Unitization

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

Natasha Bland
Unitization Supervisor
Office of Production & Development
Gulf of Mexico OCS Region
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

- 158 Active Units
  - 122 Exploration
  - 36 Reservoir

2019 data
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

- **Unit:** 33%
- **Non-Unit:** 67%

### Gas Production

- **Unit:** 58%
- **Non-Unit:** 42%

### Oil Production

- **Unit:** 78%
- **Non-Unit:** 22%

*2018 data*
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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 1st well
  - Can be formed later (even after 1st 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

![Diagram showing allocation between Lease 1 and Lease 2]
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 (CR)**
  - Single reservoir with 1 or more producing/producing 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
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Unit Area


- 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

Not Approvable

- Expiring leases
- Proposed unit outline
- Amplitude anomalies

Approvable unit outline

Expanding lease
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 1st 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

- Unit Outline
- Participating Area Outline
- Reservoir Outline
- Expected Reservoir Limits
- Proposed Well Locations
4-Block Exploratory Approved Unit

- Unit Outline
- Participating Area Outline
- Reservoir Outline
- Expected Reservoir Limits
Discovery Well Drilled

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

A
12.5%

B
12.5%

C
12.5%

D
12.5%
Appraisal Wells 2 & 3 Drilled
Production Commenced

<table>
<thead>
<tr>
<th>Lease</th>
<th>Participating Acres</th>
<th>Number of Original Acre Feet Allocated</th>
<th>Percent Unit Allocation</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>2,790</td>
<td>209,250</td>
<td>75.61%</td>
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<tr>
<td>B</td>
<td>900</td>
<td>67,500</td>
<td>24.39%</td>
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<tr>
<td>C</td>
<td>0</td>
<td>0</td>
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<tr>
<td>D</td>
<td>0</td>
<td>0</td>
<td>0.00%</td>
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<tr>
<td>Totals</td>
<td>3,690</td>
<td>276,750</td>
<td>100.00%</td>
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</table>
4th Appraisal Well Drilled

Unit Outline
- Participating Area Outline
- Reservoir Outline
- Expected Reservoir Limits
4th Well Placed on Production

<table>
<thead>
<tr>
<th>Lease</th>
<th>Participating Acres</th>
<th>Number of Original Acre Feet Allocated</th>
<th>Percent Unit Allocation</th>
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<tbody>
<tr>
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<td>3,240</td>
<td>243,000</td>
<td>54.55%</td>
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<tr>
<td>B</td>
<td>900</td>
<td>67,500</td>
<td>15.15%</td>
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<tr>
<td>C</td>
<td>1,800</td>
<td>135,000</td>
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<tr>
<td>D</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Totals</td>
<td>5,940</td>
<td>445,500</td>
<td>100.00%</td>
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</table>
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

Unit Outline
- Participating Area Outline
- Reservoir Outline
- Expected Reservoir Limits
- Proposed Well Locations

A
- 12.5%

B
- 18.75%
Discovery Well

A
12.5%

B
18.75%

Unit Outline

Participating Area Outline

Reservoir Outline

Expected Reservoir Limits
Production Commences

<table>
<thead>
<tr>
<th>Lease</th>
<th>Number of Participating Acres</th>
<th>Number of Original Acre Feet Allocated</th>
<th>Percent Unit Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>990</td>
<td>120,750</td>
<td>49.17%</td>
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<tr>
<td>B</td>
<td>1,080</td>
<td>124,815</td>
<td>50.83%</td>
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<tr>
<td>Totals</td>
<td>2,070</td>
<td>245,565</td>
<td>100.00%</td>
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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)
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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-reworing
  - Production in paying quantities
  - Lapses no more than 1 yr or Unit SOO/SOP

- Automatic termination when unit ops permanently abandoned
Questions?
To promote safety, protect the environment and conserve resources offshore through vigorous regulatory oversight and enforcement.

BSEE Website: 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.”