SITE TYPE:	WELL SITES
SAMPLE POINT DESCRIPTION:	SWABBED FLUID/WORKOVER

ACCOUNT REP:	MIKE ONEY
SAMPLE ID:	201501023735
SAMPLE DATE:	6/25/2015
ANALYSIS DATE:	7/2/2015
ANALYST:	SAMUEL NEWMAN

APACHE CORPORATION, HAWK A5, HAWK A5 #9

FIELD DATA			ANALYSIS OF SAMPLE							
			ANIONS:		mg/L	meq/L	CATIONS:		mg/L	meq/L
Initial Temperature (°F):			250 Chloride (Cl⁻):		42232.5	1191.3	Sodium (Na⁺):		21186.2	921.9
Final Temperature (°F):			80 Sulfate (SO₄²⁻):		1057.7	22.0	Potassium (K⁺):		447.3	11.4
Initial Pressure (psi):			100 Borate (H₃BO₃):		120.1	1.9	Magnesium (Mg²⁺):		1159.6	95.4
Final Pressure (psi):			15 Fluoride (F⁻):		ND		Calcium (Ca²⁺):		3796.3	189.4
			Bromide (Br⁻):		ND		Strontium (Sr²⁺):		85.7	2.0
pH:			Nitrite (NO₂⁻):		ND		Barium (Ba²⁺):		0.3	0.0
pH at time of sampling:			6.8 Nitrate (NO₃⁻):		ND		Iron (Fe³⁺):		24.5	0.9
SI Residual:	mg/L		Phosphate (PO₄³⁻):		ND		Manganese (Mn²⁺):		0.7	0.0
Compound:	Total PO4		Silica (SiO₂):		ND		Lead (Pb²⁺):		ND	
Residual (ppm):							Zinc (Zn²⁺):		0.0	0.0
ALKALINITY BY TITRATION:	mg/L	meq/L								
Bicarbonate (HCO₃⁻):	244.0	4.0					Aluminum (Al³⁺):		ND	
Carbonate (CO₃²⁻):	ND						Chromium (Cr³⁺):		ND	
Hydroxide (OH⁻):	ND						Cobalt (Co²⁺):		ND	
			ORGANIC ACIDS:		mg/L	meq/L	Copper (Cu²⁺):		ND	
aqueous CO₂ (ppm):	50.0	Formic Acid:			ND		Molybdenum (Mo²⁺):		ND	
aqueous H₂S (ppm):	50.0	Acetic Acid:			ND		Nickel (Ni²⁺):		ND	
aqueous O₂ (ppb):	ND	Propionic Acid:			ND		Tin (Sn²⁺):		ND	
		Butyric Acid:			ND		Titanium (Ti²⁺):		ND	
Calculated TDS (mg/L):	70355	Valeric Acid:			ND		Vanadium (V²⁺):		ND	
Density/Specific Gravity (g/cm³):	1.0459						Zirconium (Zr²⁺):		ND	
Measured Specific Gravity	1.0494									
Conductivity (mmhos):	ND						Total Hardness:		14366	N/A
Resistivity:	ND									
MCF/D:	No Data									
BOPD:	No Data									
BWPD:	No Data	Anion/Cation Ratio:			1.00		ND = Not Determined			

SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTURE 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	0.22	0.072	0.69	34.417	-0.30	0.000	-0.51	0.000
99°F	24 psi	0.08	0.031	0.71	34.899	-0.29	0.000	-0.43	0.000
118°F	34 psi	-0.04	0.000	0.75	36.163	-0.28	0.000	-0.33	0.000
137°F	43 psi	-0.14	0.000	0.80	37.675	-0.26	0.000	-0.23	0.000
156°F	53 psi	-0.22	0.000	0.87	39.285	-0.24	0.000	-0.11	0.000
174°F	62 psi	-0.29	0.000	0.93	40.946	-0.22	0.000	0.00	3.752
193°F	72 psi	-0.35	0.000	1.01	42.643	-0.20	0.000	0.13	121.149
212°F	81 psi	-0.39	0.000	1.10	44.489	-0.18	0.000	0.25	215.883
231°F	91 psi	-0.43	0.000	1.19	46.360	-0.15	0.000	0.38	290.435
250°F	100 psi	-0.46	0.000	1.29	48.216	-0.13	0.000	0.51	347.880

