

Appendix 4.

**SEVENTH APPROXIMATION
DATA FORM FOR CONVENTIONAL ASSESSMENT UNITS (Version 6, 9 April 2003)**

IDENTIFICATION INFORMATION

Assessment Geologist:	<u>P.D. Warwick</u>	Date:	<u>22-Jan-07</u>
Region:	<u>North America</u>	Number:	<u>5</u>
Province:	<u>Western Gulf</u>	Number:	<u>5047</u>
Total Petroleum System:	<u>Upper Jurassic-Cretaceous-Tertiary Composite</u>	Number:	<u>504701</u>
Assessment Unit:	<u>Wilcox Slope and Basin Floor Gas</u>	Number:	<u>50470118</u>
Based on Data as of:	<u>Nehring Associates, Inc. (2006) (data current through 2004), IHS Energy Group (2005a,b) (data current through 2005)</u>		
Notes from Assessor:	<u>NRG reservoir growth factor. Lower Miocene Slope and Basin Gas, Assessment Unit 50470141 and its Federal offshore extension used as analogs.</u>		

CHARACTERISTICS OF ASSESSMENT UNIT

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

What is the minimum accumulation size? 0.5 mmboc grown
(the smallest accumulation that has potential to be added to reserves)

No. of discovered accumulations exceeding minimum size:	Oil:	<u>0</u>	Gas:	<u>2</u>
Established (>13 accums.)	Frontier (1-13 accums.)	<u>X</u>	Hypothetical (no accums.)	

Median size (grown) of discovered oil accumulations (mmboc):

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

1st 3rd	<u> </u>	2nd 3rd	<u> </u>	3rd 3rd	<u> </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 undiscovered accum. ≥ minimum size:	<u>1.0</u>
2. ROCKS: Adequate reservoirs, traps, and seals for an undiscovered accum. ≥ minimum size:	<u>1.0</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): 1.0

UNDISCOVERED ACCUMULATIONS

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

Oil Accumulations:	minimum (>0)	<u>0</u>	mode	<u>0</u>	maximum	<u>0</u>
Gas Accumulations:	minimum (>0)	<u>10</u>	mode	<u>100</u>	maximum	<u>1000</u>

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

Oil in Oil Accumulations (mmboc):	minimum	<u> </u>	median	<u> </u>	maximum	<u> </u>
Gas in Gas Accumulations (bcfg):	minimum	<u>3</u>	median	<u>30</u>	maximum	<u>2000</u>

AVERAGE RATIOS FOR UNDISCOVERED ACCUMS., TO ASSESS COPRODUCTS

(uncertainty of fixed but unknown values)

<u>Oil Accumulations:</u>	minimum	mode	maximum
Gas/oil ratio (cfg/bo)	_____	_____	_____
NGL/gas ratio (bngl/mmcfg)	_____	_____	_____
<u>Gas Accumulations:</u>	minimum	mode	maximum
Liquids/gas ratio (bliq/mmcfg)	8	16	24
Oil/gas ratio (bo/mmcfg)	_____	_____	_____

SELECTED ANCILLARY DATA FOR UNDISCOVERED ACCUMULATIONS

(variations in the properties of undiscovered accumulations)

<u>Oil Accumulations:</u>	minimum	mode	maximum		
API gravity (degrees)	_____	_____	_____		
Sulfur content of oil (%)	_____	_____	_____		
Depth (m) of water (if applicable)	_____	_____	_____		
Drilling Depth (m)	minimum	F75	mode	F25	maximum
	_____	_____	_____	_____	_____
<u>Gas Accumulations:</u>	minimum	mode	maximum		
Inert gas content (%)	0.4	0.6	0.7		
CO ₂ content (%)	0	2.8	10.3		
Hydrogen-sulfide content (%)	0	0	0		
Depth (m) of water (if applicable)	0	10	50		
Drilling Depth (m)	minimum	F75	mode	F25	maximum
	4000	_____	5500	_____	9000

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

1. <u>Texas</u>	represents	<u>56.82</u>	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	<u>56.82</u>	_____
2. <u>Louisiana</u>	represents	<u>43.18</u>	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	<u>43.18</u>	_____
3. _____	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____
4. _____	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____
5. _____	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____
6. _____	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____

7. _____ represents _____ area % of the AU

<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

Gas in Gas Accumulations:

Volume % in entity _____

8. _____ represents _____ area % of the AU

<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

Gas in Gas Accumulations:

Volume % in entity _____

9. _____ represents _____ area % of the AU

<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

Gas in Gas Accumulations:

Volume % in entity _____

10. _____ represents _____ area % of the AU

<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

Gas in Gas Accumulations:

Volume % in entity _____

11. _____ represents _____ area % of the AU

<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

Gas in Gas Accumulations:

Volume % in entity _____

12. _____ represents _____ area % of the AU

<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

Gas in Gas Accumulations:

