



Bureau of Safety and Environmental Enforcement

# Unitization

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**Office of Production & Development**  
**Gulf of Mexico OCS Region**

“To promote safety, protect the environment and conserve resources offshore through vigorous regulatory oversight and enforcement.”

# Agenda

- General Info
- Types of Unitization
- Competitive Reservoirs & Compulsory Unitization
- Unit Area
- Requests for Unitization
- Unit Suspensions & Unit Termination

# Unitization

Combination of 2 or more leases for joint exploration or development of common hydrocarbon accumulations under terms of...

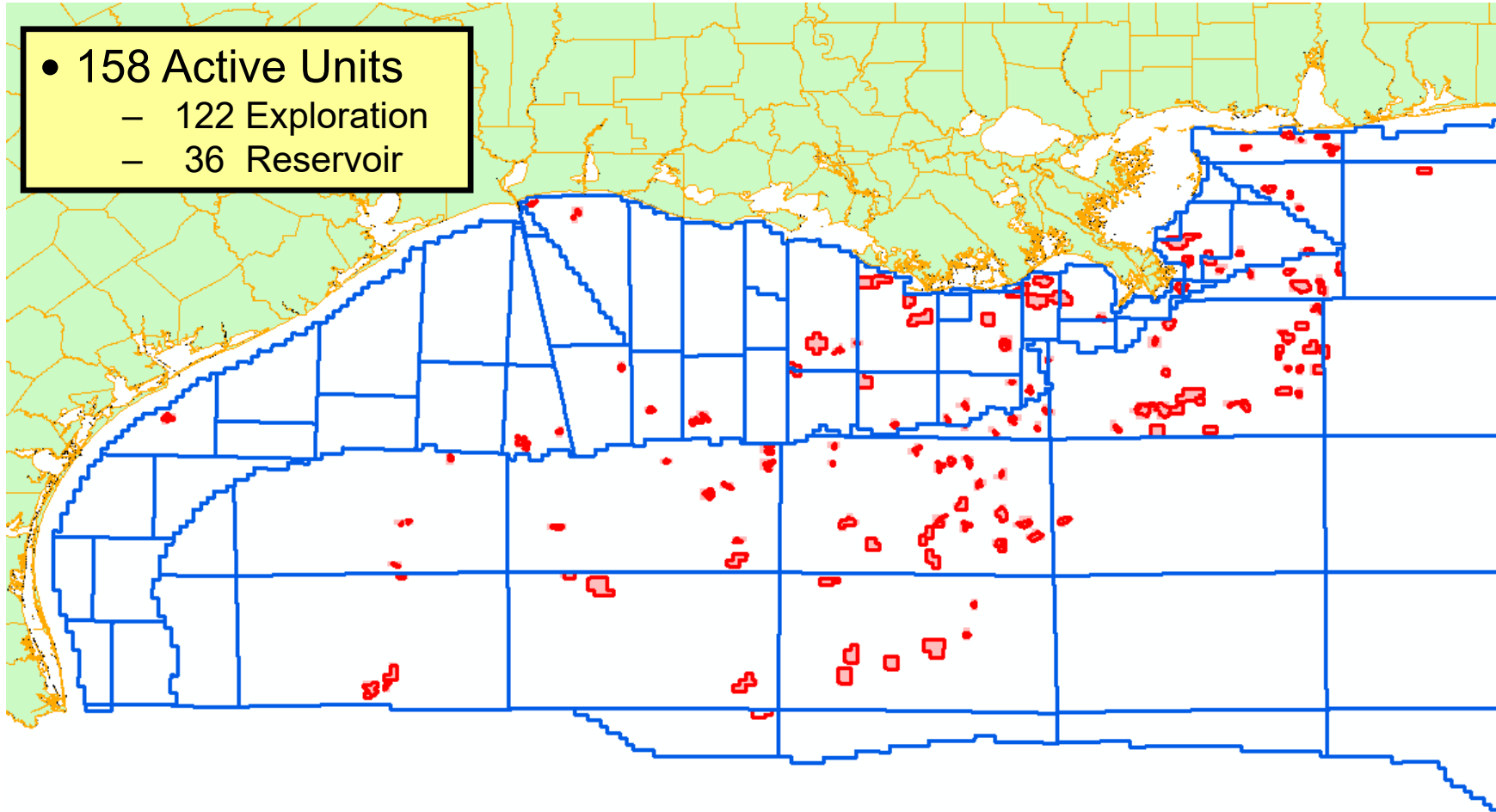
- Unit Agreement
- Unit Operating Agreement
- Initial Plan of Development and Operation

## Purpose/Requirements

(30 CFR 250.1300-1301)

- ✓ Promote & expedite exploration & development
- ✓ Conserve natural resources
- ✓ Prevent waste
- ✓ Protect correlative rights, including Federal royalty interests

# Gulf of Mexico Units



# Benefits of Unitization

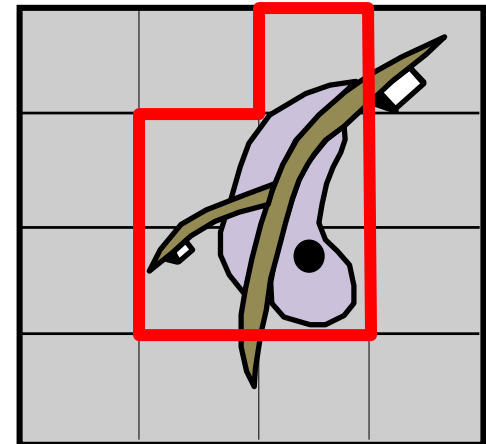
- **Aid development of projects owned by different companies**
  - Prevent negative competition
- **Orderly exploration & development of multiple leases**
  - Eliminate unnecessary wells, platforms, pipelines
  - Optimize drilling regardless of manmade boundaries & lease expiration dates
- **Share costs & risks**
  - Share drilling rigs
  - Share expertise & proprietary data
- **Promote maximum ultimate recovery of oil & gas**
  - Joint development of common geological structure
  - Optimal placement of production and/or injection wells
- **Expedite exploration and development**



# Effect on Lease Term

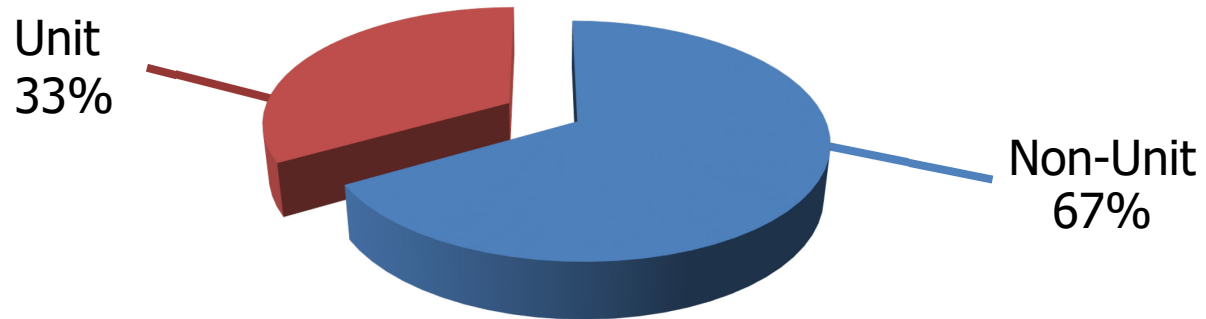
(30 CFR 250.180 & 250.1301(g))

- If lease, or any part of lease, is subject to Unit Agreement, entire lease remains in effect as long as there are lease-holding operations extending unit or unit suspension is in effect
- Lease-holding Operations (+1 year)
  - Drilling
  - Well-reworking
  - Production in paying quantities

