Oil and Gas Agreements

J. David Chase
Wyoming State Office
Reservoir Management Group (RMG)
Oil and Gas Agreements

“In a Nutshell”

or

Why on God’s Green Earth are you making my job so difficult with these Darn Agreements?
General Topics

- Types of Oil and Gas Agreements:
  - Exploratory Unit Agreements
  - Conventional Oil & Gas
  - Continuous Accumulations (coalbed natural gas, fractured shale, etc.)
  - Enhanced Recovery Unit Agreements
  - Communitization Agreements
  - Gas Storage Agreements
AGREEMENTS

Why do we need them?
Introduction

- Exploratory Unit Agreements (Conventional Wells)
  1. Rule of Capture
  2. Correlative Rights Doctrine
  3. Benefits of Unit Agreements
  4. Unit Names
  5. Approval Process
     a. Designation
     b. Final Approval
• Exploratory Unit Agreements (cont’d)
  1. Forming an Exploratory Unit
  2. RMG Policy
  3. Drilling to Discovery
     a. Dry Hole
     b. Non-Paying Unit Well
     c. Paying Unit Well
  4. Participating Areas
     a. Initial
     b. Revisions
RULE OF CAPTURE
RULE OF CAPTURE

• Was the law of the land in the early days of oil and gas development
• Created by the Pennsylvania Supreme Court in 1889
• Created out of necessity and ignorance
• Ownership of oil and gas was analogized to ownership of groundwater and more importantly, wild animals
RULE OF CAPTURE

This Rule Essentially Said:

Whatever oil and gas that I can produce from my well is mine.
Oil and Gas Mapping Symbology

- Gas Well
- Oil Well
- Plugged and Abandoned
RULE OF CAPTURE

RESULT:

WAR OF THE WELLS
RULE OF CAPTURE

RESULT:

✓ A race for possession by competitive operators
✓ Dense drilling along property lines
✓ Rapid depletion of reservoir pressure
✓ Loss of ultimate recovery
✓ Environmental disaster
Mid 1930s:

- Courts finally understood that they were dealing with multiple owners of a common oil and gas pool and that the “Rule of Capture” had limits.

- “Correlative Rights Doctrine” adopted in many states
Correlative Rights Doctrine

Key Elements:

• Deals with an *opportunity* to receive a fair and equitable share of the source of supply, not a guarantee to receive that fair and equitable share.

• An explicit part of most state conservation regulations in the form of pooling, unitization, spacing, or proration.
Why Do We Need Agreements?

Agreements are a tool used to support the “Correlative Rights Doctrine” and to also negate the effects of the “Rule of Capture”
Unit Agreement Concepts and Benefits

Acid Well Treating Truck - 1933
Unit Agreement Concept

Key Elements:

- One way to apply the Correlative Rights Doctrine
- Operation of multiple leases as a single lease under a single operator.
  (Remember This!)
Benefits of Unit Agreements

- Environmental Benefits
- Oil and Gas Reservoir Benefits
- Lease Benefits
Environmental Benefits:

- Fewer Well Pads
- Fewer Roads
- Less Surface Disturbance
Oil and Gas Reservoir Benefits of Unitization

- Drill wells *ONLY* where needed
- No regards for lease-lines
- Reduce waste - higher ultimate recovery
Lease Benefits of Unitization

- Leases can be extended without actual production on the lease
- Leases get 2 year extension upon unit termination
Lease Benefits of Unitization
(cont’d)

- Federal leases exempt from statewide acreage limitation (246,080 acres)
- Leases get 2 year extension upon elimination by contraction
What is BLM’s Responsibility?

- BLM is responsible for administering these unit agreements. This includes:
  - Unit Approval
  - Monitoring
  - Unit Termination
1 barrel of oil = 42 gallons

1 barrel of oil makes 19.3 gallons of gasoline

1 mcf of gas = 1000 cubic feet

The first successful domestic gas well was drilled in Fredonia, NY (27 feet deep) in 1821, 38 years before the first oil well was drilled.
Unit Names
Originally:

Units named after a geologic or topographic feature within the unit area

*e.g.*, Salt Creek, Whiskey Draw, Wild Horse Butte

However, we eventually had more units than features -- so, we let unit operators be creative
One of our operators had an obsession with cleanliness.
One of our operators was obviously drawn to the links:

Mulligan Draw    Eagle
Rolling Green     Bogey
Fairway              Birdie
Sandtrap
One of our operators was interested in trains:

Orange Blossom Special
Rock Island
Wabash Cannonball
One of our operators temporarily lost a valley:

Lost Valley

Found Valley
Historical

5 Oldest Federal Unit Agreements

1. Little Buffalo Basin (WYO)          1/6/31
2. Big Sand Draw Gas (WYO)             2/11/32
3. Billy Creek (WYO)                   4/11/32
4. Pitchfork (WYO)                     1/30/32
5. Fourbear (WYO)                      9/19/34

Approved
Total Units by State (No API/Indian Units)

Data as of Jan. 2012
Exploratory Units by State (No Indian Units)

Data as of Jan 2012
Secondary Recovery Units by State (No API or Indian Units)

Data as of Jan 2012
API or State Units

- Little or no Federal acreage or Federal participation
- BLM has no jurisdictional or administrative responsibilities for these unit agreements
API Secondary Recovery Units by State

Data as of Jan 2012
Wyoming Oil and Gas Units
Units Current as of July 1, 2012

DESIGNATED UNITS ARE RED
The Life and Times of an Exploratory Unit Agreement
Unit Agreement
Approval Process

July 24, 1931 - Plug job done at Federal Govt. expense
Approval Process

1. Designation
2. Final Approval
Approval Process

Agreements containing Indian Lands

1. Designation
2. BIA gives Final Approval

BLM provides recommendation to BIA
Designation

Application includes:

- Unit area geology
- Unit target formation
- Unitized formations
- Unit boundary
- Obligation well location
- Changes from the standard form
- Unit operator
Final Approval

Applicant must show:

- All parties within unit area have been invited to join the unit, and
- 85% of acreage within the unit area is committed to the unit agreement (effective unit control)
  - Non-committed acreage does not receive any benefits of the unit
Lets form an Exploratory Unit Agreement

We will call the unit:

Boxelder Creek
Designation Criteria

Boxelder Creek Unit

- Target formation is the Almond
- Standard exploratory agreement form will be used
- Acme Oil will operate the unit
- All formations are unitized
1. Exploratory units will not be larger than 25,000 acres.

2. The initial unit obligation well for a vertical well in an exploratory unit shall be located based on the following:
   a. At least one mile away from any penetration(s) of the formation in which the initial unit obligation well is proposed to test.
   b. At least one mile away from the unit boundary.
3. The initial unit obligation well should be located on Federal minerals. In special circumstances the initial obligation well may be located on nonfederal minerals where the obligation well would allow adjacent Federal minerals to participate in the production of a well in a unit participating area.
Hydrocarbon Reservoirs

- Fluid (gas, oil, and/or water) – the “pool”
- Reservoir rock – what holds the oil and gas (or water)
- Pore space – where it is in the reservoir
- Trap – what keeps it in the reservoir
Boxelder Creek Unit - Designation Criteria

Boxelder Creek Unit No. 1
(obligation well location)

Almond Fm. Isopach

Boxelder Creek Unit Boundary

FEDERAL  FEE  STATE

30 ft.
20 ft. 10 ft.
0 ft.

FEDERAL  FEE  FEE

State  FEDERAL  FEDERAL
Boxelder Creek Unit

Tract #

FEDERAL 1
FEDERAL 4
STATE 6

FEE 7
FEE 8
FEE 9

FEDERAL 3
FEDERAL 2

Obligation Well Location
Drilling to Discovery

Goal:

Drill a well that is determined to be a “Unit Paying Well”
Drilling to Discovery

3 Possible Well Outcomes:

1. Dry hole
2. Non-paying unit well
3. Unit paying well
Drilling to Discovery

1. Dry Hole

Implications:

- Unit operator required to drill another well within 6 months of completion of dry hole
- Leases are not HBP (Held by Production) - as a result, leases stand on their own
Drilling to Discovery

2. Non-Paying Unit Well

Implications:

- All leases committed to the unit agreement are now HBP
  - Result of a Yates, Co. IBLA case - 1983
  - Operator often requests verification of a “Yates” well to ensure extension of all their unit leases.
3. Unit Paying Well

Implications:

- All leases committed to the unit agreement are now HBP
- Further drilling requirements are now handled under the “Plan of Development” (Wells are not required to be drilled 6 mos. after previous well was completed)
- Unit participating area will be formed
Boxelder Creek Unit

1. Boxelder Creek Unit No. 1 well was completed and showed an initial potential of 2,000 mcf/day.

2. After some production history, the operator sent a “Unit Paying Well Determination” application to the RMG.

3. RMG determined that the Boxelder Creek Unit No. 1 well was a “Unit Paying Well”
Celebration!!!!
Exploratory Unit Agreement Participation After Discovery
Participating Area (PA)

Definition:

✓ The area that is “reasonably proven productive” by a well that produces in “unit paying” quantities.