Conditions		Celestite (SrSO ₄)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate (FeCO ₃)	
Temp	Press.	Index	Amt (pth)	Index	Amt (pth)	Index	Amt (pth)	Index	Amt (pth)
80°F	15 psi	-0.24	0.000	-1.89	0.000	3.17	13.489	0.18	4.330
99°F	24 psi	-0.24	0.000	-1.90	0.000	3.04	13.482	0.25	5.801
118°F	34 psi	-0.22	0.000	-1.92	0.000	2.97	13.478	0.34	7.379
137°F	43 psi	-0.21	0.000	-1.93	0.000	2.93	13.477	0.42	8.777
156°F	53 psi	-0.18	0.000	-1.93	0.000	2.91	13.476	0.50	9.953
174°F	62 psi	-0.15	0.000	-1.93	0.000	2.91	13.477	0.58	10.925
193°F	72 psi	-0.12	0.000	-1.93	0.000	2.93	13.479	0.65	11.722
212°F	81 psi	-0.08	0.000	-1.93	0.000	2.96	13.482	0.72	12.438
231°F	91 psi	-0.03	0.000	-1.93	0.000	3.01	13.485	0.78	13.034
250°F	100 psi	0.02	2.862	-1.92	0.000	3.06	13.489	0.84	13.515

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:

Drinkard Formation



LABORATORY SERVICES
Natural Gas Analysis

www.permianls.com

575.397.3713 2609 W Marland Hobbs NM 88240

For: Apache Corporation
Attention: Jim White
P. O. Box 1849
Eunice, New Mexico 88231

Sample: Tubb Zone
Identification: Hawk A5 #9
Company: Apache Corporation
Lease:
Plant:

Sample Data: Date Sampled 6/25/2015
Analysis Date 6/26/2015
Pressure-PSIA
Sample Temp F
Atmos Temp F

Sampled by: Kelly
Analysis by: Vicki McDaniel

H2S =

Component Analysis

		Mol Percent	GPM
Hydrogen Sulfide	H2S		
Nitrogen	N2	2.173	
Carbon Dioxide	CO2	0.131	
Methane	C1	76.861	
Ethane	C2	11.029	2.942
Propane	C3	5.819	1.599
I-Butane	IC4	0.757	0.247
N-Butane	NC4	1.825	0.574
I-Pentane	IC5	0.322	0.117
N-Pentane	NC5	0.383	0.138
Hexanes Plus	C6+	<u>0.700</u>	<u>0.303</u>
		100.000	5.921

REAL BTU/CU.FT.

At 14.65 DRY	1267.0
At 14.65 WET	1244.8
At 14.696 DRY	1270.9
At 14.696 WET	1249.3
At 14.73 DRY	1273.8
At 14.73 Wet	1251.8

Specific Gravity

Calculated 0.7437

Molecular Weight 21.5407

Z Factor (DRY) 0.9963

Z Factor (WET) 0.9959



LABORATORY SERVICES
Natural Gas Analysis

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575.397.3713 2609 W Marland Hobbs NM 88240

ASTM DISTILLATION

Apache Corporation
Attention: Randy Hunter
P. O. Box 1849
Eunice, New Mexico 88231

Sampled By: Mike Oney/Baker
Sample Date: 7/14/15

W3774 28
Sample ID: Tubb Formation

<u>Percent Distilled</u>	<u>Temperature</u>		
IBP	100		
5	159		
10	204		
20	276	%Recovered =	93.0
30	366	% Residue =	6.0
40	441	% Loss =	1.0
50	515		
60	575		
70	639		
80	690		
90	718		
EP	720		

<u>Total Sulfur</u>	<u>API Gravity</u>	<u>Specific Gravity</u>	<u>RVP</u>
0.503 wt. %	36.7	0.8412	

Distillation	ASTM D 86	Sulfur	ASTM D 4294
Gravity	ASTM D 287	Vapor Pres	ASTM D 323



