

**FORSPAN ASSESSMENT MODEL FOR CONTINUOUS
ACCUMULATIONS--BASIC INPUT DATA FORM (NOGA, Version 6, 12-30-00)**

IDENTIFICATION INFORMATION

Assessment Geologist:...	D.K. Higley	Date:	4/18/2001
Region:.....	North America	Number:	5
Province:.....	Denver Basin	Number:	5039
Total Petroleum System:..	Upper Cretaceous Niobrara Biogenic Gas	Number:	503907
Assessment Unit:.....	Niobrara Chalk	Number:	50390761
Based on Data as of:.....	PI Production data, second quarter 2000		
Notes from Assessor:.....			

CHARACTERISTICS OF ASSESSMENT UNIT

Assessment-Unit type: Oil (<20,000 cfg/bo) or Gas (≥20,000 cfg/bo) Gas

What is the minimum total recovery per cell?... 0.025 (mmbo for oil A.U.; bcfg for gas A.U.)

Number of tested cells:..... 3000

Number of tested cells with total recovery per cell ≥ minimum: 1420

Established (>24 cells ≥ min.) X Frontier (1-24 cells) Hypothetical (no cells)

Median total recovery per cell (for cells ≥ min.): (mmbo for oil A.U.; bcfg for gas A.U.)

1st 3rd discovered	<u>0.31</u>	2nd 3rd	<u>0.27</u>	3rd 3rd	<u>0.18</u>
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Assessment-Unit Probabilities:

<u>Attribute</u>	<u>Probability of occurrence (0-1.0)</u>
1. CHARGE: Adequate petroleum charge for an untested cell with total recovery ≥ minimum	<u>1.0</u>
2. ROCKS: Adequate reservoirs, traps, seals for an untested cell with total recovery ≥ minimum.	<u>1.0</u>
3. TIMING: Favorable geologic timing for an untested cell with total recovery ≥ minimum.....	<u>1.0</u>
Assessment-Unit GEOLOGIC Probability (Product of 1, 2, and 3):.....	<u>1.0</u>
4. ACCESS: Adequate location for necessary petroleum-related activities for an untested cell with total recovery ≥ minimum	<u>1.0</u>

NO. OF UNTESTED CELLS WITH POTENTIAL FOR ADDITIONS TO RESERVES IN THE NEXT 30 YEARS

1. Total assessment-unit area (acres): (uncertainty of a fixed value)

minimum <u>36,000,000</u>	median <u>42,000,000</u>	maximum <u>48,000,000</u>
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2. Area per cell of untested cells having potential for additions to reserves in next 30 years (acres):
(values are inherently variable)

minimum <u>35</u>	median <u>145</u>	maximum <u>400</u>
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3. Percentage of total assessment-unit area that is untested (%): (uncertainty of a fixed value)

minimum <u>98</u>	median <u>99</u>	maximum <u>99.5</u>
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4. Percentage of untested assessment-unit area that has potential for additions to reserves in next 30 years (%): (a necessary criterion is that total recovery per cell ≥ minimum)
(uncertainty of a fixed value)

minimum <u>0.2</u>	median <u>1.3</u>	maximum <u>3.9</u>
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Assessment Unit (name, no.)
 Niobrara Chalk, 50390761

TOTAL RECOVERY PER CELL

Total recovery per cell for untested cells having potential for additions to reserves in next 30 years:

(values are inherently variable)

(mmbo for oil A.U.; bcfg for gas A.U.) minimum 0.025 median 0.2 maximum 2

AVERAGE COPRODUCT RATIOS FOR UNTESTED CELLS, TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

<u>Oil assessment unit:</u>	minimum	median	maximum
Gas/oil ratio (cfg/bo).....	<u> </u>	<u> </u>	<u> </u>
NGL/gas ratio (bngl/mmcfg).....	<u> </u>	<u> </u>	<u> </u>
 <u>Gas assessment unit:</u>			
Liquids/gas ratio (bliq/mmcfg).....	<u>0</u>	<u>0</u>	<u>0</u>