✓ The area that shares in:

✓ Financial benefits of PA production, and

✓ Costs of the PA well(s)
Participation After Discovery

“Reasonably proven productive”

How do we define this in order to come up with the PA boundary?

♦ Circle-tangent method unless additional info available

♦ Simple
♦ Equitable
♦ Well accepted by industry
Boxelder Creek Unit

640 acre circle

40 acre subdivisions cut 50% or more by the circle
Boxelder Creek Unit

Initial Almond Formation PA “A” effective May 1, 2010
Initial Almond Formation PA “A”

560 Total Acres:
- 360 Fee acres - 64.3%
- 200 Federal acres - 35.7%
 100.0%

Production Allocation EXAMPLE:

If PA well No. 1 produces 10,000 mcf gas during May, 2010, then

64.3% of gas, or 6,430 mcf attributed to Fee lease(s), and
35.7% of gas, or 3,570 mcf attributed to the Federal lease(s)

Federal royalty owed = 12 1/2% of gas attributed to the Federal acreage = 12 1/2% * 3,570 mcf = 446 mcf
Exploratory Unit Agreement

Plan of Development Phase
Boxelder Creek Unit

Plan of Development Phase

- Unit operator has 5 yrs from effective date of initial PA to develop area outside existing PA
Plan of Development Phase

Year No. 1

- Well #2 drilled
- Positive PWD
- PA revised
Boxelder Creek Unit

1st Revision Almond Formation PA “A”
effective June 1, 2011
1st Revision Almond Formation PA “A”

1,400 Total Acres:
- 880 Fee acres - 62.9%
- 520 Federal acres - 37.1%
 100.0%

Production Allocation EXAMPLE:

If PA well No. 1 & 2 together produce 30,000 mcf gas during June, 2011, then:

62.9% of gas, or 18,870 mcf attributed to Fee lease(s), and
37.1% of gas, or 11,130 mcf attributed to the Fed. lease(s)

Federal royalty owed = 12 1/2% of gas attributed to the Federal acreage = 12 1/2% * 11,130 mcf = 1,391 mcf
Plan of Development Phase

Years 2, 3, 4 and 5
- 4 dry holes
May 1, 2005

- Unit boundary contracts to PA boundary
  (5 yrs after effective date of initial PA)

- Unit continues in effect until last well in PA is plugged
Summary

- Exploratory Unit Agreements (Conventional Wells)
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     a. Designation
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Summary
(cont’d)

- Exploratory Unit Agreements (cont’d)
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     b. Non-Paying Unit Well
     c. Paying Unit Well
  4. Participating Areas
     a. Initial
     b. Revisions
Horizontal Wells in Exploratory Units
Introduction

- Exploratory Unit Agreements (Continuous Accumulations/Horizontal Wells)
  1. RMG Policy
  2. Unit Agreement Language Modifications
  3. Initial Participating Areas
  4. Non-Paying Unit Wells
• Conventional Plays – Horizontal wells are drilled to maximize contact with the productive horizon or fracture system or to follow geologic structures (e.g., anticlinal axis).
• Unconventional Plays – Currently, many horizontal wells are drilled in unconventional plays known as “Resource Plays”...
• “Resource play” is an industry term, and the definition varies from company to company, professional to professional.

• The U.S. Geological Survey uses the term “Continuous Accumulation.”
  - Specific geologic and production characteristics [see Schmoker (2003)]
  - The RMG has likewise adopted the term “continuous accumulation”
  - Includes coalbed natural gas as well as fractured shale plays
1. Exploratory units for continuous accumulation (resource) plays will not be larger than 25,000 acres

- Assuming development with horizontal wells, all whole sections will be included in the proposed unit area which would allow an exploratory unit to be greater than 25,000 acres, but less than 25,640 acres. A typical section is 640 acres.

- Coalbed natural gas units will be limited to 25,000 acres.
2. Unit boundaries may be based on acreage position if the proposed wells will test formations that fit the definition of a continuous accumulation play.
   • True also for coalbed natural gas continuous accumulation plays
3. The initial unit obligation well for a horizontal well in an exploratory unit shall be located based on the following:

A. At least one mile away from any penetration(s) of the formation in which the initial unit obligation well is proposed to test; however, if any portion of the horizontal wellbore within the target formation lies a mile away, then the distance requirement for the initial unit obligation well will have been met.
B. At least one mile away from the unit boundary; however, if any portion of the horizontal wellbore within the target formation lies a mile away, then the distance requirement for the initial unit obligation well will have been met.

- Subsequent unit wells do not have a similar requirement.
Sometimes the distance requirement allows for a very small window, but remember that only a portion of the wellbore in the target formation needs to meet the requirement.
4. The length of the horizontal lateral within the target formation for the initial unit obligation well will be at least 1,500 feet.

5. The unit will not be validated if the unit operator chooses to complete anywhere other than the target formation unless a horizontal test of the target formation has been completed.
Pursuant to unit plan regulations 43 CFR 3180, the land requested, as outlined on your plat marked "Exhibit 'A', Northwest Poison Spider Unit", is hereby designated as a logical unit area. The unit agreement submitted for the area designation should provide for the drilling of one (1) test well (Initial Drilling Obligation). The test well, located in the SW/4 NW/4, Section 32, T. 34 N., R. 84 W., is to be drilled to a depth of 16,000 feet or 200 feet below the top of the Carlile Formation. The top of the Carlile Formation occurs at 14,810 feet measured depth as shown on the electric and mud logs in the Davis Oil Company Whitting #1 well located in the SW/4 SE/4, Section 2, T. 33 N., R. 84 W. The obligation well is to be drilled at the location specified or another location approved by the authorized officer.
Pursuant to unit plan regulations 43 CFR 3180, the land requested, as outlined on your plat marked "Exhibit 'A', West Orpha (Deep) Unit", is hereby designated as a logical unit area. The unit agreement submitted for the area designation should provide for the drilling of one (1) test well (Initial Drilling Obligation). The test well, with a surface location in the NE/4 NW/4, Section 14, T. 33 N., R. 73 W., is to include a horizontal lateral drilled in the Middle Bench of the Niobrara Shale of not less than 1,500 feet in length. The top of the Middle Bench of the Niobrara Shale occurs at 10,590 feet measured depth as shown on the resistivity log in the Oil Field Salvage #1 Catherine well located in the SE/4 NW/4, Section 21, T. 33 N., R. 72 W. The obligation well is to be drilled at the location specified or another location approved by the authorized officer.
Participating Area (PA)

**Definition:**

- The area that is “reasonably proven productive” by a well that produces in “unit paying” quantities.
- The area that shares in:
  - Financial benefits of PA production, and
  - Costs of the PA well(s)
Participation After Discovery

“Reasonably proven productive”

How do we define this in order to come up with the PA boundary?

