Oil and Gas Agreements

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Branch Chief, Fluid Minerals

Oil and Gas Tidbits

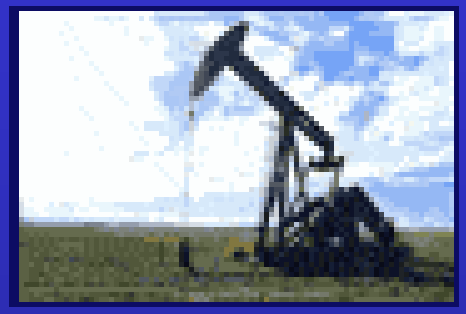
1 barrel of oil = 42 gallons

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.

General Topics



- Why We Need Oil and Gas Agreements
- Types of Oil and Gas Agreements:
  - Exploratory Unit Agreements
  - Enhanced Recovery Unit Agreements
  - Communitization Agreements (CAs)
  - Gas Storage Agreements
  - Indian Mineral Development Act Agreements (IMDA)

AGREEMENTS
Why do we need them?

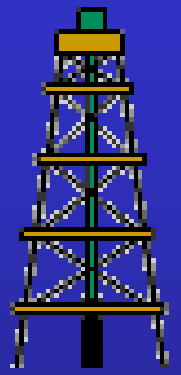
RULE OF CAPTURE

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 and it doesn't matter where it comes from.

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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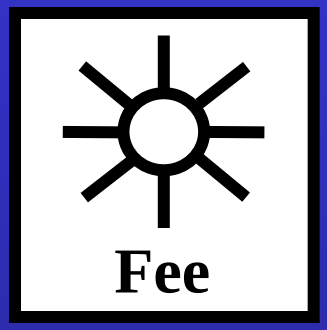
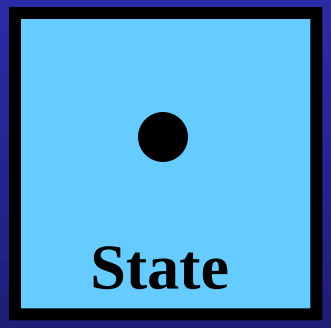
Oil and Gas Mapping Symbology



Gas Well

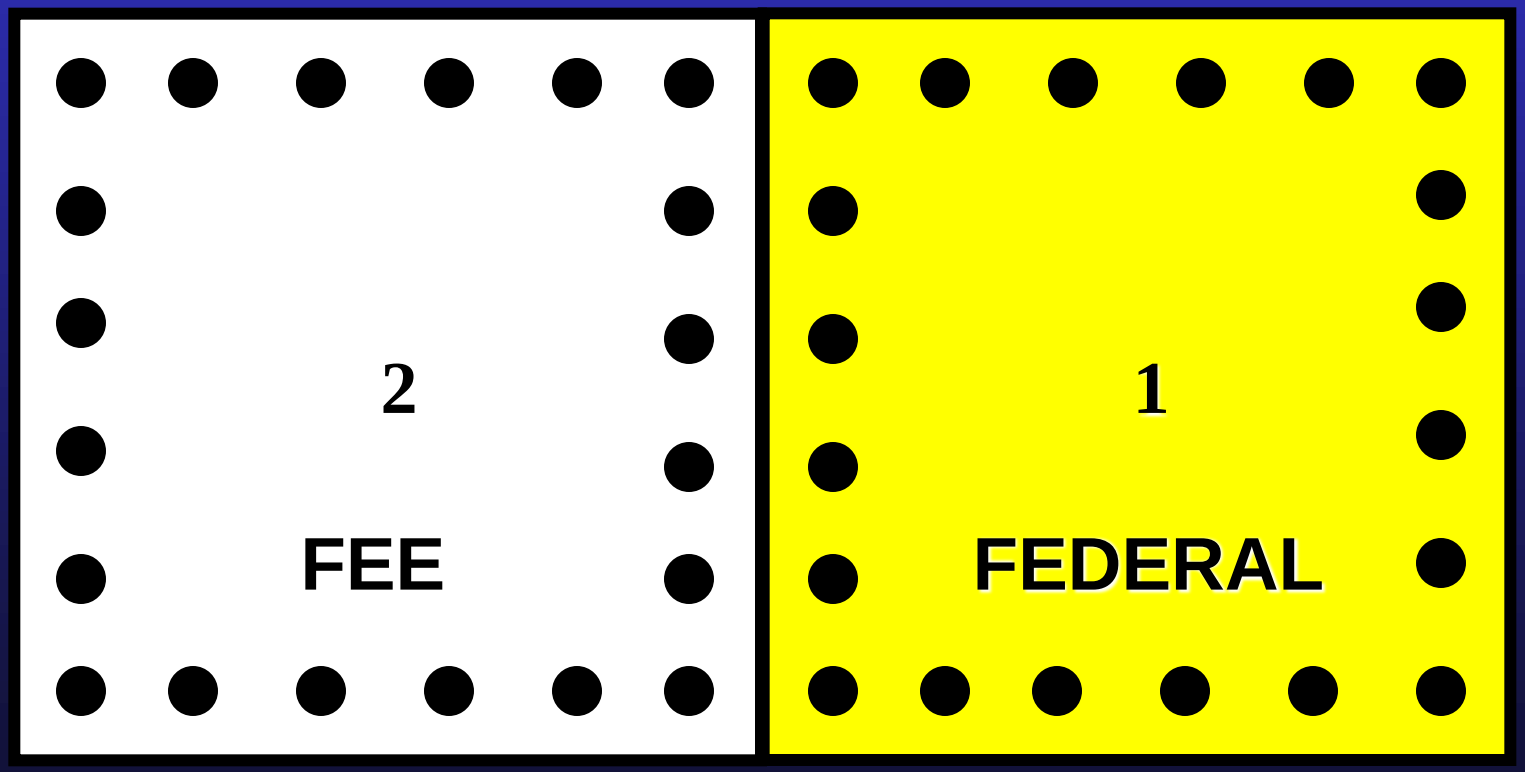


Oil Well

Plugged and Abandoned

RULE OF CAPTURE

WAR OF THE WELLS



Early 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.

Unit Agreement Concepts and Benefits

Acid Well Treating Truck - 1933

Unit Agreement Concept

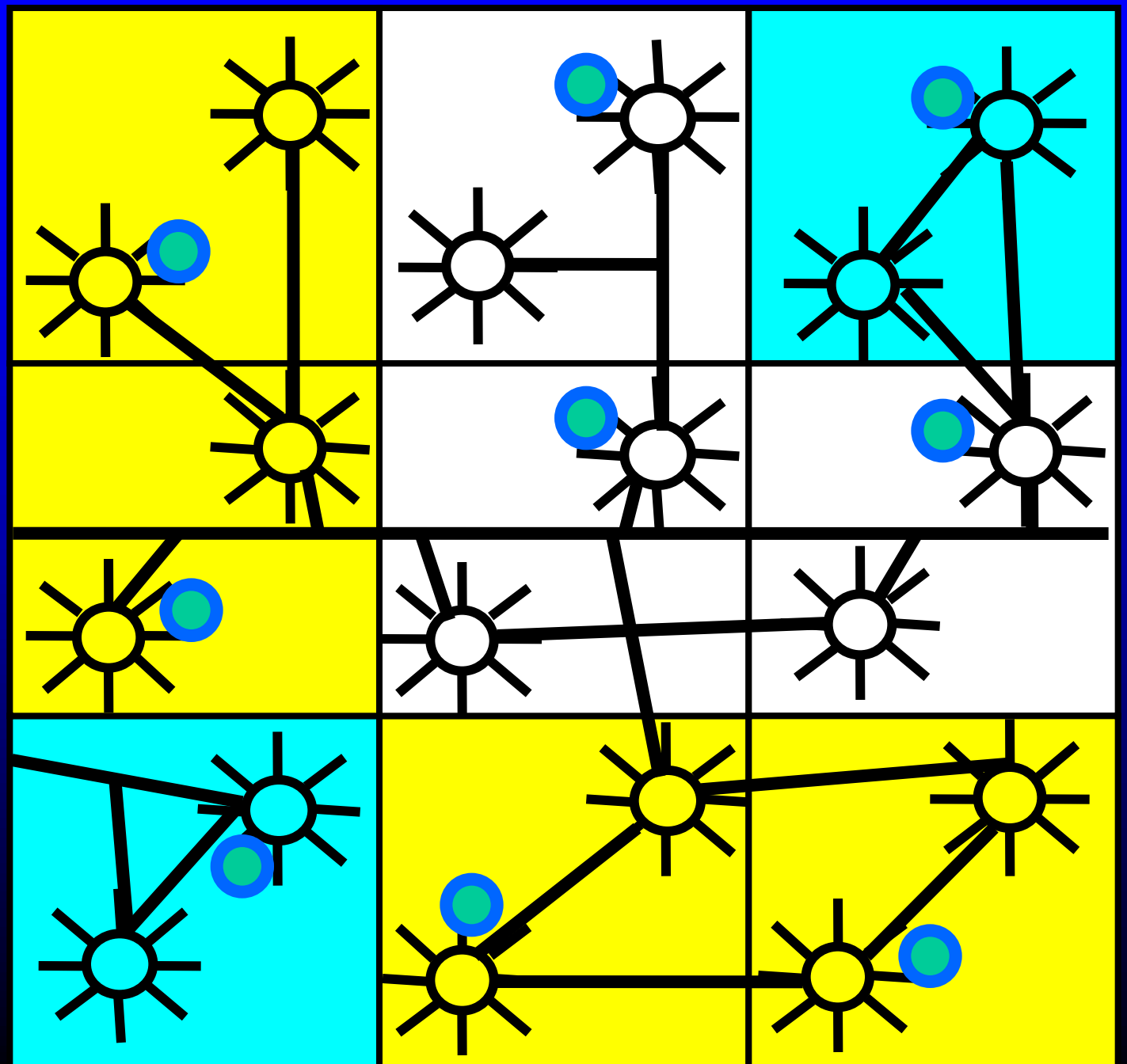
Key Elements:

- One way to apply the Correlative Rights Doctrine
- **Operation of multiple leases as a single lease under a single operator.**

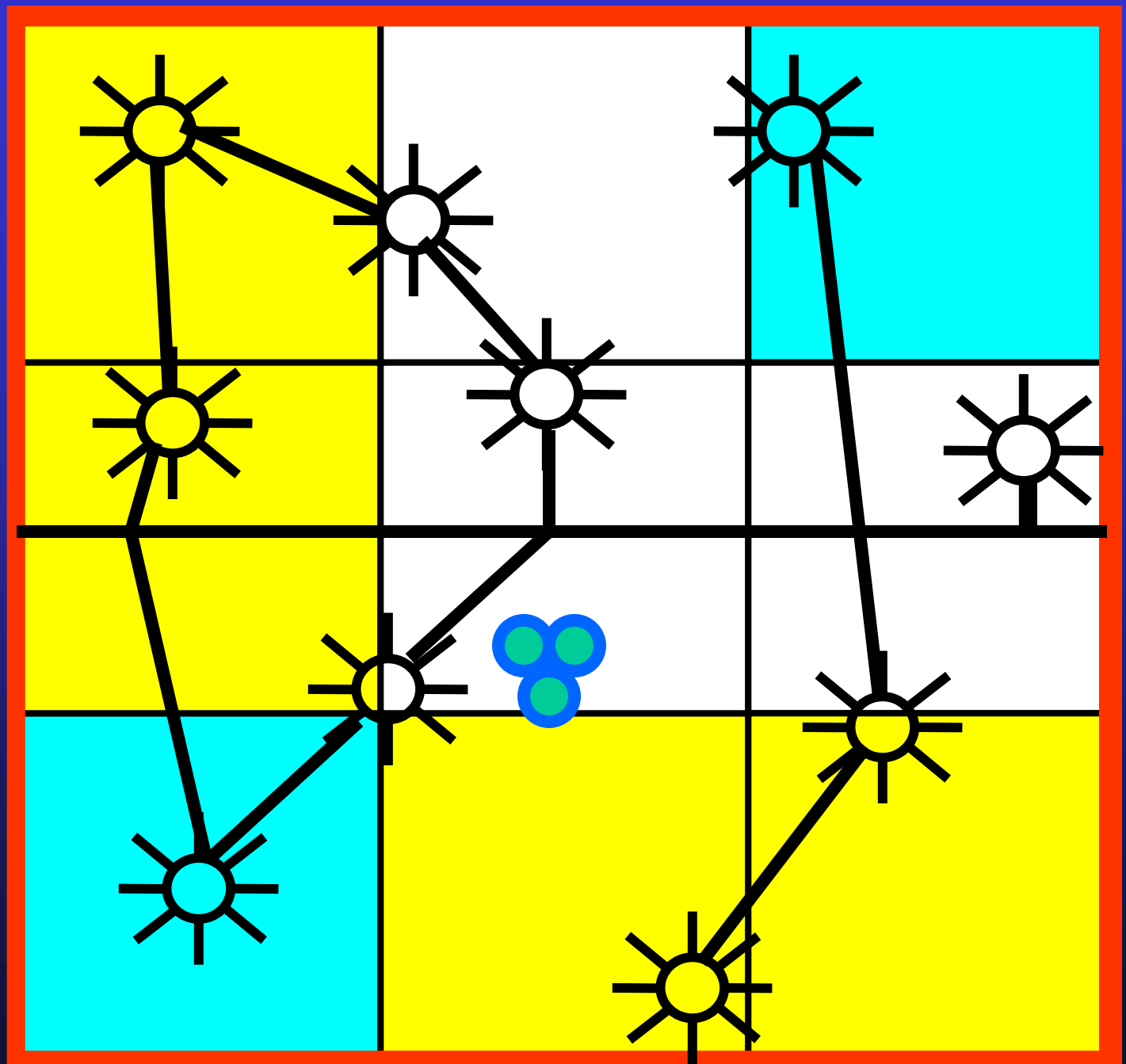
Benefits of Unit Agreements

- ✓ Environmental Benefits
- ✓ Oil and Gas Reservoir Benefits
- ✓ Lease Benefits
- ✓ Logical, Controlled Development

