

**SEVENTH APPROXIMATION
DATA FORM FOR CONVENTIONAL ASSESSMENT UNITS (NOGA, Version 4, 4-10-01)**

IDENTIFICATION INFORMATION

Assessment Geologist:.....	<u>D.K. Higley</u>	Date:	<u>4/16/2001</u>
Region:.....	<u>North America</u>	Number:	<u>5</u>
Province:.....	<u>Denver Basin</u>	Number:	<u>5039</u>
Total Petroleum System:.....	<u>Upper Cretaceous Fractured Niobrara</u>	Number:	<u>503902</u>
Assessment Unit:.....	<u>Fractured Niobrara Limestone Transitional</u>	Number:	<u>50390201</u>
Based on Data as of:.....	<u>PI Production data, first quarter 1999</u>		
Notes from Assessor:.....	<u>Excludes greater Silo and Wattenberg Field areas.</u>		

CHARACTERISTICS OF ASSESSMENT UNIT

Oil (<20,000 cfg/bo overall) **or** Gas (≥20,000 cfg/bo overall):... Oil

What is the minimum accumulation size?..... 0.5 mmmboe grown
(the smallest accumulation that has potential to be added to reserves in the next 30 years)

No. of discovered accumulations exceeding minimum size:.....	Oil:	<u>0</u>	Gas:	<u>0</u>
Established (>13 accums.)	Frontier (1-13 accums.)	Hypothetical (no accums)	<u>X</u>	

Median size (grown) of discovered oil accumulation (mmbo):	1st 3rd	<u> </u>	2nd 3rd	<u> </u>	3rd 3rd	<u> </u>
Median size (grown) of discovered gas accumulations (bcfg):	1st 3rd	<u> </u>	2nd 3rd	<u> </u>	3rd 3rd	<u> </u>

Assessment-Unit Probabilities:

<u>Attribute</u>	<u>Probability of occurrence (0-1.0)</u>
1. CHARGE: Adequate petroleum charge for an undiscovered accum. ≥ minimum size.....	<u>0.9</u>
2. ROCKS: Adequate reservoirs, traps, and seals for an undiscovered accum. ≥ minimum size.....	<u>0.5</u>
3. TIMING OF GEOLOGIC EVENTS: Favorable timing for an undiscovered accum. ≥ minimum size.....	<u>1.0</u>

Assessment-Unit GEOLOGIC Probability (Product of 1, 2, and 3):..... 0.45

4. ACCESSIBILITY: Adequate location to allow exploration for an undiscovered accumulation ≥ minimum size.....	<u>1.0</u>
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UNDISCOVERED ACCUMULATIONS

No. of Undiscovered Accumulations: How many undiscovered accums. exist that are ≥ minimum size?:
(uncertainty of fixed but unknown values)

Oil Accumulations:.....min. no. (>0)	<u>1</u>	median no.	<u>3</u>	max no.	<u>6</u>
Gas Accumulations:.....min. no. (>0)	<u>0</u>	median no.	<u>0</u>	max no.	<u>0</u>

Size of Undiscovered Accumulations: What are the anticipated sizes (**grown**) of the above accums?:
(variations in the sizes of undiscovered accumulations)

Oil in Oil Accumulations (mmbo):.....min. size	<u>0.5</u>	median size	<u>0.7</u>	max. size	<u>5</u>
Gas in Gas Accumulations (bcfg):.....min. size	<u> </u>	median size	<u> </u>	max. size	<u> </u>

AVERAGE RATIOS FOR UNDISCOVERED ACCUMS., TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

<u>Oil Accumulations:</u>	minimum	median	maximum
Gas/oil ratio (cfg/bo).....	<u>250</u>	<u>500</u>	<u>750</u>
NGL/gas ratio (bnl/mmcf).....	<u>50</u>	<u>100</u>	<u>150</u>
<u>Gas Accumulations:</u>	minimum	median	maximum
Liquids/gas ratio (bnl/mmcf).....	<u> </u>	<u> </u>	<u> </u>
Oil/gas ratio (bo/mmcf).....	<u> </u>	<u> </u>	<u> </u>

