PLATT'S GUIDE TO PETROLEUM SPECIFICATIONS

EXHIBIT D

INTRODUCTION

The comments that follow in the detailed sections on specifications are intended as a guide to the basic parameters of Platt's assessments. They should only be read as an aid to interpreting Platt's assessments. It should also be noted that specifications may be altered in the future as trading patterns change.

There are general principles that underlie Platt's approach to market reporting. For example, Platt's generally looks for fixed-price spot transactions, confirmed bids and offers, market talk and relationships, if any, with other markets. Platt's reporters also generally look at the characteristics of individual markets and the foregoing methodology may be adapted especially in cases where fixed-price liquidity is lacking.

Assessments are always based on information available at the time of publication. Retroactive corrections will only be made thereafter when typographical errors, computer problems and the like have occurred. Retroactive corrections will not be made where new market information subsequently comes to light.

Platt's neither encourages nor solicits companies or individuals to use its price data in contractual arrangements.

Exhibit B

Comments of Professor Kalt, May 27, 1997

BEFORE THE
UNITED STATES OF AMERICA
DEPARTMENT OF THE INTERIOR
MINERALS MANAGEMENT SERVICE

Establishing Oil Value for Royalty Due on Federal Leases, and on Sale of Federal Royalty Oil

Comments of

JOSEPH P. KALT
Harvard University and The Economics Resource Group, Inc.
May 27, 1997

I. INTRODUCTION AND BACKGROUND

I am the Ford Foundation Professor of International Political Economy at Harvard University's John F. Kennedy School of Government. I am also a Senior Economist with The Economics Resource Group, Inc., a private consulting firm located in Cambridge, Massachusetts. My business address is One Mifflin Place, Cambridge, MA 02138. A copy of my curriculum vitae is attached as Exhibit A to these comments.

I am submitting these comments in response to the Notice of Proposed Rulemaking ("NOPR") regarding *Establishing Oil Value for Royalty Due on Federal Leases, and on Sale of Federal Royalty Oil* issued by the Minerals Management Service ("MMS") of the Department of the Interior ("DOI") on January 24, 1997 and published at 62. Fed. Reg. 3742. These comments are made on behalf of Amerada Hess Corp.; Amoco Production Co.; Chevron U.S.A., Inc.; Conoco, Inc.; Exxon Corporation; Marathon Oil Co.; Mobil Oil Corp.; Mobil Producing Texas & New Mexico, Inc.;

Phillips Petroleum Co.; Shell Western E&P Inc.; Texaco Exploration & Production, Inc.; Texaco Trading & Transportation, Inc.; and Union Pacific Resources Co. These parties have retained me in connection with pending litigation in a number of matters involving crude oil pricing and royalty payments.

In the course of my work on the foregoing matters, I have acquired extensive data and evidence regarding the posting of crude oil prices, crude oil transactions at leases and at downstream trading centers, and royalty payments by crude oil working interest owners in the U.S. In addition to this information and background, I have extensive experience in issues regarding market structure and the valuation of natural resources, including crude oil and natural gas. I have conducted research and published widely on matters of competition, pricing, regulation, market structure, and related economic issues in the natural resource sector, particularly oil and gas. I am the author of *The Economics and Politics of Oil Price Regulation: Federal Policy in the Post-Embargo Era*, *Drawing the Line on Natural Gas Regulation* (ed. with F.C. Schuller), and numerous other professional publications. I have also provided expert testimony related to the economics of competition and valuation in oil, gas, and other natural resource industries in matters before numerous courts, state and federal agencies, and the United States Congress.

II. ANALYSIS AND FINDINGS

In connection with my retention for expert analysis on behalf of the aforementioned parties, I have conducted an intensive examination of the domestic

market that exists for crude oil at the lease level. As a result, I have acquired a large database and related information on arm's-length transactions occurring at the lease level in U.S. crude oil fields. These data bear directly upon the proposed rule at issue in this proceeding.

My examination of arm's-length transactions at the lease has revealed at least three particularly relevant findings.

1. There is an active market at the lease (or "wellhead") level. This market is highly competitive and involves major and minor integrated and non-integrated producers on the supply side, and numerous large and small integrated refiners and a very large number of independent marketers and brokers on the buying side.

2. The sustained existence and growth of more than one hundred non-integrated independent marketers who buy crude oil in transactions at the lease indicate a highly competitive system in which differences between wellhead values and values realized downstream from the lease represent real value that is added downstream from the wellhead. If these independent marketers, some of whom rank among the very largest of the first purchasers of crude oil, did not add value downstream of the wellhead, they would not survive the competition among the many purchasers of crude oil at the lease.

