

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

IDENTIFICATION INFORMATION

Assessment Geologist:...	D.K. Higley	Date:	4/16/2001
Region:.....	North America	Number:	5
Province:.....	Denver Basin	Number:	5039
Total Petroleum System:..	Cretaceous Composite	Number:	503906
Assessment Unit:.....	Niobrara-Codell (Wattenberg Area)	Number:	50390661
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) Oil

What is the minimum total recovery per cell?... 0.003 (mmbo for oil A.U.; bcfg for gas A.U.)

Number of tested cells:..... 7000

Number of tested cells with total recovery per cell ≥ minimum: 6500

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>0.014</u>	2nd 3rd	<u>0.011</u>	3rd 3rd	<u>0.011</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):..... 1.0

4. **ACCESS:** Adequate location for necessary petroleum-related activities for an untested cell with total recovery ≥ minimum 1.0

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>1,600,000</u>	median	<u>1,800,000</u>	maximum	<u>2,000,000</u>
2. Area per cell of untested cells having potential for additions to reserves in next 30 years (acres): (values are inherently variable)	minimum	<u>10</u>	median	<u>35</u>	maximum	<u>85</u>
3. Percentage of total assessment-unit area that is untested (%): (uncertainty of a fixed value)	minimum	<u>75</u>	median	<u>85</u>	maximum	<u>92</u>
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>2</u>	median	<u>7</u>	maximum	<u>15</u>

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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 0.003 median 0.008 maximum 0.1

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>7000</u>	<u>10000</u>	<u>13000</u>
NGL/gas ratio (bngl/mmcfg).....	<u>50</u>	<u>100</u>	<u>150</u>

<u>Gas assessment unit:</u>			
Liquids/gas ratio (bliq/mmcfg).....	<u> </u>	<u> </u>	<u> </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>25</u>	<u>45</u>	<u>55</u>
Sulfur content of oil (%).....	<u>0.02</u>	<u>0.1</u>	<u>0.5</u>
Drilling depth (m)	<u>800</u>	<u>2000</u>	<u>2500</u>
Depth (m) of water (if applicable).....	<u> </u>	<u> </u>	<u> </u>

<u>Gas assessment unit:</u>			
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 8.4 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	4	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____

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

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 0 areal % of the assessment unit

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

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

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>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

6. Other Lands (Private ar represents 91.6 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	96	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____

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

7. Colorado represents 100 areal % of the assessment unit

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

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

8. State Total 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>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

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>	minimum	median	maximum
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>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____

11. USFS represents 7.1 areal % of the assessment unit

<u>Oil in oil assessment unit:</u>	minimum	median	maximum
Volume % in entity.....	_____	<u>3.4</u>	_____
Portion of volume % that is offshore (0-100%)..	_____	<u>0</u>	_____

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

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13. DOE represents _____ areal % of the assessment unit

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

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

14. DOD represents _____ areal % of the assessment unit

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

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

15. BOR represents _____ areal % of the assessment unit

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

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

16. Other Federal Lands represents 1.3 areal % of the assessment unit

Oil in oil assessment unit:	minimum	median	maximum
Volume % in entity.....	_____	0.6	_____
Portion of volume % that is offshore (0-100%)..	_____	0	_____

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

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

1. <u>Northern Parks and Ranges (NPRN)</u>	represents	<u>19.48</u>	areal % of the assessment unit
<u>Oil in oil assessment unit:</u>			
	minimum	median	maximum
Volume % in entity.....		5	
Portion of volume % that is offshore (0-100%)..		0	
<u>Gas in gas assessment unit:</u>			
Volume % in entity.....			
Portion of volume % that is offshore (0-100%)..			
2. <u>Central High Plains (CNHP)</u>	represents	<u>80.52</u>	areal % of the assessment unit
<u>Oil in oil assessment unit:</u>			
	minimum	median	maximum
Volume % in entity.....		95	
Portion of volume % that is offshore (0-100%)..		0	
<u>Gas in gas assessment unit:</u>			
Volume % in entity.....			
Portion of volume % that is offshore (0-100%)..			
3. _____	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%)..			
4. _____	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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5. _____	represents _____	areal % of the assessment unit	
<u>Oil in oil assessment unit:</u>			
Volume % in entity.....	minimum	median	maximum
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. _____	represents _____	areal % of the assessment unit	
<u>Oil in oil assessment unit:</u>			
Volume % in entity.....	minimum	median	maximum
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%)..	_____	_____	_____
7. _____	represents _____	areal % of the assessment unit	
<u>Oil in oil assessment unit:</u>			
Volume % in entity.....	minimum	median	maximum
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%)..	_____	_____	_____
8. _____	represents _____	areal % of the assessment unit	
<u>Oil in oil assessment unit:</u>			
Volume % in entity.....	minimum	median	maximum
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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9. _____	represents _____	areal % of the assessment unit	
<u>Oil in oil assessment unit:</u>			
Volume % in entity.....	minimum	median	maximum
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. _____	represents _____	areal % of the assessment unit	
<u>Oil in oil assessment unit:</u>			
Volume % in entity.....	minimum	median	maximum
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. _____	represents _____	areal % of the assessment unit	
<u>Oil in oil assessment unit:</u>			
Volume % in entity.....	minimum	median	maximum
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>			
Volume % in entity.....	minimum	median	maximum
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>	minimum	median	maximum
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>	minimum	median	maximum
Volume % in entity.....	_____	_____	_____
Portion of volume % that is offshore (0-100%)..	_____	_____	_____