SELECTED ANCILLARY DATA FOR UNDISCOVERED ACCUMULATIONS

(variations in the properties of undiscovered accumulations)

<u>Oil Accumulations:</u>	minimum	median	maximum
API gravity (degrees).....	<u>15</u>	<u>30</u>	<u>45</u>
Sulfur content of oil (%).....	<u>0.1</u>	<u>0.4</u>	<u>0.8</u>
Drilling Depth (m)	<u>915</u>	<u>1680</u>	<u>2440</u>
Depth (m) of water (if applicable).....	<u> </u>	<u> </u>	<u> </u>
<u>Gas Accumulations:</u>	minimum	median	maximum
Inert gas content (%).....	<u> </u>	<u> </u>	<u> </u>
CO ₂ content (%).....	<u> </u>	<u> </u>	<u> </u>
Hydrogen-sulfide content (%).....	<u> </u>	<u> </u>	<u> </u>
Drilling Depth (m).....	<u> </u>	<u> </u>	<u> </u>
Depth (m) of water (if applicable).....	<u> </u>	<u> </u>	<u> </u>

ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO LAND ENTITIES
Surface Allocations (uncertainty of a fixed value)

1. Federal Lands represents 5.9 areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	7	_____
Portion of volume % that is offshore (0-100%):.....	_____	0	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

2. Private Lands represents _____ areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

3. Tribal Lands represents 0 areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	0	_____
Portion of volume % that is offshore (0-100%):.....	_____	0	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

4. State Lands 1 represents _____ areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

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5. State Lands 2 represents areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

6. Other Lands (private and state) represents 94.1 areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	93	_____
Portion of volume % that is offshore (0-100%):.....	_____	0	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

7. Colorado Total represents 48.5 areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	30	_____
Portion of volume % that is offshore (0-100%):.....	_____	0	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

8. Nebraska Total represents 28.1 areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	20	_____
Portion of volume % that is offshore (0-100%):.....	_____	0	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

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9. Wyoming Total represents 23.4 areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	50	_____
Portion of volume % that is offshore (0-100%).....	_____	0	_____
<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%).....	_____	_____	_____

ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO FEDERAL LANDS
Surface Allocations (uncertainty of a fixed value)

10. BLM represents _____ areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____
<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

11. NPS represents _____ areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____
<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

12. USFS represents 5.3 areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	6.3	_____
Portion of volume % that is offshore (0-100%):.....	_____	0	_____
<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

13. USFWS represents _____ areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____
<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

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14. DOE represents _____ areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

15. DOD represents _____ areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

16. BOR represents _____ areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

17. Other Federal Lands represents 0.6 areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	0.7	_____
Portion of volume % that is offshore (0-100%):.....	_____	0	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

ALLOCATIONS OF POTENTIAL ADDITIONS TO RESERVES TO ECOSYSTEMS
Surface Allocations (uncertainty of a fixed value)

1. Arkansas Tablelands (ARTL) represents 12.41 areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	2	_____
Portion of volume % that is offshore (0-100%):.....	_____	0	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

2. Central High Plains (CNHP) represents 65.98 areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	90	_____
Portion of volume % that is offshore (0-100%):.....	_____	0	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

3. Central High Tablelands (CNHT) represents 2.27 areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	2	_____
Portion of volume % that is offshore (0-100%):.....	_____	0	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

4. Northern Parks and Ranges (NPRN) represents 2.66 areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	0	_____
Portion of volume % that is offshore (0-100%):.....	_____	0	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

5. Northwestern Great Plains (NWGP) represents 16.68 areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	6	_____
Portion of volume % that is offshore (0-100%):.....	_____	0	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

6. _____ represents _____ areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

7. _____ represents _____ areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

8. _____ represents _____ areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

9. _____ represents _____ areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

10. _____ represents _____ areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

11. _____ represents _____ areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

12. _____ represents _____ areal % of the total assessment unit

<u>Oil in Oil Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

<u>Gas in Gas Accumulations:</u>	minimum	median	maximum
Richness factor (unitless multiplier):.....	_____	_____	_____
Volume % in parcel (areal % x richness factor):...	_____	_____	_____
Portion of volume % that is offshore (0-100%):.....	_____	_____	_____