3. The actual transactions at the lease reveal market values that commonly vary significantly with supply and demand factors that are specific to individual locations, leases, and transactions.

The data that I have collected and reviewed covers the period since the early 1990s, and includes several hundred thousand outright purchase and sale transactions recorded in the course of business by large and small oil companies and independent marketer companies transacting at leases in Texas, Oklahoma, and New Mexico.[1] These data reveal that arm's-length, comparable transactions in a given oil field at any given point in time consistently occur within a range of prices, rather than at a single, common price. This range demonstrates the influence of highly localized supply and demand factors which cause value differences of significant magnitudes even among comparable arm's-length transactions occurring in the same field at the same time.

A number of important understandings emerge from the examination of the range of prices within which crude oil is actually transacted. First, the range of outright arm's-length transaction prices defines the observable range of market values of crude oil at the lease. Market values at a lease lie within a range because individual transactions at the lease are tailored to fit supply and demand factors specific to particular leases, crude oils, and transacting parties. The range of transactions prices revealed at the lease level is not the product of uncompetitive behavior or poorly informed or poorly skilled market participants. Rather, a highly competitive group of numerous market specialists, epitomized by brokers and marketers numbering in the hundreds, ensures a competitive and well-functioning marketplace. The existence of a range of prices in transactions at the lease is in no sense inconsistent with a well-functioning market; it is the expected outcome of a demonstrable process of competitive tailoring of transactions.

[1] Outright purchases and sales exclude transactions, such as buy-sell or exchange transactions, in which crude oil at other locations is commonly included as consideration.

Second, I find that the range of posted prices commonly observed at particular oil fields quite consistently lies within the range of the proceeds realized by sellers in outright arm's-length transactions occurring at the leases in those same fields. Stated differently, the range of market values revealed by outright arm's-length transactions generally spans the range of posted prices. To determine whether any particular transaction, arm's-length or otherwise, reflects market value requires information about conditions specific to that lease, the crude oil involved, particularized transportation costs, and the particular transaction. That is, whether or not the price employed in a specific transaction reflects market value at the lease can only be determined by taking into account the attributes of that specific transaction.

By analogy, the proper economics for appraising the market value of a crude oil transaction at the lease is illustrated better by the familiar economics of appraising the market value of homes in a neighborhood than by the economics of homogeneous commodity transactions on an organized exchange. The MMS' proposed rule inappropriately adopts the latter framework as its explicit method for appraising crude oil value at the lease. In fact, the MMS' proposal to work back from crude oil prices on the New York Mercantile Exchange ("NYMEX") and from quoted market centers is unsupported by both basic economic principles and the evidence from actual arm's-length transactions. Because transactions at the lease level are not homogeneous, the use of NYMEX or market center prices in the manner proposed by MMS could result in significant under or over payments of royalties on federal crude oil.

The basis upon which the MMS relies, in part, for rejecting lease level transaction prices and for proposing, instead, a NYMEX/trade center methodology for valuing crude oil at the lease entails, the observation that NYMEX/trade center values netted back to specific locations for transportation costs and/or location differentials commonly exceed the level of posted and outright transaction prices. Inferences and intimations that such "gaps" in value reflect lease level prices that are below fair market value as a result of purported self-dealing by integrated crude oil purchasers or uncompetitive behavior at unspecified locations downstream from the wellhead are unfounded and inconsistent with sound economic reasoning. Assertions that ownership of refining and pipeline capacity or the use of exchanges by integrated oil companies result in monopsonistic restrictions of the demand for crude oil and attendant price suppression would (if borne out[2]) imply lower trade center prices and/or netbacks, but would not imply a "gap" between values netted back from trade centers and values observed in arm's-length lease transactions.

My research indicates that arm's-length transactions at the lease level provide accurate measure of the fair market value of crude oil at the lease. Moreover, as noted, the evidence is clear that posted prices of crude oil, which are publicly known in the oil industry, are consistently within the range of the market values revealed in arm's-length transactions at the lease. The "gaps" that can be observed between such values and prices netted back from selected trade centers are not components of the *wellhead* market value of crude oil. The "gaps," in fact, are the market's measure of the value of broker and

[2] Such assertions are, in fact, not supported by the evidence. Conclusions that the *facts* of vertical integration and/or exchanges result in uncompetitive marketplace results or otherwise depressed wellhead values for crude oil represent incompetent economic analysis.

marketer services and functions performed downstream of the wellhead. Indeed, it is these "gaps" that are the source of revenue of independent marketers who purchase at the lease and resell at trade centers (or other downstream locations). The services such parties perform, and that are similarly performed within vertically integrated purchasers, include: downstream gathering and aggregation; transportation arrangement and risks; price and volume risk-taking; storage at receipt or delivery points; development and application of marketing techniques; development and application of information and expertise regarding types of crude oil, sellers' preferences, customers' needs, and market volatility; and handling of transaction costs.