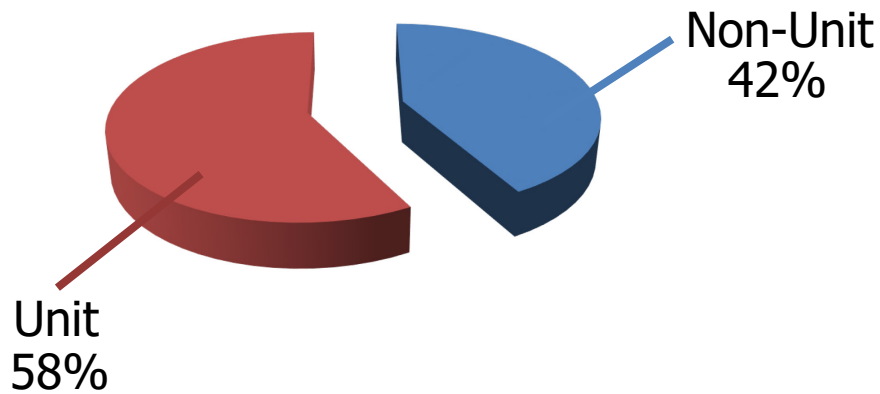


# Impact of Units

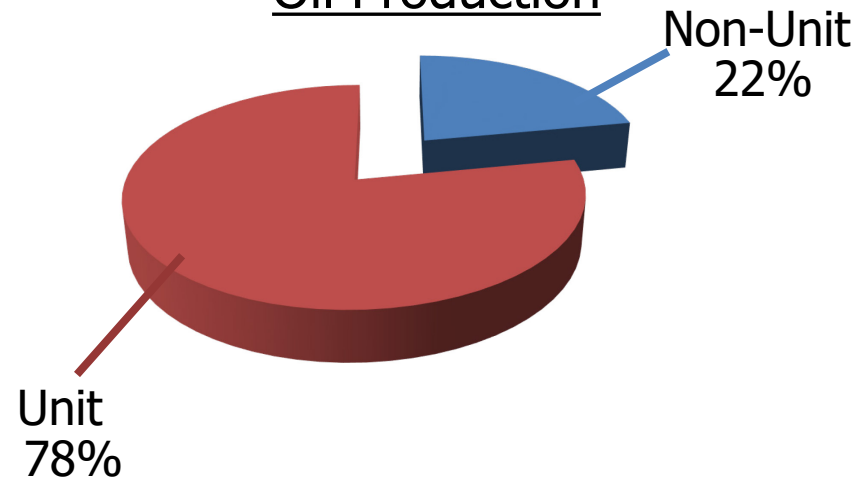
## Producing Leases



## Gas Production



## Oil Production



2018 data

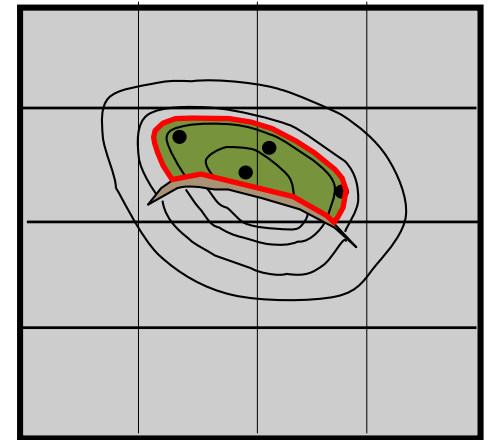
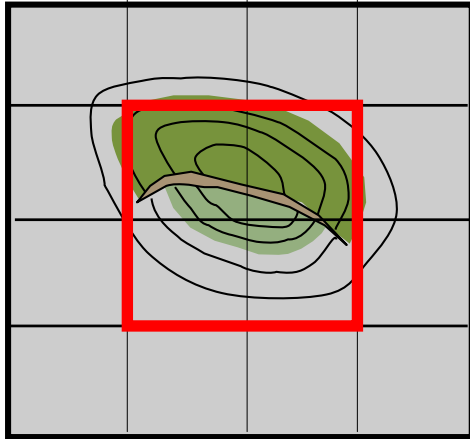
# Agenda

- General Info
- **Types of Unitization**
- Competitive Reservoirs & Compulsory Unitization
- Unit Area
- Requests for Unitization
- Unit Suspensions & Unit Termination

# Types of Unitization

- Voluntary

- Exploration
- Reservoir

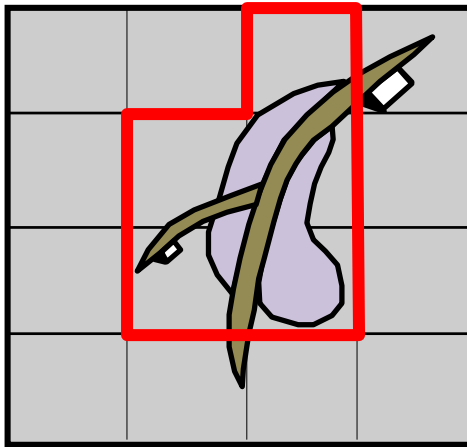


- Compulsory

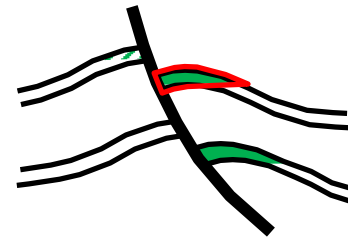
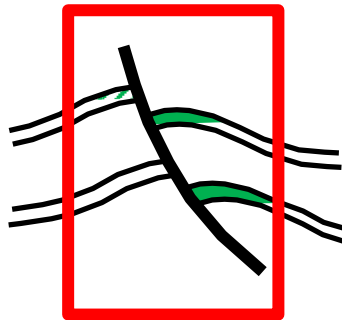
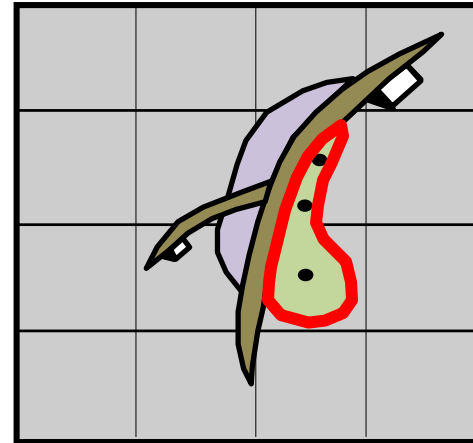
- Reservoir

# Types of Unitization

Exploration

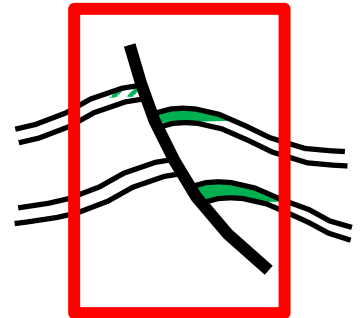


Reservoir



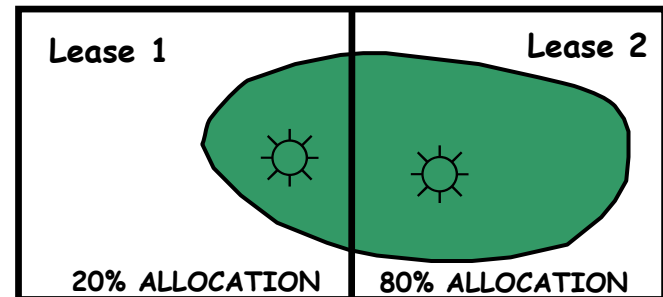
# Exploration Units

- **Sometimes referred to as...**
  - Exploration Development and Production units
  - Exploratory units
  - Field wide/Field units
- **Often formed before 1<sup>st</sup> well**
  - Can be formed later (even after 1<sup>st</sup> production)
- **Promote & expedite exploration & production**
- **Unit area**
  - Potential hydrocarbon accumulations (geologic structure) common to 2 or more leases
  - Min # leases (or portions of leases)
  - Leases with potential to contribute to unit via well(s)
  - Based on seismic, well logs, etc



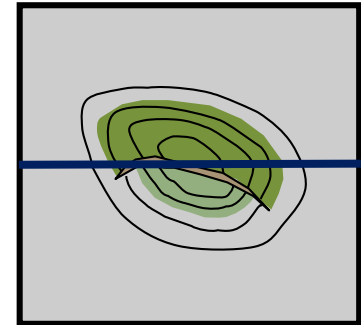
# Reservoir Units

- **Sometimes referred to as...**
  - Development and Production units
- **Common & competitive reservoir**
  - Reservoir reasonably delineated
  - Development drilling complete or nearly complete
  - Productive well on all leases
- **Can have multiple reservoir units on 1 lease**
- **Allocation = Net acre ft**
- **Unit area = reservoir**



# Transboundary Unitization

- **Exploration Units**
- **Reservoir Units**
- **Model Unit Agreement for each type** (in progress)
  - Acceptable templates for actual Unit Agreements
- *Agreement between the United States of America and the United Mexican States Concerning Transboundary Hydrocarbon Reservoirs in the Gulf of Mexico (2012)*



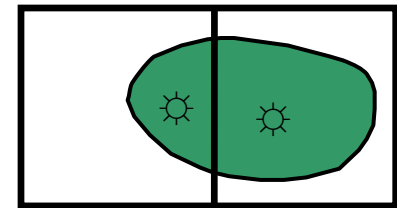
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# Competitive Reservoir