No Unit



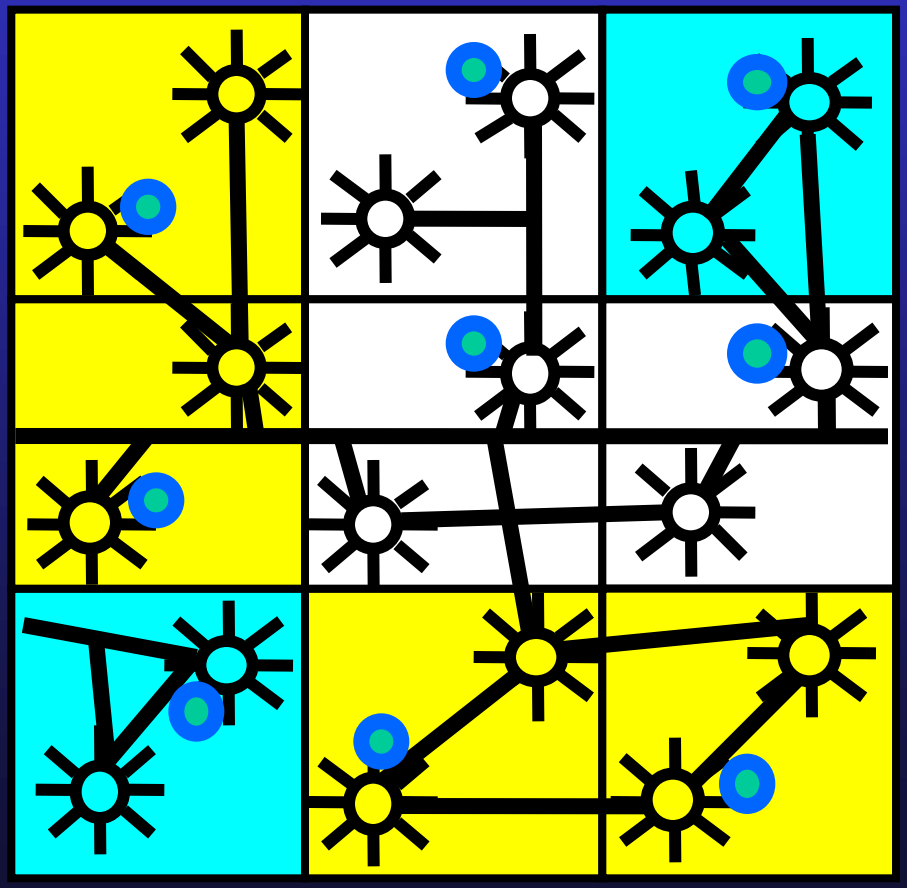
Unit



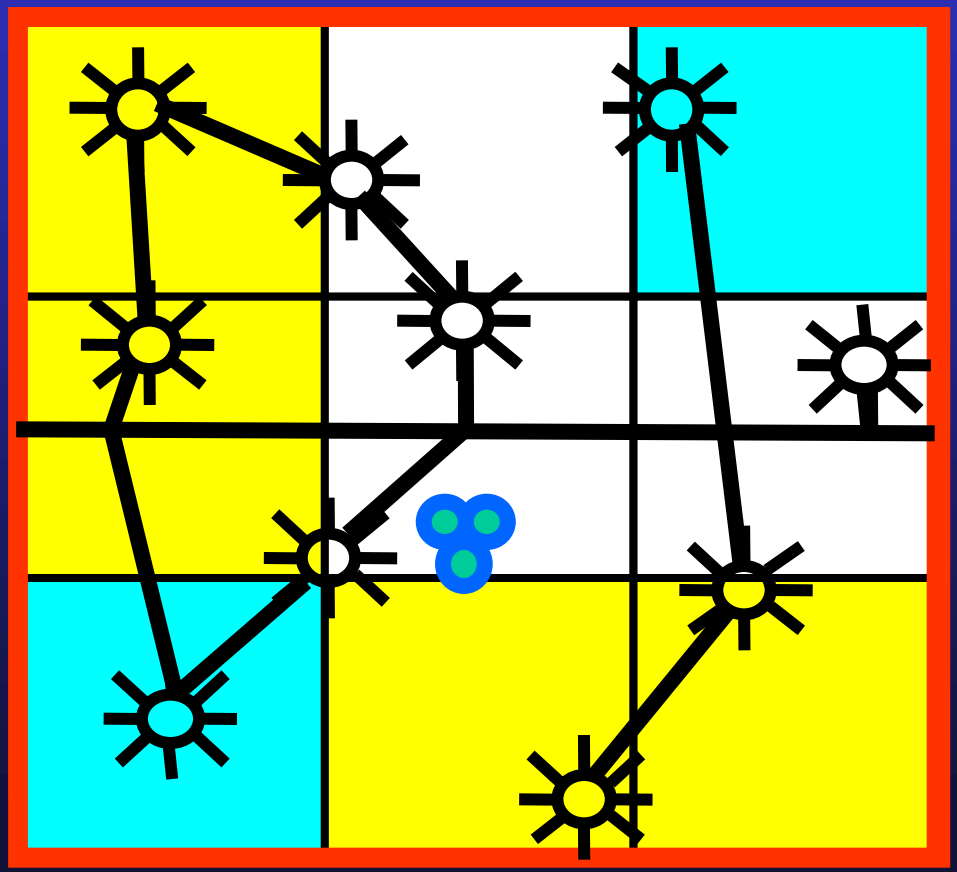
Environmental Benefits:

- Fewer Well Pads
- Fewer Roads
- Less Surface Disturbance

No Unit



Unit



Oil and Gas Reservoir Benefits of Unitization

- ✓ Drill wells *ONLY* where needed
- ✓ No regard for lease-lines
- ✓ Reduce waste - higher ultimate recovery

Lease Benefits of Unitization

- Leases can be extended for a short time without actual production on the lease
- Leases can be developed in a logical sequence
- Leases get 2 year extension upon unit termination or contraction

What is BLM's Responsibility?

- ✓ *BLM is responsible for <u>administering</u> federal unit* agreements. This includes:*
  - ✓ **Unit Approval**
  - ✓ **Monitoring**
  - ✓ **Unit Termination**

Unitization and NEPA

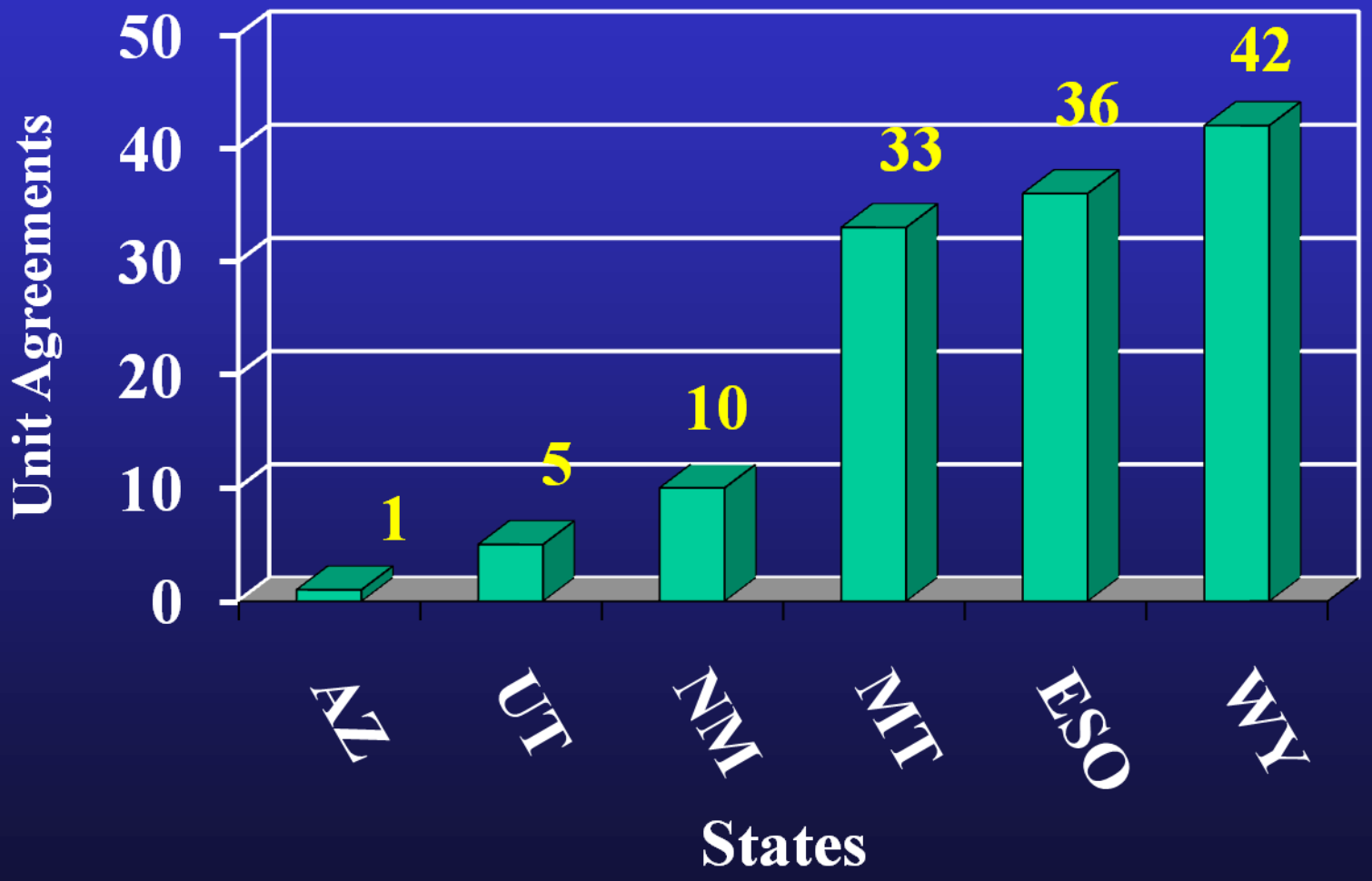
- Purely administrative action
- Existing lease rights and stipulations are unchanged
- No leases or APDs issued
- All subsequent actions subject to NEPA
- Unit approvals are subject to NEPA but Categorically Excluded from further analysis

API or State Units

- Little or no Federal acreage or Federal participation (<15%)

- BLM has no jurisdictional or administrative responsibilities for these unit agreements