A netback methodology that deducts transportation or location differentials from prices observed in transactions occurring at trade centers, including the NYMEX, is inherently remote from the lease level of the value-added chain. Such a netback methodology fails to account both for the demonstrable dependence of market value at the lease on supply and demand factors particularized to leases and transactions, and for the value added to crude oil by downstream marketing functions. As a result of these factors, the netback methodology proposed by MMS would fail to measure accurately market value at the lease, and would also tend to produce prices that are generally higher than market value at the lease by amounts reflecting value added downstream through marketing functions.

In fact, implementation of the MMS netback methodology would result in a federal levy on such downstream services and functions under the name of collection of federal royalties on the value of federal crude oil at the lease. This is contrary to the

economics applicable to valuation of vertically integrated functions (which makes reference to transactions by not-integrated parties in determining the proper dividing line between the value components of a vertically integrated production chain). The proposed rule would also discourage the efficient provision of downstream marketing services and functions, particularly by firms with any degree of vertical integration between crude oil production and downstream crude oil use. This is wholly contrary to the public's interest in a healthy and competitive oil industry and economy.

III. CONCLUSION

In summary, the sustained existence of a multitude of independent firms that perform downstream marketing services and functions evidences the facts that: a) "gaps" between netted back trade center values and lease values are compensation for value added downstream of the wellhead, and b) it is not plausible to conclude that such "gaps" are the product of other than a competitive market for crude oil at the lease. Seen in this light, it is clear that the MMS' proposed rule for valuing crude oil at the lease via its proffered netback methodology arises in the context of classic misunderstanding and populist mistrust of "middleman" functions of the type performed downstream of the wellhead by brokers, marketers, and integrated companies. While this is a recurring theme in U.S. politics, its pursuit in the face of the evidence and economics that I have reviewed here is poor public policy.

Respectfully submitted,

Joseph P. Kalt
The Economics Resource Group, Inc.
One Mifflin Place
Cambridge, Massachusetts 02138

Exhibit C

Memorandum from Jerry Hill, Associate Director for Royalty Management, to Director, Minerals Management Service, dated February 12, 1987.

Exhibit

United States Department of the Interior

MINERALS MANAGEMENT SERVICE
ROYALTY MANAGEMENT PROGRAM
P.O. BOX 25165
DENVER, COLORADO 80225

IN REPLY REFER TO:
MMS-RVS-EVB:86-1088
Mail Stop 653

FEB 12 1987

Memorandum

To: Director, Minerals Management Service

From: Associate Director for Royalty Management

Subject: Review of Analysis Titled "Crude Oil Royalty Valuation Monitoring System," by Bob Berman, Policy, Budget, and Administration

By memorandum of November 21, 1986, the Deputy Assistant Secretary, Policy, Budget, and Administration (PBA), suggested to you that further study be done of market-based approaches to royalty valuation under non-arm's-length conditions. He included an analysis dated November 28, 1986, by PBA's Bob Berman, who suggests the application of oil futures or spot prices as an alternative valuation methodology. Our comments on this analysis have been requested.

It is obvious that considerable thought and effort have gone into Mr. Berman's analysis. However, the inescapable conclusion is that, for purposes of oil royalty valuation, the application of futures and/or spot prices would be either contrary to existing law, lease terms, and regulations, or too impractical and nonspecific to administer. Listed below are our specific comments:

-- The Mineral Leasing Act of 1920 (Section 17(b) and (c)) states that royalty shall be based on the amount or value of production removed or sold from the lease. The Outer Continental Shelf Lands Act of 1953 (Section 6(a)(8)) states that royalty is due on the amount or value of production saved, removed, or sold. There can be little doubt that the value of production removed or sold was intended to be the current value, for which a futures price would be inapplicable.

-- Similarly, the various Federal and Indian leases require royalty on the amount or value of production removed or sold. Once again, futures prices would not, except coincidentally, reflect values of production sold currently.

FOIA
MMS1001522

The existing regulations dealing with oil valuation, both onshore and offshore, address value of production, at the time of production or sale, for computing royalty. The regulations at 30 CFR 206.103 (onshore) state that, in the absence of good reason to the contrary, value based on the highest price paid or offered at the time of production for the major portion of like-quality products from the same field or area will be considered reasonable value. Similarly, the regulations at 30 CFR 206.150 (offshore) state that "Under no circumstances shall the value of production be less than the gross proceeds accruing to the lessee. . . ."