♦ Circle-tangent method unless additional info available

♦ Simple
♦ Equitable
♦ Well accepted by industry
Participating Area Considerations

• If the initial unit obligation well is determined to be a unit paying well (i.e., the well will pay out its drilling and completion costs), then an initial participating area (PA) will be formed. The participating area for the horizontal well will be established by constructing 40-acre circles around the end of the lateral and around the entry point of the lateral into the participating area formation and by constructing tangents between them. All 10-acre subdivisions cut by the circles/tangents will be included in the participating area.
Boxelder Creek Unit

10 acre subdivisions cut by the circles/tangents

40 acre circles
Boxelder Creek Unit

Initial Niobrara Formation PA "A" effective May 1, 2010
Initial Niobrara Formation PA “A”

380 Total Acres:
- 130 Fee acres - 34.2%
- 20 State acres - 5.3%
- 230 Federal acres - 60.5%

100.0%

Production Allocation EXAMPLE:

If PA well No. 1 produces 10,000 bbls oil during May, 2010, then

- 34.2% of oil, or 3,420 bbls attributed to Fee lease(s),
- 5.3% of oil, or 530 bbls attributed to the State Lease, and
- 60.5% of oil, or 6,050 bbls attributed to the Federal lease(s)

Federal royalty owed = 12 1/2% of oil attributed to the Federal acreage = 12 1/2% * 6,050 bbls = 756 bbls
EXHIBIT "A"
INITIAL NIÖBRARA FORMATION PARTICIPATING AREA "A"
SPILLMAN DRAW (DEEP) UNIT AREA
CONVERSE COUNTY, WYOMING
EFFECTIVE JANUARY 30, 2010

Legend
Name
- Bottom Hole Location
- Point of Penetration
- Point of Perforation
- 4,848 ft Lateral
- 745 ft Buffer
- 10-Acre Blocks

360 Total Acres

35N 73W

Rockies
## Exhibit "B"

**Schedule of Lands and Tract Participation**

**Initial Niobrara Formation Participating Area "A"**

**Spillman Draw (Deep) Unit Area**

**Converse County, Wyoming**

**Effective January 30, 2010**

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### Totals

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### Type of Land

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• If the initial unit obligation well is determined to be a nonpaying unit well, then a drilling and spacing unit may need to be formed if the horizontal lateral intersected Federal and nonfederal mineral interests. In this case, the proposed drilling and spacing unit may be proposed using the same method as would be used in establishing an initial participating area. The WOGCC would approve the drilling and spacing unit and then the Reservoir Management Group would approve a communization agreement to protect both the Federal and nonfederal mineral interests.
• Three examples of drilling and spacing units that were formed where the unit well was determined to be a nonpaying unit well are in the Breckenridge (Shallow) Unit, the Wild West Unit and in the Canyon Creek Dome Unit.

• Communitization agreements will be approved for both drilling and spacing units.
COMMUNITIZATION AGREEMENT
CANYON CREEK No. 62H WELL

SHL: 643' FNL, 1574' FEL
Section 36, T13N–R101W
BHL: 234' FNL, 1975' FWL
Section 31, T13N–R100W
Canyon Creek Dome Unit
Sweetwater County, Wyoming
August 25, 2010
Royalty Payments

Horizontal Wells

If the surface location of the horizontal well is located on Federal minerals and the horizontal wellbore intersects Federal, fee or state minerals, then 100 percent of the royalty from the horizontal well is paid to the Federal government until such time as a participating area or communitization agreement is approved by the authorized officer.
If the surface location of the horizontal well is located on fee or state minerals and the horizontal wellbore intersects Federal minerals, then no royalty from the horizontal well is paid to the Federal government until such time as a participating area or communitization agreement is approved by the authorized officer.
Summary

- Exploratory Unit Agreements (Continuous Accumulations/Horizontal Wells)
  1. RMG Policy
  2. Unit Agreement Language Modifications
  3. Initial Participating Areas
  4. Non-Paying Unit Wells
The deepest well drilled in Wyoming to date was drilled in the Madden Deep Unit between Casper and Shoshoni.

- Deepest well in the Rocky Mountain Region
- 25,764 ft. deep (4.9 miles)
- 1 ½ years to drill
- Cost $30 million
- Was a dry hole
Perkins Cementing Outfit, running 750 sacks of cement back of 2971’ of 10 1/2” seamless casing in 1 hour and 10 minutes. The largest cement job in the Salt Creek Field.   November 1, 1930
Secondary Recovery Unit Agreements

How do these agreements differ from Exploratory Unit Agreements?

- Field has been geologically defined
- Formation specific
- Entire unit participates from effective date
Secondary Recovery Unit Agreements

How do these agreements differ from Exploratory Unit Agreements?

- Involves enhanced recovery method (e.g., waterflood)
- Participation based on formula
- Can force unitize by state statute
0 Ft. isopach - Reservoir Boundary
Secondary Recovery Unit Agreements

Tract Participation Formula Example:

- Hydrocarbon pore volume: 50%
- Useable well bores: 10%
- Cumulative production: 40%
Communitization Agreements
Introduction

- Communitization Agreements
  1. Oxford Ordinance
  2. Well Spacing/Spacing Units
  3. Key Concepts/Definition
  4. Examples
    a. Simple
    b. Complex
Communitization Agreements (cont’d)

1. Recent Wyoming CA Adaptations
   a. Multiple CA Wells
   b. Co-operators
   c. Lease-Line CAs

2. Additional Wyoming CA Adaptions
   a. Self-Certification
   b. Unleased Federal Lands
Communitization Agreements (CAs) by State
Communitization Agreements

Where did the name come from?

1. system characterized by the collective ownership of property for the common advantage of all members.

Communism
Oxford Ordinance – 1927
Oxford, Kansas

- Whomever received the drilling permit would make royalty payments to all mineral owners within the city block based on a surface acreage formula.

- All mineral lessees had a right to their share of production if they paid the permit owner their proportionate share of drilling and operating costs.
Oxford Ordinance – 1927

City Block

- Lulu’s Place
- Irv’s Place
- Bill’s Place
- Della’s Place
Della got the drilling permit for Della No. 1 Well

Oil production and drilling and operating costs are split as follows:

- Lulu: \( \frac{1}{8} \) or 12.5%
- Irv: \( \frac{1}{8} \) or 12.5%
- Bill: \( \frac{1}{4} \) or 25%
- Della: \( \frac{1}{2} \) or 50%

Total: 100%
Well Spacing/Spacing Units

*Limits the number and location of wells in a field*

- Crucial tool of state oil and gas regulatory agencies and the BLM
- Prevents overdrilling and unnecessary depletion of reservoir pressure which were brought on by the Rule of Capture
- Provides a fair and uniform drilling pattern
<table>
<thead>
<tr>
<th>640 acre Spacing Unit</th>
<th>640 acre Spacing Unit</th>
<th>640 acre Spacing Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>640 acre Spacing Unit</td>
<td>640 acre Spacing Unit</td>
<td>640 acre Spacing Unit</td>
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</table>

640 Acre Spacing: 1 well allowed per spacing unit. Well located in center of NE quarter of each section.
### 320 Acre Spacing – Standup:
Wells in center of NW quarter and center of SE quarter

<table>
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</table>
160 Acre Spacing: 1 well allowed per spacing unit
Well located in center of each quarter section
80 Acre Spacing - Laydown
40 Acre Spacing
Spacing is formation specific!
Communitization Agreement (CA)

Key Concepts:

- Related to Spacing
- Formation Specific
- 2 Year Term or so long as hydrocarbons can be produced in paying quantities
- CA leases are exempt from statewide acreage limitation
Communitization Agreement (CA)

Key Concepts:

- Involves at least 1 Federal or Indian lease
- Production and costs usually apportioned among various tracts on a surface acreage basis
- Contains a Public Interest Requirement (PIR)
Communitization Agreement (CA)

**Definition:**

CAs may be approved when a Federal or Indian lease or portions thereof cannot be independently developed and operated in conformity with an established well spacing or well development program.
For example:

- 640 acre section
- Federal, State, and Fee minerals comprise the section
- 640 acre spacing for Mesaverde Fm.
For example:

1 well : Mesaverde Fm.

- 640 acre spacing for Mesaverde Fm.
- 1 well allowed/spacing
- State and Fee leases can’t be independently developed!

- How can we ensure that all leases get their fair share of the production?
Form CA

- 640 acre spacing for Mesaverde Fm.
- Create 640 acre CA for Mesaverde Fm.
- CA costs and prod. allocation based on proportionate surface acreage within the CA:
  - 50% - Federal
  - 25% - State
  - 25% - Fee
Communitization Agreements

Example: 2 wells drilled to the Blair Formation

- **320 acre standup spacing for Blair Fm.**
- **Create 320 acre CA for Blair Fm.**
- **CA costs and prod. allocation based on proportionate surface acreage within the CA:**
  - **50% - Federal**
  - **50% - Fee**
Communitization Agreements

✔ *In theory* - fairly simple concept

✔ *In reality* - can be very complex
Remember Boxelder Creek Contracted Unit?

PA is for Almond Fm.

What if:

- Spacing for Almond Fm. in this section outside the unit is 640 acres

Boxelder Creek Unit

Contracted Unit Boundary

Dry Hole

640 acre spacing - Almond Fm.
Remember Boxelder Creek Contracted Unit?

PA is for Almond Fm.

What if:

Well is drilled to Almond Fm. in this spacing unit

640 ac. spacing-Almond Fm.
Boxelder Creek Unit

PA is for Almond Fm.