Volume % in entity _____

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

1. <u>Federal lands</u>	represents	<u>2.30</u>	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	<u>2.3</u>	_____
2. <u>Private lands</u>	represents	<u>31.10</u>	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	<u>31.1</u>	_____
3. <u>Tribal lands</u>	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____
4. <u>Other lands</u>	represents	<u>41.82</u>	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	<u>41.82</u>	_____
5. <u>Tex. State lands</u>	represents	<u>0.26</u>	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	<u>0.26</u>	_____
6. <u>La. State lands</u>	represents	<u>1.54</u>	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	<u>1.54</u>	_____

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7. <u>Tex. offshore</u>	represents	<u>13.58</u>	area % of the AU
<u>Oil in Oil Accumulations:</u> Volume % in entity	minimum	mode	maximum
	_____	_____	_____
<u>Gas in Gas Accumulations:</u> Volume % in entity		<u>13.58</u>	
	_____	_____	_____
8. <u>La. offshore</u>	represents	<u>9.39</u>	area % of the AU
<u>Oil in Oil Accumulations:</u> Volume % in entity	minimum	mode	maximum
	_____	_____	_____
<u>Gas in Gas Accumulations:</u> Volume % in entity		<u>9.39</u>	
	_____	_____	_____
9. _____	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u> Volume % in entity	minimum	mode	maximum
	_____	_____	_____
<u>Gas in Gas Accumulations:</u> Volume % in entity			
	_____	_____	_____
10. _____	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u> Volume % in entity	minimum	mode	maximum
	_____	_____	_____
<u>Gas in Gas Accumulations:</u> Volume % in entity			
	_____	_____	_____
11. _____	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u> Volume % in entity	minimum	mode	maximum
	_____	_____	_____
<u>Gas in Gas Accumulations:</u> Volume % in entity			
	_____	_____	_____
12. _____	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u> Volume % in entity	minimum	mode	maximum
	_____	_____	_____
<u>Gas in Gas Accumulations:</u> Volume % in entity			
	_____	_____	_____

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

1. <u>Bureau of Land Management (BLM)</u>	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____
2. <u>BLM wilderness areas (BLMW)</u>	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____
3. <u>BLM roadless areas (BLMR)</u>	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____
4. <u>National Park Service (NPS)</u>	represents	0.25	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>		0.25	
Volume % in entity	_____	_____	_____
5. <u>NPS wilderness areas (NPSW)</u>	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____
6. <u>NPS protected withdrawals (NPSP)</u>	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____

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7. <u>United States (U.S.) Forest Service (FS)</u>	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____
8. <u>U.S.FS wilderness areas (FSW)</u>	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____
9. <u>U.S.FS roadless areas (FSR)</u>	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____
10. <u>U.S.FS protected withdrawals (FSP)</u>	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____
11. <u>U.S. Fish and Wildlife Service (FWS)</u>	represents	2.00	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	2	_____
12. <u>U.S.FWS wilderness areas (FWSW)</u>	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____

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<u>13. U.S.FWS protected withdrawals (FWSP)</u>	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____
<u>14. Wilderness study areas (WS)</u>	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____
<u>15. U.S. Department of Energy (DOE)</u>	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____
<u>16. U.S. Department of Defense (DOD)</u>	represents	0.06	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>		0.06	
Volume % in entity	_____	_____	_____
<u>17. Bureau of Reclamation (BOR)</u>	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____
<u>18. Tennessee Valley Authority (TVA)</u>	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____

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19. Other Federal represents _____ area % of the AU

<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____

20. _____ represents _____ area % of the AU

<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____

<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____

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

1. <u>Central Gulf prairies and marshes (CGPM)</u>	represents	<u>15.22</u>	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	<u>15.22</u>	_____
2. <u>Coastal plains and flatwoods, lower (CPFL)</u>	represents	<u>0.13</u>	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	<u>0.13</u>	_____
3. <u>Coastal plains and flatwoods, western Gulf (CPFW)</u>	represents	<u>1.51</u>	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	<u>1.51</u>	_____
4. <u>Eastern Gulf prairies and marshes (EGPM)</u>	represents	<u>4.86</u>	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	<u>4.86</u>	_____
5. <u>Louisiana coast prairies and marshes (LCPM)</u>	represents	<u>26.24</u>	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	<u>26.24</u>	_____
6. <u>Midcoastal plains, western (MCPW)</u>	represents	<u>0.38</u>	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	<u>0.38</u>	_____

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7. <u>Mississippi alluvial basin (MABA)</u>	represents	<u>6.82</u>	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	<u>6.82</u>	_____
8. <u>Oak woods and prairies (OWPR)</u>	represents	<u>0.76</u>	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	<u>0.76</u>	_____
9. <u>Rio Grande plain (RGPL)</u>	represents	<u>14.65</u>	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	<u>14.65</u>	_____
10. <u>Southern Gulf prairies and marshes (SGPM)</u>	represents	<u>6.46</u>	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	<u>6.46</u>	_____
11. _____	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____
12. _____	represents	_____	area % of the AU
<u>Oil in Oil Accumulations:</u>	minimum	mode	maximum
Volume % in entity	_____	_____	_____
<u>Gas in Gas Accumulations:</u>			
Volume % in entity	_____	_____	_____