(30 CFR 250.1302)

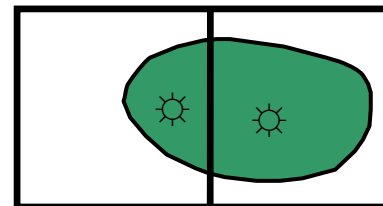
- **Competitive Reservoir (CR)**
  - Single reservoir with 1 or more producing/produccible completions on 2 or more leases with different operating interests
- **BSEE may require dev & prod ops in CR**
  - Under joint CR Development Program (CRDP), or
  - Unitization
- **Operator may request BSEE determination of CR**
  - BSEE preliminary determination
  - Operator 30 days to concur/object
  - BSEE final determination
- **If CR determined**
  - Lessees submit joint CRDP
  - If can't agree on CRDP within 90 days
    - Lessees submit separate CRDPs
    - BSEE hearing
    - If necessary, BSEE initiates compulsory unitization



# Compulsory Unitization

(30 CFR 250.1301(b) & 1304)

- **BSEE may require unitized operations**
- **Action may be initiated by BSEE or lessee**
  - Lessee request must include
    - Proposed Unit Agreement
    - Proposed Unit Operating Agreement
    - Proposed Initial Unit Plan of Operation
    - Supporting data
- **Purpose**
  - Prevent waste
  - Conserve natural resources, or
  - Protect correlative rights, including Federal royalty interests
- **Reasonably delineated & productive reservoir**
- **5 active**
- **18 historically**
- **None since 1992**



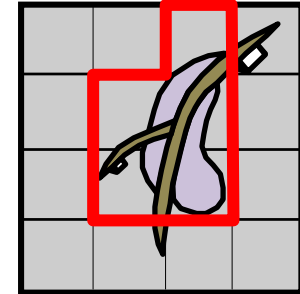
# Agenda

- General Info
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- Competitive Reservoirs & Compulsory Unitization
- **Unit Area**
- Requests for Unitization
- Unit Suspensions & Unit Termination

# Unit Area

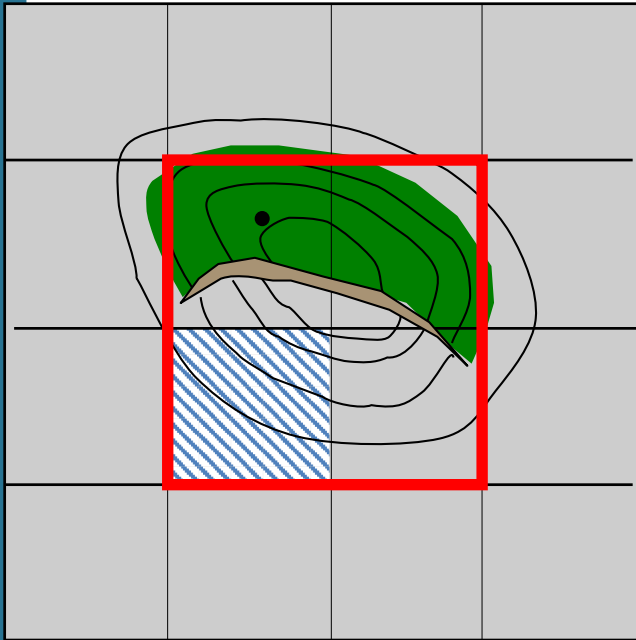
(30 CFR 250.1301(c), 45 FR 87, May 1980; 53 FR 63, Apr 1988; 62 FR 24, Feb 1997)

- **Min. number of leases that will allow lessees to minimize number of platforms, facility installations, & wells necessary for efficient exploration, development, & production of...**
  - Oil & gas reservoirs (Reservoir Units)
  - Potential hydrocarbon accumulations common to 2 or more leases (Exploration Units)
- **Reservoir Unit**
  - Single reservoir
  - Encompass entire productive area of reservoir
- **Exploration Unit**
  - Single geologic structure
  - Encompass entire geologic structure
  - Only those leases needed for efficient exploration, development & production
- **Whole leases or portions of leases**



# Unit Area

## Approvable



- Logical unit area (common structure)
- Adjacent leases
- Each lease potentially supports well

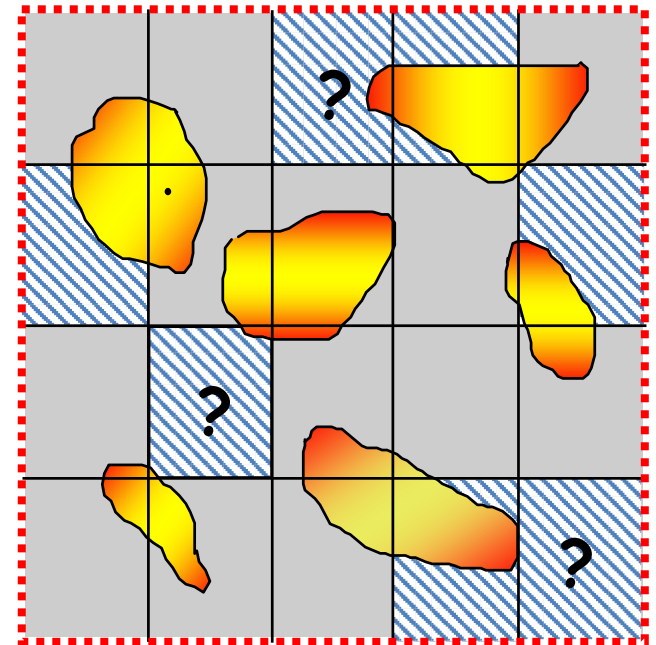


Expiring lease



Approvable unit outline

## Not Approvable



Expiring leases



Proposed unit outline



Amplitude anomalies

# Unit Revisions

(Unit Agreement)

- **Expansion**

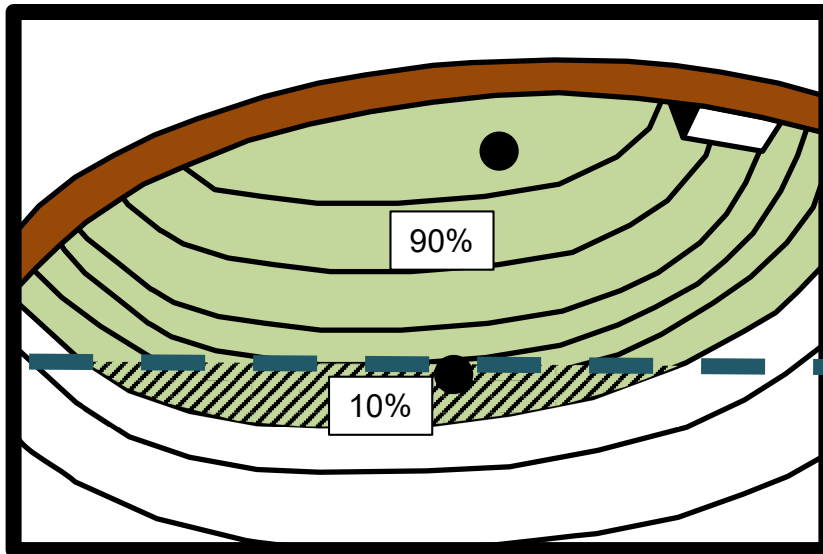
- Areas necessary for unit operations or capable of production in paying quantities
- Proper for prevention of waste, conservation of resources, or protection of correlative rights including Federal royalty interests

- **Contraction**

- (In addition to automatic contraction to Participating Area after \_\_\_\_ years)
- When necessary or advisable to conform with purposes of Unit Agreement
- Unit Area not reduced due to depletion of oil or gas