These regulations require leasehold oil production to be valued as of the time of production and/or sale. Hence, any attempt to apply a futures price for royalty value purposes would necessarily incorporate the market's assessment of the level of oil prices at some future date. Obviously the futures prices would not necessarily be reflective of current market price levels as required by regulation.

Though it may be suggested that current regulations could be changed to effect changes to royalty provisions of future leases, it is important to note that such rulemaking would need to conform with existing statutes. As previously mentioned, existing statutes indicate a royalty based on current value. Consequently, a change in statutory, as well as regulatory, language may be necessary to issue new leases with royalty provisions tied to futures values.

Application of spot prices in valuing non-arm's-length disposals of lease production would not be specific. Spot prices are available only for a limited number of "benchmark" domestic crudes delivered at specific points; e.g., West Texas Intermediate at Cushing, Oklahoma. It is not clear how spot prices would be adjusted for differences in quality or necessary transportation between that of the "benchmark" crude and that of the crude to be valued. An adjustment for differences in API gravity alone, for example, while a reasonable price adjustment mechanism for oil produced in the same field or area, does not necessarily reflect true value differences when comparing crudes from distant areas. The price differences in crude oil nationwide depend upon a host of factors not limited solely to gravity and transportation adjustments. Factors important to the establishment of value of a particular crude include the need for and availability of crude oil supply, the cost of transportation to the refinery, the chemical composition and refining characteristics of the crude oil, the cost to refine the particular crude, the mix of refined products derivable from the crude and their values, prices currently paid or offered for the same or comparable crudes, and other economic criteria. Posted prices, which exist in all the important producing areas, reflect all these considerations; "benchmark" spot prices, on the other hand, cannot relate these factors specifically to each producing area. The same is true for futures prices, which also relate to a few "benchmark" crudes only.

FOIA
MMS1001523

-- Mr. Berman's analysis speaks to "market-based" alternate valuation procedures; i.e., futures and/or spot prices. The implication that posted prices are not market prices is, of course, true to the extent that postings are offers to buy and do not always reflect prices actually paid. Postings are, however, driven by the market, are sensitive to market changes, and are adjusted as market conditions require. While posted prices may, on occasion, vary slightly from actual market prices, they are undoubtedly market based. The MMS would be hard pressed to defend a position that futures prices are better, more accurate, and more current measures of royalty value for current production than are concurrent posted prices.

-- Posted prices are widely available. They exist for nearly all fields and areas for which royalty valuation is necessary. Further, since a field posting relates to oil with the same general quality characteristics, quality-based price adjustments are simple and accurate. The same cannot be said for application of spot or futures prices for royalty valuation purposes.

-- A real inconsistency would develop if prices received under arm's-length conditions were accepted for royalty valuation purposes while futures prices were applied to non-arm's-length transactions. Two entirely different valuation standards would exist. (We agree that non-arm's-length transactions should receive a higher monitoring priority, and generally be investigated more thoroughly than arm's-length transactions. However, the standards to which each type of transaction is held should be as similar as possible.) If arm's-length prices are acceptable for royalty valuation purposes, a reasonable proxy for current non-arm's-length prices is not a futures price, but, rather, an assessment of what is currently being obtained under arm's-length conditions.

In summary, even though Mr. Berman's analysis is a scholarly study which provides insight into the workings of the oil futures market, we must disagree with the application of oil futures or spot prices as a basis for royalty valuation in non-arm's-length situations. We have ignored the fact that the study covered a relatively short period of time (15 months) during which extreme pricing volatility took place, and we have not discussed other, more minor disagreements we have with the study. More important is the basic conclusion that, even if the study results do indicate that oil futures prices "lead" posted prices, this has no bearing on our valuation responsibilities. For royalty valuation purposes, we must apply market value existing at the time of production or sale. Whether postings are considered to lag futures prices or not, postings represent current offers to purchase oil and are adjusted as necessary to conform to market conditions. Further, oil futures and spot prices are available on such a limited basis as to make price adjustments for quality and/or transportation extremely difficult, if not meaningless.

FOIA
MMS1001524

It has been our policy in non-arm's-length situations to verify that the posting or other price to be applied for royalty purposes is consistent with prevailing arm's-length prices. This policy is, we feel, rightly extended in the proposed oil royalty valuation regulations. The continued acceptance of arm's-length postings or contract prices is seen as the most equitable, most practical, and most easily administered method of royalty valuation available. The widespread existence and acceptance of posted prices make them much more applicable to specific cases than oil futures or spot prices, both in terms of timing and necessary adjustments.