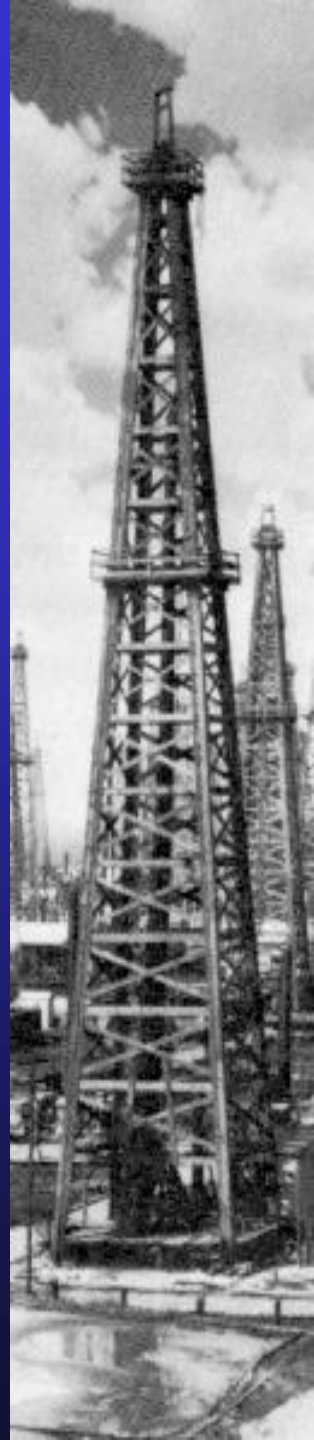
API Unit Agreements by State



Unit Agreement Approval Process

Approval Process

1. Area and depth Meeting
2. Designation
3. Final Approval

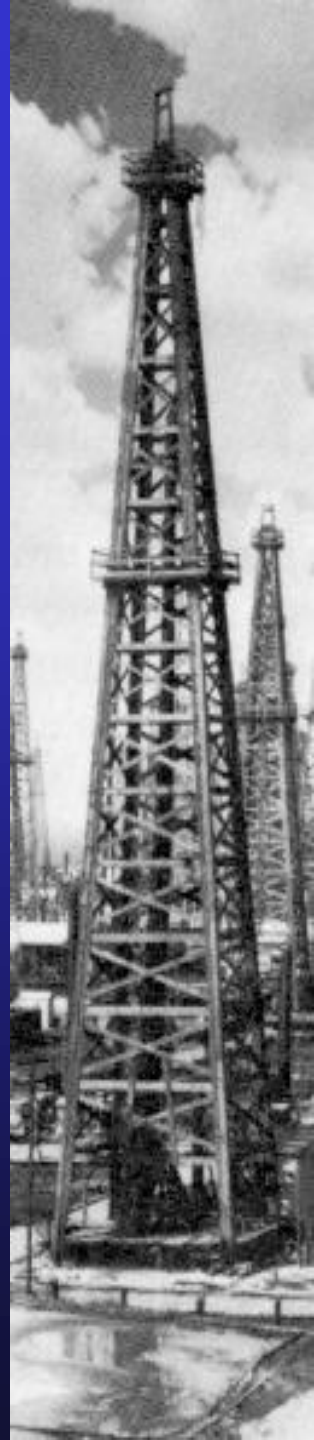


Approval Process

Agreements containing Indian Lands

1. **Designation**
2. **BIA gives Final Approval**

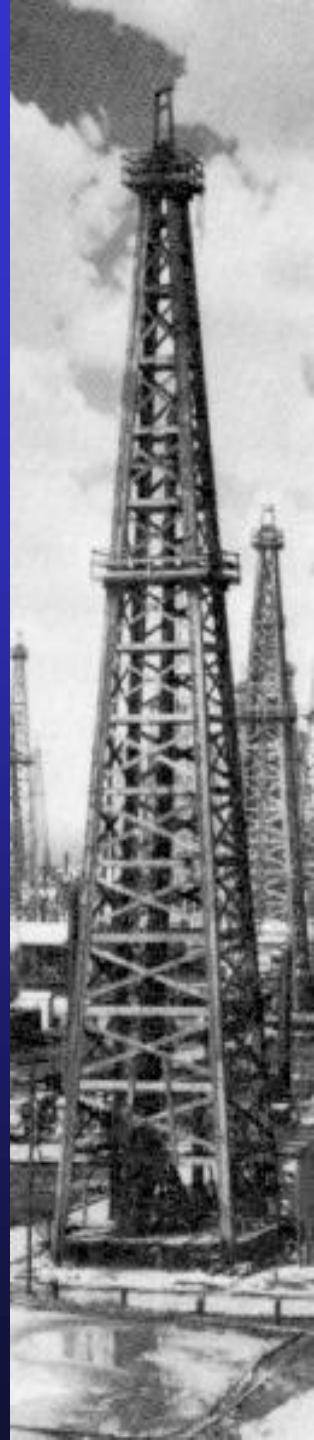
   BLM provides recommendation to BIA



Designation

Application includes:

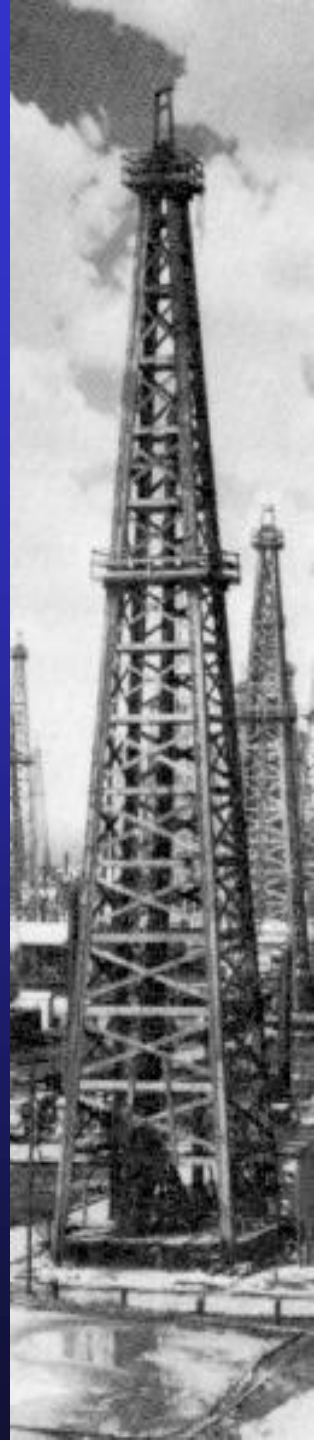
- ✓ Unit area geology
- ✓ Unit target formation
- ✓ Unitized formations
- ✓ Unit boundary
- ✓ Obligation well location
- ✓ Changes from the standard form
- ✓ Unit operator



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:

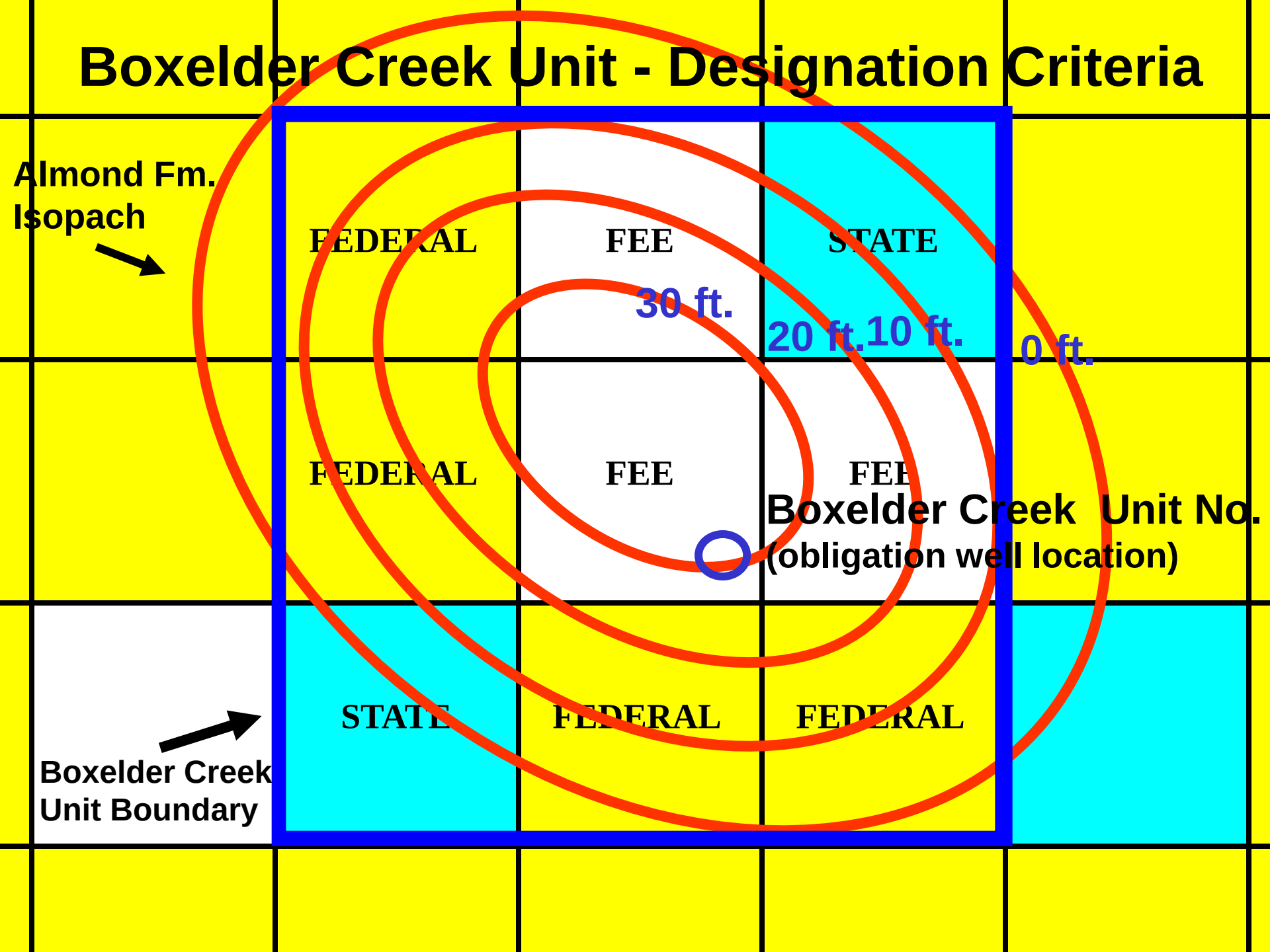
Boxelder Creek

Designation Criteria

Boxelder Creek Unit

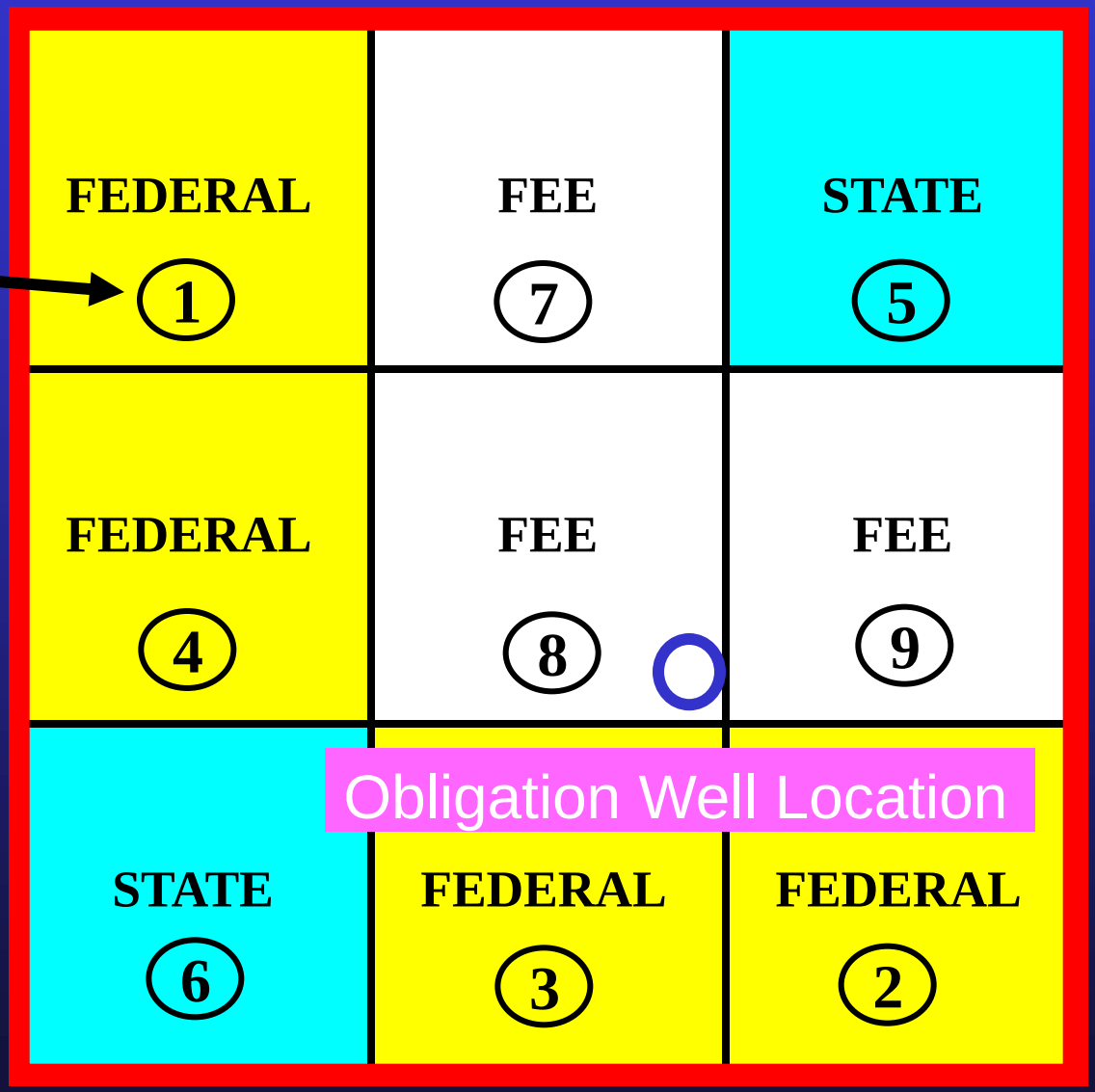
- Target formation is the Almond
- Standard exploratory agreement form will be used
- Acme Oil will operate the unit
- All formations are unitized

Boxelder Creek Unit - Designation Criteria



Boxelder Creek Unit

Tract #



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 <u>not HBP</u> (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.