- Form 640 acre CA overlapping Boxelder Creek Unit

CA Well Allocation:

- 1/16 prod. allocated to Boxelder Creek Unit.
- 15/16 prod. allocated to Federal lease well drilled on.
Perkins Cementing Outfit, running 750 sacks of cement back of 2971’ of 10 1/2” seamless casing in 1 hour and 10 minutes. The largest cement job in the Salt Creek Field. November 1, 1930
Recent Wyoming CA Adaptations to Help Meet Industry Needs

Multiple CA Wells  Lease-line CAs
CA Co-Operators
Multiple CA Wells
Remember:

Our 1 Well CA
What happens when:

- Wells don’t produce all recoverable hydrocarbons from the spacing unit,
- WOGCC/BLM does not down space as a matter of policy, however,
- WOGCC/BLM does approve additional wells in spacing units to improve hydrocarbon recovery.
Multiple CA Wells

- Multiple wells can be drilled within the spacing unit/CA.

- These additional wells operate under terms of the CA if completed in CA formation.

- Both wells contribute in the CA allocation.
Multiple CA Wells

- Additional Wells can even be drilled on the State and Federal leases.

- All wells completed in the CA formation operate under the terms of the CA and contribute to the CA allocation.
CA Co-Operators

Multiple Operators Within the CA
Wells don’t recover hydrocarbons from entire CA.

WOGCC does not down space as a matter of policy.

WOGCC does approve additional wells in spacing units to improve recovery, and

CA operator does not want to undertake sole economic risk of drilling another CA well. However, another operator wants to participate.
CA Co-Operators

Key Concepts:

- Number limited only by number of CA wells.
- CA operator is held ultimately responsible.
- All production from CA is allocated according to the CA agreement.
CA Co-Operators

**Key Concepts:**

- If Successor CA Operator is approved, current Co-Operators will be recognized by new CA operator.
- Only CA operator can designate new Co-Operators.
Lease-line CAs
640 acre Section

Now we are looking at 160 acre spacing.
Lease-line CAs

- 640 acre Section
- 160 acre spacing
- 1 Well in each spacing unit
- All is well
- No CA required
What happens if wells don’t recover all reserves from the 160 acre spacing units?

*Where would you drill an additional well*?
Lease-line CAs

How about drilling a well in the middle of the section?

How do we allocate production and costs among the spacing units and leases?
160 acre lease-line CA formed to allocate between all the leases/spacing units.

4 original wells are omitted from new lease-line CA.

CA Allocation:
- Federal lease: 50%
- State lease: 25%
- Fee lease: 25%
Additional possible well locations which would require lease-line CAs

This isn’t Kansas Anymore!
Confusing?

- Sec. 5: 640 acre CA with multiple wells - Frontier Fm.
- Sec. 33: 2 - 320 acre stand-up CAs with multiple wells - Frontier Fm.
- Sec. 34: Federal lease
- Sec. 6: Federal lease

Where do you think the operator drilled an additional well to the Frontier Formation?
160 acre lease-line
CA formed:

CA Allocation:

- 25% - CA in E/2 Sec. 33
- 25% - CA in W/2 Sec. 33
- 25% - CA in Sec. 5
- 25% - lease in Sec. 6
Single Wellbore CA

Wellbore inside the lease-line CA boundary

CA is for this single wellbore.

Handled with insertion of language in Model CA form
Additional Wyoming CA Adaptations to Help Meet Industry Needs

• Self Certification
• Unleased Federal Lands
Self Certification Statement for CAs

- BLM Wyoming RMG
- CA Operator certifies signatures and no changes to CA language
- Speeds approval process
For Unleased Federal Land in a Drilling and Spacing Unit

✓ CA is to be formed

✓ Section 5 (old language) Model CA Form
  • Monies held in escrow
  • Delay in payment of Federal royalties

✓ Section 5 (new language) Model CA Form
  • Create “dummy lease”
  • Faster payment of Federal royalties
Summary

- Communitization Agreements
  1. Oxford Ordinance
  2. Well Spacing/Spacing Units
  3. Key Concepts/Definition
  4. Examples
     a. Simple
     b. Complex
Summary (cont’d)

• Communitization Agreements (cont’d)

  1. Recent Wyoming CA Adaptations
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Coalbed Natural Gas Units

Topics:

✓ History of CBNG Units in Wyoming
✓ CBNG unit design considerations
✓ Major changes from model exploratory unit form
✓ Issues encountered from BLM perspective
✓ Where we are now
Machine used to clean out the well - 1934

History of CBNG Units in Wyoming
Powder River Basin

- Largest CBNG play in the world (U.S.G.S.)
- 10-14 tcf CBNG recoverable from coal beds
- First economic CBNG production:
  - Rawhide Butte Field – 1989
- Peak production in February 2009 – 1.597 bcfpd
- Current (May 2012) production – 1.132 bcfpd
- Through May 2012: 31,604 wells drilled; 4.970 tcf produced
- Through May 2012: 11,990 producing wells; 11,679 shut-in wells

Data as of May 2011
History of CBNG Units in Wyoming

- Three Powder River Basin CBNG units in the 1980s
- More recent Powder River Basin activity lured operators again to the benefits that units provide
- First new Wyoming version CBNG unit approved in May 1999
CBNG
Unit Agreements
- Design Considerations -
CBNG Unit Design Considerations

1. CBNG Reservoir Characteristics

Wind Dancer: Almond-Lewis Reservoir

- Gas
- Water

Conventional Gas Reservoir
CBNG Unit Design Considerations

1. CBNG Reservoir Characteristics

- Conventional Gas Reservoir

- Can reasonably predict future well behavior to determine:
  - Ultimate production
  - Ultimate Life
  - Economic viability
CBNG Unit Design Considerations

1. CBNG Reservoir Characteristics

Actual PRB well production curve showing CBNG reservoir response

- Gas Production
- Water Production

7 month period between initial water production and onset of gas production

Time
Monthly Rate
2002 2003 2004 2005 2006 2007 2008
10
100
1,000
10,000
CBNG Unit Design Considerations

1. CBNG Reservoir Characteristics

- Can **not** reasonably predict well behavior
  - Ultimate production?
  - Ultimate life?
  - Economic viability?
  - Need different approach for PA inclusion

**Example: Powder River Basin CBNG Well**

- Actual PRB well production curve showing CBNG reservoir response
  - 7 month period between initial water production and onset of gas production

**CBNG Reservoir**
CBNG Reservoir Characteristics

- Need to lower reservoir pressure to initiate CBNG production
- Dewatering wells lower reservoir pressure
- Dewatering efficiency is gained by drilling wells in a cluster or pod
| Unit Boundary | CBNG Units – Reservoir Development Model |
CBNG Unit Design Considerations

1. CBNG Reservoir Characteristics
2. Wells Producing Water (dewatering wells)
3. “Divided Interest” vs. “Undivided Interest”
4. Participating Area Boundary Definition
5. Initial Drilling Obligation
6. Unit Size and Boundary
7. Timely Unit Development
CBNG Unit Design Considerations

8. Area and Depth Meetings

9. Flexibility

10. CBNG Specific Agreement

11. Plans of Development

12. Effective Control

13. Participating Area Review and Approval
CBNG Units
Changes From Model Form
Designation Process

Plugging a well - 1934
CBNG Units
- Changes from the Model Form -

Designation Process

- Area and depth meetings are not required
- Geology not driving force
CBNG Units
- Changes from the Model Form -

Designation Process

- Administrative boundaries allowed with maximum of 25,000 acres
  - Again, geology not driving force
CBNG Units
Changes From Model Form
Initial Drilling Obligation
CBNG Units - Changes from the Model Form -

Initial Drilling Obligation

- Initial drilling obligation will be a pod or cluster of wells
- CBNG cannot be efficiently produced with one well
CBNG Units
Changes From Model Form
Unit Contraction
CBNG Units
- Changes from the Model Form -

Unit Contraction

- Unit boundary will automatically contract to existing PA(s) on 10\textsuperscript{th} anniversary of initial PA
- No provision to delay contraction if diligent drilling over automatic contraction date
CBNG Units

Changes From Model Form

Further Development and Operation
CBNG Units
- Changes from the Model Form -

Further Development and Operation

- Unit operator required to drill a minimum number of wells each successive year after initial obligation is met, whether an initial PA is formed or not