Jerry D. Hill

FOIA
MMS1001525

Exhibit D

Wyoming Asphalt Sour/West Texas Sour Comparison

EXHIBIT D

ELK BASIN CRUDE OIL (29° API)
BASED ON AVG. OF DEC. 1996 and JAN. 1997 DELIVERIES

	MMS PROPOSAL	EXXON'S POSTED PRICE
*NYMEX Price	24.19	
**Location Differential	(1.49)	
Actual Transportation	(0.55)	
	$22.15	$23.00

GENERIC WYOMING ASPHALT SOUR CRUDE OIL (23° API)
BASED ON AVG. OF DEC. 1996 and JAN. 1997 DELIVERIES

	MMS PROPOSAL	EXXON'S POSTED PRICE
*NYMEX Price	24.19	
**Location Differential	(1.49)	
Actual Transportation	(1.00)	
	$21.70	$21.80

* Average settlement price between 10/23/96 and 12/19/96.
** Platt's WTI at Cushing less WTS at Midland based on midpoint prices between 10/25/96 and 12/24/96.

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Exhibit E

Memorandum from Director Quarterman to Assistant Secretary, dated May 31, 1996, Land and Minerals Management

United States Department of the Interior

MINERALS MANAGEMENT SERVICE
Washington, DC 20240

MAY 31 1996

Memorandum

To: Assistant Secretary, Land and Minerals Management

From: Cynthia Quarterman Cynthia Quarterman
Director, Minerals Management Service

Subject: April 4, 1996, Letter from Congresswoman Carolyn B. Maloney

In a letter of April 4, 1996, Congresswoman Carolyn B. Maloney asked that the Minerals Management Service (MMS) look into the contract and invoices between Tosco Corporation and Texaco as a possible example that oil companies are not making the correct oil royalty payments to the Federal Government. In the course of MMS audit work investigating allegations of underpricing of crude oil in California, auditors examined Texaco sales for 1989 and 1993. The MMS auditors have identified a small amount of Texaco's production (6,700 barrels per day) that was sold to Tosco in November 1993. Tosco paid more than posted price for this oil; however, part of the incremental value may relate to transportation costs. MMS considers these payments above postings to be a combination of transportation costs and premiums. Texaco will have the opportunity to explain these payments above postings costs in the audit review process.

The letter also requested that we compare the price of oil produced from the Elk Hills Naval Petroleum Reserve (Elk Hills) with that of privately-owned oil and gas producers. The letter stated that Elk Hills would have the correct posted price. However, there is no posted price for crude oil produced from the Elk Hills field. There are a number of postings for other nearby San Joaquin Valley fields (e.g., Midway-Sunset, Buena Vista, Lost Hills, etc). The value of the Elk Hills crude oil is determined based on a sealed bid using posted prices as the base price. Elk Hills almost always receives a premium above posted price.

According to Innovation and Information Consultants (IIC), a consultant we hired on the California undervaluation issue, the average premium above bid minimum "base price" (based on the three highest postings in nearby fields) for Elk Hills production in 1984 was $1.81/bbl. Also, the average Elk Hills premium over a local posting was $0.39/bbl in 1989. Elk Hills oil is a higher quality crude (27-35 degrees API), which is more desirable for mixing with other crudes during transportation than the heavy crudes predominantly found in the San Joaquin Valley. This quality can avoid the need to access the few, more expensive heated pipelines available to transport heavy crude. Thus, any comparison to Elk Hill crude oil prices must consider its advantage in blending with various crudes as well as the quality adjustment for its relative gravity.

While we have examined information regarding Elk Hills pricing during our study, a comparison of the price of oil produced from Elk Hills to the royalty value of crude oil from Federal leases is not necessarily meaningful. The Elk Hills crude is in high demand in the San Joaquin Valley because it is much lighter than other crude in that area and can be used for blending. Finally, Elk Hills crude comprises a large portion of the limited amount of crude oil available to small refiners on the open market in California; therefore, it commands a higher price.

Exhibit F

SJV Example

EXHIBIT F

SJV (Kern River) Crude Oil Examples
(13° API gravity, 1% sulfur)

Crude Oil Disposition	MMS-Calculated Valuation		Spot Transaction
	Non Market Center Refinery Near Lease	Market Center Refinery (LA or SF)	Aggregation Point Near Lease
+ Spot price	18.08*	18.08*	14.05**
Estimated Transportation	(0.08)	(1.00)	(0.25)
	$18.00	$17.00	$13.80

* ANS Spot price per MMS proposal.
** Platt's Kern River spot price.
\+ Based on mid-point of Platt's quote effective April 16, 1997.

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