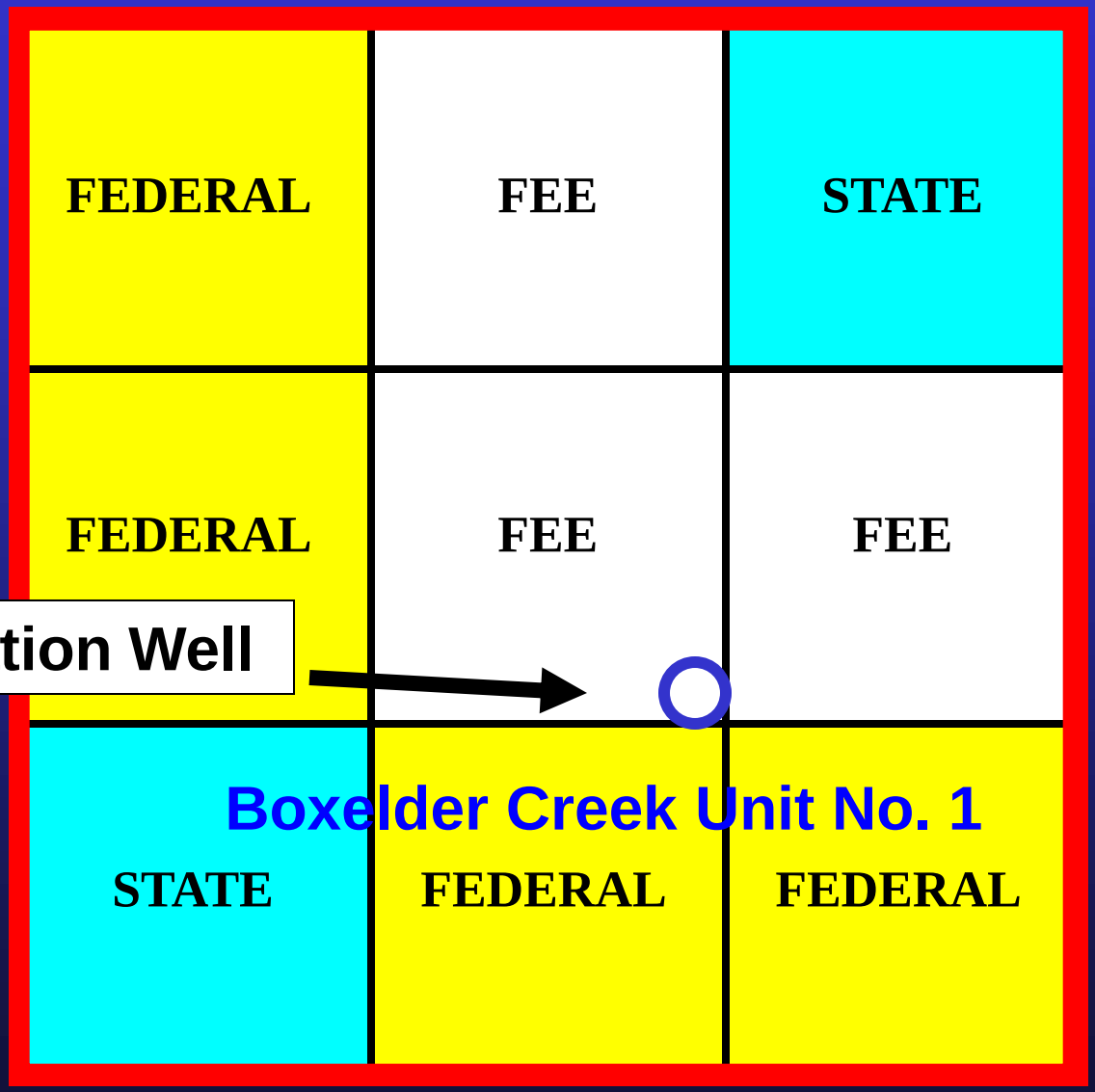
Drilling to Discovery

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



Is it a Paying Well?

Drilling to Discovery

Boxelder Creek Unit

- Boxelder Creek Unit No. 1 well was completed and showed an initial potential of 2,000 mcf/day.
- After some production history, the operator sent a “Unit Paying Well Determination” application to the CSO
- CSO determined that the Boxelder Creek Unit No. 1 well was a “Unit Paying Well”

Exploratory Unit Agreement

Participation After Discovery

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)**

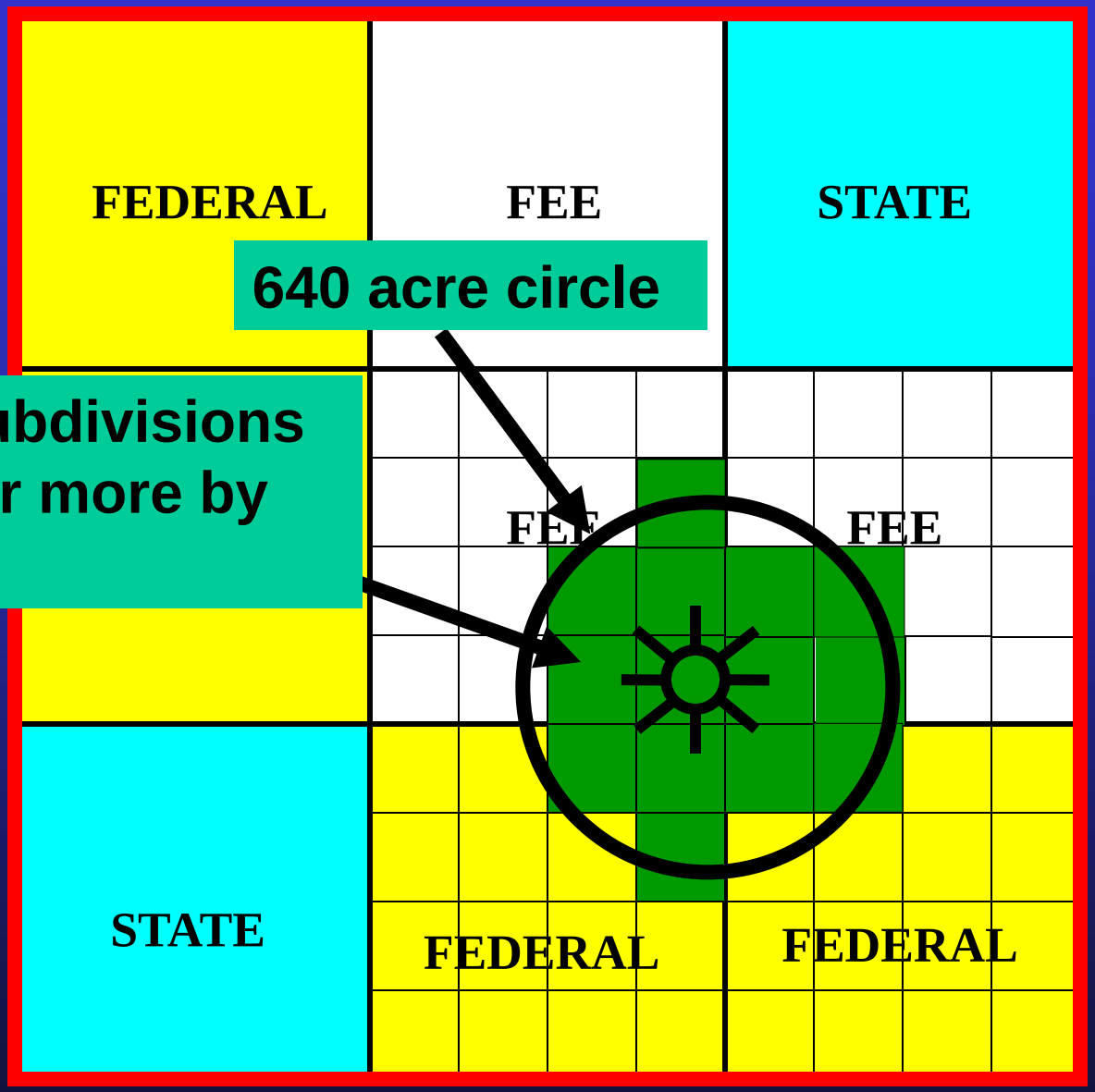
Participation After Discovery

"Reasonably proven productive"

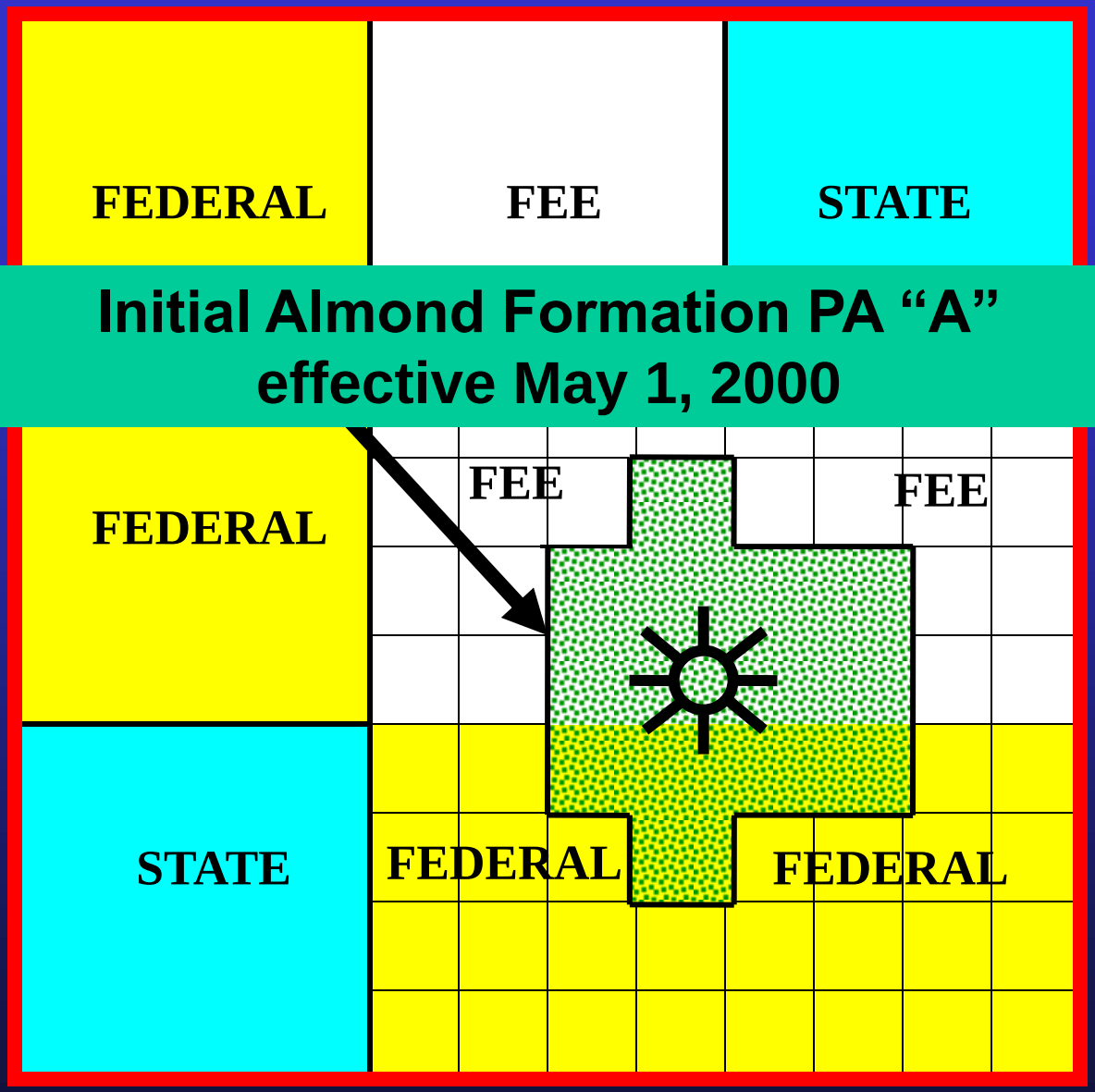
How do we define this in order to come up with the PA boundary?