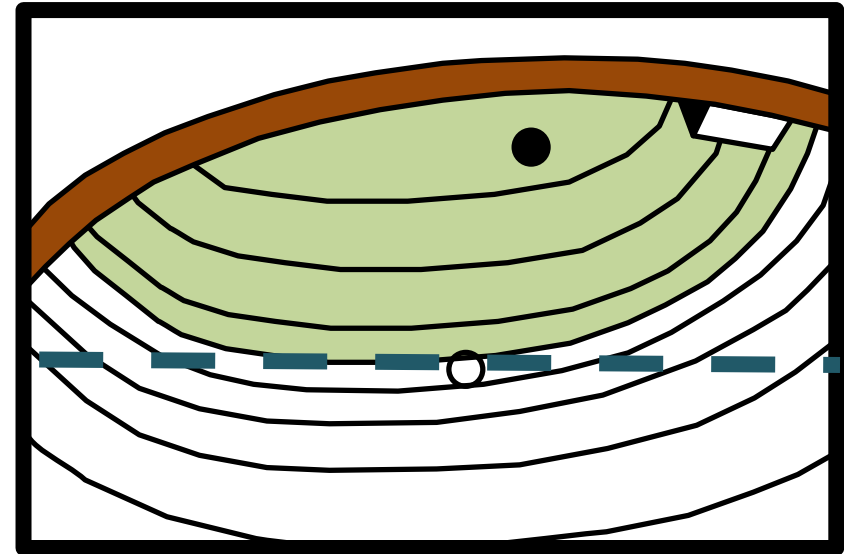
# Unit Revisions – Correlative Rights

Before Production



- Assume 10 million bbl reservoir (green area)
- Assume 1 million bbl on southern lease (10%)

After 2 MMBO Produced



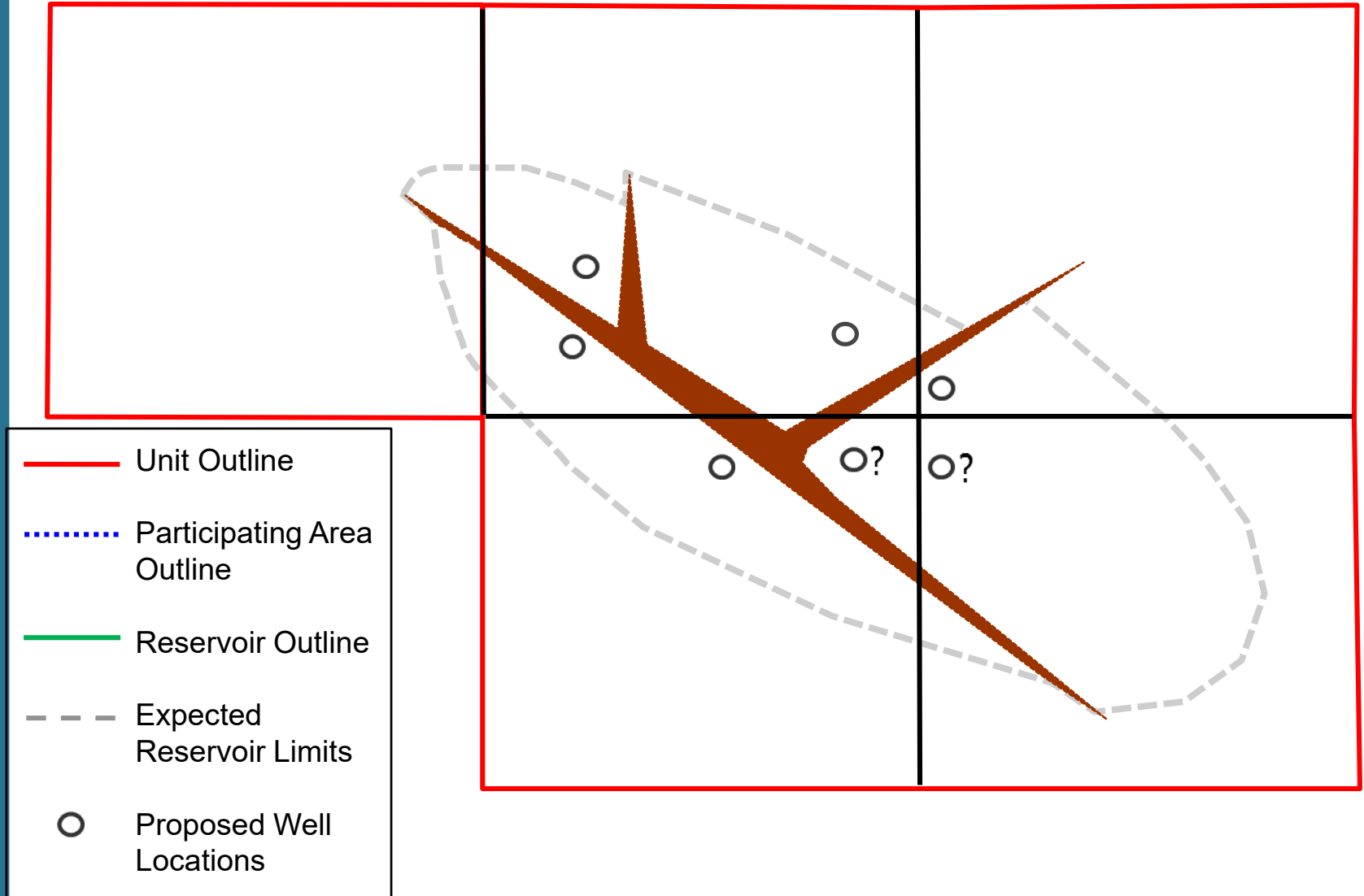
- Assume 2 million bbl produced
- Southern lease would have received 10% allocation = 200,000 bbls
- If removed from the unit at this time, owner of southern lease would lose 800,000 bbls of its allocation
- If royalty interests differ, Federal royalty interests could be harmed
- All acreage remains in unit & receives allocation until reservoir depletion to protect interests of all parties
- Relinquishment of lease in unit participating area requires prior BSEE approval (Unit Agreement)

# Participating Areas

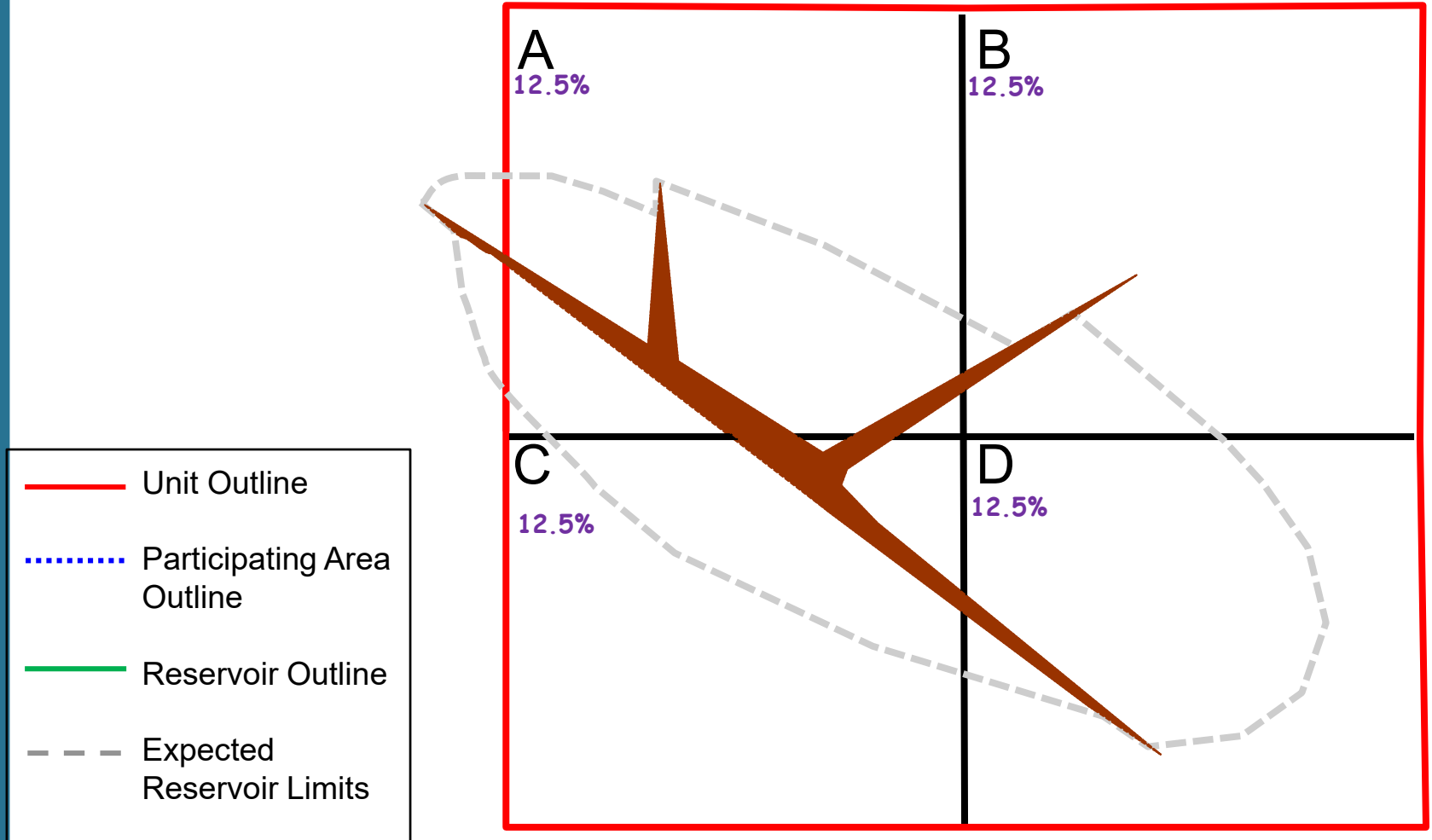
(Unit Agreement & 30 CFR 250.205, 1301-1304)