- Carryover of excess wells allowed
CBNG Units
Changes From Model Form

Plan of Development

Acid Well Treating Truck - 1933
CBNG Units
- Changes from the Model Form -

Plan of Development

- Plans of development **not** required. However, yearly reviews **are** required.
CBNG Units
Changes From Model Form

Participation After Discovery
CBNG Units
- Changes from the Model Form -

Participation After Discovery

- One well or a combination of wells must meet a “Productivity Requirement” (PR) in order to qualify for inclusion in a PA.
CBNG Units
- Changes from the Model Form -

Productivity Requirement (PR)

- Single well
  - 75 mcf per day for 15 consecutive days
Productivity Requirement (PR)

- Combination of Wells
  - 300 mcf per day cumulative production for combination of wells for 15 consecutive days
- Need to set some criteria for establishing the definition of a pod for determination of PR
  - Based on development spacing
CBNG Units
- Changes from the Model Form -

Productivity Requirement (PR)

- Combination of Wells
  - 40 – 80 acre spacing
    - CBNG wells must be less than 2,000 feet apart
  - 160 acre spacing
    - CBNG wells must be less than 4,000 feet apart
Multiple wells: If well > 2,000 ft. from another well - can **not** be used for Productivity Requirement

Multiple wells: If well < 2,000 ft. from another well - can be used for Productivity Requirement

CBNG Unit Boundary

80 acre Spacing
CBNG Units – Productivity Requirement

Multiple wells: If well > 4,000 ft. from another well - can not be used for Productivity Requirement

Multiple wells: If well < 4,000 ft. from another well - can be used for Productivity Requirement

CBNG Unit Boundary

160 acre Spacing

5,280 ft.

2,640 ft.
CBNG Units
- Changes from the Model Form -

Productivity Requirement (PR)

- Once PR met for an initial PA, further revisions of that particular PA do not require any further PR requirements.
- Any new wells/pods apart from existing PA(s) must meet the PR prior to establishment of a new initial PA.
CBNG Units – Productivity Requirement

Initial Participating Area “A”: PR applied

1st Revision Participating Area “A”: PR not required

Initial Participating Area “B”: PR applied
CBNG Units
- Changes from the Model Form -

PA Boundary Methodology

- Mechanical Circle Approach
- 40 acre – 80 acre spacing

- PA boundary includes all 40 acre parcels cut by a ¼ mile (1,320’) radius circle drawn around any well capable of producing CBNG or any dewatering well which enhances production of the PA

- Effective date of initial PA is date of first sales
CBNG Units – Initial Participating Area

Initial Participating Area “A”
Effective: Date of 1st sales

40 acre – 80 acre spacing
¼ mile (1,320’) circle drawn around:
- CBNG producer, or
- dewatering well
CBNG Units
- Changes from the Model Form -

**PA Boundary Methodology**

- **PA Revisions**
  - Mechanical circle approach maintained
  - All wells that reach total depth within a calendar month will be submitted as one PA revision
  - Effective: First day of month in which PA revision wells reached total depth
CBNG Units – Participating Areas

Initial Participating Area “A”

1st Revision Participating Area “A”:
Effective: 1st day of month that revision wells reached TD
CBNG Units
Changes From Model Form
Amendment of the Unit Agreement
CBNG Units
- Changes from the Model Form -

Amendment of the Unit Agreement

- Terms can be modified by 90 percent of the working interest owners and 60 percent of the basic royalty interest (excluding the Federal royalty interest)
CBNG Units

Changes From Model Form

Required Technical Data

Rig, Truck, and Mudding Equipment - Dallas Dome, Wyoming: 1935 - Well #5
CBNG Units
- Changes from the Model Form -

Required Technical Data

- BLM may modify unit language to require operator to gather technical data
- Technical data may include:
  - Drill, complete, and equip groundwater monitoring wells
  - Collection of whole seam cores
  - Run detailed suite of well log
**CBNG Units**
- Changes from the Model Form -

**Required Technical Data**

- Data gathering requirements may count toward credit for obligation wells
- Data used for:
  - Further understanding of CBNG reservoirs
  - Planning document technical analysis
  - Federal drainage technical analysis
BLM Perspective on CBNG Unit Issues in Wyoming

Oil Hauling Truck
CBNG Unit Issues in Wyoming

1. Tracking of wells, obligations, and participating area development is burdensome
2. Frequent changes in locations for initial obligation wells
3. Industry not yet familiar with CBNG unit PA application and approval process
4. Industry struggling to submit timely yearly reviews
CBNG Units - Reality of Development

Initial Drilling Obligation and Initial Participating Area “A”

Initial Participating Area “B”

Initial Participating Area “C”

Initial Participating Area “D”
The End

Plugging Operation - 1937
Reporting on Federal Units and Communitization Agreements

Sponsored by RPC Reporting Subcommittee
September 2012
Boiler Avenue, Spindletop, 1903
Reporting Accuracy

From Error Correction to Error Prevention
Accurate reporting is vital to the ONRR mission.

ONRR’s goal is for all reporting to go through one electronic interface. In December 2011, EDI reporting is no longer an option.

Error correction to error prevention – Up-front edits require data to be corrected before submission to ONRR.

Data Mining processes provide a contemporaneous review to ensure reasonableness of reporting.
Data Mining

Current Processes
- Volume Comparison between OGOR and 2014
- Net negative/Net zero reporting
- Repetitive reporting
- Value and volume trending
- Impact of adjustments on price and royalty rate
- PC 03 without PC07 or PC19

Future Processes
- Adjustments to closed audit periods
- Original line monitoring
- Pricing
What is Data Mining Finding?

- Missing reports and volumes
- Invalid adjustments
- Agreement Misreporting
  - Missing Agreement Numbers
  - Incorrect reporting of allocations
  - Incorrect lease and/or agreement number used
  - Lease level -vs- agreement level misreporting
  - Incorrect reporting of overlapping agreements
Establishment of Agreements on ONRR System
ONRR Establishment of Agreements

- ONRR receives and maintains all allocations schedules of approved agreements
- Reporting is compared to allocations established in ONRR systems
- Don’t report on agreement until approval from BLM is received
- Reporting must be adjusted back to effective date of CA, PA or PA revision
- If you don’t know a lease or agreement #:  
  - Ask your land department  
  - Use lists on ONRR website  
  - Use LR2000
Cross Reference Listing

http://www.onrr.gov/FM/CrossRef.htm

Click Cross-Reference Lease to Agreement and select preferred sort
Click on binoculars to query by lease body, unit name or unit number.
LR2000  BLM’s Case Recordation
http://www.blm.gov/lr2000/
To retrieve a Serial Register Page, click “Reports”.

BLM Lease & Agreement Info
www.blm.gov/lr2000
Click “Pub CR Serial Register Page”.
BLM Lease & Agreement Info

Select “New Format Serial Entry.”
BLM Lease & Agreement Info

Select “GEO STATE” from drop-down menu.

Select “LAND OFFICE” from drop-down menu.

Enter Serial Number

Click on “Enter Value”
BLM Lease & Agreement Info

Click “OK”
BLM Lease & Agreement Info

Click “Run Report”
BLM Lease & Agreement Info

Click "OK"
In order to print, you must convert the file to .pdf format.
BLM Lease & Agreement Info

To print a hard copy, Click the printer icon.