SELECTED ANCILLARY DATA FOR UNTESTED CELLS

(values are inherently variable)

<u>Oil assessment unit:</u>	minimum	median	maximum
API gravity of oil (degrees).....	<u> </u>	<u> </u>	<u> </u>
Sulfur content of oil (%).....	<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>
 <u>Gas assessment unit:</u>			
Inert-gas content (%).....	<u>3.00</u>	<u>4.00</u>	<u>5.00</u>
CO ₂ content (%).....	<u>0.00</u>	<u>0.40</u>	<u>0.80</u>
Hydrogen-sulfide content (%).....	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>
Drilling depth (m).....	<u>240</u>	<u>500</u>	<u>1300</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 2.2 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	1	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____

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

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

3. Tribal Lands represents 7.7 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	3.5	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____

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

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

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

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

6. Other Lands (Private an represents 90.1 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	95.5	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____

7. Colorado represents 16.1 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	28	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____

8. Kansas represents 4.3 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	6	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____

9. Nebraska represents 40.1 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	44	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____

10. South Dakota represents 35 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

Gas in gas assessment unit:

Volume % in entity.....	_____	20	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____

11. North Dakota represents 4.6 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

Gas in gas assessment unit:

Volume % in entity.....	_____	2	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____

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

9. BLM represents _____ areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

10. NPS represents _____ areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

11. USFS represents _____ areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

12. USFWS represents _____ areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

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13. DOE represents _____ areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

14. DOD represents _____ areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

15. BOR represents _____ areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

16. Other Federal Lands represents 2.2 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	1	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____

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

1. <u>Arkansas Tablelands (ARTL)</u>	represents	<u>3.11</u>	areal % of the assessment unit
<u>Oil in oil assessment unit:</u>			
	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____
<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	0.5	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____
2. <u>Central High Plains (CNHP)</u>	represents	<u>7.88</u>	areal % of the assessment unit
<u>Oil in oil assessment unit:</u>			
	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____
<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	17	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____
3. <u>Central High Tablelands (CNHT)</u>	represents	<u>20.04</u>	areal % of the assessment unit
<u>Oil in oil assessment unit:</u>			
	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____
<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	70	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____
4. <u>Nebraska Sand Hills (NBSH)</u>	represents	<u>22.13</u>	areal % of the assessment unit
<u>Oil in oil assessment unit:</u>			
	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____
<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	8	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____

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5. North-Central Great Plains (NCGP) represents 20.34 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....			
Portion of volume % that is offshore (0-100%)..			

Gas in gas assessment unit:

Volume % in entity.....		2	
Portion of volume % that is offshore (0-100%)..		0	

6. Northeastern Glaciated Plains (NEGP) represents 0.06 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....			
Portion of volume % that is offshore (0-100%)..			

Gas in gas assessment unit:

Volume % in entity.....		0	
Portion of volume % that is offshore (0-100%)..		0	

7. Northern Glaciated Plains (NGPL) represents 7.5 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....			
Portion of volume % that is offshore (0-100%)..			

Gas in gas assessment unit:

Volume % in entity.....		0.5	
Portion of volume % that is offshore (0-100%)..		0	

8. Northwestern Great Plains (NWGP) represents 17.67 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....			
Portion of volume % that is offshore (0-100%)..			

Gas in gas assessment unit:

Volume % in entity.....		1	
Portion of volume % that is offshore (0-100%)..		0	

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9. South-Central Great Plains (SCGP) represents 0.25 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	1	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____

10. Western Glaciated Plains (WGPL) represents 1.02 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	0	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____

11. _____ represents _____ areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

12. _____ represents _____ areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

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

Based on Data as of: No available data

1. All Federal Subsurface represents _____ areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

2. Other Subsurface represents _____ areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

<u>Gas in gas assessment unit:</u>			
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____