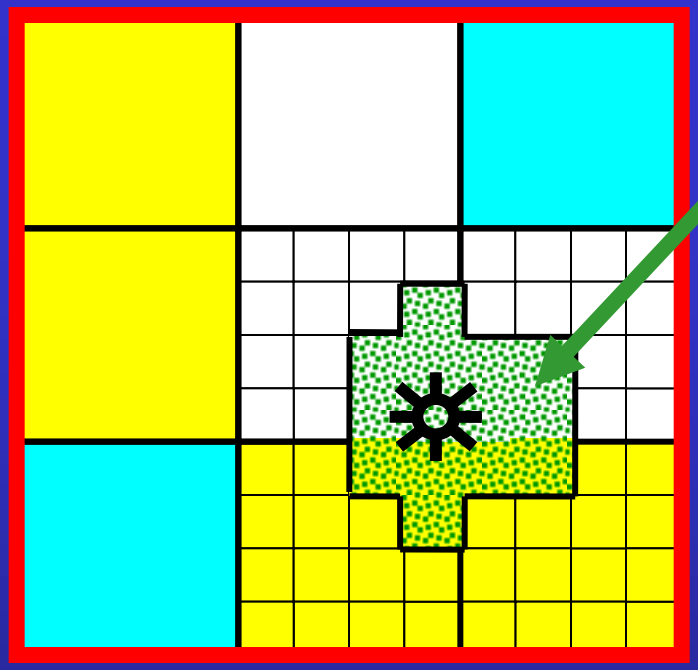
- Circle-tangent method unless additional info available
  - Simple
  - Equitable
  - Well accepted by industry

Boxelder Creek Unit



Boxelder Creek Unit





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, 2000, 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

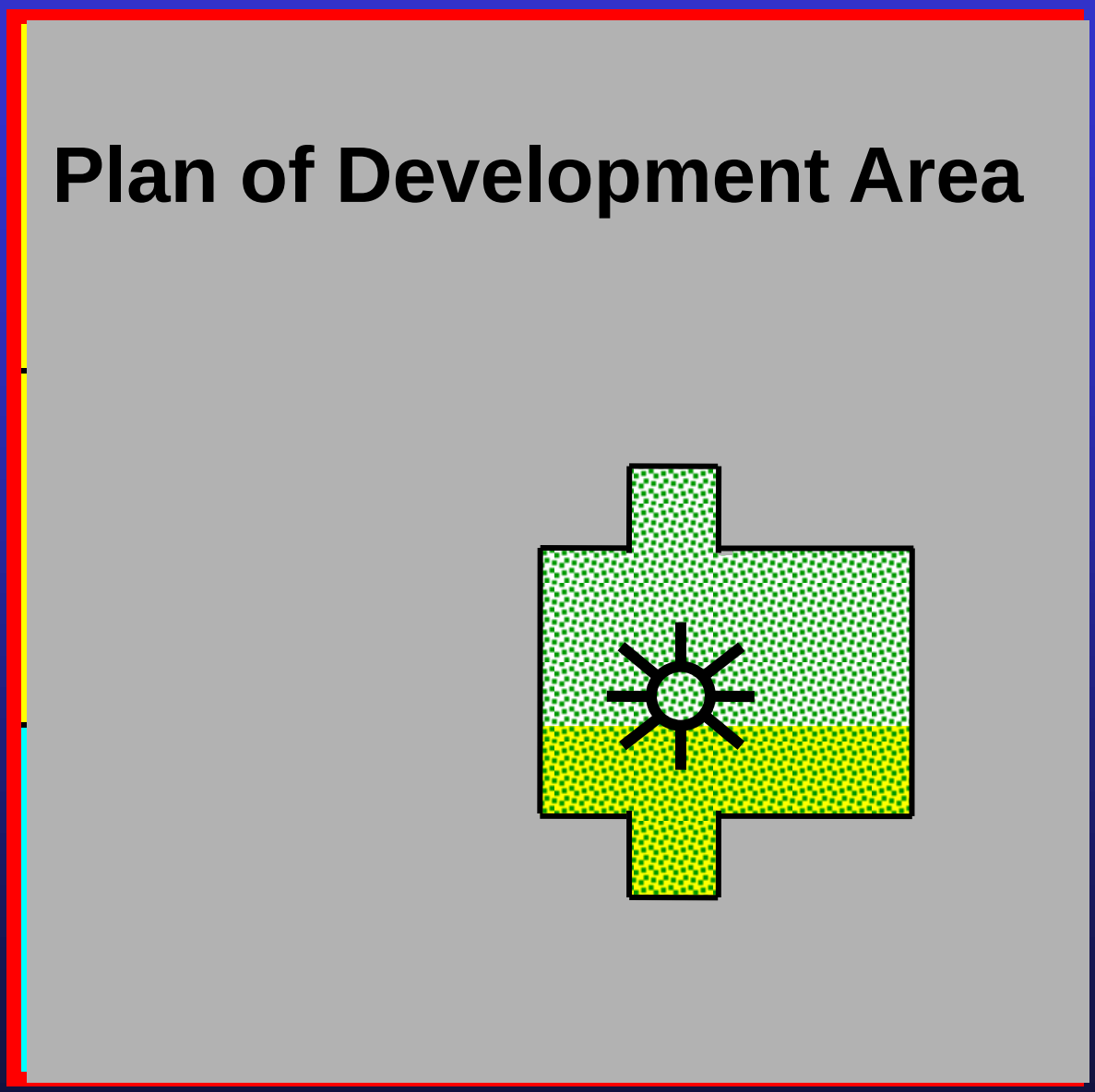
Exploratory Unit Agreement

Plan of Development Phase

Boxelder Creek Unit

Plan of Development Phase

- Unit operator has <u>5 yrs from effective date of initial PA</u> to develop area outside existing PA