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

Upstream Chemicals

REPORT DATE: 7/14/2015

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER: APACHE CORPORATION
DISTRICT: NEW MEXICO
AREA/LEASE: HAWK A5
SAMPLE POINT NAME: HAWK A5 #9
SITE TYPE: WELL SITES
SAMPLE POINT DESCRIPTION: SWABBED FLUID/WORKOVER

ACCOUNT REP: MIKE ONEY
SAMPLE ID: 201501023736
SAMPLE DATE: 6/25/2015
ANALYSIS DATE: 7/2/2015
ANALYST: SAMUEL NEWMAN

APACHE CORPORATION, HAWK A5, HAWK A5 #9

FIELD DATA		ANALYSIS OF SAMPLE					
		ANIONS:		CATIONS:			
		mg/L	meq/L	mg/L	meq/L		
Initial Temperature (°F):		250 Chloride (Cl ⁻):	43134.5	1216.8 Sodium (Na ⁺):	21557.2	938.1	
Final Temperature (°F):		80 Sulfate (SO ₄ ²⁻):	1227.7	25.6 Potassium (K ⁺):	457.4	11.7	
Initial Pressure (psi):		100 Borate (H ₃ BO ₃):	113.7	1.8 Magnesium (Mg ²⁺):	1181.1	97.2	
Final Pressure (psi):		15 Fluoride (F ⁻):	ND	Calcium (Ca ²⁺):	3971.3	198.2	
pH:		Bromide (Br ⁻):	ND	Strontium (Sr ²⁺):	88.3	2.0	
pH at time of sampling:		Nitrite (NO ₂ ⁻):	ND	Barium (Ba ²⁺):	0.3	0.0	
SI Residual:	mg/L	6.9 Nitrate (NO ₃ ⁻):	ND	Iron (Fe ²⁺):	70.3	2.5	
Compound:	Total PO4	Phosphate (PO ₄ ³⁻):	ND	Manganese (Mn ²⁺):	2.7	0.1	
Residual (ppm):		Silica (SiO ₂):	ND	Lead (Pb ²⁺):	ND		
ALKALINITY BY TITRATION:	mg/L meq/L			Zinc (Zn ²⁺):	1.9	0.1	
Bicarbonate (HCO ₃ ⁻):	144.0	2.4		Aluminum (Al ³⁺):	ND		
Carbonate (CO ₃ ²⁻):	ND			Chromium (Cr ³⁺):	ND		
Hydroxide (OH ⁻):	ND			Cobalt (Co ²⁺):	ND		
		ORGANIC ACIDS:		Copper (Cu ²⁺):	ND		
aqueous CO ₂ (ppm):		50.0 Formic Acid:	ND	Molybdenum (Mo ²⁺):	ND		
aqueous H ₂ S (ppm):		51.0 Acetic Acid:	ND	Nickel (Ni ²⁺):	ND		
aqueous O ₂ (ppb):		ND Propionic Acid:	ND	Tin (Sn ²⁺):	ND		
		Butyric Acid:	ND	Titanium (Ti ²⁺):	ND		
Calculated TDS (mg/L):		71950 Valeric Acid:	ND	Vanadium (V ²⁺):	ND		
Density/Specific Gravity (g/cm ³):	1.0471			Zirconium (Zr ²⁺):	ND		
Measured Specific Gravity	1.0503			Total Hardness:	14895	N/A	
Conductivity (mmhos):	ND						
Resistivity:	ND						
MCF/D:	No Data						
BOPD:	No Data						
BWPD:	No Data	Anion/Cation Ratio:	1.00				

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	0.28	0.086	0.44	13.882	-0.23	0.000	-0.44	0.000
99°F	24 psi	0.14	0.049	0.42	13.311	-0.22	0.000	-0.35	0.000
118°F	34 psi	0.02	0.008	0.43	13.315	-0.20	0.000	-0.26	0.000
137°F	43 psi	-0.08	0.000	0.46	13.629	-0.19	0.000	-0.15	0.000
156°F	53 psi	-0.16	0.000	0.49	14.165	-0.17	0.000	-0.04	0.000
174°F	62 psi	-0.23	0.000	0.53	14.881	-0.15	0.000	0.08	90.459
193°F	72 psi	-0.29	0.000	0.59	15.752	-0.13	0.000	0.20	207.558
212°F	81 psi	-0.34	0.000	0.65	16.824	-0.10	0.000	0.33	301.897
231°F	91 psi	-0.37	0.000	0.72	18.016	-0.08	0.000	0.45	376.040
250°F	100 psi	-0.40	0.000	0.81	19.291	-0.06	0.000	0.58	433.113