- **Portion of unit reasonably proven capable of producing in paying quantities**
  - Drilling & completion of producible wells,
  - G&G info, and/or
  - Engineering data
- **Approved by BSEE – Initial PA effective at 1<sup>st</sup> prod** (Exhibit C)
- **% of oil & gas allocated to each lease within PA**
  - Volumetric (acre-ft)
  - Surface area (acres)
- **BSEE may take special measures to protect Federal royalty interests**  
(30 CFR 250.205)
  - If a well intersects or drains higher royalty lease, BSEE may require inclusion of that lease in PA
- **Acreage not removed from PA due to depletion of oil/gas**
- **Sometimes more than 1 PA**

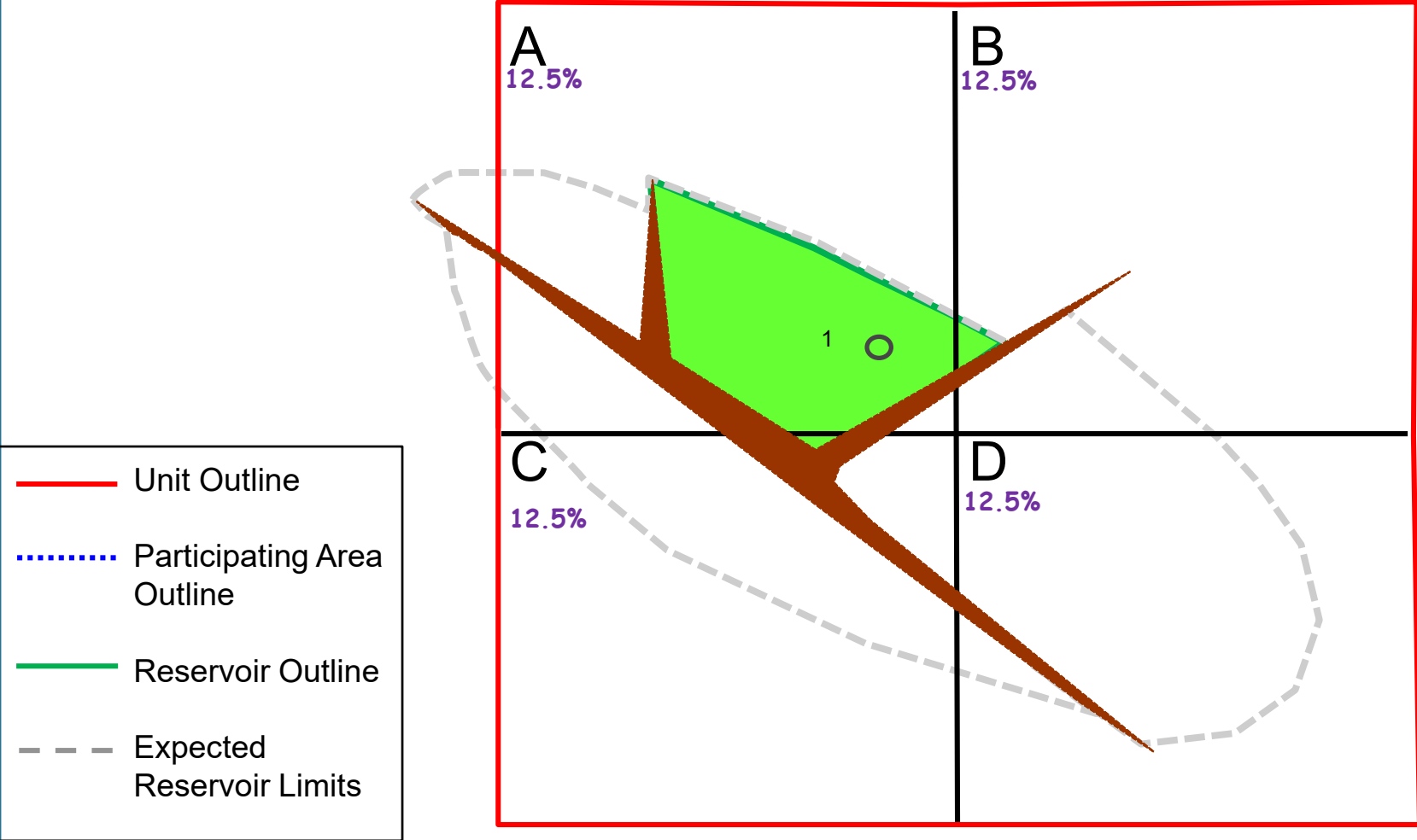
# 5-Block Proposed Exploratory Unit



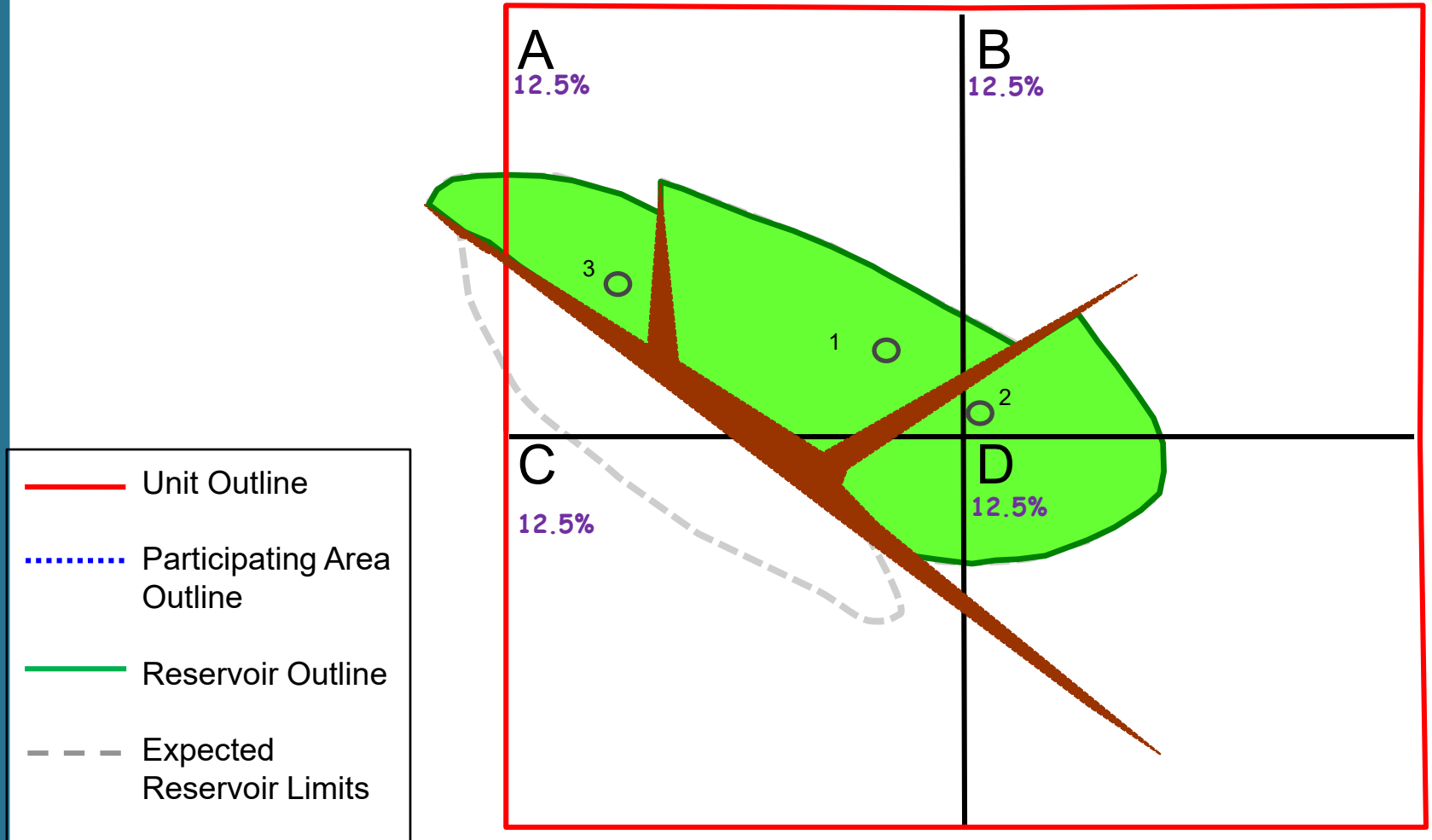
# 4-Block Exploratory Approved Unit



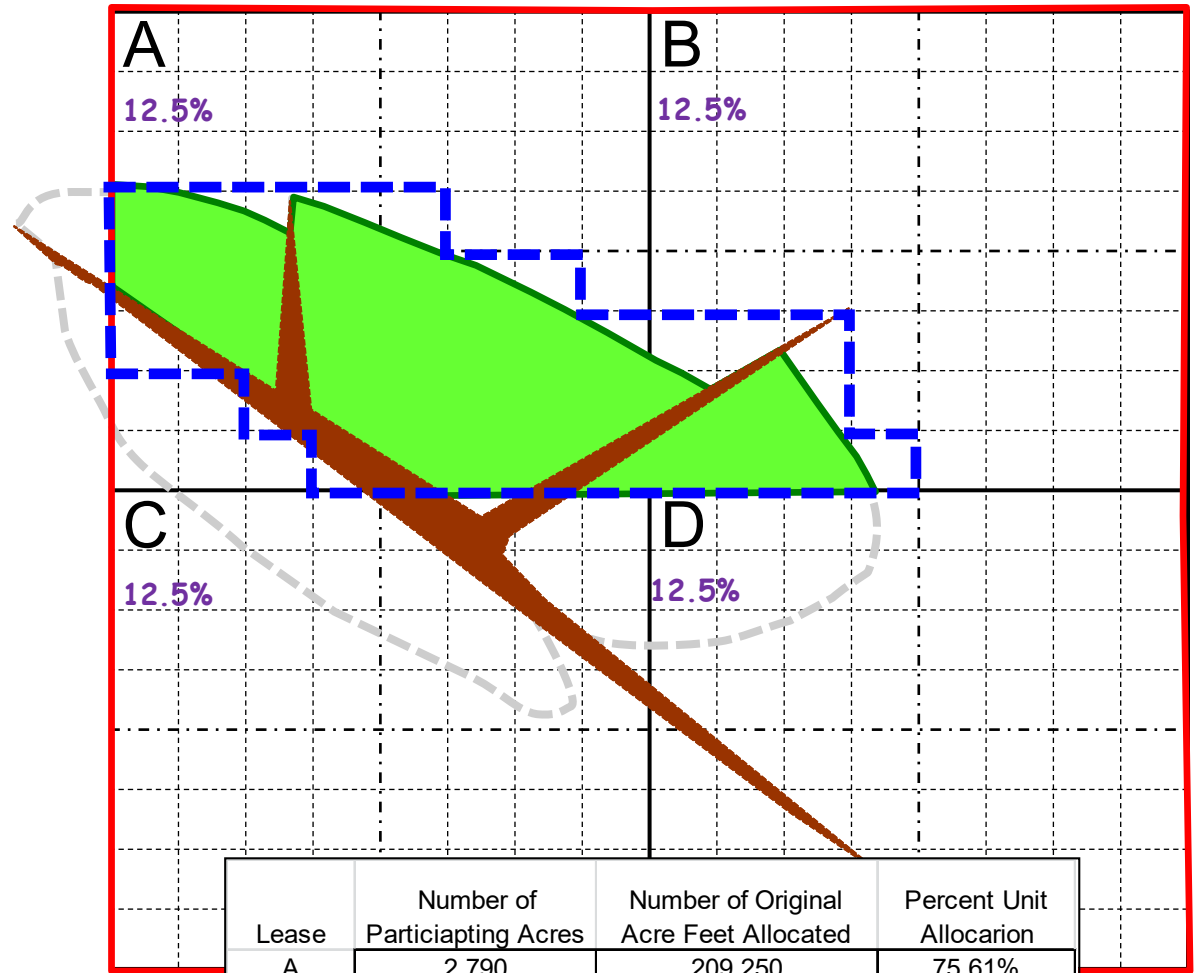
# Discovery Well Drilled



# Appraisal Wells 2 & 3 Drilled



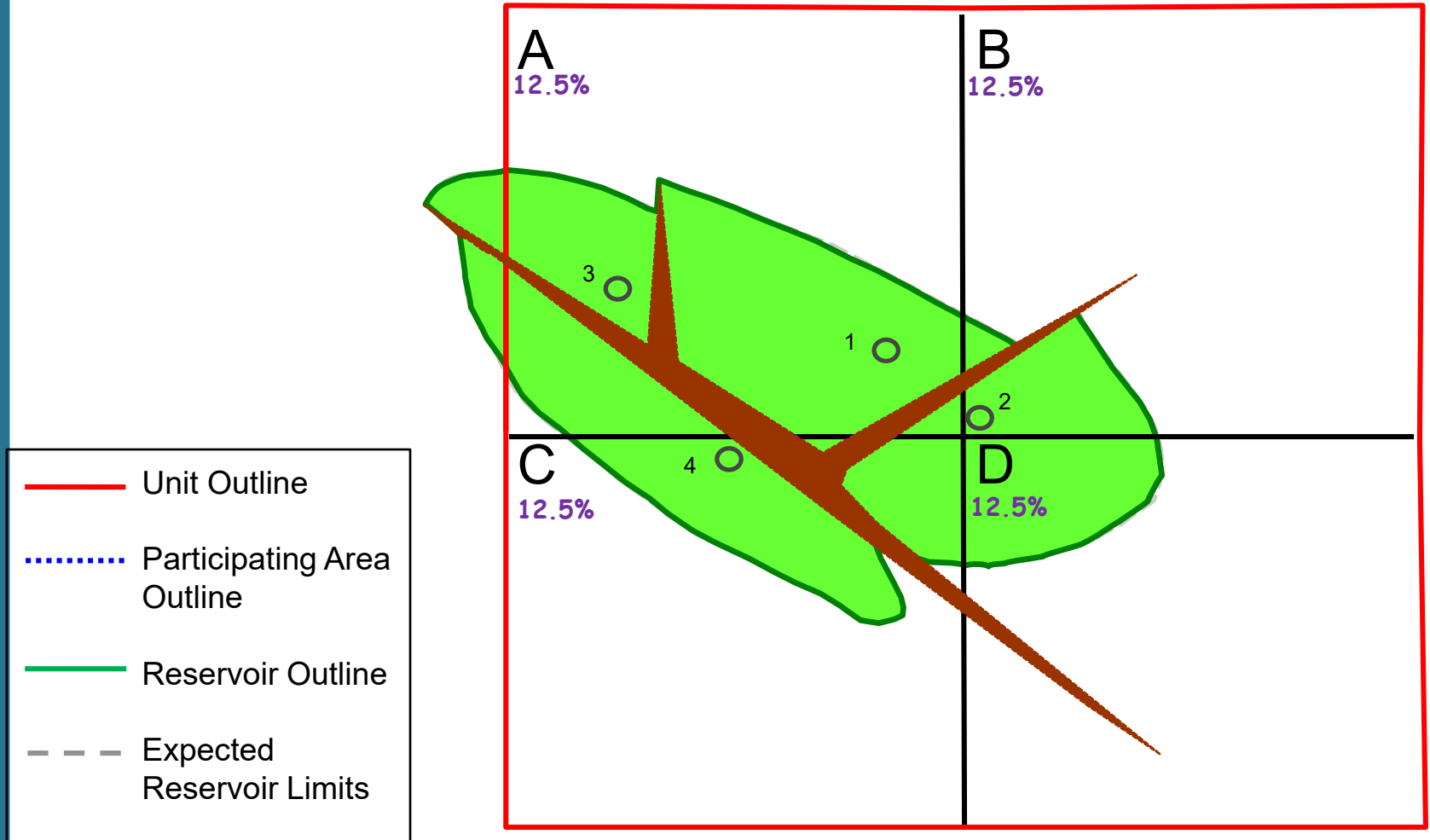
# Production Commenced



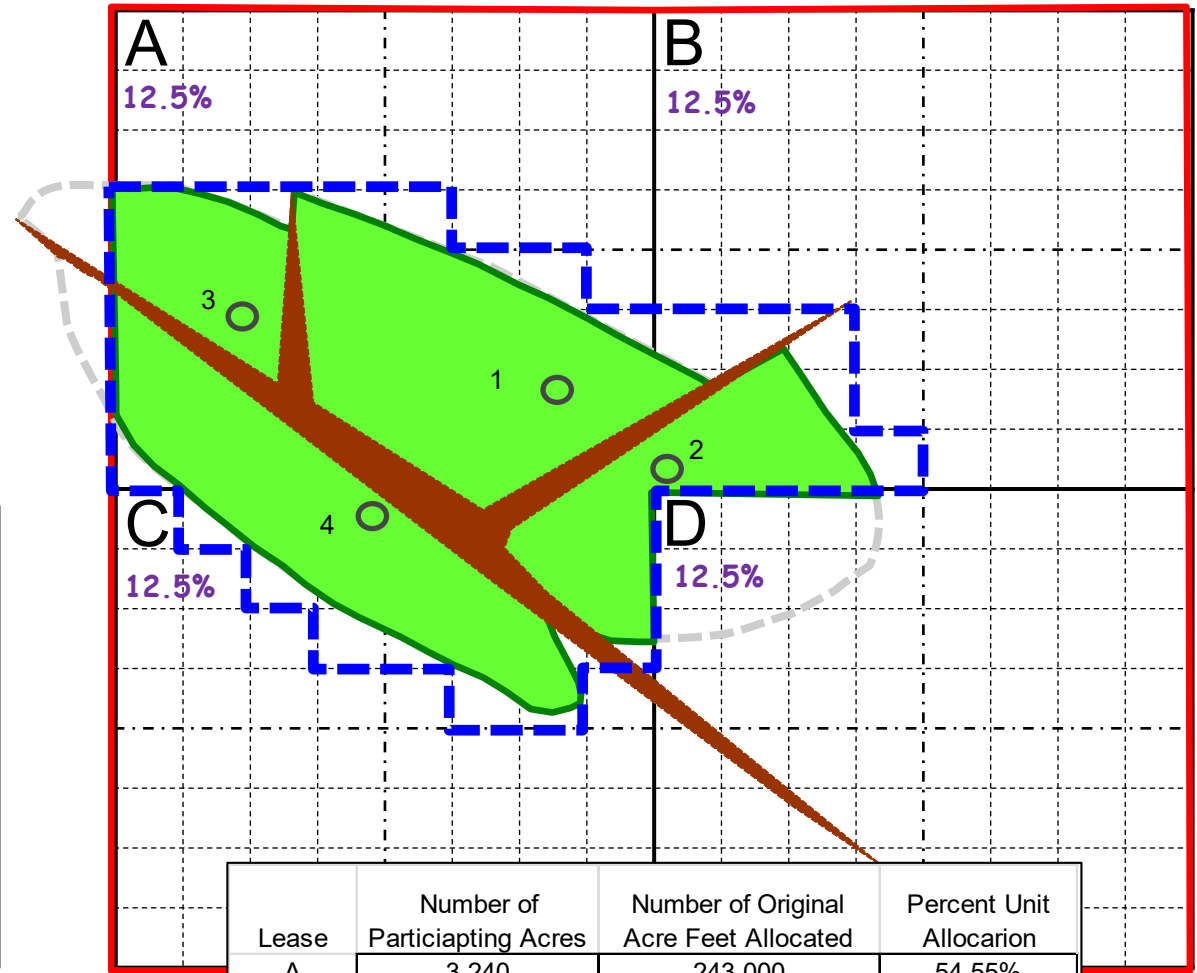
- Unit Outline
- ⋯ Participating Area Outline
- Reservoir Outline
- - - Expected Reservoir Limits

Lease	Number of Participating Acres	Number of Original Acre Feet Allocated	Percent Unit Allocation
