

APPENDIX 4

COMPANIES' USE OF ANS CRUDE OIL TO VALUE

CALIFORNIA CRUDES

INTRODUCTION

The interagency team spent considerable time addressing crude oil purchase and sales contracts obtained in lawsuits filed by the City of Long Beach and the State of California. The files compiled in the lawsuits (hereafter referred to as the Long Beach files or suit) also contained an abundance of inter- and intra-corporate correspondence related less directly to specific transactions. This appendix examines some of those records that are related to the companies' use of Alaskan North Slope (ANS) crude oil as a standard for establishing the value of California crude oil.

During the period under review by the team, ANS crude oil was the "incremental" crude supply for most refiners. Its primary seller, Sohio (later British Petroleum), had no refineries in California, so a large portion of its crude oil was sold outright in the market. The records discussed below show California refiners generally preferred purchases or exchanges of California crude oil because, at prevailing posted prices, profit margins were much higher than for the ANS alternative.

Therefore, the documents exhibit the extent to which the California oil pricing system, i.e., refiners' posted prices,

undervalued California crudes' values to the refiners. Since these refiners also produced California Federal crude, and to the extent they paid royalty on posted prices, the royalties they paid did not reflect the value of the crude oil to the company¹. In most cases, its real value is never seen in the contract transactions because the crude is either transferred to the refining arm of the company, or it is exchanged with another refiner for replacement crude oil.

Note that in the case discussions below, use of company names is avoided.

ANS VALUATION CASES

Case 1. Refinery Analysis

Date: Mid-1987

This appears to be part of an internal company refinery analysis that specifically values California crudes versus ANS crude oil. The first page shows that the profit margins for Kern River crudes were \$1.15 higher in 1987 than ANS crude if ANS was obtained at the spot price and the Kern River crude was obtained at its posted price plus transportation cost to Los Angeles.

Figures are also shown for Wilmington and Lost Hills (light) crude oils. The profitability of California crude, priced at

¹The MMS/SOL representatives do not agree that the difference in price between the ANS and postings provides a means to establish royalty value under MMS' regulations.

postings, compared to ANS, was substantially lower (and negative for Lost Hills) in 1985 and 1986. The second page shows this was because postings for California crude oil did not fall as fast in the price crash of 1986 as did the ANS spot price.

Other figures show that:

- o Low West Coast crude oil prices throughout 1982 to 1987 led to West Coast profitability \$1 to \$3 higher for ANS crude oil refined in California as compared to the Gulf Coast.

- o In addition to that advantage, San Joaquin Valley crude was \$1 to \$4 more profitable than ANS crude for California refiners between 1982 and 1985. This relationship reappeared at mid-1986.

Case 2. Intra-Company Memorandum

Date: January 9, 1985

This memorandum compares the profitability of two California refineries owned by the company. It observes that 27° API California crudes have refined values comparable to ANS crude. Example crudes given are Signal Hill (Long Beach), Belmont Offshore, and Buena Vista Hills which, it is noted, were priced \$2.50 to \$3.00 under ANS crude.

While observing that ANS is worth significantly more than California crudes at a lube refinery, the memo notes,

However, most refiners running 27° API California crudes would seem to be at a distinct crude cost advantage compared to a refiner buying ANS at \$27/BBL. Refiners of heavier California crudes would see an even greater advantage. Heavy crudes are currently priced below light crudes even though they have refined values close to those of light crudes.

Case 3. Interoffice Correspondence

Date: August 3, 1982

This is a discussion of a 5-year contract to purchase from an independent producer 2,500 b/d of 14° API Wilmington crude oil at the purchaser's posted price for Wilmington crude oil. The crude would be input to the company's coker rather than purchased residual oil. The 8/3/82 memo observed that, at posting, the crude oil offered a \$2-\$3 per barrel advantage over the residual fuel, and,

In addition, Wilmington crude provides an advantage of \$4-\$6/B versus North Slope, which is the industry swing crude on the West Coast.