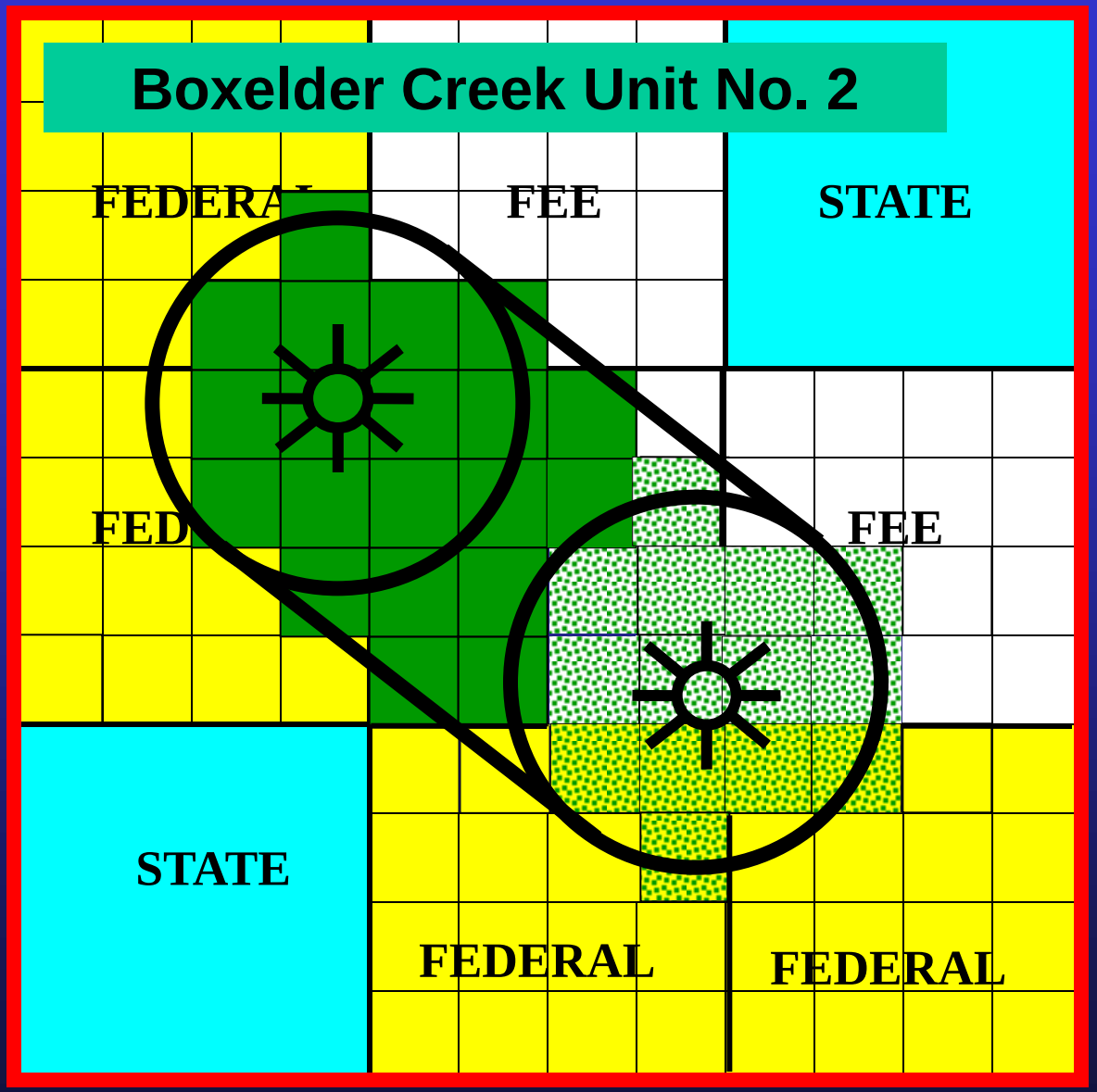


Boxelder Creek Unit

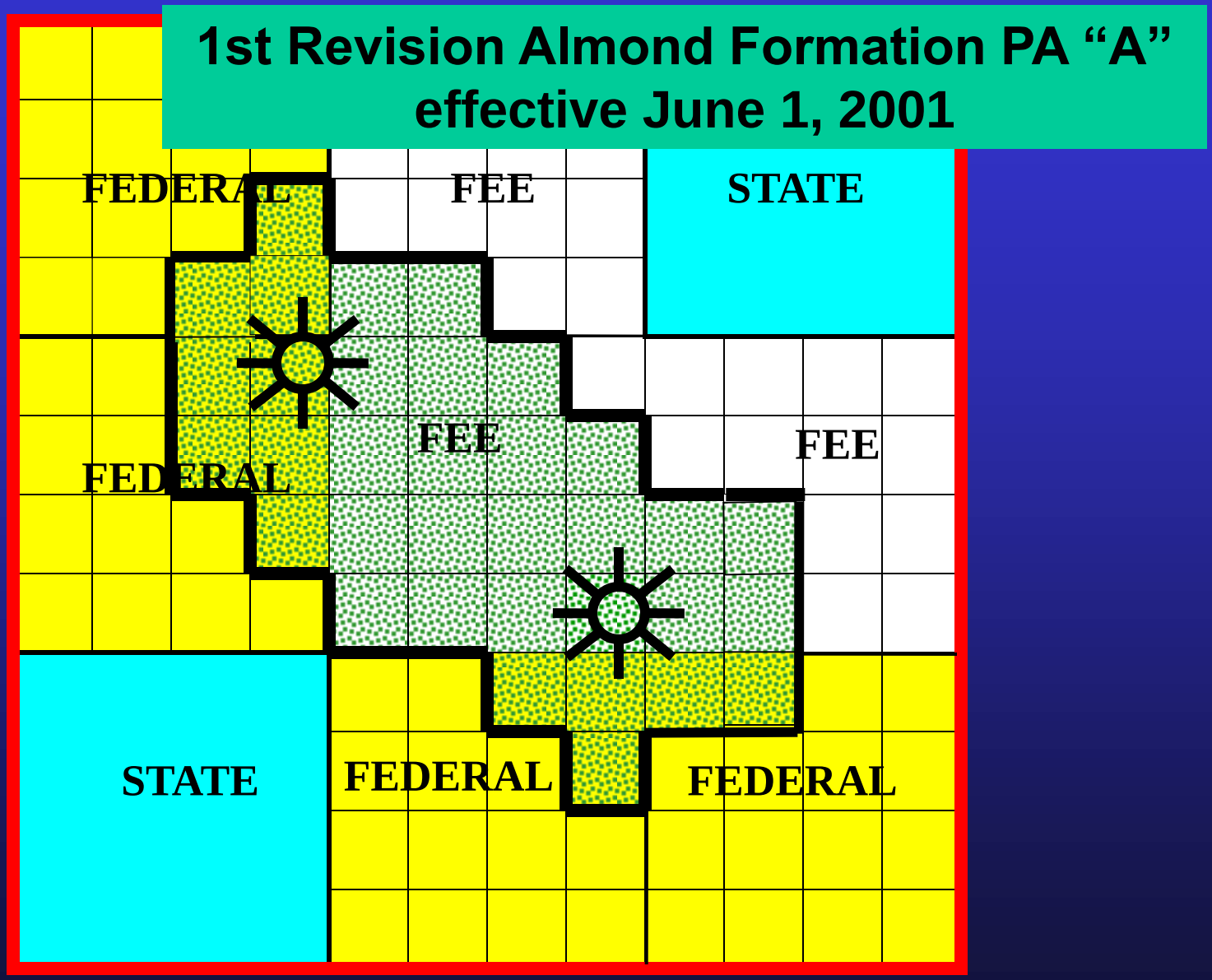
Plan 0f Development Phase

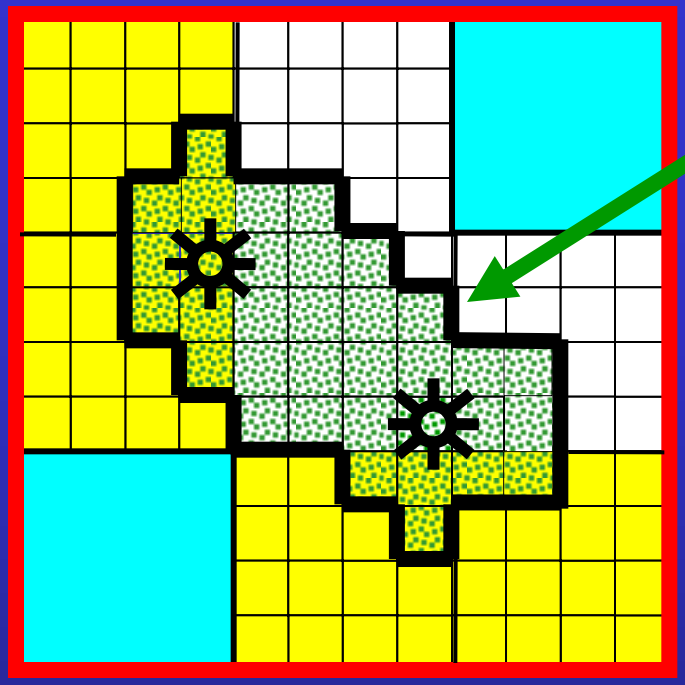
Year No. 1

- Well #2 drilled
- Positive PWD
- PA revised



Boxelder Creek Unit





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 May, 2000, 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)

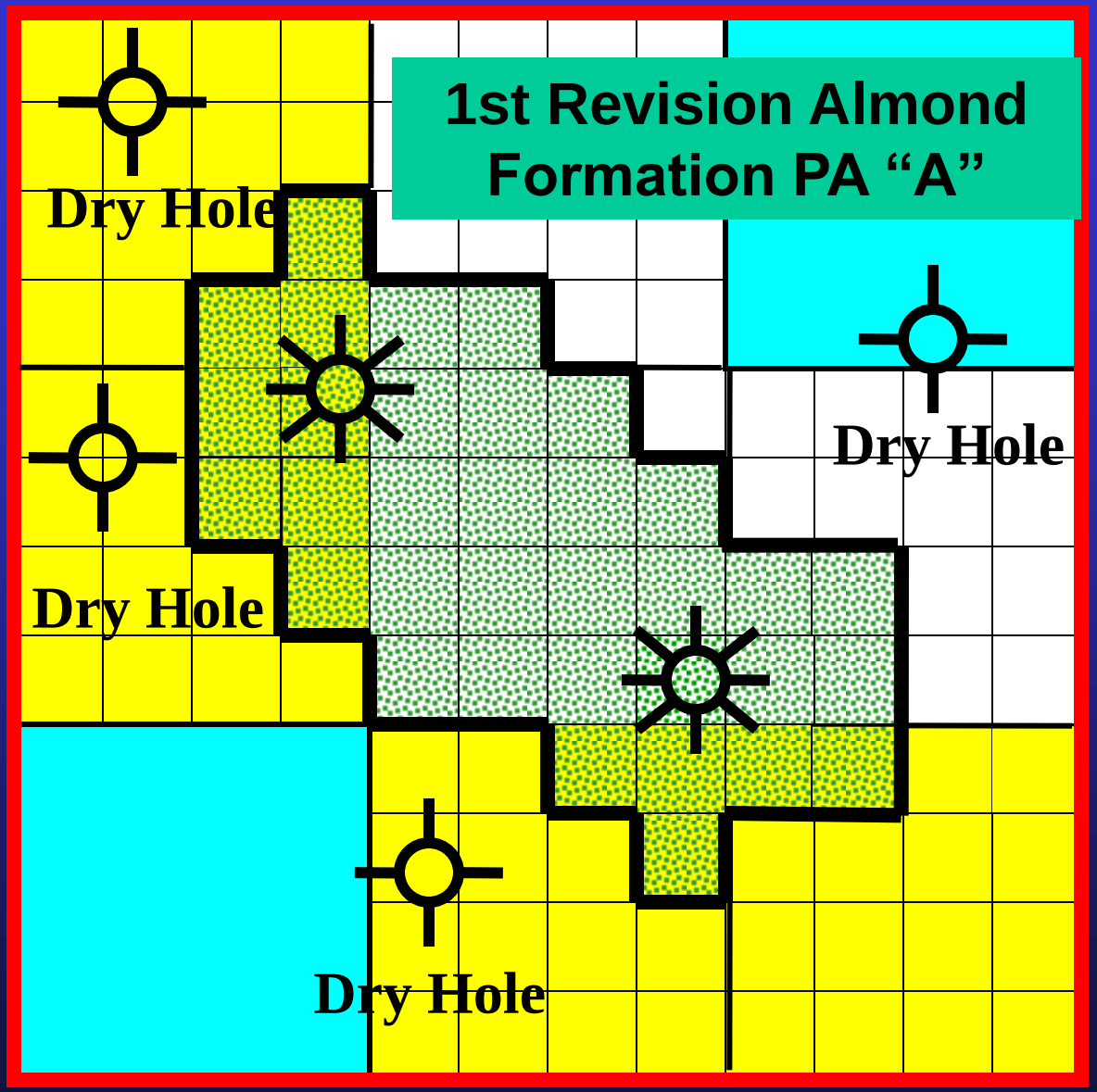
Federal royalty owed = 12 1/2% of gas attributed to the Federal acreage = 12 1/2% * 11,130 mcf = 1,391 mcf