A	2,790	209,250	75.61%
B	900	67,500	24.39%
C	0	0	0.00%
D	0	0	0.00%
Totals	3,690	276,750	100.00%

# 4<sup>th</sup> Appraisal Well Drilled



# 4th Well Placed on Production



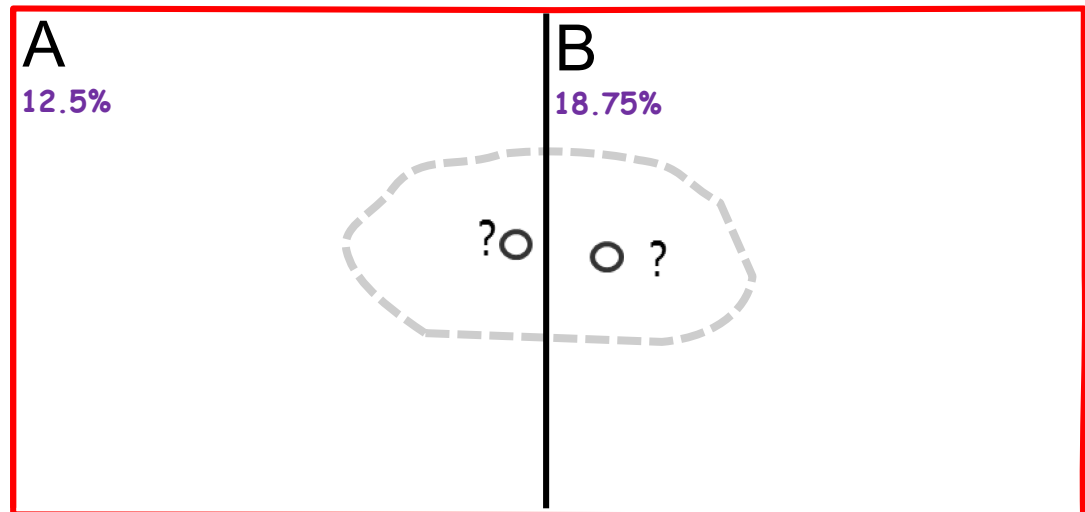
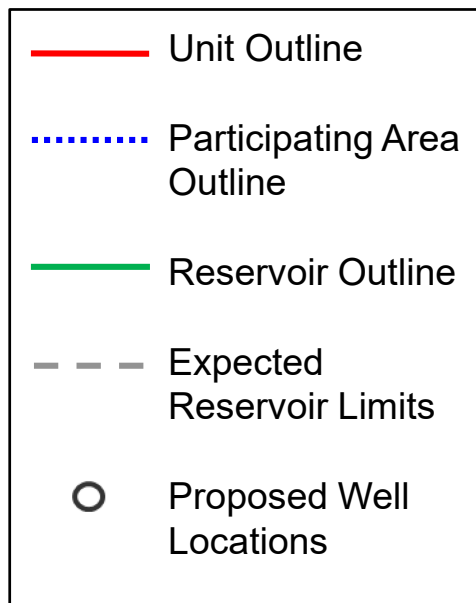
- Unit Outline
- - - - Participating Area Outline
- Reservoir Outline
- - - - Expected Reservoir Limits

Lease	Number of Participating Acres	Number of Original Acre Feet Allocated	Percent Unit Allocation
A	3,240	243,000	54.55%
B	900	67,500	15.15%
C	1,800	135,000	30.30%
D	0	0	0.00%
Totals	5,940	445,500	100.00%