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	-0.17	0.000	-1.87	0.000	3.75	33.613	0.36	10.196
99°F	24 psi	-0.17	0.000	-1.89	0.000	3.59	33.420	0.40	11.146
118°F	34 psi	-0.16	0.000	-1.90	0.000	3.47	33.350	0.45	12.287
137°F	43 psi	-0.14	0.000	-1.91	0.000	3.40	33.337	0.51	13.358
156°F	53 psi	-0.11	0.000	-1.91	0.000	3.35	33.359	0.56	14.305
174°F	62 psi	-0.08	0.000	-1.92	0.000	3.33	33.405	0.61	15.129
193°F	72 psi	-0.05	0.000	-1.92	0.000	3.32	33.470	0.65	15.844
212°F	81 psi	-0.01	0.000	-1.91	0.000	3.33	33.574	0.70	16.537
231°F	91 psi	0.04	5.219	-1.91	0.000	3.36	33.696	0.75	17.166
250°F	100 psi	0.09	11.364	-1.90	0.000	3.40	33.827	0.79	17.721

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.

ScaleSoftPitter™
SSP2010

Comments:

Tubbs Formation

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary-Designate

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

Jami Bailey, Division Director
Oil Conservation Division



Administrative Order DHC-4645
Order Date: November 4, 2013
Application Reference Number: pPRG1328359608

Apache Corporation
303 Veterans Airpark Lane, Ste 3000
Midland, TX 79705

Attention: Reesa Holland Fisher

	Hawk Federal A-5 Well No. 3		
	API No: 30-025-37380		
	Unit O, Section 5, Township 21 South, Range 37 East, NMPM		
	Lea County, New Mexico		
Pool	BLINEBRY OIL AND GAS	Oil	6660
Names:	TUBB OIL AND GAS	Oil	60240
	DRINKARD	Oil	19190
	WANTZ; ABO	Oil	62700

Reference is made to your recent application for an exception to 19.15.12.9A. NMAC of the Division Rules and Regulations to permit the above-described well to commingle production from the subject pools in the wellbore. All four of the subject pools are pre-approved for commingling under 19.15.12.11E. NMAC in specific pool combinations, but there is not a pre-approved commingling with the Tubb Oil and Gas and the Wantz; Abo pools. This Administrative order replaces the existing order DHC-HOB-138 issued by District I on April 26, 2000, for the pre-approved pools prior to the application for commingling of the Wantz; Abo pool.

It appearing that the subject well qualifies for approval for such exception pursuant to the provisions of 19.15.12.11A. NMAC, and that reservoir damage or waste will not result from such downhole commingling, and correlative rights will not be violated thereby, you are hereby authorized to commingle the production as described above and any Division Order which authorized the dual completion or otherwise required separation of the zones is hereby placed in abeyance.

In accordance with 19.15.12.11A.(6) NMAC, the production attributed to any commingled pool within the well shall not exceed the allowable applicable to that pool.

Assignment of allowable and allocation of production from the well shall be as follows:

BLINEBRY OIL & GAS (OIL) POOL	Pct Gas: 57	Pct Oil: 18
TUBB OIL & GAS (OIL) POOL	Pct Gas: 8	Pct Oil: 20
DRINKARD (OIL) POOL	Pct Gas: 0	Pct Oil: 15
WANTZ; ABO (OIL) POOL	Pct Gas: 35	Pct Oil: 47

REMARKS: The operator shall notify the Division's District I office upon implementation of commingling operations.

This Order is subject to like approval from the United States Bureau of Land Management.

Pursuant to 19.15.12.11B. NMAC, the commingling authority granted herein may be rescinded by the Division Director if conservation is not being best served by such commingling.



