UNITED STATES DEPARTMENT OF THE INTERIOR
MINERALS MANAGEMENT SERVICE
GULF OF MEXICO OCS REGION

NTL No. 98-25 Effective Date: November 1, 1998

NOTICE TO LESSEES AND OPERATORS OF FEDERAL OIL AND GAS LEASES ON THE OUTER CONTINENTAL SHELF, GULF OF MEXICO OCS REGION

Economic Assumptions for RSVP Deepwater Royalty Relief Model

This Notice to Lessees and Operators (NTL) supersedes NTL 98-02 and updates the economic assumptions published in NTL 98-02, which was effective May 1, 1998. These new economic assumptions update Section b of the Economic Viability Report. We require the applicant (you) to use these assumptions when applying for deepwater royalty relief. Together with these new assumptions, you must use a new version of the economic model (RSVP 2.1) for applications submitted after the effective date of this NTL. We will update these assumptions periodically by the use of an NTL.

Parameter	Minimum	Most Likely	Maximum	Dependency
Base Year		1999		
Starting Oil Price ($/bbl)	$14.94	$16.83	$18.72	
Real Oil Price Growth Rate 1	2.5%	2.7%	2.9%	+1 with Starting Oil Price
Year Second Oil Scenario Starts		2010		
Real Oil Price Growth Rate 2	1.5%	1.8%	2.0%	
Year Third Oil Scenario Starts		2020		
Real Oil Price Growth Rate 3	1.5%	1.8%	2.0%	
Starting Gas Price ($/Mcf)	$1.94	$2.08	$2.21	+1 with Starting Oil Price
Real Gas Price Growth Rate 1	0.7%	1.2 %	1.6%	+1 with Oil Price Growth Rate 1
Year Second Gas Scenario		2010		

Starts				
Real Gas Price Growth Rate 2	1.4%	1.9%	2.0%	+1 with Oil Growth Rate 2
Parameter	**Minimum**	**Most Likely**	**Maximum**	**Dependency**
Year Third Gas Scenario Starts		2020		
Real Gas Price Growth Rate 3	1.4%	1.9%	2.0%	+1 with Oil Growth Rate 3
Federal Income Tax Rate		35%		
Discount Rate Range	10%		15%	
Random Number Seed		104		
Overhead Cost Allowance		5%		

Starting Prices The RSVP model selects starting oil and gas prices for each trial from triangular distributions with the parameters shown above. As done previously, we based oil prices primarily on data published by the United States Department of Energy (DOE) for the United States and for Petroleum Administration for Defense District (PADD)-III refiner's acquisition cost (RAQ) of imported oil and the wellhead prices of gas. We estimated the 1999 oil and gas prices as follows:

1. 1. As 1998 is not completed yet, we first estimated the 1998 annual prices. The Energy Information Administration had published monthly data for U.S. RAQ imported oil and wellhead gas prices for January to July 1998. For August and September 1998, we inferred RAQ and wellhead prices from available spot price data. For oil, we assumed that the 1998 annual price is equal to the average of the January-September prices. In support of this assumption, we did a statistical analysis using 20 years of data. This analysis showed that the differences between the 9 months' averages and the yearly averages are distributed on both sides of zero, in the case of oil, and it is 95 percent certain that the 1998 U.S. RAQ imported oil price will be between $12.11 and $12.84. We made a partly analogous assumption to obtain the 1998 gas price. However, for gas, the 9 months' averages tend to be lower than the yearly averages, thus we made an adjustment to yield the estimate of the 1998 gas prices.

2. We estimated the 1999 mean U.S. RAQ imported oil and wellhead gas prices as the averages of the preceding 3 years' annual prices.

3. To estimate maximum and minimum prices for 1999, we calculated confidence intervals based on sample standard deviations from historical annual data. Historical data for oil covered 1978-1997, and for gas covered 1988-1997. For oil, we used the 25-percent confidence interval and for gas the 10-percent confidence interval. In specifying triangular probability distributions of oil and gas prices, the mode price is the same as the mean.