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
CASE RECOR  
(MASS) Serial Register Page

Page 1 of 6

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Commodity 459: OIL & GAS
Case Disposition: AUTHORIZED

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Serial Number: WYW--- - 037977

Serial Number: WYW--- - 037977
**LR2000 Serial Register Page**

**DEPARTMENT OF THE INTERIOR**
**BUREAU OF LAND MANAGEMENT**
**CASE RECORDATION**
**(MASS) Serial Register Page**

| Run Date/Time: 01/20/09 08:02 AM | Page 1 of 2 |

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| Total Acres | 640.000 |
| Serial Number | MTM--- 069248 |

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Properly Allocating Agreement
Production
### EXHIBIT “B”

#### Consolidated Frontier/Dakota Participating Area A

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<th>Tract Number</th>
<th>Lease Number or Type of Land</th>
<th>Legal Description</th>
<th>Participating Acreage</th>
<th>Percent of Participation</th>
<th>Working Interest Owners</th>
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<td>W-053566</td>
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<td>9.37500%</td>
<td>Wex Company 53.2805%</td>
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<tr>
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<td>Sam Resources 32.4709%</td>
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<td>Bird Oil 11.5628%</td>
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<td>Dango Production 2.6858%</td>
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<td>Wex Company 53.2805%</td>
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<td>Sam Resources 32.4709%</td>
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<td>Wex Company 53.2805%</td>
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<td>Dango Production 2.6858%</td>
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## Allocation Schedule

Leucite Hills Unit, Consolidated Frontier/Dakota PA A 891011626A

### Exhibit “B”
Consolidated Frontier/Dakota Participating Area A

#### Summary

<table>
<thead>
<tr>
<th></th>
<th>Total Acreage</th>
<th>Committed Acreage</th>
<th>Non Committed Acreage</th>
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<td>1280.00</td>
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#### Working Interest Owners

- **Wex Company**: 53.2805%
- **Sam Resources**: 32.4709%
- **Brid Oil**: 11.5628%
- **Dango Production**: 2.6858%
- **Total**: 100.0000%
Exhibit C
Consolidated Frontier/Dakota Participating Area A

- Fee
- Tract 2
  - W-053566-A
- Tract 1
  - W-053566
- Tract 7
  - W-0265438
- Tract 7
  - W-0265438
- Tract 3
  - W-055514
- Tract 4
  - W-055514-A
Properly Allocating Agreement Production

### Allocations for Federal Leases

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<tr>
<th>Sub-division</th>
<th>Tract</th>
<th>Lease Number</th>
<th>Acres</th>
<th>Lease Portion Percent</th>
<th>Mineral Interest Percent</th>
<th>Net Allocation Percentage</th>
<th>Date in Agreement</th>
<th>Allocation Start Date</th>
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Reporting Royalties based on a Participating Area’s Allocation Schedule

Tract #1

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<tr>
<td>API WELL NUMBER</td>
<td>MMS LEASE NUMBER</td>
<td>MMS AGREEMENT NUMBER</td>
<td>PRODUCT CODE</td>
<td>SALES TYPE CODE</td>
<td>SALES MO/YR (MM/CCYY)</td>
<td>TRANSACTION CODE</td>
<td>ADJUSTMENT REASON CODE</td>
<td>SALES VOLUME (Mcf/bbl/gal/long ton)</td>
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<tr>
<td>PA Example</td>
<td>048 053566 0</td>
<td>01 ARMS 012010 01</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>187 50</td>
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<tr>
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<td>891 011626 A</td>
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<td></td>
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</table>

2000 bbls sold $x9.375% allocation = 187.50
Reporting Royalties based on a Participating Area’s Allocation Schedule

Tract #2
Lease # 048053566A – 2,000 bbls x 3.125% = 62.50

Tract #3
Lease 0480555140 – 2,000 bbls x 9.375% = 187.50

Tract #4
Lease 048055514A – 2,000 bbls x 3.125% = 62.50

Tract #7
Lease 0482654380 – 2,000 bbls x 25% = 500

Don’t forget to include the Agreement Number on the 2014
Properly Allocating Agreement Production

The following examples demonstrate each working interest owner paying royalties
Working Interest Ownership 891011626A

Wex Company 53.2805%
Sam Resources 32.4709%
Bird Oil 11.5628%
Dango Production 2.6858%
Royalty Reporting by Multiple Payors
By Interest Ownership Percentage

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</table>

Wex – 2000 bbls x 9.375% x 53.2805% = 99.90
Royalty Reporting by Multiple Payors
Lease 0480535660, Agreement 891011626A

Tract 1
Sam – 2000 bbls x 9.375% x 32.4709% = 60.88
Bird – 2000 bbls x 9.375% x 11.5628% = 21.68
Dango – 2000 bbls x 9.375% x 2.6858% = 5.04

{Total production-PA} x {% of Participation} x {Working Interest %}

Don’t forget to include the Agreement Number on the 2014
Royalty Reporting by Multiple Payors
Wex Company

Tract #2
Lease 048053566A: 2000 bbls x 3.125% x 53.2805% = 33.30

Tract #3
Lease 0480555140: 2000 bbls x 9.375% x 53.2805% = 99.90

Tract #4
Lease 048055514A: 2000 bbls x 3.125% x 53.2805% = 33.30

Tract #7
Lease 0482654380: 2000 bbls x 25% x 53.2805% = 266.40

{Total production-PA} x {% of Participation} x {Working Interest %}

Don’t forget to include the Agreement Number on the 2014
Royalty Reporting by **Multiple Payors**
Sam Resources

Tract #2
- Lease 048053566A: 2000 bbls x 3.125% x 32.4709% = 20.29

Tract #3
- Lease 0480555140: 2000 bbls x 9.375% x 32.4709% = 60.88

Tract #4
- Lease 048055514A: 2000 bbls x 3.125% x 32.4709% = 20.29

Tract #7
- Lease 0482654380: 2000 bbls x 25% x 32.4709% = 162.35

\{(Total production-PA) x (% of Participation) x (Working Interest %)\}

**Don’t forget to include the Agreement Number on the 2014**
Royalty Reporting by **Multiple Payors**

**Bird Oil**

---

**Tract #2**

Lease 048053566A: 2000 bbls x 3.125% x 11.5628% = 7.23

**Tract #3**

Lease 0480555140: 2000 bbls x 9.375% x 11.5628% = 21.68

**Tract #4**

Lease 048055514A: 2000 bbls x 3.125% x 11.5628% = 7.23

**Tract #7**

Lease 0482654380: 2000 bbls x 25% x 11.5628% = 57.82

{Total production-PA} x {% of Participation} x {Working Interest %}

---

**Don’t forget to include the Agreement Number on the 2014**
Royalty Reporting by Multiple Payors
Dango Production

Tract #2
Lease 048053566A: 2000 bbls x 3.125% x 2.6858% = 1.68

Tract #3
Lease 0480555140: 2000 bbls x 9.375% x 2.6858% = 5.04

Tract #4
Lease 048055514A: 2000 bbls x 3.125% x 2.6858% = 1.68

Tract #7
Lease 0482654380: 2000 bbls x 25% x 2.6858% = 13.43

{Total production-PA} x { % of Participation} x {Working Interest %}

Don’t forget to include the Agreement Number on the 2014
## Double Check Totals

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<th>Sam</th>
<th>Bird</th>
<th>Dango</th>
<th>Total</th>
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Properly Allocating Agreement Production

The following example demonstrates reporting where interest ownership varies by lease
## EXHIBIT “B”
### Consolidated Frontier/Dakota Participating Area A
### 891011626A

<table>
<thead>
<tr>
<th>Tract Number</th>
<th>Lease Number or Type of Land</th>
<th>Legal Description</th>
<th>Participating Acreage</th>
<th>Percent of Participation</th>
<th>Working Interest Owners</th>
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<td>T22N, R103W Sec……….</td>
<td>120.00</td>
<td>9.37500%</td>
<td>Wex Company 50.00%</td>
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<tr>
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<td>Sam Resources 10.00%</td>
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<td></td>
<td>Bird Oil 30.00%</td>
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<td>Dango Production 10.00%</td>
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<td>40.00</td>
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<td>Sam Resources 10.00%</td>
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<td>Dango Production 20.00%</td>
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<td>Dango Production 20.00%</td>
</tr>
<tr>
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Royalty Reporting when Working Interest Percent is Different for each lease within an agreement

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<td>SALES MO/YR (MM/CCYY)</td>
<td>TRANSACTION CODE</td>
<td>ADJUSTMENT REASON CODE</td>
<td>SALES VOLUME (Mcf/bbl/gal/long ton)</td>
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<td></td>
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<td>93 75</td>
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</table>

Wex – 2000 bbls x 9.375% x 50% = 93.75
Royalty Reporting when Working Interest Percent is Different for each lease within an agreement Wex Company cont.