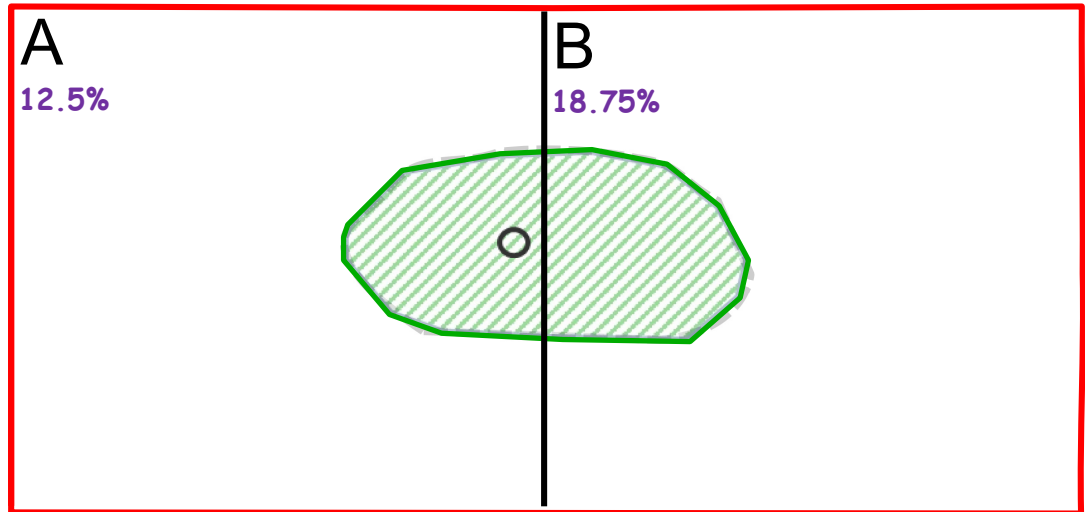
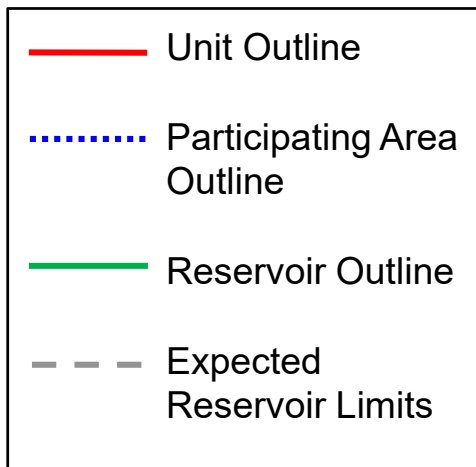
# For leases with different royalty rates

- 30 CFR §250.205: Are there special requirements if my well affects an adjacent property?
  - For wells that could intersect or drain an adjacent property, the Regional Supervisor may **require special measures to protect the rights of the Federal government** and objecting lessees or operators of adjacent leases or units.

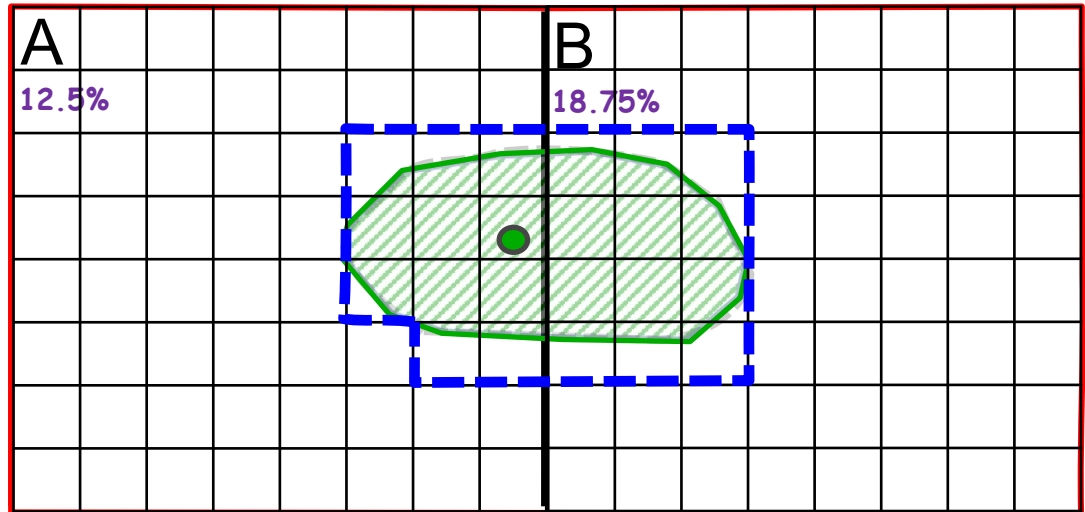
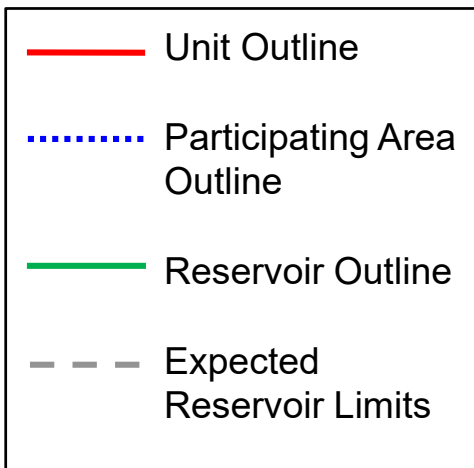
# 2-Block Proposed Exploratory Unit



# Discovery Well



# Production Commences

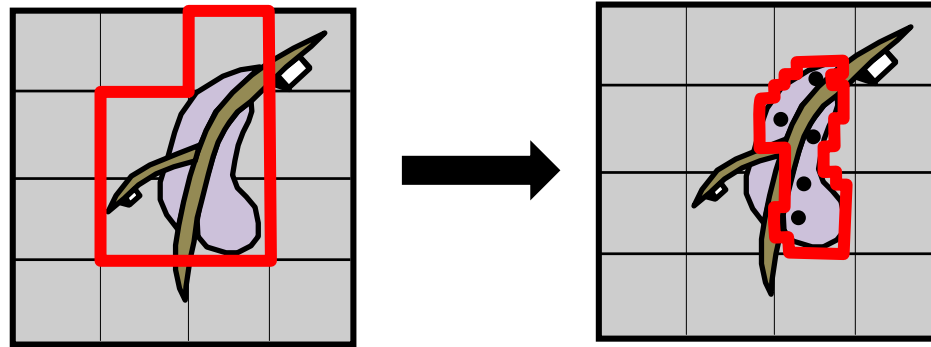


Lease	Number of Participating Acres	Number of Original Acre Feet Allocated	Percent Unit Allocation
A	990	120,750	49.17%
B	1,080	124,815	50.83%
Totals	2,070	245,565	100.00%

# Automatic Contraction of Unit Area

(Unit Agreement)

- Unit Area contracts to Participating Area after \_\_\_ yrs (specified in Unit Agreement)
- Automatic contraction effective on the specified anniversary of effective date of initial Participating Area (i.e., first production)



# Agenda

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- **Requests for Unitization**
- Unit Suspensions & Unit Termination

# Unitization Documents

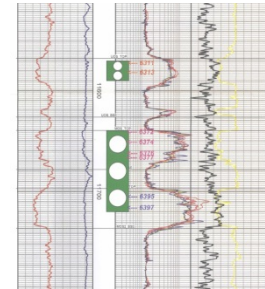
(30 CFR 250.1301(d), 1301(e), & 1303)

- **Unit Operating Agreement – Contract between companies**
  - Submitted to BSEE (but not approved by BSEE)
  - Describes how all costs & liabilities allocated
  - Describes how all benefits allocated
- **Unit Agreement – Contract companies sign**
  - Submitted to BSEE for approval
  - Designates unit operator (who accepts duties & obligations), specifies effective date of unit, establishes method of production allocation, stipulates automatic contraction, etc.
  - Exhibit A – map of unit area
  - Exhibit B – table with leases & ownership of each
  - Exhibit C – table with leases in Participating Area, and % of oil & gas allocated to each lease
- **Proposed Initial Unit Plan of Operation** (with request letter)
  - All unit ops conducted under a BSEE-approved Unit Plan of Operation
  - Expires on date specified – usually resubmit annually

# Supporting Information

(30 CFR 250.1303 & 250.125)

- **Justification**
  - How will unit promote exploration & development?
  - Will unit conserve natural resources, prevent waste, or protect correlative rights?
- **Lease history & proposed initial unit operations overview**
- **Summary of discovery well findings**
- **Subsurface Information**
  - Latest 3D seismic
  - Representative seismic lines through prospect
  - Structure & amplitude maps
  - Well logs, correlations, petrophysical analyses, & engineering data
- **Cost recovery fee**
  - Currently \$12,619 – Voluntary unitization proposal or unit expansion
  - Currently \$896 – Unitization revision



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# Unit Suspensions

(30 CFR 250.1301(g) & 250.168-177)

- Same criteria as lease suspensions
- Requested by operator
- Directed by BSEE
- Suspension of Production (SOP)
- Suspension of Operations (SOO)



# Unit Termination

(30 CFR 250.180, 250.1301, & Unit Agreement)

- If 1 or more unit leases beyond primary term, continuous program needed:
  - Drilling
  - Well-reworking
  - Production in paying quantities
  - Lapses no more than 1 yr or Unit SOO/SOP
- Automatic termination when unit ops permanently abandoned

# Questions?



BSEE Website: [www.bsee.gov](http://www.bsee.gov)



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Bureau of Safety and  
Environmental Enforcement

“To promote safety, protect the environment and conserve resources offshore through vigorous regulatory oversight and enforcement.”