

established over the period October 26 through November 25 would be applied to the average of the daily NYMEX prompt month prices published for each day in the month of December. The grade differential is the WTI spot price for the period October 26–November 25 less the Kern River spot price for the same period. Assuming the WTI value is \$29.00 per barrel and the Kern River value is \$20.00 per barrel, the negative \$9.00 per barrel differential would be added to the NYMEX calendar month average price corresponding to the month of production (without weekends or holidays). Using the same NYMEX value, \$29.50 per barrel, as in the previous example, the royalty value calculation would be as follows:

(Trading month CA spot oil assessment – Spot WTI assessment) + NYMEX calendar month average (\$20 – \$29) + \$29.50 = \$20.50 applied to all December royalty volumes that are valued as not sold under an arm's-length contract.

Because the proposed new valuation method uses new oil types and locations as its basis, location and quality adjustments must be made to the current basis (ANS) to make a meaningful comparison of values calculated under the proposed and current rules. Estimating the proper adjustments with precision is very difficult.

For example, again using Kern River crude oil to compare to ANS, there are significant differences in quality (13.4 degrees for Kern River and 29.5 for ANS) and in location (Kern County, CA and Long Beach, CA). The sulfur content of the two oils is nearly identical, so no sulfur price adjustment is needed. Gravity differential estimates can vary significantly because California posted price adjustment scales vary from \$0.15 per degree API gravity to \$0.25 per degree or more. The gravity adjustment range would then be from \$2.42 to \$4.03 per barrel.

The location differential can be estimated by the use of a tariff between points in Kern County to Long Beach. These tariffs currently range between \$.75 and \$1.25 per barrel.

Depending on how these differentials apply in specific cases, the result could be deductions from the ANS price from \$3.17 to \$5.28 per barrel in order to compare the adjusted ANS price to value calculated under the proposed rule. The result could be an overall royalty increase or decrease. Applying the high gravity and location adjustments above to the ANS price from 1999 through 2002 would result in an adjusted ANS price about \$1.00 per

barrel lower than the price derived under the proposed rule. Applying the low gravity and location adjustments to the ANS price would result in a value about \$1.00 above the price derived under the proposed rule.

In estimating the impact of a change to NYMEX valuation, we made several assumptions in addition to the \$1.00 per barrel increase or decrease. For California we assumed that 50 percent of all Federal barrels would be valued under the non-arm's-length provisions, that the offshore royalty rate is one-sixth and onshore royalty rate is one-eighth, and that volumes taken in kind in the small refiner program are 10,000 barrels per day. We then subtracted the volumes taken in kind and applied the \$1.00 per barrel figure to the remaining barrels assumed to be valued under the non-arm's-length provisions. We estimate a range of –\$2,120,650 to +\$2,120,650 per year in terms of higher or lower royalty payments. This range results because the location and quality adjustments can vary significantly. For Alaska we based our estimate on an average offshore royalty production of 1,600 barrels per day, and we assumed that all production would be valued under the non-arm's-length provisions. Using the same \$1.00 per barrel figure that we used in California, we estimate a range of –\$584,000 to +\$584,000 per year in terms of higher or lower royalty payments.

Rocky Mountain Region

Determining the impact of any proposed modification of the current pricing methodology for valuing oil not sold at arm's-length in the Rocky Mountain Region is also difficult. This is largely because there is no prescribed formula currently in place, but rather a series of benchmark procedures that lessees apply on an individual basis. Although this proposal does involve NYMEX pricing, it would apply only if and when the first two benchmark procedures (which rely exclusively on arm's-length values) are inapplicable. Where the third benchmark applies, valuation of Wyoming Sweet would rely on differentials between WTI at Cushing, Oklahoma, and Wyoming Sweet at Guernsey, Wyoming.

The proposed Wyoming Sweet valuation methodology is identical to that for California, with the obvious substitution of the Wyoming Sweet spot price for the California grades. For December production, the average value of Wyoming Sweet against WTI determined October 26th through November 25th applied to the NYMEX calendar month average becomes the basis of value:

(Trading month WY Sweet spot oil assessment – Spot WTI assessment) + NYMEX calendar month average.

We have compared prices under NYMEX adjusted for the grade differential (and not the “roll,” as discussed earlier) with prices calculated under the existing rule based on spot prices at Guernsey, Wyoming—the only market center in the Rocky Mountain Region. We used the same time period, April 2000 through December 2002, as we did for the Rest of the Country (see footnote 3). Over this period the monthly average spot price exceeded the adjusted average monthly NYMEX price by about \$0.04 per barrel. We have also performed this comparison back to the beginning of 1999 and find that the adjusted NYMEX price exceeded the monthly average spot price by about \$0.02 per barrel over the entire period January 1999 through December 2002. To illustrate the highest potential cost to industry, we chose the \$0.02 per barrel increment of NYMEX over spot as the basis for our benefit and cost estimates.

In estimating the impact of a change to NYMEX valuation, we made several assumptions in addition to the \$0.02 per barrel increment. First we assumed that 50 percent of all Federal barrels would be valued under the non-arm's-length provisions. Then, because there are four non-arm's-length benchmarks in the Rocky Mountain Region and only the third benchmark would rely on NYMEX prices, we assumed that 25 percent of all Federal barrels that are valued under the benchmarks would be valued under each of the benchmarks and hence only 25 percent of those barrels would rely on NYMEX prices. (None of the other three benchmarks would change.) Thus 12½ percent of all Federal barrels would be valued under the third non-arm's-length benchmark. We also assumed that the royalty rate is one-eighth, and that volumes taken in kind (these are from Wyoming only) would be about 4,000 barrels per day. We then subtracted the volumes taken in kind and applied the \$0.02 per barrel figure to the remaining barrels assumed to be valued under the non-arm's-length provisions. We estimate higher royalty payments to be about \$11,738 per year.

(2) Expected Royalty Reduction—

(i) Increase Rate of Return in Non-Arm's-Length Situations From 1 Times the Standard and Poor's BBB Bond Rate to 1.5 times the Standard and Poor's BBB Bond Rate

The MMS does not routinely collect detailed allowance information, such as affiliation between the payor and transporter or the cost components used