Initial deliveries would be by truck at the purchaser's expense (at \$0.75 per barrel), but the memo suggests building a pipeline to the production site at a cost of \$105,000--which could be "easily justified." The memo notes that,

The pipeline connection could be advantageous in securing renewal after the 5-year term expires.

Case 4. Interoffice Correspondence

Date: September 17, 1982

This memo and supporting analysis discusses displacing ANS crude oil at the company's Los Angeles refinery with California heavy crude oil. The primary correspondence recounts a meeting in which the refining arm of the company met with the production arm to discuss expansion of the company's heavy crude production. The refinery participants indicated,

Current (marketing and refining) economics favor processing California crude vs. ANS by approximately \$5/bbl....

and

Because of the economics, we plan to purchase all the heavy California crude we can at posting, whether it's (the company's) E&P production or others. ANS will continue to be the swing crude.

The background material included describes the history of the refining company's newly-found interest in heavy crude oil as related, in part, to elimination of price controls in the United States. In the late 1970s, according to the memo,

...controlled prices did not reflect the actual crude refining values. The crude cost differential between California heavy crude and Alaskan North Slope was only \$1.29 per barrel, versus a refining value differential of \$1.81 per barrel.

The memo also discussed a 1983 expansion of the company's San Joaquin Pipeline that would enhance the company's ability to acquire heavy crude oil for refining.

Case 5. Internal Memorandum--Economics of Refinery Hydrotreater

Date: December 11, 1984

This is part of a strategy document on marketing and refining objectives for a major refiner in California. The part of interest to this study is a discussion of the economics of processing offshore California crudes versus ANS crude. The company was considering the construction of a hydrotreater to remove sulfur from the "low quality" offshore crudes that were just beginning production in 1984. The memo observed that offshore crude was emerging as onshore crude production declined, and that,

The alternative to both these low cost, low quality crudes...is the Alaskan North Slope crude which is better quality but higher price.

The memo contains several tables showing the differential between ANS and California crudes as \$6 - \$7 in the 1981-84 period. Building the hydrotreater permitted processing higher-sulfur offshore crude rather than purchasing lower-sulfur ANS crude.

The company estimated that choosing the cheaper California crude rather than ANS crude would give the hydrotreater a 20 to 23 percent rate of return (expressed as a discounted cash flow relative to the alternative of simply purchasing ANS crude). It

further noted that, should the differential drop to \$3, the rate of return still would be an "acceptable" 15 percent.

Interestingly, appended to this late 1984 memo were February 1985 charts that began to track the decay of the differential in early 1985. This situation was discussed in Case 1.

Case 6. Internal Memorandum--"Downstream Competitor Analysis"

Date: November 16, 1981

This is an extract table from the company's "Phase II Near Term Downstream Competitor Analysis Study" for a PAD V medium conversion refinery. The table compares San Joaquin Valley and Ventura Avenue crudes to North Slope crude on a refinery yield basis. Specifically, the ANS crude is labelled the "base" and the other two crudes' profitabilities are compared to it.

Details are:

- o Pricing for the two California crudes is posting plus freight to the company's refinery; for ANS it is the West Coast delivered price.
- o Refinery operating costs are subtracted before considering the profit picture.
- o ANS profit per barrel after costs is \$2.94.
- o Compared to the ANS "base" profit of \$2.94, San Joaquin Valley crude (at 16.2° API) is \$4.74 more profitable,

and Ventura Avenue (at 30.9° API) is \$3.38 more profitable.

Case 7. Internal Analysis--"ANS Parity Crude Prices"

Date: July 30, 1981

This analysis compares ANS crude to Arab Light and six California crudes (Wilmington, Long Beach, Ventura Avenue, Buena Vista Hills, Belridge Heavy, and Hondo). Prices used are postings for California crude, Sohio's ANS sales price, and the Arab Light official sales price.

Refinery values relative to ANS are used to adjust the posted prices of the California crudes to produce an "ANS parity price". The documentation concludes that:

California parity prices fall about \$4/B below the ANS market price. At current product price levels running California crudes in conversion capacity appears attractive even when the RSFO (residual fuel oil) is assumed sold on the Gulf Coast.