<table>
<thead>
<tr>
<th>Tract #2</th>
<th>Lease 048053566A: 2000 bbls x 3.125% x 10% = 6.25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tract #3</td>
<td>Lease 0480555140: 2000 bbls x 9.375% x 40% = 75</td>
</tr>
<tr>
<td>Tract #4</td>
<td>Lease 048055514A: 2000 bbls x 3.125% x 40% = 25</td>
</tr>
<tr>
<td>Tract #7</td>
<td>Lease 0482654380: 2000 bbls x 25% x 40% = 200</td>
</tr>
</tbody>
</table>

{Total production-PA} x {\% of Participation} x {Working Interest \%}
Royalty Reporting when Working Interest Percent is Different for each lease within an agreement
Sam Resources

Tract #1
Lease 0480535660; 2000 bbls x 9.375% x 10% = 18.75

Tract #2
Lease 048053566A: 2000 bbls x 3.125% x 10% = 6.25

Tract #3
Lease 0480555140: 2000 bbls x 9.375% x 10% = 18.75

Tract #4
Lease 048055514A: 2000 bbls x 3.125% x 20% = 12.50

Tract #7
Lease 0482654380: 2000 bbls x 25% x 20% = 100

{Total production-PA} x {% of Participation} x {Working Interest %}

Don’t forget to include the Agreement Number on the 2014
Royalty Reporting when Working Interest Percent is Different for each lease within an agreement

Bird Oil

Tract #1
   Lease 0480535660; 2000 bbls x 9.375% x 30% = 56.25

Tract #2
   Lease 048053566A: 2000 bbls x 3.125% x 70% = 43.75

Tract #3
   Lease 0480555140: 2000 bbls x 9.375% x 30% = 56.25

Tract #4
   Lease 048055514A: 2000 bbls x 3.125% x 20% = 12.50

Tract #7
   Lease 0482654380: 2000 bbls x 25% x 20% = 100

{Total production-PA} x {% of Participation} x {Working Interest %}

Don’t forget to include the Agreement Number on the 2014
Royalty Reporting when Working Interest Percent is Different for each lease within an agreement
Dango Production

Tract #1
Lease 0480535660; 2000 bbls x 9.375% x 10% = 18.75

Tract #2
Lease 048053566A: 2000 bbls x 3.125% x 10% = 6.25

Tract #3
Lease 0480555140: 2000 bbls x 9.375% x 20% = 37.50

Tract #4
Lease 048055514A: 2000 bbls x 3.125% x 20% = 12.50

Tract #7
Lease 0482654380: 2000 bbls x 25% x 20% = 100

{Total production-PA} x {% of Participation} x {Working Interest %}

Don’t forget to include the Agreement Number on the 2014
## Double Check Totals

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<thead>
<tr>
<th>Tract</th>
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<th>Sam</th>
<th>Bird</th>
<th>Dango</th>
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<td>43.75</td>
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<td><strong>268.75</strong></td>
<td><strong>175.00</strong></td>
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</table>
The following example demonstrates reporting on a lease that is less than 100% Federal
Reporting Royalties on a Participating Lease with less than 100% Federal Interest

0482654380  80% Federal Interest

Total Sales x Federal Portion x Allocation = Sales Volume

2000 Bbls x .80 x .25 = 400
## Reporting Royalties on a Participating Lease with Less than 100% Federal Interest

<table>
<thead>
<tr>
<th>LINE NUMBER</th>
<th>PRODUCT CODE</th>
<th>SALES TYPE CODE</th>
<th>SALES MO/YR (MM/CCYY)</th>
<th>TRANSACTION CODE</th>
<th>ADJUSTMENT REASON CODE</th>
<th>SALES VOLUME (Mcf/bbl/gal/long ton)</th>
<th>ROYALTY VALUE PRIOR TO ALLOWANCES</th>
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<td>01</td>
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</table>

**Example Calculation:**

\[
2000 \text{ Bbls} \times 0.80 \times 0.25 = 400
\]
Properly Allocating Agreement Production

The following example demonstrates reporting by multiple payors on a lease that is less than 100% Federal
Reporting by multiple payors on a lease that is less than 100% Federal

Wex Company 53.2805% interest in lease 482654380

Total Sales x Federal Portion x Allocation x Ownership % = Sales Volume

2000 Bbls x 0.80 x 0.25 x 0.532805 = 213.122
Reporting on a lease that is less than 100% Federal by multiple payors

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<td>MMS LEASE NUMBER</td>
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</table>

2000 Bbls x .80 x .25 x .532805 = 213.122
Common Reporting Errors

Reporting on Federal Units and Communitization Agreements
Common Reporting Errors

Missing Agreement number when reporting royalties on production from an agreement.

Incorrect Allocation to Leases
Entire volume of production from the agreement reported as the sales volume on the 2014.

Agreement production reported to one lease when there are several leases receiving an allocation.
Adjusting Royalty Reporting

PA Revisions
Exhibit C
Consolidated Frontier/Dakota Participating
Area A
Exhibit C
Consolidated Frontier/Dakota Participating Area A
Exhibit C
1st Revision Consolidated Frontier/Dakota Participating Area A

<table>
<thead>
<tr>
<th>Tract 2</th>
<th>Tract 1</th>
<th>Tract 7</th>
<th>Tract 3</th>
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Don’t Forget Adjustments when Moving from Lease to Unit PA

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2500 bbls sold × 3.0303% allocation = 75.7575
Adjusting Royalties based on a Participating Area Revision

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</table>

**Reverse Originals**

- **API WELL NUMBER**: 048 053566 0
- **MMS LEASE NUMBER**: 01 ARMS 012010 01
- **SALES VOLUME (Mcf/bbl/gal/long ton)**: -187 50

**Enter Corrections**

- **API WELL NUMBER**: 048 053566 0
- **MMS LEASE NUMBER**: 01 ARMS 012010 01
- **SALES VOLUME (Mcf/bbl/gal/long ton)**: 227 27

2500 bbls sold $ 9.0909% allocation = 227.2725
Overlapping Agreements
No Overlap

Frontier PA

CA
W-111222

Big Bend Unit
No Overlap

CA is entirely within Unit but does not intersect a PA

- CA is considered a separate entity
- All CA royalties will be reported on the CA
- All CA production will be reported on the CA
Total Overlap

Frontier PA

CA
W-111222

Big Bend Unit
CA is entirely within a PA and all CA lands are committed to the PA.

- CA becomes “silent”
- All CA Royalties will be reported on the PA
- All CA production will be reported on the PA
Partial Overlap

Frontier PA

CA W-111222

Big Bend Unit
Partial Overlap

CA is partially within a PA

- Royalties from the portion of the CA outside of the PA will be reported on the CA

- Royalties from overlapped portion will be reported on PA

- All CA production will be reported on the CA.
<table>
<thead>
<tr>
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</table>

**Seven Mile Gulch Unit**

**Dakota A-B Participating Area**
Overlapped Portion

CA W-129905
Communitization Agreement    W-129905
Tract No. 1
280 acres

Tract No. 2a
240 acres

Tract No. 2b
120 acres

Seven Mile Gulch Unit Dakota
Participating Area “A-B” Boundary
### Communitization Agreement
**W-129905**
**Exhibit “B”**

<table>
<thead>
<tr>
<th>LEASE NO.</th>
<th>TRACT</th>
<th>ACRES IN CA</th>
<th>% OF INTEREST</th>
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<td>280</td>
<td>43.75%</td>
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<td>W-24152</td>
<td>2A</td>
<td>240</td>
<td>37.5%</td>
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<tr>
<td>W-24152</td>
<td>2B</td>
<td>120</td>
<td>18.75%</td>
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**640**
**100.00%**

**Tract 2A is overlapped by the Dakota Participating Area, Seven Mile Gulch Unit**
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<th>Action Remark</th>
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<td>02/04/1991</td>
<td>616</td>
<td>FORMATION</td>
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<td>02/01/1991</td>
<td>517</td>
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<td>T# LEASE SERIAL NO AC COMMITTED % INTEREST</td>
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<td>0005</td>
<td>2B WY 24152 120.00 18.75</td>
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<td>TOTAL 640.00 100.00</td>
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<tr>
<td>0007</td>
<td>/B/ SEVEN MILE GULCH UNIT - TRIA IS WITHIN THE</td>
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<tr>
<td>0008</td>
<td>DAKOTA PARTICIPATING AREA A-B 240.00 ACRES, 37.50%</td>
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<td>THE SEVEN MILE GULCH UNIT BUT OUTSIDE OF THE DAKOTA</td>
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<tr>
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Serial Number: WYW--- - 129905
## LR2000 Serial Register Page

**DEPARTMENT OF THE INTERIOR**  
**BUREAU OF LAND MANAGEMENT**  
**CASE RECORDATION**  
**(MASS) Serial Register Page**

Run Date: 09/04/2012  
Run Time: 11:39 AM  
Page 1 of 1

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**Case Type:** 318310: O&G COMMUNITIZATION AGRMT  
**Commodity:** 410: NATURAL GAS   
**Case Disposition:** AUTHORIZED