4. For oil, we factored down the 1999 prices to the PADD-III level by multiplying by

0.977 (which is the ratio of the PADD-III price to the U.S. price in 1997).

We specify a direct dependency of the starting gas price on the starting oil price that RSVP selects on each trial.

Price Adjustments ☝ Our starting oil prices apply to 30☜ API gravity crude oil. Our starting gas prices apply to 1,028 British Thermal Units (BTU) per cubic foot of gas. You may specify gravity differences or hydrocarbon content differences for your field. You must certify that such quality differences exist and provide complete justification for the amount you specify.

The RSVP model computes oil quality price adjustments for each trial from the 30☜ API basis using the following table:

RSVP Viability Module Oil Quality Adjustment Table

API Gravity	Price Adjustment
65.0☜	($2.13)
45.0☜	$0.87
41.0☜	$0.87
35.0☜	$0.75
30.0☜	$0
0.0☜	($4.50)

The model interpolates the price adjustment it uses for gravity values between those in the table. For example, if your crude oil has an API gravity of 37.6☜ on a trial, then the interpolation between price adjustment values $0.75 and $0.87 uses the following equation:

$$[((37.6 - 35)/(41 - 35)) * (0.87 - 0.75)] + 0.75 = \$0.802$$

The model would increase whatever starting oil price it picked on that trial by $0.802.

The RSVP also increases or decreases the starting gas prices for BTU content above or below the standard of 1,028 BTU per cubic foot of gas. The size of the adjustment on each trial depends on the price and BTU content sampled. For example, if the model picks a BTU content of 950 BTU/cf together with a starting gas price of $2.00/Mcf, it adjusts the starting price actually used on that trial by the ratio of trial-specific BTU content to standard BTU content (950/1,028). The resulting starting gas price used on this trial would be $1.85; i.e., $2.00 * (950/1,028).

Real Price Growth Rates ☝ With the exception of the growth rates for the period 1999-2010, the annual growth rates are the same as the rates published in the superceded NTL 98-02. The reason is that DOE has not published a new long-run forecast since May. (A new forecast will appear in the *Annual Energy Outlook, 1999.)* We adjusted the first period growth rates, however, to reflect the lower starting prices estimated for this NTL. Our general approach was to assume that the prices reached by 2010 would be nearly the same as the 2010 prices implicit in the superceded NTL 98-02, however, we lowered these 2010 targets slightly to reflect recent experience. We set the growth rates 1999-2010 to connect the new starting prices and the new 2010 targets.

The real gas price growth rate 1 (RIGP) has a direct dependency on the real oil price growth rate 1 (RIOP). The RIOP2 has a direct dependency on RIOP, and RIGP2 has a direct dependency on RIOP2.

Discount Rate Range ☝ We offer a range of annual real, before tax, rates from which an applicant can choose a value for the purposes of this report. The value you chose must be used for all other analyses performed in connection with the application.

Tax Rate ☝ We use the Federal income tax rate in determining after-tax sunk costs.

Random Number Seed ☝ This is a seed number used to start the random number generator in the model.

Overhead Cost Allowance ☝ An overhead allowance rate that you may use for certain joint costs which you are unable to allocate clearly to your particular field. The cost categories included are: Labor, Material, Abandonment, and Other Costs, as defined in the *Appendix I to NTL No. 98-3N: Guidelines for the Application, Review, Approval, and Administration of the Deep Water Royalty Relief Program*, November 1998.

Paperwork Reduction Act of 1995 Statement: Any collection of information that we mention in this NTL and its guidelines provides clarification, description, or interpretation of requirements contained in 30 CFR part 203. The Office of Management and Budget has approved our collection of information required by these regulations and assigned OMB Control Number 1010-0071. These guidelines do not impose additional information collection requirements that would be subject to the Paperwork Reduction Act of 1995.

Chris C. Oynes, Regional Director

Chris C. Oynes