JAMI BAILEY
Director

JB/prg

cc: Oil Conservation Division – Hobbs District
Bureau of Land Management – Carlsbad Office

PNRM 0606930652

C-103 Received 2-2-2006
DHC No. Assigned 3-10-2006

Order Number		API Number		Operator		County	
H08-0138		30-025-37380		Apache Corporation		Lea	
Order Date		Well Name		Number		Location	
		Hawk A-5		003		21S 37E	
						UL Sec T (+Dir) R (+Dir)	
Pool 1	06660	Blinebry Oil & Gas (Oil)		Oil %	33%	Gas %	78%
Pool 2	60240	Tubb Oil & Gas (Oil)		Oil %	38%	Gas %	22%
Pool 3	19190	Drinkard		Oil %	29%	Gas %	0%
Pool 4				Oil %		Gas %	
Comments: Work completed effective _____ Work cancelled effective _____ Supplement _____							

Posted to
R B Dym
3-10-2006

3

Office
District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Ave., 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

Form C-103
May 27, 2004

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

WELL API NO.	30-025-37380
5. Indicate Type of Lease	Federal ☒ STATE ☐ FEE ☐
6. State Oil & Gas Lease No.	
7. Lease Name or Unit Agreement Name	HAWK A-5
8. Well Number	3
9. OGRID Number	00873
10. Pool name or Wildcat	Blinebry O&G, Tubb O&G & Drinkard

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)

1. Type of Well: Oil Well ☒ Gas Well ☐ Other ☐
2. Name of Operator Apache Corporation
3. Address of Operator 6120 South Yale, Suite 1500 Tulsa, OK 74136-4224
4. Well Location Unit Letter <u>O</u> : <u>330</u> feet from the <u>South</u> line and <u>1650</u> feet from the <u>East</u> line Section <u>5</u> Township <u>21S</u> Range <u>37E</u> NMPM County <u>Lea</u>
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3502'

Pit or Below-grade Tank Application ☐ or Closure ☐
Pit type _____ Depth to Groundwater _____ Distance from nearest fresh water well _____ Distance from nearest surface water _____
Pit Liner Thickness: _____ mil Below-Grade Tank: Volume _____ bbls; Construction Material _____

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 ☐
WELL OR ALTER CASING ☐ MULTIPLE COMPL ☐

OTHER: ☐

SUBSEQUENT REPORT OF:

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

OTHER: Downhole Commingle Blinebry, Tubb & Drinkard ☒

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.

Pursuant to Division Order R-11363

Pool Names: Blinebry Oil & Gas (Oil) 06660, Tubb Oil & Gas (Oil) 60240, Drinkard 19190

Perforations:

BLINEBRY 5737-39, 5888-92, 5918-22 & 6021-25' 2 JSPF

TUBB 6255-57, 6304-08, 6335-37, 6363-65 & 6384-88' 2 JSPF

DRINKARD 6736-40, 6772-76, 6805-09, 6821-26 & 6847-50' 2 JSPF

ABO 6988-98, 7048-52, 7054-64, 7070-73, 84-88, 7096-7102, 24-28, 58-60 & 7186-90' 1 JSPF
CIBP @ 6978'

The allocation method will be as follows: Test 58 BO X 81 MCF X 203 BW

	Oil	Alloc%	Gas	Alloc%	Wtr	Alloc%
Blinebry	19	33	63	78	17	9
Tubb	22	38	18	22	47	23
Drinkard	17	29	0	0	139	68
	58	100	81	100	203	100

Downhole commingling will not reduce the value of the pools.

Ownership is the same for each of these pools.

DHC Order No.

HOB-0138

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that any pit or below-grade tank has been/will be constructed or closed according to NMOC guidelines ☐, a general permit ☐ or an (attached) alternative OCD-approved plan ☐.

SIGNATURE Elaine Linton TITLE Engineering Technician DATE 02/01/2006

Type or print name Elaine Linton

E-mail address: elaine.linton@apachecorp.com Telephone No. (918) 491-5362

For State Use Only

APPROVED BY: [Signature] TITLE PETROLEUM ENGINEER DATE MAR 10 2006
Conditions of Approval (if any):