A note in the margin relative to this point, written by one of the company recipients, says:

Stated another way Calif crudes are underpriced by 4\$/B

Case 8. Internal Analysis--"...Heavy Crude Project, Summary of Economics"

Date: June 16, 1983

This is a summary of the benefits of a high conversion heavy crude processing unit at the company's refinery. The company was considering running San Joaquin Valley (SJV) oil in California and moving its ANS supply to the Gulf Coast. The summary table in the Long Beach records is reprinted below:

SUMMARY OF ECONOMICS

\$/B

Cost advantage of California crude (SJV) over North Slope	1.50
Value added by high conversion facilities	1.94
Processing of North Slope in Gulf vs. South Louisiana backed to sales	<u>1.02</u>
Incentive to run SJV at (California refinery), backing North Slope to (Gulf)	4.46

This is a clear case of deciding to refine SJV crude oil in California, rather than ANS crude, based on its price and value compared to ANS crude. The backup tables to the one above provide details of each line in the summary table. The one that establishes the value of SJV begins with the SJV posting, adds a gravity adjustment up to ANS API gravity (at \$0.15 per degree), then concludes that SJV has a \$1.60 "advantage" over ANS crude before the conversion unit effect is considered (its unclear why the \$1.60 does not agree with the \$1.50 in the summary table). Wilmington crude is examined also.

Case 9. Internal Correspondence--Pros and cons of using various approaches for valuing ANS production

Date: December 29, 1980

In this exchange, two company officials are debating the pros and cons of various methodologies to place a wellhead value on ANS production. The effort was necessary to satisfy requirements imposed by the State of Alaska and the Commissioner of Revenue to value the company's ANS production for tax and royalty purposes.

Five different approaches were proposed that employed external prices to establish a lower 48-State value for ANS crude. Two of the approaches involved use of California crude oil postings. On the "con" side of the discussion, the author, in many places, cites the underpricing of West Coast crude oil, the problems with focusing attention on California postings, and the problems with explaining why the postings were so low.

This memorandum provides a look at the ANS valuation problem from a different perspective compared to the case studies above. In the above cases, the companies routinely justified purchases of California crude oil by observing its low price and high refined value relative to ANS. Here, the industry officials recognized that California crude oil postings were too low to use directly as credible estimates for the value of ANS crude oil in California, even though it would have been in their financial interest to do so. Their reasoning was that attempting to value ANS crude using California postings would result in rejection by

the State revenue agencies and undesired attention on the low price basis embodied in the California postings.

Case 10. Internal Correspondence--Describes justification for paying several dollars/barrel over posting; values crudes relative to ANS

Date: October 25, 1984

This internal memorandum discusses potential sources of crude oil on the West Coast for the crude-short refiner. It contains an observation that spot prices for some California crude oil were \$1 to \$3 over postings and that no crude oil was available at the company's posting. Other parts of the memo discuss extension of a long-term contract with an independent producer. In that discussion, the refiner/author notes that the independent must sell to the refining company because it has a heated pipeline and no others are available.

Spreadsheets attached to the memo value a wide range of California crudes relative to ANS crude oil in a method similar to the approaches described above. Starting with posted price, the analysis adds transportation and refining "uplift," then compares the California values to ANS crude values. The result is that the California crudes are shown to be \$1.64 to \$4.16 more profitable to the refiner, by virtue of their low posted prices, than ANS crude oil. The highest value differences tend to be for the heaviest crudes.

Case 11. Crude Oil Sale Contract Document

Date: June 13, 1984

This is documentation of the company's decision to sell a quantity of California crude oil to another at posting plus \$1.75. While the \$1.75 is cited as a gathering and handling charge, in the remarks section of the document, the seller notes that the buyer must pay a "premium" to retain access to this crude oil. It further notes that, despite the premium, the buyer saves \$1.00 to \$1.50 compared to the alternative ANS or foreign replacement barrel.