Boxelder Creek Unit

Plan of Development Phase

Years 2, 3, 4 and 5

- 4 dry holes

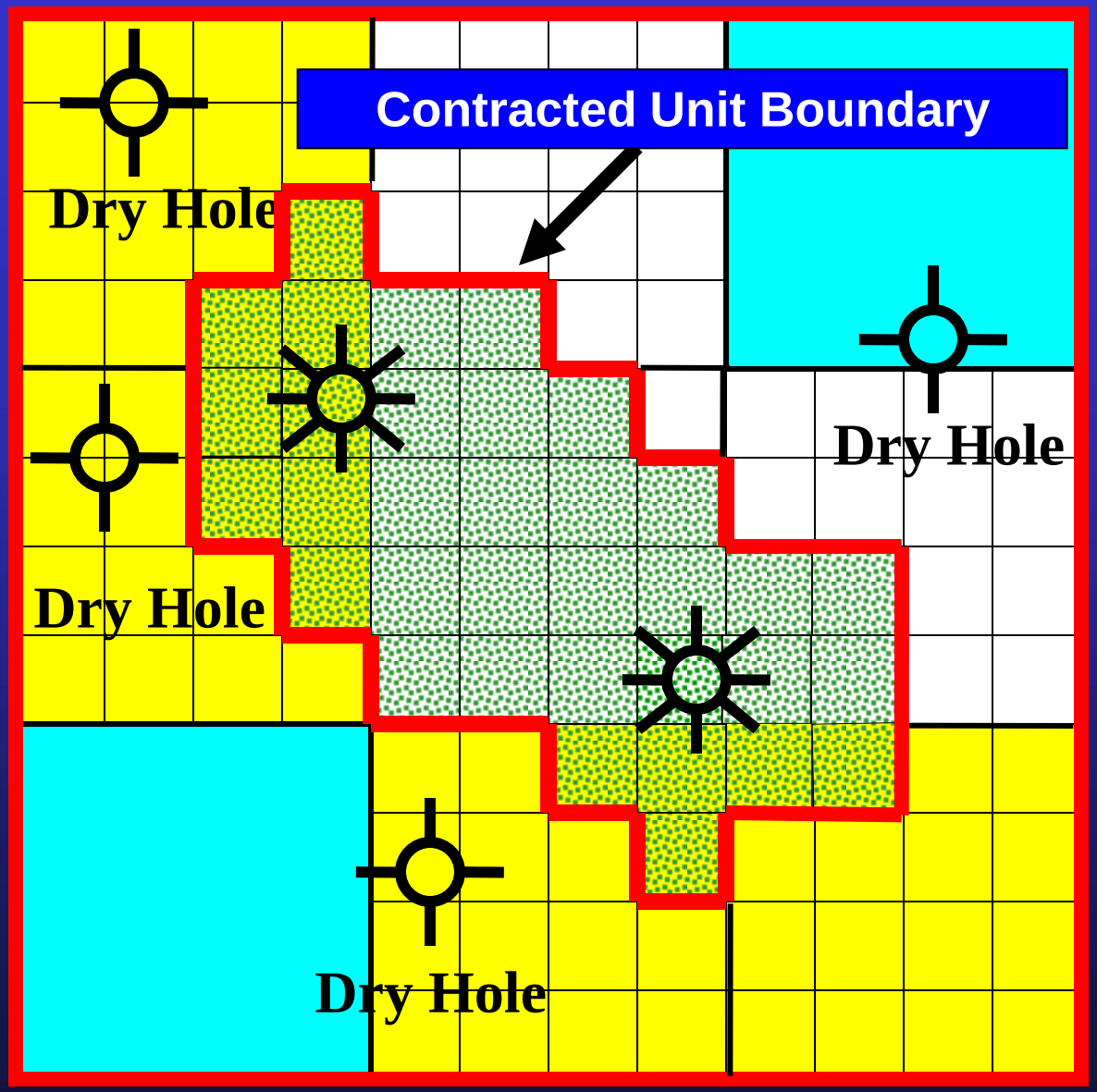


Boxelder Creek Unit

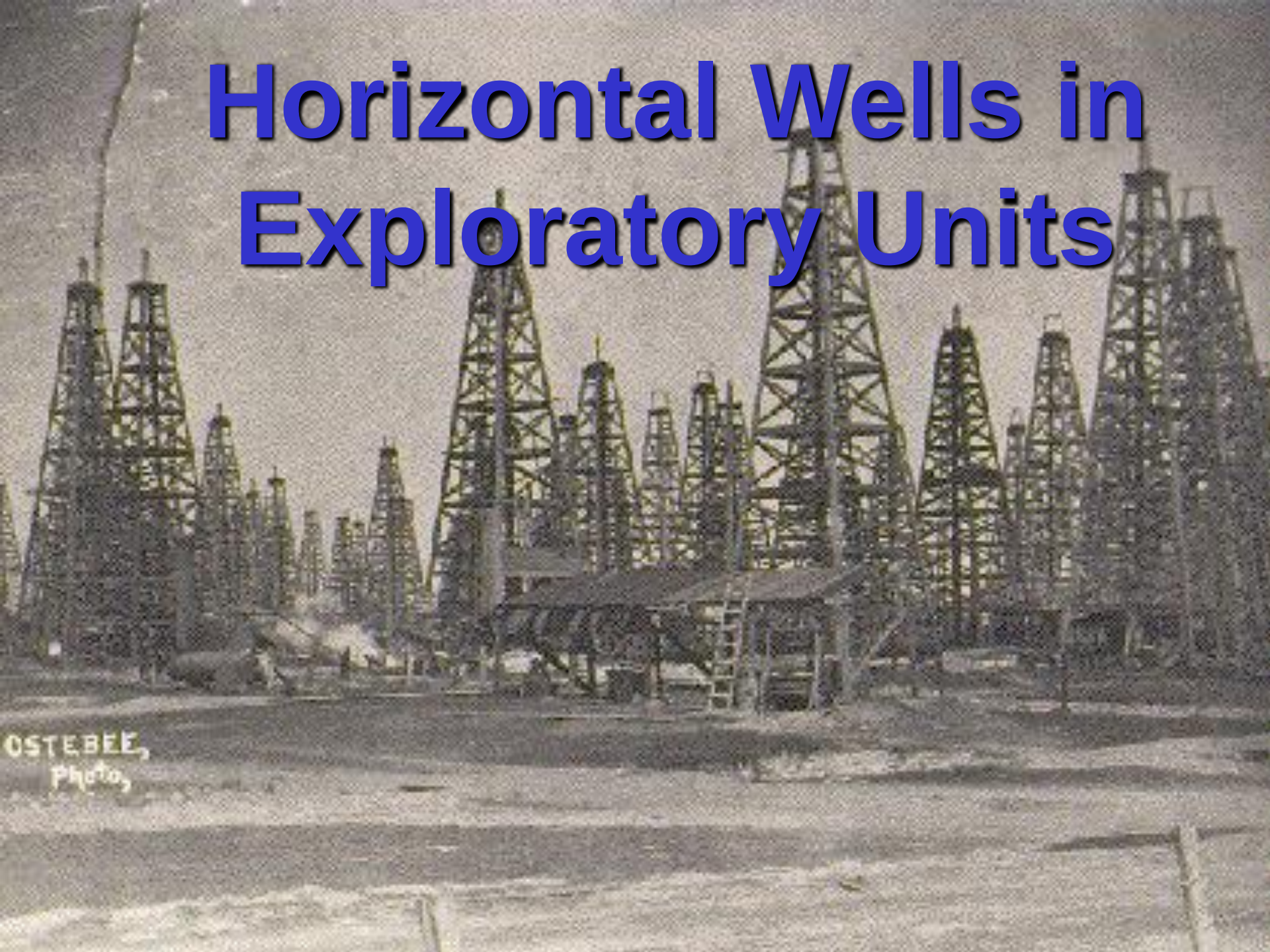
May 1, 2005

- 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



Horizontal Wells in Exploratory Units



- 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”…

- *We use the term **Resource Play** to describe accumulations of hydrocarbons known to exist over a large areal extent and/or thick vertical section. These accumulations may be self sourcing, may be developed with horizontal well completions, and are driven by development efficiencies rather than geologic risk.*

Section 9 Language

Vertical Obligation Well

- 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.

Section 9 Language

Horizontal Obligation Well

- 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.

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**
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Participation After Discovery

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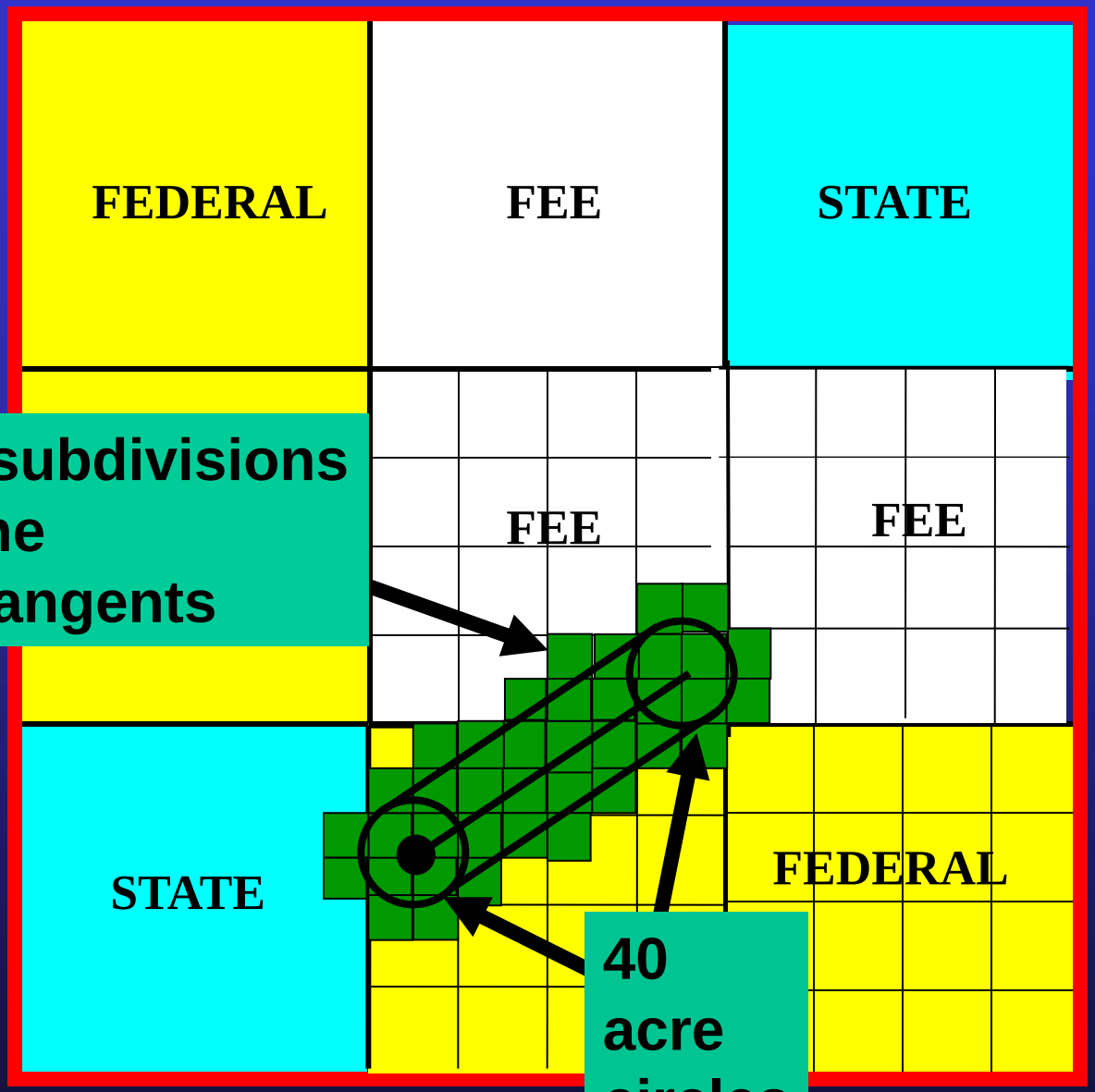
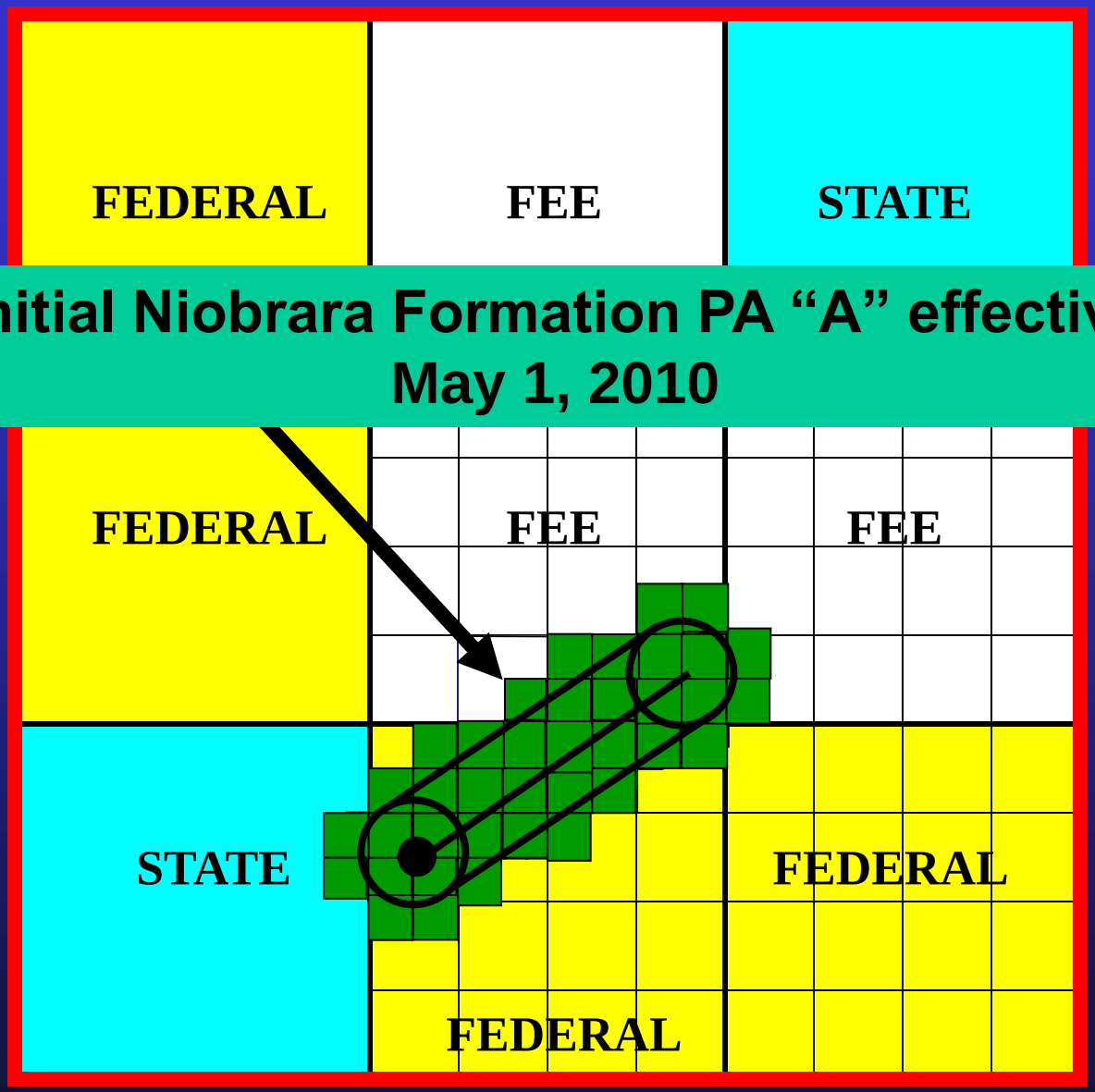
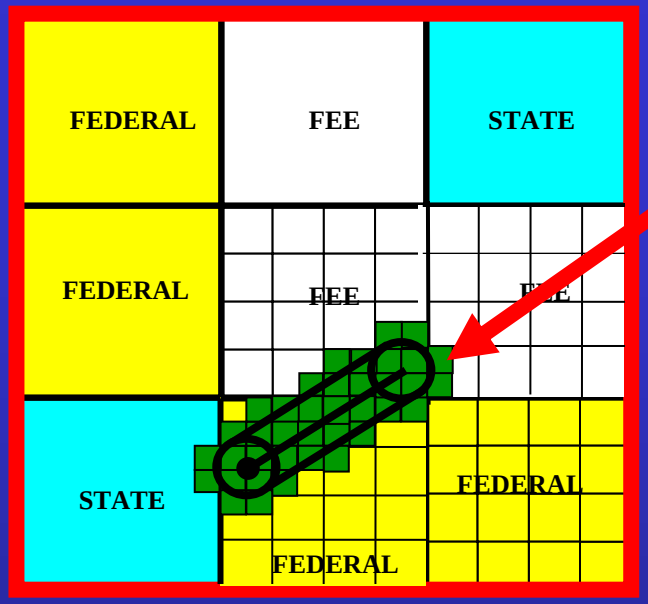
Boxelder Creek Unit