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<th>% Interest</th>
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<table>
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<tr>
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<th>County</th>
<th>Mgmt Agency</th>
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<td>06 0200N 1120W 024 ALIQ ALL;</td>
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<td>SWEETWATER</td>
<td>BUREAU OF LAND MGMT</td>
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### LR2000 Serial Register Page

| Act Date       | Code | Action                     | Action Remark       | Pending Office |
|---------------|------|----------------------------|---------------------|----------------|----------------|
| 02/01/1991    | 387  | CASE ESTABLISHED           |                     |                |
| 02/01/1991    | 516  | FORMATION                  |                     |                |
| 02/01/1991    | 517  | AGRMT WITHIN UA/CA         |                     |                |
| 02/01/1991    | 526  | ACRES-FED INT 100%         |                     |                |
| 02/01/1991    | 868  | EFFECTIVE DATE             |                     |                |
| 08/06/1991    | 654  | AGRMT PRODUCING            |                     |                |
| 10/20/1993    | 580  | PROPOSAL RECEIVED          |                     |                |
| 05/02/1994    | 334  | AGRMT APPROVED             |                     |                |
| 05/02/1994    | 690  | AGRMT VALIDATED            |                     |                |

Serial Number: WYW--- - 129905
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<td>TR# LEASE SERIAL NO AC COMMITTED % INTEREST</td>
</tr>
<tr>
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<td>1 WYW 24152 200.00 43.75</td>
</tr>
<tr>
<td>0004</td>
<td>2A WYW 24152 240.00 37.50</td>
</tr>
<tr>
<td>0005</td>
<td>2B WYW 24152 120.00 18.75</td>
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<td>0006</td>
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<tr>
<td>0007</td>
<td>-</td>
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<tr>
<td>0008</td>
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<td>0009</td>
<td>Dakota Participating Area A-B 240.00 Acres, 37.50%</td>
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<tr>
<td>0010</td>
<td>Of Seven Mile of Seven Mile Gulch, TR2B is within</td>
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<td>0011</td>
<td>The Seven Mile Gulch Unit But Outside of the Dakota</td>
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<tr>
<td>0012</td>
<td>Participating Area A-B 120.00 Acres, 18.75%</td>
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<td>0013</td>
<td>/C/ Amoco Prod Co to BP America Prod Co;</td>
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Profile for Agreement W 129905

**Brief:**
- Agreement Number: W 129905
- Agreement Name: 19
- Agreement Type: Communization
- Majority Land Category: Onshore Agreement
- PA Name, Formation/Reservoir: DAKOTA
- Agency Assigned Number: WYW129905
- Agency Office Name: Kemmerer Wyoming
- Legal Description: T20N, R12W
- Land Classification: Federal
- Number Of Operators: 1

**Comments:**

**Agreement Status History:**

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<th>OCS Section</th>
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<th>High Rate</th>
<th>Rate Per Unit</th>
<th>Unit of Measure</th>
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### Pending or Rejected Reduced Royalty Rates for Oil:

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<th>End Date</th>
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<th>Allocation End Date</th>
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Profile for Agreement 891014332E

MMS Agreement Number: 891014332E

Agreement Number: 891014332E
Agreement Name: SEVEN MILE GULCH
Agreement Type: Primary Unitization
Majority Land Category: Onshore Agreement
PA Name, Formation/Reservoir: DAKOTA A & B

Agency Assigned Number: 891014332E
Agency Office Name: Kemmerer Wyoming
Legal Description: P/S 16,21-24; T20N:R112W:
Land Classification: Mixed
Number Of Operators: 3

Comments:

Agreement Status History:

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### Pending or Rejected Reduced Royalty Rates for Oil:

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### Accepted Reduced Royalty Rates for Oil:

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### Related Contracts:

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### Agreement Based Wells:

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<th>Operator Number</th>
<th>Operator Name</th>
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How do I identify overlapping agreements?

• Overlapped agreement (usually CA) exhibits.
  
  • LR2000
  
  • Agreement Profile

• Your land department
## Royalty Reporting on Communitization Agreement W-129905

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>049-024152-0</td>
<td>1 &amp; 2B</td>
<td>.625000</td>
<td>400.00</td>
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<td>Overlapped -</td>
<td>2A</td>
<td>.375000</td>
<td>240.00</td>
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<td>Report on 891-014332-E</td>
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<td>1.000000</td>
<td>640.00</td>
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</table>
Royalty Reporting on 891-014332-E
Seven Mile Gulch Unit
Dakota “A-B” PA

<table>
<thead>
<tr>
<th>Lease Number</th>
<th>Tract Nos.</th>
<th>Tract Portion</th>
<th>Acreage</th>
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<tr>
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<td>.176471</td>
<td>240.00</td>
</tr>
<tr>
<td>049-029907-0</td>
<td>012</td>
<td>.058823</td>
<td>80.00</td>
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</table>

<table>
<thead>
<tr>
<th>State &amp; Fee lands</th>
<th>Acreage</th>
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</thead>
<tbody>
<tr>
<td>.764706</td>
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</tr>
<tr>
<td>1.000000</td>
<td>1360.00</td>
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### Reporting Royalties on CA W-129905

<table>
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<th>LINE NUMBER</th>
<th>API WELL NUMBER</th>
<th>MMS LEASE NUMBER</th>
<th>MMS AGREEMENT NUMBER</th>
<th>PRODUCT CODE</th>
<th>SALES TYPE CODE</th>
<th>SALE MO/YR (MM/CCYY)</th>
<th>TRANSACTION CODE</th>
<th>ADJUSTMENT REASON CODE</th>
<th>ROYALTY VALUE PRIOR TO ALLOWANCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>049 024152 0</td>
<td>01 ARMS 102011 01</td>
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<td>6 62</td>
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<td>891 014332 E</td>
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<tr>
<td>3</td>
<td>049 029907 0</td>
<td>01 ARMS 102011 01</td>
<td>2 21</td>
<td>2 21</td>
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<tr>
<td>891 014332 E</td>
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</tbody>
</table>

100 x .625 = 62.5 barrels
100 x .375 = 37.5 barrels

37.5 x .176471 = 6.6176625
37.5 x .058823 = 2.2058625
## Reporting Royalties on the PA

<table>
<thead>
<tr>
<th>LINE NUMBER</th>
<th>API WELL NUMBER</th>
<th>MMS LEASE NUMBER</th>
<th>MMS AGREEMENT NUMBER</th>
<th>PRODUCT CODE</th>
<th>SALES TYPE CODE</th>
<th>SALES MO/YR (MM/CCYY)</th>
<th>TRANSACTION CODE</th>
<th>ADJUSTMENT REASON CODE</th>
<th>ROYALTY VALUE PRIOR TO ALLOWANCES</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0</td>
<td>01 ARMS</td>
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</tr>
</tbody>
</table>

250 barrels oil produced and sold in 10/2011

\[
\begin{align*}
250 \times .176471 &= 44.11775 \\
250 \times .058823 &= 14.70575
\end{align*}
\]
### Combining CA & PA Royalties

<table>
<thead>
<tr>
<th>LINE NUMBER</th>
<th>RESERVED FOR PREPARER’S USE</th>
<th>MMS LEASE NUMBER</th>
<th>MMS AGREEMENT NUMBER</th>
<th>PRODUCT CODE</th>
<th>SALES TYPE CODE</th>
<th>SALES MO/YR (MM/CCYY)</th>
<th>TRANSACTION CODE</th>
<th>ADJUSTMENT REASON CODE</th>
<th>SALES VOLUME (Mcf/bbl/gal/long ton)</th>
<th>ROYALTY VALUE PRIOR TO ALLOWANCES</th>
</tr>
</thead>
<tbody>
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<td>1</td>
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<td>049 024152 0</td>
<td>01 ARMS 102011 01</td>
<td>62 50</td>
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</tbody>
</table>

**PA Production + CA Production**

**Note:** This table provides a structured view of the combined CA & PA royalties, including lease numbers, agreement numbers, sales and transaction codes, and sales volumes along with the royalty values prior to allowances.
Reporting Formulas

Formula for reporting on tracts that are NOT overlapped:

\[
\text{Total Volume Sold} \times \text{CA Tract Sold} \times \% \times \text{Ownership} = \text{Sales Volume Sold}
\]

Formula for reporting on overlapped tracts:

\[
\text{Total Volume Sold} \times \text{CA Tract Sold} \times \% \times \text{Ownership} \times \text{PA Tract Sold} \times \% = \text{Sales Volume Sold}
\]
Royalties are Reported at the Lease Level

Production is Reported at the Agreement Level