Boxelder Creek Unit





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

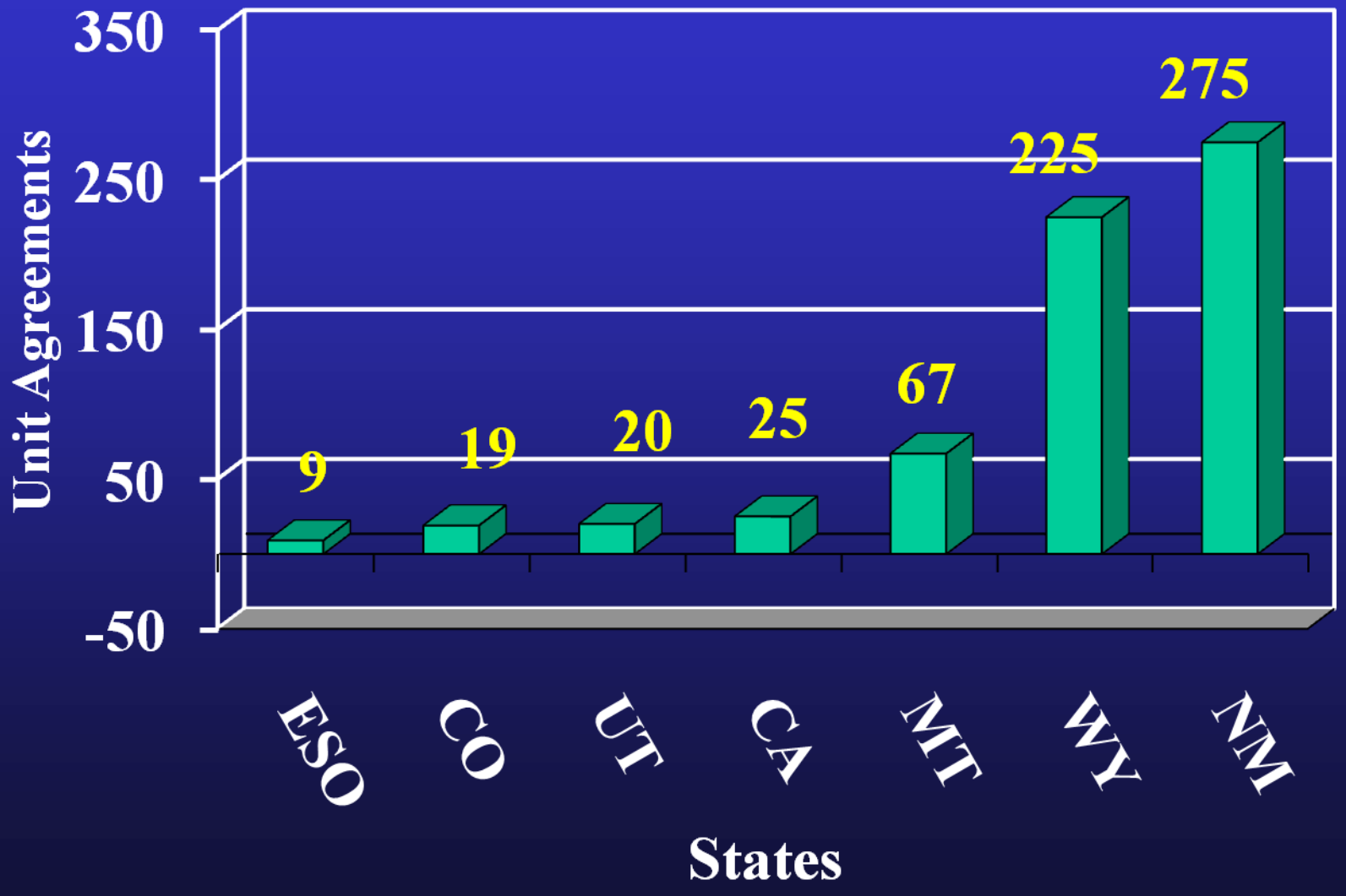
34.2% of oil, or 3,420 bbls attributed to Fee lease(s),
5.3% of oil, or 530 bbls attributed to the State Lease, and
60.5% of oil, or 6,050 bbls attributed to the Federal lease(s)

Federal royalty owed = 12 1/2% of oil attributed to the Federal acreage = 12 1/2% * 6,050 bbls = 756 bbls

Enhanced Recovery Unit Agreements

Cement job in the Salt Creek Field, WY November 1, 1930

BLM - Secondary/Enhanced Recovery Unit Agreements by State



Enhanced Recovery Unit Agreements

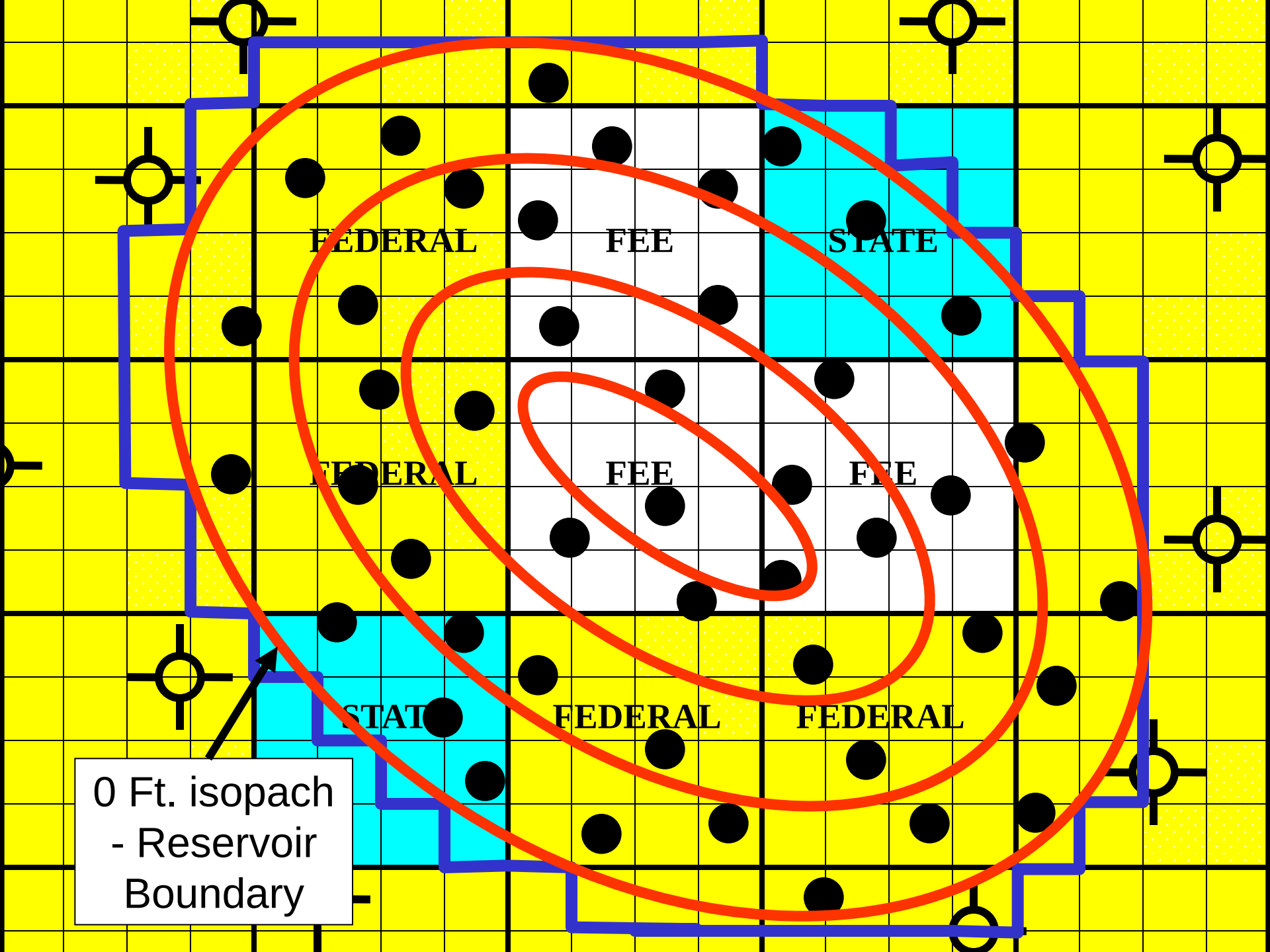
How do these agreements differ from Exploratory Unit Agreements?

- Field has been geologically defined
- Formation Specific
- Entire unit participates from effective date

Enhanced 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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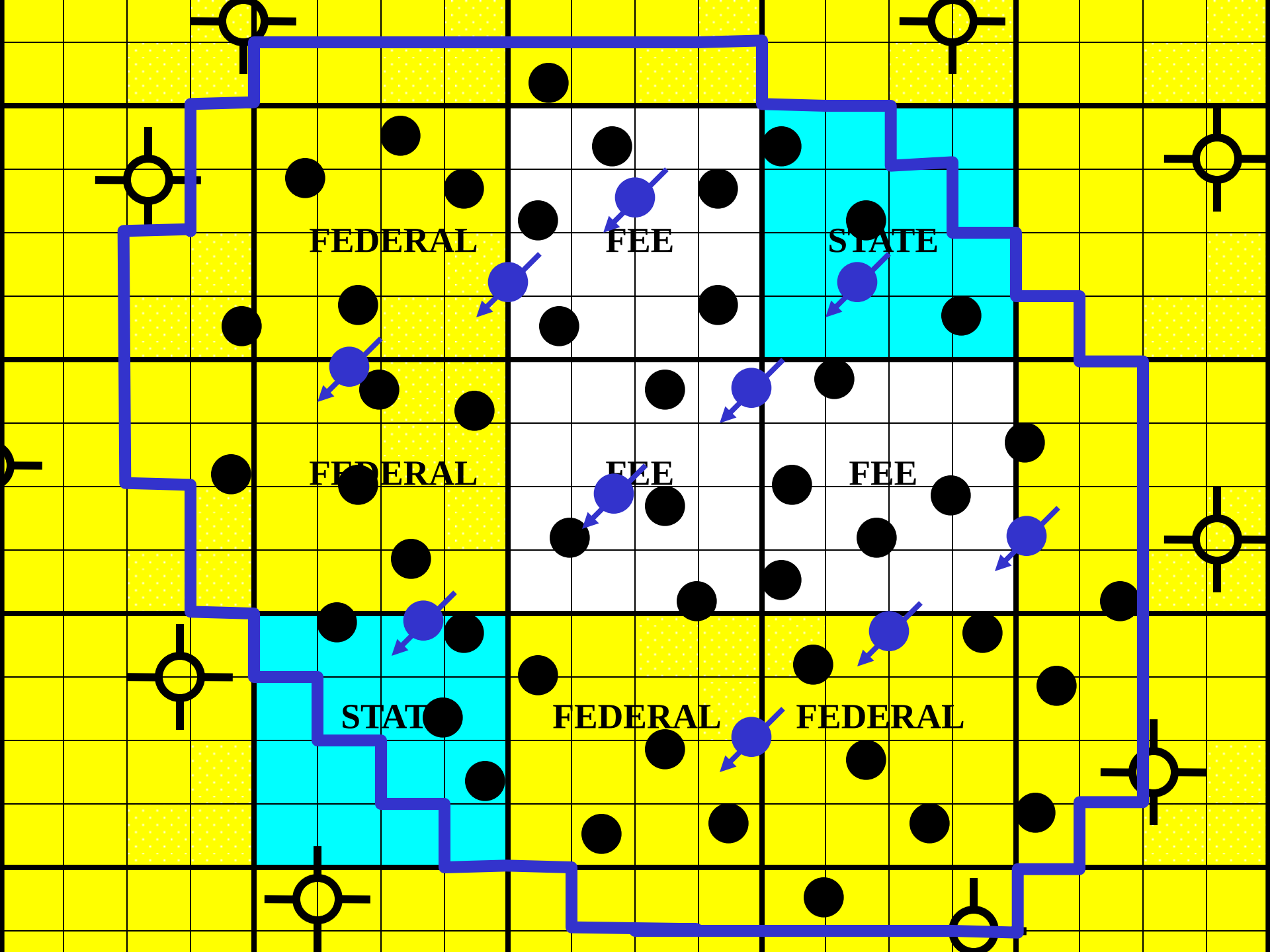
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Oil Hauling Truck

Oil and Gas Agreements

Thanks to:

J. David Chase

Wyoming State Office

Reservoir Management Group

Questions?